Understanding disaster risk management as an everyday concept and practice in municipal government policy, planning and management: learning from the experience of Santa Fe, Argentina, with urban flood risk

María Evangelina Filippi
I, María Evangelina Filippi, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.
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Navigating this journey would not have been possible without the unconditional support and love of my family. I want to specially dedicate this thesis to my grandma, who is my guiding star. Ger, thank you for always waiting for me (and my suitcases) at the train station and for making yours my home while writing some of these chapters. Mum and dad, no words are enough to recognise your constant encouragement, love and support; your commitment and passion in your own work have been my inspiration and source of energy in finalising this book.
Abstract

This research aims to enhance our understanding of the conditions that can enable and sustain urban disaster risk management (DRM) processes from the perspective of municipal governments as the leading organisations at city scale. Addressing DRM as an emerging and cross-cutting policy paradigm in medium-sized cities in low and middle-income countries, it explores how the municipal government of Santa Fe has appropriated the concept of DRM and incorporated it into its everyday work, while continuously accommodating to the dynamic conditions that define urban flood risk.

A broad-based theoretical foundation underpins this research, building upon the amalgamation of three strands of literature: policy process research, sociological institutionalism and network theory. With these interdisciplinary insights in mind, the institutionalisation of cross-cutting policy paradigms is proposed as a framework to analyse the incorporation of DRM in municipal governments. The framework considers emergence, embeddedness and sustained change as the phases of institutionalisation that unfold within a municipal government and across its relations with other organisations in networked spaces. An abductive logic of enquiry combined with a single-case study informs the research design. Santa Fe city, the first Argentinian municipality to adopt DRM as a policy paradigm, is analysed over 2007-2017. Primary data were generated during an eleven-month fieldwork, using qualitative research methods with a participatory approach.

The temporality of phases offers an alternative to the before, during and after event rationale. The focus on the entire municipal government provides a complementary perspective to sectoral approximations and overarching risk governance frameworks. The combination of these temporal and organisational perspectives identifies the features of each phase and key departments and networked spaces steering them. Ideas and ways of framing are central in the emergence phase, while securing a balance between the cross-cutting/specific nature of DRM becomes relevant when embedding the new paradigm in the core work of sectoral bureaus. Sustained change is stimulated by ‘satellite offices’ whose linking work across departments sharpens
awareness of alternatives for ongoing innovation. Networked spaces, including academia-policy interfaces, participatory spaces with auxiliaries and civil society organisations, and city-to-city networks are woven throughout each phase and leverage the process.


**Impact statement**

Academia-policy interfaces lie at the core of DRM institutionalisation processes and the findings and (potential) contributions of this thesis further confirm the argument. The impact of the research can be assessed not only inside and outside academia but mainly at the intersections between my research and public policy design. The participatory component of the research justifies considering the alleged benefits of the investigation during the lifespan of the doctoral research and in the future.

The focus on municipal governments entails that direct and immediate repercussions of the research expand across the policy arena. A participatory methodology resulted in knowledge co-production between research participants from the municipal government of Santa Fe and the researcher herself during fieldwork. Specific inputs made by the researcher to the DRM Office and Resilience Office where placements were conducted encompass: a feedback report with an assessment of the areas and policy recommendations; facilitation of UNDRR Scorecard self-assessment exercise with key municipal authorities and summary report; redesign of DRM website according to key terminology; co-design of maps to visualise the scope of the Water Route activity; writing news in English for *Santa Fe Resiliente* website.

The findings of the thesis can provide insights to other municipal governments in Argentina that are exposed to similar hydro-meteorological risks and share the socio-economic and political context. In light of a recently sanctioned national DRM law, these findings are potentially relevant to orient the institutional and organisational design to downscale the new normative framework to provincial and municipal government levels. Documenting the experience of Santa Fe can be equally useful for upcoming administrations in the city which might not be familiarised with the DRM policy paradigm. Expected dissemination channels comprise:

- joint publication with members of DRM Office and Resilience Office in *Medio Ambiente y Urbanización* (in Spanish), potentially to inform Working Group II Contribution to the IPCC Sixth Assessment Report;
• presentation to authorities and bureaucrats of the municipal government of Santa Fe upon my return.

This research informed, and was informed by, the elaboration of one of the UNDRR Words into Action guidelines to aid the implementation of the Sendai Framework 2015-2030. The guide transcends attention on a specific city and country to influence the design and implementation of urban DRM policies and the work of city governments across the world. It is open-accessed and available in English online: https://www.unisdr.org/we/inform/publications/57399

Research impact within academia includes contributions to disaster risk studies of an under-investigated framework in tandem with an exceptional empirical case. Research findings were shared in international conferences and seminars, including:

• IV Urban Planning Schools Congress (Rio de Janeiro, 2016)
• Latin American Studies Association Congress 2018 (Barcelona, 2018)
• RGS-IBG Annual International Conference 2018 (Cardiff, 2018)
• DPU EJUR Research Cluster seminar (London, 2019)

Research findings will be also disseminated in scholarly publications, including:

• A journal article entitled Levers of change: a role for municipal governments in managing disaster risk in medium-sized cities to be submitted to a high-impact urban/environment journal.

Methodologically, the thesis makes the case for the benefits of transdisciplinary and applied research and urges for further collaboration between local universities and municipal governments in advancing urban DRM processes. Linkages between academia and policy unveiled in this thesis can elucidate alternatives of how this could be taken forward. The way I conducted my research, synthesised in a blogpost in the municipal government’s website, might provide an example to be emulated in
DRM and other policy fields. http://santafeciuad.gov.ar/blogs/ciudad-resiliente/una-academica-de-la-university-collegelondon-colabora-con-la-oficina-de-resiliencia-de-santa-fe/
Table of Contents

ACKNOWLEDGEMENTS .................................................................................................................. 4

ABSTRACT ..................................................................................................................................... 5

IMPACT STATEMENT .................................................................................................................... 7

LIST OF BOXES ............................................................................................................................... 14

LIST OF FIGURES ........................................................................................................................... 15

LIST OF MAPS ................................................................................................................................. 16

LIST OF PHOTOS ............................................................................................................................. 17

LIST OF TABLES ................................................................................................................................ 18

LIST OF ACRONYMS ......................................................................................................................... 19

PART I SETTING THE SCENE ............................................................................................................ 21

CHAPTER 1 INTRODUCTION ............................................................................................................. 22

1.1 RELEVANCE OF THE TOPIC AND CASE STUDY .................................................................. 22

1.2 GAPS TO BE ADDRESSED BY THE RESEARCH ...................................................................... 28

1.3 MAIN RESEARCH QUESTION, SUB-QUESTIONS AND OBJECTIVES .......................................... 31

1.4 KEY CONCEPTS IN THE THESIS ............................................................................................. 34

1.5 RATIONALE OF THESIS STRUCTURE ..................................................................................... 36

PART II A REVIEW OF THE LITERATURE .......................................................................................... 40

CHAPTER 2 BUILDING THEORY ACROSS DISCIPLINES AND FIELDS .................................................. 41

2.1 INTRODUCTION .......................................................................................................................... 41

2.2 FROM MANAGING DISASTERS TO THE MANAGEMENT OF DISASTER RISK IN CITIES ............ 43

2.2.1 Risk and disasters ....................................................................................................................... 43

2.2.2 Disaster risk management and transformative development .................................................. 47

2.2.3 The urban and the role of municipal governments .................................................................. 51

2.2.4 The configuration of a new policy paradigm ........................................................................... 55

2.3 THE INSTITUTIONALISATION OF CHANGE IN THE MUNICIPAL STATE .................................. 58

2.3.1 Emergence and early adoption of new policy paradigms ....................................................... 62

2.3.2 Embedding cross-cutting policies in the everyday of municipal governments ............... 67

2.3.3 Sustained change: between responsiveness, adaptation and innovation .............................. 72

2.3.4 Organisational landscape and networked spaces ................................................................. 77

2.4 CONCLUSION .............................................................................................................................. 80
PART III RESEARCH DESIGN .................................................................................................................. 82

CHAPTER 3 RESEARCH APPROACH AND METHODOLOGY ................................................................. 83
3.1 INTRODUCTION ............................................................................................................................... 83
3.2 ABDUCTIVE RESEARCH STRATEGY AND EMBEDDED SINGLE-CASE STUDY ........................................ 83
3.2.1 Research participants ................................................................................................................. 92
3.3 RESEARCH METHODS FOR DATA GENERATION AND DATA ANALYSIS ........................................... 94
3.3.1 Data generation: case study evidence from multiple sources .................................................... 94
3.3.2 Data analysis: generating theory from lay accounts .................................................................. 103
3.3.3 Analytical framework ............................................................................................................... 106
3.4 JUDGING THE QUALITY OF THE RESEARCH DESIGN ................................................................. 109
3.5 ETHICAL CONSIDERATIONS AND LIMITATIONS OF THE RESEARCH ........................................... 112
3.6 POSITIONALITY ............................................................................................................................ 115
3.7 CONCLUSION ............................................................................................................................... 117

PART IV CONTEXT: HISTORICAL ACCOUNT OF SANTA FE AND IDIOSYNCYRASY OF ITS MUNICIPAL GOVERNMENT ..................................................................................................................... 119

CHAPTER 4 URBS, CIVITAS AND POLIS: THE SAME CITY, DIFFERENT PERSPECTIVES .............. 120
4.1 INTRODUCTION ............................................................................................................................... 120
4.2 URBS: FOUNDATIONAL LOCATION, URBAN EXPANSION AND EXPOSURE TO FLOOD RISK ...... 121
4.3 CIVITAS: SOCIO-ECONOMIC TRENDS SINCE THE RETURN OF DEMOCRACY ............................ 127
4.4 POLIS: IMAGINARIES OF THE CITY ............................................................................................. 133
4.5 LOCAL SCIENTIFIC KNOWLEDGE OF FLOOD RISK .................................................................... 136
4.6 MANAGING FLOOD RISK PRIOR TO 2008: STRUCTURAL AND NON-STRUCTURAL MEASURES 144
4.7 CONCLUSION ............................................................................................................................... 147

CHAPTER 5 THE CONFIGURATION OF THE MUNICIPAL GOVERNMENT .......................................... 148
5.1 INTRODUCTION ............................................................................................................................... 148
5.2 REPUBLICANISM AND FEDERALISM IN ARGENTINA .................................................................. 148
5.3 REPUBLICANISM AND FEDERALISM AT MUNICIPAL GOVERNMENT LEVEL .................................. 153
5.4 THE ’INUNDADORES’: THE ADMINISTRATIONS DURING THE DISASTERS OF 2003 AND 2007 160
5.5 THE FPCyS COALITION: THREE CONSECUTIVE MUNICIPAL ADMINISTRATIONS FOR THE ANALYSIS ................................................................................................................................. 163
5.6 CONCLUSION ............................................................................................................................... 168
PART V FINDINGS AND DISCUSSION: THE INSTITUTIONALISATION OF DISASTER RISK MANAGEMENT IN THE MUNICIPAL GOVERNMENT OF SANTA FE .............. 170

X-RAYING THE MUNICIPAL GOVERNMENT: THREE PHASES, THREE LENSES AND NETWORKED SPACES .......................................................................................................................... 171

CHAPTER 6 EMERGENCE: DISASTER RISK MANAGEMENT AS A ‘POLÍTICA DE ESTADO’ .......... 174
6.1 INTRODUCTION .............................................................................................................. 174
6.2 THE FIRST YEARS ........................................................................................................... 174
6.3 DISCUSSION - EMERGENCE ........................................................................................ 190

CHAPTER 7 EMBEDDEDNESS: THE EVERYDAYNESS OF DRM IN THE MUNICIPAL GOVERNMENT 197
7.1 INTRODUCTION .............................................................................................................. 197
7.2 THE DRM OFFICE: ORCHESTRATING CENTRIFUGAL AND CENTRIPETAL FORCES FOR PREPAREDNESS FOR RESPONSE AND RESPONSE ......................................................... 197
7.2.1 Discussion – Embeddedness I .................................................................................... 212
7.3 MAKING SENSE OF DRM SECTORAL SPECIFICITIES: FROM PREPAREDNESS FOR RESPONSE TO DRR 217
7.3.1 Operational bureaus: DRM in urban management ....................................................... 218
7.3.2 Department of Urban Planning and Habitat Agency .................................................... 232
7.3.3 Discussion – Embeddedness II .................................................................................... 240

CHAPTER 8 SUSTAINED CHANGE: BETWEEN A CULTURE OF PREVENTION AND INNOVATION ..245
8.1 INTRODUCTION .............................................................................................................. 245
8.2 DEPARTMENTS OF CULTURE AND EDUCATION: BUILDING A CULTURE OF PREVENTION .... 247
8.3 SELF-ASSESSING THE DRM PROCESS: SELF-REFLECTION FOR ONGOING LEARNING .......... 251
8.4 SATELLITE OFFICES: LINKING DEPARTMENTS AND PARADIGMS FOR EXPERIMENTATION IN MANAGING FLOOD RISK ................................................................................................. 255
8.5 DISCUSSION – SUSTAINED CHANGE ............................................................................ 259
8.6 CONCLUSION: REFINING THE LENSES ...................................................................... 264

CHAPTER 9 THE RELATIONAL SIDE OF INSTITUTIONALISATION: OTHER ORGANISATIONS, OTHER LOCAL GOVERNMENTS ..................................................................................... 270
9.1 INTRODUCTION .............................................................................................................. 270
9.2 ACADEMIA-POLICY INTERFACES IN EARLY ADOPTION ............................................. 272
9.3 BEST PRACTICES OF A ROLE MODEL: WORKING WITH OTHERS FOR AN ORGANISED RESPONSE 275
9.4 NETWORKS OF CITIES: TOWARDS A PEDAGOGY FOR CHANGE ..................................... 280
9.4.1 Neighbouring municipalities and the promises of a metropolitan area......................... 281
9.4.2 Looking outwards: regional and international platforms for DRM.............. 285
9.5 DISCUSSION – THE RELATIONAL SIDE OF INSTITUTIONALISATION........................... 290
9.6 CONCLUSION: CONCEPTUAL CLARIFICATIONS......................................................... 294

PART VI CONCLUSION: TOWARDS AN INSTITUTIONALISATION FRAMING OF URBAN DISASTER RISK MANAGEMENT................................................................. 296

CHAPTER 10 CONCLUSIONS .............................................................................................. 297
10.1 KEY FINDINGS AND CONTRIBUTION TO KNOWLEDGE ........................................... 297
10.1.1 Phases and temporality of DRM processes............................................................. 298
10.1.2 Unpacking municipal government organisations..................................................... 307
10.1.3 The institutionalisation of change........................................................................... 312
10.2 FUTURE LINES OF RESEARCH.................................................................................. 314
10.3 CLOSING REMARKS ................................................................................................. 316

BIBLIOGRAPHY............................................................................................................... 317
List of Boxes

Box 2.1: Definition of disaster risk factors ................................................................. 45
Box 5.1: The ‘90s in Argentina and the role of the state: reduction, retreat or metamorphosis? ............................................................ 150
Box 7.1: Planning the new and de facto city: is there room for managing flood risk? ....... 238
Box 8.1: DRM in primary and secondary education in the city of Santa Fe.................... 250
## List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Main concepts and connections</td>
<td>61</td>
</tr>
<tr>
<td>3.1</td>
<td>Temporal scale of case study (Dec2007-Dec2017) and preceding and following contextual elements</td>
<td>89</td>
</tr>
<tr>
<td>3.2</td>
<td>Diagrammatic representation of analytical framework</td>
<td>107</td>
</tr>
<tr>
<td>4.1</td>
<td>Population growth in the city of Santa Fe, province and Argentina (1816-2010)</td>
<td>124</td>
</tr>
<tr>
<td>4.2</td>
<td>Annual average precipitation (mm) in the city of Santa Fe 1901-2001</td>
<td>141</td>
</tr>
<tr>
<td>5.1</td>
<td>Coefficient of financial capacity of the Municipality of Santa Fe (2009-2017)</td>
<td>158</td>
</tr>
<tr>
<td>5.2</td>
<td>Financial autonomy of the Municipality of Santa Fe (2009-2017)</td>
<td>158</td>
</tr>
<tr>
<td>V.1</td>
<td>Institutionalisation of DRM in municipal government of Santa Fe</td>
<td>172</td>
</tr>
<tr>
<td>7.1</td>
<td>Executive Department of the municipal government of Santa Fe (Dec 2007)</td>
<td>199</td>
</tr>
<tr>
<td>7.2</td>
<td>Organisational structure of DRM Office: executive programmes, type of personnel and headcount (November 2017)</td>
<td>200</td>
</tr>
<tr>
<td>7.3</td>
<td>Preparedness for response for fluvial and pluvial flooding: internal and external organisation</td>
<td>202</td>
</tr>
<tr>
<td>7.4</td>
<td>Information flows before, during and after hydro-meteorological events</td>
<td>208</td>
</tr>
<tr>
<td>7.5</td>
<td>Orchestrating role of DRM Office in the disaster risk management process</td>
<td>215</td>
</tr>
<tr>
<td>7.6</td>
<td>Organisational structure of Department of Water Resources (November 2017)</td>
<td>220</td>
</tr>
<tr>
<td>7.7</td>
<td>Organisational structure of Department of Public Works (November 2017)</td>
<td>223</td>
</tr>
<tr>
<td>7.8</td>
<td>Organisational structure of Department of Environment and non-state organisations participating in solid waste management (November 2017)</td>
<td>226</td>
</tr>
<tr>
<td>7.9</td>
<td>Organisational structure of Department of Urban Planning (November 2017)</td>
<td>233</td>
</tr>
<tr>
<td>8.1</td>
<td>Preliminary results of Scorecard self-assessment workshop (Nov 2017)</td>
<td>252</td>
</tr>
<tr>
<td>8.2</td>
<td>Progress of DRM in the city of Santa Fe over time (November 2017)</td>
<td>254</td>
</tr>
<tr>
<td>8.3</td>
<td>Satellite offices: linking core departments in municipal government of Santa Fe</td>
<td>256</td>
</tr>
<tr>
<td>8.4</td>
<td>Satellite offices: linking policy paradigms in municipal government of Santa Fe</td>
<td>257</td>
</tr>
<tr>
<td>10.1</td>
<td>Main features of the institutionalisation of DRM in municipal government of Santa Fe</td>
<td>300</td>
</tr>
</tbody>
</table>
List of Maps

Map 4.1: Administrative boundaries and location of the municipality of Santa Fe, neighbouring urban centres and main rivers................................................................. 122

Map 4.2: Intercensal population growth by municipal district in the city of Santa Fe (2001-2010)........................................................................................................ 126
List of Photos

Photo 4.1: Totem with extraordinary records of Paraná and Salado rivers in Santa Fe ......140
Photo 5.1: Buildings housing executive (left) and legislative (right) powers in the city of Santa Fe ..............................................................................................................................................157
Photo 9.1: Mayor of Santa Fe at ‘Driving change together’ event at ICLEI Cities Resilient Congress .................................................................................................................................................................................290
List of Tables

Table 1.1: Research questions and structure of thesis .......................................................... 39
Table 2.1: Comparison between mainstreaming and institutionalisation ......................... 67
Table 3.1: Research participants by unit of analysis ............................................................. 94
Table 3.2: Chronology of fieldwork ..................................................................................... 96
Table 3.3: Main unit of analysis: research participants and triangulation of methods......... 99
Table 3.4: Researcher’s participation in activities organised by third parties.................... 102
Table 4.1: Extraordinary records of Paraná and Salado rivers in Santa Fe since 1900 ....... 139
Table V.1: Institutionalisation of DRM in the municipal government of Santa Fe: phases,
                  lenses and main departments ................................................................................. 173
Table 9.1: Institutionalisation of DRM in the municipal government of Santa Fe: phases,
                  lenses and networked spaces ................................................................................. 272
Table 10.1: Phases of institutionalisation, type of change and mechanisms ...................... 313
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COBEM</td>
<td>Central de Operaciones Brigada de Emergencias Municipal</td>
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<td>DRM</td>
<td>Disaster risk management</td>
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<td>DRR</td>
<td>Disaster risk reduction</td>
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<tr>
<td>ECAM</td>
<td>Ente Coordinador Área Metropolitana</td>
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<tr>
<td>FADU</td>
<td>Facultad de Arquitectura, Diseño y Urbanismo</td>
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<td>FFEM</td>
<td>Fonds français pour l’environnement mondial</td>
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<td>FICH</td>
<td>Facultad de Ingeniería y Ciencias Hídricas</td>
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<td>FPV</td>
<td>Frente Para la Victoria</td>
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<td>INA</td>
<td>Instituto Nacional del Agua</td>
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<td>INDEC</td>
<td>Instituto Nacional de Estadística y Censos</td>
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<tr>
<td>MERCOSUR</td>
<td>Mercado Común del Sur</td>
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<td>MLTS</td>
<td>Movimiento Los Sin Techo</td>
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<td>ProCIFE</td>
<td>Programa de Cooperación Inter-institucional Frente a la Emergencia</td>
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<td>RAFAM</td>
<td>Reforma de la Administración Financiera en el Ámbito Municipal</td>
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<td>RAMCC</td>
<td>Red Argentina de Municipios frente al Cambio Climático</td>
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<td></td>
<td>Argentine Network of Municipalities against Climate Change</td>
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<td>ROU</td>
<td>Reglamento de Ordenamiento Urbano</td>
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<td>Land-use planning regulation</td>
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<td>SAC</td>
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<td>Citizen Service System</td>
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<tr>
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<td>Sistema Federal de Emergencias</td>
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<td>Universidad Tecnológica Nacional</td>
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<td>National Technological University</td>
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<td>100RC</td>
<td>The Rockefeller Foundation 100 Resilient Cities</td>
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</table>
PART I  Setting the scene
Chapter 1  Introduction

1.1  Relevance of the topic and case study

At the turn of the 21st century, Lavell (2004) emphasised that the institutional and organisational aspects of disaster risk management (DRM) were not well understood nor addressed and that this should be an area of future research. Specifically, his concern centred on the inherently conservative nature of state and civil society organisations and the required changes they should undertake in the face of a new interpretative paradigm. More than a decade later, the Integrated Research on Disaster Risk and their proposed methodology of Forensic Investigations of Disasters (FORIN), reiterated that innovative organisational and institutional approaches consistent with development-based interpretations of disaster risk remained the exception and that the logic of disaster response prevailed (Oliver-Smith et al., 2016). Answering to this conundrum, according to these scholars, will require turning our attention to the everyday decisions and social practices that shape not only the production but also the reduction of disaster risk (Lavell, 2003; Integrated Research on Disaster Risk, 2011).

A central premise underpins the above-mentioned argumentation: risks and disasters emerge from the everyday decisions and practices of different social actors which, in turn, are the result of ongoing social, economic, political and cultural processes unfolding in the societies in which they occur. Disaster risk is dynamic and cuts across the activities of multiple organisations and development spheres (Tierney, 1999; Herzer et al., 2002; Lavell, 2003; Tierney, 2014; Alcántara-Ayala et al., 2015). This further emphasises the need for process-oriented approaches to understand the underlying societal drivers of disaster risk production (Oliver-Smith et al., 2016). In the same vein, advancing a process approach to the management of disaster risk, calls for an in-depth understanding of the conditions that can enable “the permanent institutionalisation of risk management as an approved social practice” (Lavell, 2003, p.31). Ultimately, this requires greater emphasis on ‘drivers of change’ type of analysis, especially across those organisations that can lead and steer DRM processes (Kishore, 2011).
The shift of paradigm in disaster scholarly work from disasters to the social production of risk, whose first seeds can be already traced back to the 1970s, eventually permeated international policy with the ratification of the Hyogo Framework for Action 2005-2015, and its successor, the Sendai Framework for Disaster Risk Reduction 2015-2030 (UNISDR, 2005, 2015b). Broadly, this marks a transition from disaster management to disaster risk management, suggesting a realignment of responsibilities and a call to decentralise action. That is, shifting attention from the top-down, centralised management of emergencies by national governments to the critical anticipatory work of subnational governments (specially, city governments) in addressing disaster risk factors linked to development priorities (Herzer et al., 2002; UNISDR, 2009, 2011; Wamsler, 2014).

The notion of local disaster risk management has been at the forefront of the discourse of LA RED since the early years of the group, including the recognition that municipal governments should have a leading role in this process¹ (Herzer et al., 2002; Lavell, 2003). This further aligns with the argument of scholars that for a while have been emphasising the potential of cities and urban areas to manage disaster risk, and more recently to adapt to climate change, in an increasingly urbanising world² (Hardoy, Mitlin and Satterthwaite, 2001; Satterthwaite et al., 2007; Bicknell, Dodman and Satterthwaite, 2009; Bartlett and Satterthwaite, 2016). Rapid urbanisation is usually identified as one of the key drivers of escalating disaster-related economic losses, especially in relation to frequent and localised small-scale events such as urban flooding (UNISDR, 2009, 2011, 2013, 2015a; UNDRR, 2019c). Yet, cities and urban areas also offer an opportunity to manage and reduce disaster risk, and city governments are identified as key actors in this process. Initiatives such as the UNDRR *Making Cities Resilient* campaign exemplify the growing relevance

¹ The Red de Estudios Sociales en Prevención de Desastres en América Latina (Latin American Network for the Social Study of Disaster Prevention) formed in 1992. It has been among the most influential groups in advancing a social understanding within the field of disaster risk not only in the region but worldwide (Lavell, 2004).
² According to estimates and projections, 30% of the global population was urban in 1950, a share that rose to more than half of the world’s population in 2018 and which is projected to reach up to 68% by 2050 (UNDESA, 2019).
of local governments in international DRM policy\(^3\) (Johnson and Blackburn, 2014; Amaratunga et al., 2018; UNDRR, 2019e).

However, despite the acknowledged importance of their role, there is still a limited understanding of municipal governments in disaster risk research and policy. A focus on barriers prevails, especially in medium-sized cities in low- and middle-income countries, which has tended to overlook their potential on the basis of a lack of resources and capacities. This has prevented the exploration of the conditions under which a municipality might be able to initiate and sustain an urban DRM process in the long run, especially in the absence of large-scale disasters that occasionally remind governments and residents alike of the risky environments where they live and work. This knowledge gap is also highlighted in climate change adaptation literature in cities of the global South (Pasquini et al., 2015; Ziervogel, Archer Van Garderen and Price, 2016).

The focus on barriers has combined, and arguably reinforced, a conception of municipal governments as monolithic and static organisations. A few exemptions can be identified in climate change policy research, where some scholars argue for the need for ‘opening up the black box of adaption decision-making’ and for acknowledging the complexity of municipal bureaucracies that implement urban policies (Aylett, 2011, 2013; Biesbroek et al., 2015). Municipalities are organisations constituted of both political authorities and bureaucrats (including street-level bureaucrats), whose appointments follow different temporal logics and incentives, and which are integrated by multiple departments with different priorities and ways of understanding urban problems \(^4\) (Lipsky, 2010; Uittenbroek, 2016). Decentralisation trends add to this complexity, as municipal governments undertake more responsibilities and mandates, but not always with the necessary skills and resources (Campbell, 2003; Oszlak, 2003; Rodden, 2004). Unpacking these layers of

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\(^3\) Launched in 2010, the UNDRR Making Cities Resilient campaign was originally aimed at raising awareness of the Hyogo Framework across cities and their governments, though it has evolved into an international city-to-city network for sharing knowledge and best practices to advance the implementation of the Sendai Framework at the urban scale. The refocusing of the campaign from advocacy to implementation underscores the need for moving from policy aspirations to the materialisation of actions (UNISDR, 2012; Schofield and Twigg, 2019; UNDRR, 2019e).

\(^4\) Throughout the thesis, I use the term municipal government to refer to both political authorities and bureaucrats of a municipality.
complexity is central if we aim to understand the fundamental type of organisational change that underpins the adoption of new policy paradigms such as DRM in municipalities (Fraser, Pelling and Solecki, 2016; Wamsler and Pauleit, 2016).

In the light of this context, this thesis aims to contribute to enhancing our understanding of how municipal governments can incorporate disaster risk management permanently and organically into their everyday work. Despite the reiterated efforts in some research circles and the advocacy and call for action by international frameworks and guidelines, development-based interpretations of DRM are still not the norm in policy discourse and practice. Thus, most empirical cases still focus on hazard reduction/avoidance and response rather than proactively managing disaster risk as an ongoing and never-ending process (Lavell, 2012; Lavell and Maskrey, 2014; Oliver-Smith et al., 2016). It is necessary to further understand how disaster risk management can be institutionalised as a policy paradigm in the realm of municipal governments. This entails, in turn, a better understanding of municipal government organisations themselves and how they (can) change.

The backbone of this thesis is the case of the municipal government of Santa Fe, Argentina. Much of the orientation the research has taken, the initial questions formulated and the approximation of some answers, have been inspired by this empirical case. Argentina has not been an exception to the rule and, until quite recently, it has lacked an overarching normative framework for DRM at the national level (Congreso de la Nación Argentina, 2016). Even when a new national law has been passed, its basis largely reverberates the legacy of the national defence remit, with a focus on emergencies and civil protection and scarce attention to the urban scale and municipal administrations. This is perhaps more surprising given that the country does not have a long track history of large disasters with a high death toll, but it has been historically exposed to hydro-meteorological events that have regularly affected its main cities and one of the main economic activities in the country: agriculture (Negri and Zagalsky, 2005; Nantenzon and Ríos, 2015; Viand and Briones, 2015b). An understanding of disasters as extreme events with major impacts and the corresponding role of response organisations in dealing with them still
prevails. However, the recurrence of urban flooding in Argentina portrays them as nothing but extraordinary (Secretaría de Ambiente y Desarrollo Sustentable, 2015).

Flood risk (fluvial and pluvial) represents a historical and recurrent problem for many cities and urban centres in the country, particularly in the Litoral region⁵. Furthermore, the negative impacts of localised hydro-meteorological events have intensified over the last three decades in this area, including the devastating floods in the city of Santa Fe in 2003 and 2007 (Celis and Herzer, 2009; Herzer and Arrillaga, 2009). In April 2003, Santa Fe was affected by the worst disastrous event in the history of the city: the flooding of the Salado river. The river overflowed an unfinished flood protection embankment, flooding more than one-third of the city, affecting circa 130,000 people, killing 22 inhabitants⁶ and causing over a thousand millions of dollars in damages⁷ (CEPAL, 2003; Arrillaga, Grand and Busso, 2009; Calvo and Viand, 2015). In March 2007, heavy rains coupled with a flood defence system that impeded rainwater runoff, caused damage once more. Access to the city was cut off and 30,000 people were displaced from their homes during a period of two months (Grand and Arrillaga, 2009). Beyond the hazardous events, many analysts concurred that these two events exacerbated an already existing precarious situation of a large part of the Santafesinos⁸. Residents blamed municipal and provincial government authorities and some local scholars turned to the political underpinnings of the catastrophes (Negri and Zagalsky, 2005; Haidar, 2007; Cello, Frade and Haidar, 2013; Calvo and Viand, 2015).

Rather than reinforcing a vicious cycle of more emphasis on response and related organisational dynamics, these episodes represented focusing events from where social mobilisation and political debate arose, opening up an opportunity to transform the way of addressing flooding in the city. For over a decade, after a new political administration took office in December 2007, the municipal government of

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⁵ The Litoral region comprises six provinces of Argentina, namely: Formosa, Chaco, Misiones, Corrientes, Entre Ríos and Santa Fe.
⁶ This is the officially registered number of deaths, which considered the direct life losses within five days of the disaster. Unofficially claimed deaths by human rights organisations, accounting for indirect losses within four months of the disaster, reached 130 victims (Calvo and Viand, 2015).
⁷ Losses of the disaster were estimated in Argentine Peso 2,878 millions (equivalent to USD 1,028 millions, conversion rate 1 Peso = 2.8 USD) (CEPAL, 2003, p.71).
⁸ Spanish term to refer to the people from the city of Santa Fe.
Santa Fe has designed, implemented and adapted a new approach for dealing with urban floods under the umbrella of the disaster risk management paradigm (Gobierno de la Ciudad de Santa Fe, 2014c; Aguirre Madariaga, 2015b). As a result of this process, Santa Fe is nowadays recognised as a “good practice” case study in international circles, which is further confirmed by its membership and active engagement in multiple transnational city-to-city networks such as UNDRR Making Cities Resilient campaign, The Rockefeller Foundation 100 Resilient Cities, Mercociudades and ICLEI-Local Governments for Sustainability. It is also increasingly taken as an example by other cities and metropolitan areas in the country, given its pioneering experience in incorporating disaster risk management at municipal government level under the principles of the Hyogo Framework for Action (Viand and Briones, 2015a).

Against this background, the experience of the municipal government of Santa Fe offers an interesting case to explore and better understand the institutionalisation process of a new policy paradigm being discussed internationally, though grounded into the context of a specific city through the work of its municipal government. It further contributes to understanding this process in the context of a medium-sized city of circa 400,000 inhabitants and over half a million at metropolitan level (INDEC, 2010) and during a relatively long temporal perspective that spans over a decade. Last but not least, and as a local scholar suggests, understanding the institutionalisation of DRM in the municipality might contribute to reflect about the possibilities that federalism creates for the ‘micro-revolution’ or transition at the local scale (Sozzo, 2017). This is key to understanding the room for manoeuvre of municipal governments in countries like Argentina.
1.2 Gaps to be addressed by the research

The research responds to the need for more accurate theories and analytical frameworks to understand disaster risk management (DRM) as a local process. Whereas there is an increasing recognition of the social production and process nature of disaster risk, DRM is still mainly understood in terms of technical measures focused on the immediate before and after of disaster events which are defined according to probabilistic estimates and patterns of damages and losses (Integrated Research on Disaster Risk, 2011; Oliver-Smith et al., 2016). Simultaneously, theorisations embracing a more relational and political perspective have mainly focused on the micro level (individuals, households) and more recently on the macro level processes of social relations of production and power relations (Pelling, 2003; Mustafa, 2005; Wamsler, 2007; Braun and Abheuer, 2011; Rebotier, 2012). However, the relevance of the meso level (organisational arena) has not been thoroughly investigated in the disaster risk literature (Jaeger et al., 2001; Tierney, 2014). Specifically, not much scholarly research has focused on the conditions that (can) favour DRM to emerge as a nascent policy paradigm nor to sustain it as an ongoing process within municipal governments (Lavell, 2004).

Conceptually, this research explores disaster risk management from an organisational and process-based perspective using an institutionalisation lens. Institutionalisation has gained relevance in understanding the incorporation of new policy approaches in organisations and/or broader processes of change in the urban realm (Levy, 1996; Allen and You, 2002; Persson, Eckerberg and Nilsson, 2016; Göpfert, Wamsler and Lang, 2019). Yet, the concept is not always defined and operationalised. Furthermore, whereas some analytical frameworks of institutionalisation exist, they have not been specifically designed, nor used, nor tested for understanding DRM processes within municipal administrations. Thus, the thesis proposes a refined definition of institutionalisation to unveil the process throughout which concepts and practices related to the new DRM policy paradigm emerge, become embedded in everyday routines and are continuously adjusted in a municipal government. Building on a broad-based theoretical foundation, which combines insights from policy process research, sociological institutionalism and network theory, it aims to contribute to an under-investigated analytical approach to the DRM field.
The institutionalisation of cross-cutting policy paradigms encompasses dynamic, transversal and multi-scalar processes within and beyond organisations; ultimately, it relates to notions of organisational change and urban transformation (Allen and You, 2002; Lavell and Maskrey, 2014; Wamsler, 2014). Hence, whereas this project focuses on disaster risk management, it also sheds light on the conditions that enable change to happen and that are needed to sustain it when addressing complex urban issues, including disaster risk and climate risk. In other words, the research contributes to a broader discussion on municipal government policy, planning and management in a complex and changing urban reality (Filippi, 2018).

The theoretical gap is further exacerbated by the limited number of empirical studies that address DRM processes in medium-sized cities in low- and middle-income nations over a relatively extended period of time. Most of the existing empirical research refers to the institutionalisation of climate change adaptation in municipal governments in high-income nations or in capital or larger cities in middle- and low-income countries (Næss et al., 2005; Roberts, 2008; Bassett and Shandas, 2010; Burch, 2010; Carmin, Anguelovski and Roberts, 2012). With few exceptions, there is not much documentation of disaster risk management processes steered by municipal governments in medium-sized cities in low- and middle-income countries (Cardona, 2007; Velásquez Barrero, 2011). Moreover, it is often the barriers or failures in managing risk which dominate the literature about small and medium-sized cities (Pasquini et al., 2015; Ziervogel, Archer Van Garderen and Price, 2016). According to worldwide estimates and projections, cities and towns with fewer than 1 million inhabitants accommodate and are expected to accommodate most of the world’s urban dwellers\(^9\), which further emphasises the need to refocus urban risk research

\(^9\) Whereas there is no unified criterion on the definition of medium-sized cities based on the number of inhabitants, there is scholarly consensus that small and medium-sized cities have been usually relegated in the literature on climate change and disaster risk. Among these scholars, some refer to so-called medium-sized cities between 50,000 – 1 million inhabitants (Göpfert, Wamsler and Lang, 2019); others differentiate between small cities (300,000 – 500,000 population) and medium-sized cities (500,000 – 5 million population) (Birkmann et al., 2016; Paterson et al., 2017).

\(^{10}\) In 2018, 58% of the urban population of the world was residing in urban settlements with fewer than 1 million inhabitants and 48% was living in settlements with fewer than 500,000 inhabitants. Even more, cities with less than 1 million inhabitants were the most prevalent type of urban settlements in all geographic regions of the world except for Oceania. By 2030, more than half of the world’s urban dwellers will still be living in cities with fewer than 1 million inhabitants (UNDESA, 2019).
and policy attention towards these cities (Wisner et al., 2015; Birkmann et al., 2016; Paterson et al., 2017; Göpfert, Wamsler and Lang, 2019).

The main case study of this thesis is the medium-sized city of Santa Fe, Argentina, which has been the first and still the only formalised experience of a municipal DRM system in the country (Viand and Briones, 2015a). Sustained since December 2007, this localised process of disaster risk management has evolved in a context where neither the national nor provincial governments provided much guidance to orient this transition. Therefore, enablers for endogenous change might be identified from this case. What is more, the case study spans over a decade, from December 2007 till December 2017, which coincides with what some have identified as a relevant historical perspective (a decade or more) for examining processes of policy change (Sabatier, 1993). This is also a relevant timeframe given the configuration of DRM as a new policy paradigm internationally since the approval of the Hyogo Framework for Action in 2005.

Given the research and empirical gaps in studying disaster risk management processes steered by municipal governments in medium-sized cities in low and middle-income countries (and over a relatively extended period of time), there are not many methodological examples as to how to undertake this type of research. The few documented experiences involve academics working themselves in city government administrations and self-reflecting on the process (Roberts, 2008, 2010; Leck and Roberts, 2015) and municipal authorities that take the time to document their experiences to share with other cities (Aguirre Madariaga, 2015b, 2015a). Participatory approaches to research municipalities in medium-sized cities of the global South have been less explored. This thesis provides an example of participatory research, including the ethical considerations and research limitations, from the direct involvement of the researcher in the daily activities of a municipality. It has also benefited from observing an action research project in a neighbouring municipality and the possibilities at the interfaces between academia and policy (CRCLATAM, 2018a, 2018b). Other action research initiatives to leverage the opportunities of adaptation policy and planning in municipalities in medium-sized cities are emerging (Ziervogel, Archer Van Garderen and Price, 2016).
1.3 Main research question, sub-questions and objectives

An overarching research question guides the theoretical and empirical approach of this research, namely:

*How do municipal governments institutionalise disaster risk management into urban policy, planning and management?*

The main research question is divided into the following research sub-questions:

1. How has disaster risk management emerged as a new policy paradigm in the municipal government of Santa Fe?
2. How has disaster risk management been embedded in the everyday practices of authorities, planners and managers in the municipal government of Santa Fe?
3. How has disaster risk management been sustained while accommodating to the changing conditions that define disaster risk and underlying disaster risk drivers?
4. How have networked spaces enabled the institutionalisation of disaster risk management within the municipal government and across its relations with other organisations?

The research sub-questions break down the institutionalisation process (of disaster risk management) into three analytically, although not empirically, distinctive processes:

1. Emergence of a new policy paradigm within an organisation (in this case, a municipal government).
2. Embeddedness of the new paradigm into the everyday practices of its members.
3. Sustained change through learning and experimentation.

These processes do not unfold separately nor in a linear manner but rather simultaneously, reinforcing and co-constituting each other. However, this might be a useful conceptual distinction to guide the analysis of institutionalisation processes, in general, and of disaster risk management, specifically. The fourth research sub-question places the institutionalisation process within the municipal government in a
broader organisational landscape. By answering the main research question and sub-questions, the overall aim of this research is to contribute to an understanding of the ways of incorporating disaster risk management permanently and organically into municipal government policy, planning and management.

Importantly, four assumptions underpin this research.

**Assumption 1:** Disaster risk is understood as a relational (socially produced) and historical (changing across time and space) phenomenon (Oliver-Smith et al., 2016). Therefore, policy paradigms for addressing disaster risk factors (hazard, exposure and vulnerability) should be understood in a similar manner.

**Assumption 2:** Disaster risk management is considered a relatively new, emergent or nascent policy paradigm for municipal governments in medium-sized cities in low- and middle-income nations. It is a policy paradigm that has been further pushed into their agendas and mandates, partly, by the Sendai Framework’s call for boosting advances in implementation to manage and reduce disaster risk locally. A similar premise underpins the work of some scholars in the field of urban climate adaptation in low- and middle-income countries (Anguelovski and Carmin, 2011; Carmin, Anguelovski and Roberts, 2012).

**Assumption 3:** The focus is on municipal governments as the main and leading organisations, although not the only ones, in urban processes of disaster risk management. The main reason that justifies this emphasis is the burgeoning recognition in scholarly and policy circles of the key role city governments should play in managing and reducing disaster risk in cities (Lavell, 2003; Wamsler, 2014; Amaratunga et al., 2018). Whereas some might argue that this is a narrow approach, and hence a broader governance perspective should be embraced, it is equally relevant to dig into the internal social dynamics of local governments as complex organisations. As Aylett (2015a) suggests, although in relation to climate adaptation,

> “urban climate policies requires [sic] feats of internal network building and coordination every bit as delicate and contested as the external relationships between state, community, and private sector actors that are the focus of traditional studies of governance” (Aylett, 2015a, p.5).
**Assumption 4:** The organisational arena of municipal governments contributes to a holistic and integrative perspective for addressing the cross-cutting nature of disaster risk and its management. While some have opted to consider DRM from a sectoral point of view (e.g. in relation to housing, infrastructure, spatial planning, and so forth), others have started to refer to concepts such as ‘bridge’ to define the transversal nature of topics such as climate change (Aylett, 2015a). The latter depicts the potential of this kind of issues to bridge siloed organisational structures. This research considers DRM as an ubiquitous policy paradigm which expands across different departments and hierarchical levels within municipal governments. The omnipresence of the paradigm within an organisation reflects its level of institutionalisation, that is, how embedded it is.
1.4 Key concepts in the thesis

**Policy paradigm**: an interpretive framework or system of ideas and standards within which policymakers, in a particular field of policy, work. It specifies the overarching goals of policy and the instruments to attain them, but also the very nature of the problems they are meant to be addressing (Hall, 1993). In this thesis, DRM is considered a policy paradigm, while disaster risk is regarded as the **societal issue/problem** the DRM paradigm aims at addressing.

**Policy field**: a substantive area of policy, defined by the subject it covers, like the environment, health or macroeconomics, over which participants in policymaking compete and compromise (Massey and Huitema, 2013; Birkland, 2016).

**Institutionalisation**: the process whereby concepts and related practices linked to an emerging and cross-cutting policy paradigm become embedded in the different departments of a municipal government. These eventually become routines (e.g. everyday concepts and practices) as the incorporation of the new paradigm entails the modification of the specific type of core work of each of those departments, and they nurture inter-departmental and inter-organisational innovation as to constantly accommodate to the changing conditions that define the issue under consideration.

**Institutionalisation of change**: a ‘meta’ or ‘umbrella’ concept that recognises the multiple types of change that characterise the institutionalisation of cross-cutting policy paradigms. The types of change which are discussed in the study are: punctuation, incrementalism, and adaptability.

**Emergence**: a phase of the institutionalisation process that describes a change of policy paradigm or paradigm shift. It is associated with abrupt change or punctuations in the literature of policy process research.

**Embeddedness**: a phase of the institutionalisation process that considers the process whereby social practices become everyday work routines in a municipal government organisation through repetition and familiarity. In sociology, institutionalisation refers to this process exclusively (Abercrombie, Hill and Turner, 2000).
**Sustained change**: the predisposition for municipalities to change based on learning and experimentation to accommodate to the contingent nature of disaster risk and to a broader ever-changing environment. The term refers to the tension between sustaining a policy paradigm (e.g. DRM) but in a dynamic manner that allows its ongoing adjustment to changing conditions.

**Networked spaces**: resulting spaces from the relations between the municipal government with other organisations that contribute to the diffusion of ideas and practices and, in so doing, have the potential to activate change. They span across the three phases of institutionalisation. Examples include: policy-academia interfaces, city-to-city networks, and participatory spaces with auxiliaries and civil society organisations.

**Bridge issue**: an issue that, due to its cross-cutting nature, has the potential of linking departments within an organisation and/or multiple organisations between each other in their joint efforts to address it (Aylett, 2013).
1.5 Rationale of thesis structure

The thesis is structured in six main parts. Each of these parts is organised by chapters which, in turn, are further divided into sections. A general overview of the thesis follows, which covers the main purpose of each part and a brief description of each of the chapters.

**Part I, Setting the scene**, contains Chapter 1 (this chapter) and provides the general background of the research, highlighting the relevance of the topic and case study. It also introduces the main gaps to be addressed by the thesis, main research question and sub-questions and objectives that guide the entire research.

The core of **Part II, A review of the literature**, is aimed at introducing the main theoretical debates and policy discourses that underpin and inform this thesis. **Chapter 2** begins by reviewing the conceptual turn in disaster scholarly work towards the social causation of disaster risk, mainly led by the introduction of the social science perspectives. Special attention is paid to the work of LA RED in Latin America on the social construction of risk and the more recent FORIN approach on underlying drivers of disaster risk, and their shared understanding of disasters as development failures (Lavell, 2004; Oliver-Smith *et al.*, 2016). In an urbanising world, this places further attention on the role of cities and their municipal governments. Echoing the conceptual turn, a shift of policy paradigm has unfolded in international policy, leading to the configuration of the new disaster risk management approach.

Against this background, this thesis proposes a definition of institutionalisation to understand the conditions under which new policy paradigms such as disaster risk management can emerge and be sustained in the everyday work of municipal governments, which are considered the leading organisations for managing disaster risk at the urban scale. To develop this concept, various strands of literature are reviewed, including policy process research, organisational (sociological) institutionalism and network theory. In so doing, special attention is given to the fields of gender, the environment, climate change adaptation and urban low carbon
transitions that draw on similar theoretical insights to understand pathways of change in organisations (including municipal governments).

In **Part III, Research design**, the main arguments that justify the multiple choices the researcher has made along the process are consolidated. **Chapter 3** introduces the chosen research strategy, including the ontological and epistemological assumptions informing an abductive logic of enquiry, and the single-case study as the appropriate method for data selection, including the rationale for an exceptional case. This is followed by a description of the research methods for generating and analysing primary and secondary data. Special attention is given to the multiple sources of evidence for triangulation purposes in the generation of the data, while the emphasis is placed on the mechanisms for theorising in the data analysis. The analytical framework that orients the analysis of empirical data is then presented, which consists of three phases of institutionalisation (emergence, embeddedness and sustained change) and three analytical lenses (concept/practice; specific/cross-cutting; policy/planning/management). This is followed by a reflection on the overall quality of the research design, including ethical considerations and limitations of the research and the positionality of the researcher towards the research and the researched.

Context and case are intertwined in case study research. **Part IV, Context: historical account of Santa Fe and idiosyncrasy of its municipal government**, brings together a thorough introduction to the case and the singularities of its context. The narrative about the city in **Chapter 4** follows the frames proposed by a local scholar: urbs, civitas and polis; the spatial, social and conceptual city. The chapter continues with the flood risk profile of the city, highlighting the existing (local) scientific knowledge as well as the structural and non-structural measures which were designed and implemented for managing flood risk before the period under analysis.

**Chapter 5** focuses on the main unit of analysis or case, that is, the municipal government of Santa Fe. A brief introduction to the government system of Argentina is deemed relevant to understand the degree of autonomy of municipal governments in the country and the mandate of each of the three powers under a republican form.
This is followed by a characterisation of the municipal administrations that preceded the three consecutive administrations under analysis, and who bore a significant responsibility in the disastrous floods of 2003 and 2007. The chapter concludes by presenting the new political coalition that assumed office in December 2007 and its ideological basis.

The analysis of empirical data and discussion of findings are structured around four chapters in Part V, *Findings and discussion: the institutionalisation of disaster risk management in the municipal government of Santa Fe*.

**Chapters 6 to 8** unveil the institutionalisation process of disaster risk management exclusively in the realm of the municipal government of Santa Fe, its constitutive departments, executive programmes and main leaders during the period 2007-2017. These three chapters x-ray the municipal government across the phases of emergence, embeddedness and sustained change using the three analytical lenses which, combined, are intended to delineate the main characteristics of each phase. **Chapter 6** begins with the emergence of disaster risk management as a *política de Estado*¹¹. **Chapter 7** continues with the embeddedness phase, focusing first on the key role of a DRM Office in orchestrating the preparation for response and then moving to the sectoral specificities of DRM in managerial bureaus and the urban planning department. **Chapter 8** addresses the dialectic of sustained change, that is, of developing a culture of prevention while innovating through learning and experimentation.

**Chapter 9** depicts the institutionalisation of DRM across the relations of the municipal government of Santa Fe with other local organisations and city governments. Specifically, the main networked spaces across which the three phases of institutionalisation unfold are considered, namely, academia-policy interfaces, participatory spaces with auxiliaries and civil society organisations, and city-to-city networks.

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¹¹ In English, state policy
Part VI, Conclusion: towards an institutionalisation framing of urban disaster risk management, explains the key findings of the research towards answering the main research question and sub-questions. Chapter 10 synthesises the principal contributions of the doctoral thesis and suggests future lines of research if this research is to be continued, whether for improvement and/or replication purposes. A final reflection closes the thesis.

Table 1.1 provides a road map of the thesis, synthesising the chapters and sections where the main research question and the four research sub-questions are addressed in the literature review, findings and conclusions.

### Table 1.1: Research questions and structure of thesis

<table>
<thead>
<tr>
<th>Research question</th>
<th>Literature review</th>
<th>Findings</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main research question (MQ)</td>
<td>Chapter 2</td>
<td>Chapters 6-9</td>
<td>Section 10.1</td>
</tr>
<tr>
<td>RQ1: Emergence</td>
<td>Section 2.3.1</td>
<td>Chapter 6</td>
<td>Sections 10.1.1; 10.1.3</td>
</tr>
<tr>
<td>RQ2: Embeddedness</td>
<td>Section 2.3.2</td>
<td>Chapter 7</td>
<td>Sections 10.1.1; 10.1.3</td>
</tr>
<tr>
<td>RQ3: Sustained change</td>
<td>Section 2.3.3</td>
<td>Chapter 8</td>
<td>Sections 10.1.1; 10.1.3</td>
</tr>
<tr>
<td>RQ4: Networked spaces</td>
<td>Section 2.3.4</td>
<td>Chapter 9</td>
<td>Sections 10.1.2</td>
</tr>
</tbody>
</table>
PART II  A review of the literature
Chapter 2 Building theory across disciplines and fields

2.1 Introduction

Inter-disciplinary (and trans disciplinary) undertakings have characterised some of the most fruitful and influential theorisations in disaster risk research, including the work of LA RED and the more recent FORIN approach, aiming for an integrative and holistic understanding of disaster risk and its management (Lavell, 2004; Integrated Research on Disaster Risk, 2011; Oliver-Smith et al., 2016). Cross-disciplinary approximations have also contributed to transcend the rigidity of field boundaries and theorise across domains, linking the management of disaster risk to sustainable development, climate change adaptation and, more recently, transformation (Pelling, 2011; Bartlett and Satterthwaite, 2016). The local level, and increasingly the city, receive particular attention across these approaches, especially as the arena from where change can (and needs to) be initiated.

Yet, these theoretical approximations remain the exception and are scant in the disasters and disaster risk literature. More dynamic, relational and political perspectives are required, particularly to understand the role that municipal governments can play in managing disaster risk in cities and the potential trajectories to so doing. Against this background, the literature review begins by synthesizing the main debates in disaster risk scholarly and policy discourse, to then explore the contributions that other disciplines and fields can make to enhance that understanding. Insights from other disciplines and fields can be taken forward, emulating, in a way, the more fruitful undertakings in the field.

Section 2.2 introduces the main debates in disaster risk research and policy that underpinned the transition from disaster management to the new disaster risk management (DRM) paradigm. Section 2.2.1 begins with the conceptual turn in disaster studies with the appearance of the social sciences perspectives, paying particular attention to the social construction of risk approach pioneered by the work of LA RED in Latin America. This is followed by a depiction of the new disaster risk management approach in Section 2.2.2, based on a comparison with its predecessor and emphasising its linkage with development, including the possibility of
transformation. Section 2.2.3 grounds these debates in the urban context, bringing together the principal arguments that justify the leading role of municipal governments in the management of disaster risk in cities. Finally, Section 2.2.4 traces the parallels of scholarly discussions in the international policy discourse, leading to the configuration of a new policy paradigm with the Hyogo Framework for Action in 2005.

In the light of this turning point in disaster scholarly and international policy discourse, Section 2.3 draws on policy process research, organisational (sociological) institutionalism and network theory to explore how new policy paradigms such as disaster risk management can become institutionalised in the realm of municipal governments. In so doing, special attention is given to the fields of gender, the environment, climate change adaptation and urban low carbon transitions that draw on similar insights towards advancing an understanding of pathways of change in the realm of organisations, in general, and municipal governments, in particular.

To organise the review of the literature in Section 2.3, a definition of institutionalisation is proposed from the outset, which delineates three phases of institutionalisation and associated prevailing patterns of change. Section 2.3.1 compares well-known theories of the policy process based on their explanation of policy change, which is deemed relevant to understand the emergence of policy paradigms. Section 2.3.2 turns to organisational institutionalism as an alternative to conventional mainstreaming to explain the incorporation of new policy paradigms into the everyday practices of municipal governments’ bureaus. Section 2.3.3 unpacks the concept of sustained change, that is, how municipalities respond, adapt and/or innovate to accommodate to an ever-changing environment. Finally, Section 2.3.4 places municipal governments in a broader organisational landscape, particularly to understand how networked spaces further steer the institutionalisation of DRM through the diffusion of ideas and practices across organisations.
2.2 From managing disasters to the management of disaster risk in cities

2.2.1 Risk and disasters

Definitions of risk abound, though they are often probabilistic in nature (Brooks, 2003). A generic definition of risk considers the likelihood, possibility or chance of occurrence of a particular outcome in which humans have a stake (Jaeger et al., 2001). A technical approach to risk prevails, and it has been extended to the natural hazards discipline under the idea that hazard risk can be objectively assessed and managed. However, the appearance of the social sciences other than economics in the field of risk began to challenge this perspective and different disciplinary approaches have been proposed to understand risk, in general, and disaster risk, in particular (Jaeger et al., 2001; Dietz, Frey and Rosa, 2002).

In disaster scholarship, psychology emphasises the relevance of individuals’ perceptions, feelings and experience of risk (Tversky and Kahneman, 1973, 1981; Fischhoff, 1990; Eiser et al., 2012). Anthropological perspectives focus on the influence of culture and religion in shaping societal definitions of danger (Douglas, 1982, 1992; Hoffman and Oliver-Smith, 2002; Krüger et al., 2015). Sociological approaches stress the importance of contextual and organisational factors contributing to disasters (Tierney, 1999, 2014). Geography, and later on urban studies, question hazard-centred (‘naturalistic’) approximations to risk by introducing the concept of vulnerability into the analysis (O’Keefe, Westgate and Wisner, 1976; Hewitt, 1983; Blaikie et al., 1994; Wisner et al., 2004). These approaches recognise that other factors, besides the instrumental, calculative rationality of individuals, influence the decisions and actions upon risk of individuals, households, organisations, actors and society as a whole. Even more, and going a step further, ideas such as ‘the social causation of disasters’ and ‘the social roots of risk’ began to permeate disaster studies, focusing on the social production of risk in the first place (Blaikie et al., 1994; Tierney, 1999, 2014; Wisner et al., 2004).

The polysemous nature of the concept of risk in disaster research has been recognised by Latin American scholars who, through a genealogy of the concept, point to the various disciplinary perspectives and related ontological and epistemological bases that have underpinned different understandings of the term.
(Maskrey, 1998; Cardona, 2001; Lavell, 2004; Arrillaga, Grand and Busso, 2009; Natenzon and Rios, 2015). Whereas all these perspectives have contributed to greater complexity to the analysis, it has not been possible yet to reach a substantive consensus that could synthesise them\textsuperscript{12}. Here, the pioneered work of LA RED\textsuperscript{13} needs to be acknowledged, in its effort to try to synthesise the main two Anglo-Saxon schools of thought from the United States (with a focus on the individual and organisations around a constructivist approach) and the United Kingdom (with a focus on dependency theory and structuralism or radical approach)\textsuperscript{14} (Arrillaga, Grand and Busso, 2009). Even more, differently from the clear-cut disciplinary approximations of the ‘North’, the social understanding of disaster risk in Latin America during the 1980s and 1990s was marked by a rather holistic and multidisciplinary approach based on the linkages between disasters and development and disasters and the environment (Lavell, 2004).

The ‘denaturalisation’ of disasters and the social construction of risk approach has been perhaps among the main contributions of LA RED towards the advancement of the concept of disaster risk (Maskrey, 1993). That is, a conceptual transition from considering disasters as exogenous and ‘natural’, to the understanding of disaster risk as endogenously framed by development patterns (Lavell and Maskrey, 2014). This transition can be better understood by considering the factors that constitute disaster risk, synthesised in the equation Disaster risk = (Hazard x Exposure x Vulnerability)/Capacity (see Box 2.1). Thus, UNDRR (2019f) defines disaster risk as

“The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity” (UNDRR, 2019f).

\textsuperscript{12} According to some, the lack of a coherent understanding of disaster risk has critical implications for the adequate management of the phenomenon (Cardona, 2001).

\textsuperscript{13} LA RED formed in 1992, though most of its founders had been already working individually on the social production of risk and its linkages with development since the 1980s (Lavell, 2004).

\textsuperscript{14} In this regard, LA RED was dealing with the same fundamental issue that gravitated across social theory over the 20th century regarding the tensions between agency-structure and subjectivity-objectivity, but specifically in the field of disaster risk (May and Powell, 2008).
Box 2.1: Definition of disaster risk factors

**Hazard:** a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

**Exposure:** the situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.

**Vulnerability:** the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

**Capacity:** the combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience.

Source: UNDRR (2019f)

The social production of disaster risk entails that hazard, exposure, vulnerability and capacity are created through “the interaction of economic, territorial, cultural and political processes operating at different spatial and temporal scales” (Lavell and Maskrey, 2014, p.270). The convergence of these processes is synthesised in concepts such as **underlying disaster risk drivers**, defined as “processes or conditions, often development-related, that influence the level of disaster risk by increasing levels of exposure and vulnerability or reducing capacity” (UNDRR, 2019f). In disaster risk literature, the main risk drivers often include: population growth and distribution; urban and rural land use patterns and processes; environmental degradation and ecosystem service depletion; poverty and income distribution (Oliver-Smith *et al.*, 2016). Succinctly, risk drivers contribute to transcend a static approach to hazard, exposure, vulnerability and capacity towards a more dynamic (process-oriented) understanding of how these conditions are generated and change over time.
The abovementioned approach has been advanced by Forensic Investigation of Disasters (FORIN) (Integrated Research on Disaster Risk, 2011; Oliver-Smith et al., 2016). It is also nowadays embedded in the UNDRR discourse (UNISDR, 2009, 2011, 2015a). However, until quite recently, there has been little concern for longer-term trends in the underlying societal drivers of disaster risk (Ekstrom, Moser and Torn, 2011; Kishore, 2011). A relevant antecedent can be traced back to the accumulation of risk across the disaster risk continuum and the significance of small and medium-scale events pioneered by LA RED\(^{15}\) (Lavell, 2003, 2004). Nowadays, this is translated in the notions of extensive and intensive disaster risk, and the spectrum that expands from low-severity, high-frequency hazardous events and disasters to high-severity, mid- to low-frequency disasters, respectively (UNDRR, 2019f). Often exacerbated by poverty, urbanisation and environmental degradation, in the aggregate, recurring localised events like urban floods can have a significant impact on development opportunities (Hardoy, Mitlin and Satterthwaite, 2001; Fraser, Pelling and Solecki, 2016).

Some make a distinction between urban risk, disaster risk and climate risk in cities and urban areas. Urban risk refers to the everyday hazards to which urban residents are exposed, such as traffic accidents, homicide, water-borne diseases and household accidents (Hardoy, Mitlin and Satterthwaite, 2001). Disaster risk belongs to the natural hazards field and it refers to the extensive and intensive disaster risks in the urban context (Bull-Kamanga et al., 2003). Finally, climate change risk relates to urban disaster risk that is currently or potentially magnified by the effects of anthropogenic climate change (Bulkeley and Tuts, 2013). However, they all refer to local risks that might be integrated alongside the extensive/intensive disaster risk continuum, offering a real option to combine the three distinctive risk-lenses of human development, disaster risk reduction and climate change adaptation at the urban scale (Satterthwaite and Bartlett, 2016). In this regard, according to the postulates of LA RED and the FORIN approach, the focus is not so much on the nature of the hazard as on the shared underlying risk drivers that contribute to the

\(^{15}\) LA RED developed an innovative methodology, known as DesInventar, to trace the impact of accumulated, localised small-scale events (DesInventar, no date). This methodology was adopted by UNDRR, being currently part of the Sendai Framework Monitoring System as DesInventar Sendai (UNDRR, 2019a).
production of risk (Oliver-Smith et al., 2016). Understanding disaster risk in these terms emphasises the process nature of disaster risk production (and arguably reduction) and, implicitly, the changing nature of disaster risk factors and disaster risk itself (Lavell, 2003).

Fraser, Pelling and Solecki (2016) identify three strands of research that highlight the social production of risk in cities and urban areas: (1) household-based livelihoods studies, which focus on the material aspects of what people have and what they do (Wamsler, 2007; Braun and Aßheuer, 2011); (2) structural-entitlement approaches, which focus on the distribution of entitlements through the economic, political and social structures operating across society (Pelling, 1999, 2003); and (3) approaches that centre on urban discourses and forms of knowledge, which emphasise how frames of reference might hide socio-political and structural processes underpinning the construction of risk (Mustafa, 2005; Aragón-Durand, 2007; Rebotier, 2012). These strands of research suggest that more relational and dynamic perspectives, that emphasise the relevance not only of material but also discursive social drivers, are gaining relevance. Even more, they “can highlight important questions about the role of social equity and power relations in shaping risk” (Fraser, Pelling and Solecki, 2016, p.21).

Succinctly, the understanding of disaster risk as socially produced brings to the fore its process (and therefore dynamic), relational and political nature. Conceptualising disasters within this framework has important implications on the strategies for managing them.

2.2.2 Disaster risk management and transformative development
Emergency or disaster management was the prevailing approach that permeated much of the 20th century. Considering disasters as externalities, it placed the emphasis on their impacts (damages and losses) and prioritised the measures associated with immediate response, reconstruction and recovery (Lavell, 2004). A military/defence logic largely characterised the organisational structure of emergency planning and management in many countries, originating in civil defence organisations created in response to war or the threat of war in the 1940s and 1950s
(Twigg, 2004). This was reflected in the financing of disaster research by the National Defence Office during the 1970s in the US and the origins of Civil Defence in the National Defence structure in Argentina (Universidad Nacional del Litoral, 2009; Tierney, 2014). It has also translated in the increasing relevance of post-event humanitarian aid in response and recovery and the disproportional efforts of the international community to finance this area in comparison to more preventive approaches (UNDRR, 2019c). The ‘disaster cycle’ (before, during and after disaster) has been the underpinning operational model of traditional emergency management approaches, guiding the definition of responsibilities and allocation of tasks in terms of mitigation, preparedness, response and recovery (Twigg, 2015). While useful, though, it has given the erroneous impression of a rather “neutral, planned, automatic, clean and logistical action” that somehow underestimated the complexity of the disaster risk problematique (Lavell, 2004, p.39, my translation).

The increasing recognition of the social production of risk advanced in some academic circles, including the pioneering work of LA RED in the 1990s, introduced changes in the way of addressing disasters woven into the concept of disaster risk management (DRM), which can be defined as:

“a complex social process the ultimate aim of which is the reduction or anticipation and permanent control of disaster risk within society, integrated and in harmony with the achievement of sustainable human, economic, environmental and territorial/geographical development goals” (Lavell, 2003, p.30).

The aforementioned and similar definitions highlight the main characteristics of disaster risk management vis-à-vis the emergency or disaster management approach. In the first place, DRM acknowledges and defines an actionable arena, contrary to the view of disasters as ‘naturalistic’, unavoidable and exogenous happenings (Maskrey, 1993). Thus, it recognises room for manoeuvre for potentially tackling risk factors rather than reacting to disastrous events. This intervention arena switches the focus from the ‘disaster cycle’ to the ‘risk continuum’ (Lavell, 2003). The latter has been recently reframed into the notions of ‘new’, ‘existing’ and ‘residual’ disaster risk, further proposing the implementation of prospective, corrective and
compensatory risk management, respectively (UNDRR, 2019f). Prospective risk management aims to prevent the development of new or increased disaster risk, for instance, through better land-use planning or risk assessment criteria in investment decisions for new development projects. Corrective risk management seeks to remove or reduce already existing disaster risk, including the retrofitting of critical infrastructure such as schools or hospitals. Compensatory risk management intends to manage residual risk that cannot be reduced, covering preparedness, response and recovery as well as insurance and other financing instruments (UNDRR, 2019f).

A second distinctive feature of the new management approach is that the scope for action expands upon multiple rather than a single sector, transcending the primary and exclusive responsibility of emergency departments or civil defences. This relates to the multidimensional nature of the root causes of disaster risk and the consequent transversal approach of DRM (Lavell, 2003; Twigg, 2004, 2015). Thirdly, the dynamic and changing nature of disaster risk entails that dealing with disaster risk is a never-ending process. Fourthly, certain scales and actors have special relevance throughout that process, mainly concerning the local scale and the role of municipal governments (Herzer et al., 2002; Lavell, 2003). Finally, recognising development failures as the underpinning causes of disasters, DRM can contribute to good (urban) development, that is, to the social, economic, cultural and physical improvement of urban areas (Satterthwaite and Bartlett, 2016).

The depiction of disasters as manifestations of development failures is not new (O’Keefe, Westgate and Wisner, 1976; Blaikie et al., 1994; Wisner et al., 2004). The disaster risk-poverty nexus, particularly in urban areas, has recently expanded on this argument (UNISDR, 2009). Whereas poverty is not the only underlying risk driver, it plays a significant part in the production and accumulation of risk. In fact, multiple empirical studies have demonstrated the disproportional impact that disasters (can) have on the urban poor, further reproducing their conditions of marginality in a vicious cycle of chronic risk (Hardoy, Mitlin and Satterthwaite, 2001; The World Bank, 2012; World Bank Group, 2016).

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16 This conceptual proposal can be traced back to the work of Lavell (1998, 2003).
Similarly, the link between managing disaster risk and alternative development models is not novel either, specially recalling the concept of prospective risk management and the avoidance of future risk construction and/or accumulation (Lavell, 2003). In cities and urban areas, Satterthwaite and Bartlett (2016) emphasise that good local development provides the foundation to reduce disaster risk and adjust to changing risk patterns. Even more, the concept of cities’ accumulated resilience has been proposed to underscore the intertwined connection between development and DRM/CCA in the urban context (Satterthwaite, 2013; Johnson and Blackburn, 2014). However, this line of thinking still struggles to permeate mainstream disaster research and policy discourse and practice (Hardoy, Pandiella and Velásquez Barrero, 2011; Oliver-Smith et al., 2016).

Conceiving disaster risk management as an opportunity to address ‘skewed development’ or ‘underlying development failures’ brings to the fore its potential to challenge dominant (urban) development pathways and practices that have proven unjust, unsustainable and ill-adapted (Lavell and Maskrey, 2014; Fraser, Pelling and Solecki, 2016). Here, the notion of transformative development acquires relevance, as proposing an alternative trajectory to conventional development by incorporating the principles of equity, efficiency and sustainability (Lavell and Maskrey, 2014). In placing the discussion of disaster risk within the broader framework of transformation in urban development, Fraser, Pelling and Solecki (2016) acknowledge that there are not many known examples of ‘complete’ and deliberate transformations at the city scale, which further raises the questions of “what drives transformation and when, where and how it occurs” (ibid., 28). Understanding transformation as “a change in the basic features of a socio-ecological system in terms of altered approaches, goals and values”, the new DRM paradigm can be conceived as a driver of transformation processes17 (Oliver-Smith et al., 2016, p.47). In short, linking disaster risk management to the development debate might contribute to delineate new development trajectories or even stimulate a discussion towards a new paradigm of development (Lavell and Maskrey, 2014).

17 Fraser, Pelling and Solecki (2016) suggest a similar definition of transformation as “a change in the fundamental attributes of a system, often based on altered paradigms, goals or values” (ibid, p.18).
In relation to urban flood risk, the transformative potential of DRM can be observed, for example, in the transition from dominant engineering approaches that have characterised urban drainage and water resources management towards new ideas of sustainable urban drainage and urban water sustainability (Bell, 2018). This entails, among other things, not simply intervening on existing flood risk by expanding fast conveyance systems to drain water away from the city and/or building retention walls to contain river flooding. Instead, recovering urban rivers and natural flood plains that mimic natural hydrological flows can have ecological and productive benefits as well as contributing to prevent future risk resulting from the increased frequency and magnitude of hydro-meteorological events due to climate change. Therefore, flood risk management can begin integrating nature-based measures in the urban space, simultaneously contributing to the broader objectives of sustainable development and climate change adaptation (Wamsler, 2015b; Waddell, 2016). In so doing, DRM might also start challenging the rooted perception of nature as responsible for disasters.

2.2.3 The urban and the role of municipal governments

The link between DRM and development is perhaps most palpable at the local level, in general, and within the municipal jurisdiction of city governments, in particular. This is because not only the impacts of extensive disaster risk are felt at the local scale, but also because municipal administrations offer a real opportunity to integrate the management of disaster risk into urban policy, planning and management (Lavell, 2003; Satterthwaite, 2011; Wamsler, 2014). Hence, understanding the interdependence of risk and urban development necessarily impels a discussion about dominant patterns of urbanisation and the production of risk, on the one hand, but also on the role that cities (can) play in reducing disaster risk if urban growth and expansion are planned and managed factoring in risk considerations, on the other hand (Hardoy, Mitlin and Satterthwaite, 2001). A focus on the former interpretation has prevailed in disaster risk and climate change research, though, particularly in relation to cities in low- and middle- income countries.

Since 2008, cities and urban areas host the majority of the world’s population (Satterthwaite, 2007). This has created multiple challenges in terms of disaster risk,
especially for the urban poor. Yet, it also represents an opportunity for those cities that are growing faster, particularly in South Asia and sub-Saharan Africa, where a large proportion of basic urban infrastructure has still to be built (Adelekan et al., 2015; UNISDR, 2015a). It is also a challenge for more consolidated cities with outdated infrastructure that are experiencing changes in the patterns of existing risks or are exposed to new ones.

The concentration of people and assets in cities, including non-material assets such as knowledge, produces not only ‘urban hazarscapes’ or places of ‘accumulated vulnerability’ (Mustafa, 2005; Satterthwaite, 2013). It also offers an opportunity for economies of scale or agglomeration economies. The economies of scale are exemplified in terms of infrastructure and service provision as well as in the potential complementarities between the four post-2015 urban agendas (Hardoy, Mitlin and Satterthwaite, 2001; Satterthwaite et al., 2016). Succinctly, the urban brings an opportunity to focus on the contextual conditions that produce disaster risk, to address extensive risk and therefore contribute to tackle local development problems, and to eventually adapt to more severe and frequent patterns of localised intensive risk associated with climate change (Hardoy, Pandiella and Velásquez Barrero, 2011). Mitigation or urban low carbon development adds to this, although yet with less relevance for cities in low- and lower-middle income nations.

The abovementioned brings to the fore the centrality of city governments to enact these opportunities, even though “little attention is paid to understanding how to catalyse action by city and municipal authorities on climate change adaptation and mitigation and how to integrate these into the development agenda and disaster risk reduction” (Bartlett and Satterthwaite, 2016, p.xxi). The key role of municipal governments in managing disaster risk, increasingly in tandem with the three other urban agendas, is acknowledged both in scholarly research and policy guidelines (Lavell, 2003; Satterthwaite, 2011, 2013; Johnson and Blackburn, 2014; Wamsler, 2014; Adelekan et al., 2015; Malalgoda, Amaratunga and Haigh, 2016; Gencer, 2017b, 2017a; Amaratunga et al., 2018). Various reasons justify this leading role.
In the first place, municipal governments are responsible for providing basic infrastructure (storm and surface drainage systems, all-weather paved roads, street lighting) and services (piped treated water, sanitation, solid waste collection, electricity), covering their construction, operation and maintenance. Private companies or non-profit organisations may provide some of these, but local governments build the trunk infrastructure and delineate the regulatory framework for provision and quality control. The operation and maintenance of early warning systems also fall within their responsibilities. These inherent functions contribute to the smooth running of cities, which, in the end, is about good development (Satterthwaite, 2011, 2013).

Secondly, city governments have a wide range of responsibilities for building control and land-use planning and management that is central for the avoidance of new risk and reduction of existing risk (Johnson, 2011; Johnson and Brown, 2014). This includes the design and enforcement of building codes and land-subdivision standards as well as issuing building permits to encourage safe development.

Thirdly, municipal governments are organisations with a city-wide scope for action and which maintain a relatively stable organisational structure. Fourthly, this combines with the multiple development areas of intervention that they cover, offering a real possibility of addressing disaster risk in a transversal manner (Lavell, 2003). The potential for linking multiple development areas of intervention and their city scope might contribute to a holistic approach to the management of disaster risk, including awareness of trade-offs when considering all areas and impacts together. Fifthly, in decentralised countries with functional democracies, city governments are elected by the majority of citizens, which provides them with a certain degree of legitimacy in terms of representation and accountability (Satterthwaite, 2011, 2013). This seems even more relevant in countries with a federal system of government, where subnational levels not only implement national policies, but also have autonomy in developing and carrying out their own policies in certain fields (Tierney, 2014). Finally, municipalities have the capacity to articulate with higher levels of government, particularly for decisions that involve large investments or transcend their mandates (Hardoy, Pandiella and Velásquez Barrero, 2011).
However, literature on DRM (and climate change adaptation) in cities from the global South have tended to concentrate on barriers to, and limitations of, municipal governments rather than on enabling conditions and their capacities (Pasquini et al., 2015; Bartlett and Satterthwaite, 2016; Ziervogel, Archer Van Garderen and Price, 2016). The gap in the literature might be explained by a generalised lack of progress in local DRM policy at city scale. Indeed, one of the key objectives of the Sendai Framework is the elaboration of local DRR strategies, being city governments in charge of leading this process together with other actors (Hardoy and Filippi, 2019). Even with the target to be accomplished by 2020, there is still limited progress made across cities (UNDRR, 2019e, 2019c).

In accounting for the lack of progress, scholars point to the very different systems of government across countries and the related differentials regarding autonomy and mandate of local governments, including dysfunctional and unrepresentative city governments (Satterthwaite, 2011, 2013). Hardoy, Pandiella and Velásquez Barrero (2011) highlight that the level of decentralisation in a country, the complexity of politico-administrative bureaucracies, the efficiency/inefficiency of the state apparatus and the power struggles between sectors and levels of government are all key factors that should be considered. Decentralisation trends, particularly in Latin America after the fall of dictatorships, while reinforcing the centrality of municipal governments, have not always translated in devolution of authority and financial resources. Thus, in many cases, decentralisation has resulted in more responsibilities imposed on weak and/or unresourceful governments (Campbell, 2003).

Dysfunctional or ineffective governments often lack the capacities (e.g. to develop, update and enforce land-use standards and building codes) or an appropriate financial base (e.g. to build and maintain trunk infrastructure and services). They are ‘dys-functional’ as they cannot undertake their basic core functions. The ample spectrum and variance in the annual spending per person by city governments within and across countries provides an indication of the differential in the resources available to them (Satterthwaite and Dodman, 2013). Lack of financial resources and capacities sometimes also combines with unrepresentative city governments that by choice ignore the needs of those most at risk, particularly low-income households in
informal settlements, and are hostile to forge synergies to work with them to address everyday risk conditions (Satterthwaite, 2011; Adelekan et al., 2015).

Therefore, while cities and the municipal jurisdiction might offer an appropriate and legitimate level for local disaster risk management, the enactment of this opportunity largely depends on how competent, adequately resourced and accountable their city governments are to integrate the management of disaster risk into existing city planning, infrastructure investment and public service provision (Satterthwaite, 2013). The concept of the ‘capable state’ suggested by Palmer, Moodley and Parnell, (2017) to elaborate on the example of post-apartheid South African cities might be useful here for at least two reasons. Firstly, to emphasise the key role of local governments towards the universal provision for basic infrastructure and services, which can reduce the differentials in exposure to everyday risk between low- and high-income groups. Secondly, to not discredit the role of municipal governments in low- and middle-income nations purely on financial terms as there is much more a ‘capable’ municipal government can do, for instance, by orienting the decisions and investment choices of other actors in the city through its regulatory prerogatives, awareness-raising and education (Johnson, 2011; Satterthwaite, 2011). The latter, however, relies on the level of understanding of political leaders and civil servants about what managing disaster risk means and entails. In practice, disaster risk management is still perceived as an additional burden for local governments and buy-in from the multiple sectoral agencies represents a big challenge (Hardoy, Pandiella and Velásquez Barrero, 2011; Satterthwaite, 2011). This moves the discussion to the configuration of DRM as a new policy paradigm.

2.2.4 The configuration of a new policy paradigm

Advances in conceptual developments in disasters and disaster risk research were stimulated by, and simultaneously informed, international policy debates and discourse during the International Decade for Natural Disaster Reduction (IDNDR) that culminated with the International Strategy for Disaster Reduction (ISDR) in 1999. Under the auspices of the United Nations Office for Disaster Risk Reduction
(UNDRR)\textsuperscript{18}, the transition towards DRM in the international agenda was signalled in the Hyogo Framework for Action 2005-2015 and reconfirmed a decade later through the Sendai Framework for Disaster Risk Reduction 2015-2030 (UNISDR, 2005, 2015b). Since the Hyogo Framework, the concept of ‘disaster risk’ begun to be employed in international policy discourse and by specialised international organisations, aiming to replace the ingrained concept of ‘natural disasters’ (Ríos and Natenzon, 2015). The Sendai Framework placed greater emphasis on addressing the underlying causes of disaster risk in the face of an escalating trend in economic losses resulting from devastating events and the accumulation of extensive risk (UNISDR, 2009, 2011, 2013, 2015a).

In the light of this context, renowned experts in disaster risk refer to a new ‘paradigm’ (Lavell and Maskrey, 2014). Paradigm is understood as ‘the dominant imaginary’ or ‘the dominant discourse’, and the paradigm shift entails “replacing an imaginary of extreme, exogenous events with an imaginary of managing risks in day-to-day development processes” (Lavell and Maskrey, 2014, p.273). Broadly, this paradigm shift might be interpreted as ‘transformation’ (see Section 2.2.2). Others insinuate the concept of ‘policy paradigm’, acknowledging the relevance of urban governments in DRM processes (Fraser, Pelling and Solecki, 2016). This is somehow the approach suggested by UNDRR when defining disaster risk reduction (DRR) as the policy objective and disaster risk management (DRM) as the application of DRR policies and strategies (UNDRR, 2019f).

However, ‘paradigm’ and ‘policy paradigm’ are usually taken for granted and rarely discussed in the disaster risk literature. Adaptation research further introduces the concept of an emergent ‘policy field’ or ‘policy domain’, but without specifying what contributes to its configuration nor what elements define it (Carmin, Anguelovski and Roberts, 2012). Hall's (1993) notion of policy paradigm is useful to account for paradigm shifts, while Massey and Huitema (2013) provide some indicators on how to characterise consolidated policy fields\textsuperscript{19}. Drawing on Hall's

\textsuperscript{18} Originally designated as UNISDR, the office was created in 1999 to guide the implementation of the International Strategy for Disaster Reduction (ISDR). Since 2019, the acronym to designate the UN office has been changed into UNDRR (UNDRR, 2019h).

\textsuperscript{19} The three distinctive features of policy fields are substantive authority, institutional order and substantive expertise (Massey and Huitema, 2013).
(1993) definition, this research considers disaster risk management as an emergent policy paradigm (see Section 2.3.1). Whether DRM should become a dedicated policy field is debatable, with some advocating for its more diluted integration across other areas of public policy rather than becoming a distinct and stand-alone field on its own (Lavell and Maskrey, 2014; Twigg, 2015).

Thinking of DRM as a nascent policy paradigm might be relevant to analyse a transition at two different levels. In the first place, DRM represents a transition of approach, that is, the path from emergency management to disaster risk management. This can be described as a one-off, conceptual and methodological transition, since DRM proposes a new working methodology that is compatible with the new conceptual approach, that evolves throughout a relatively long-term process. Secondly, disaster risk management is defined as an ongoing process and, as such, it can be associated with a permanent transition in practices or ‘ways of doing’. The dynamic and changing nature of disaster risk factors (including hazard or combination of hazards and the dynamism of exposure and vulnerability) deems necessary this continuous adjustment on the practice side of DRM. This is even more relevant considering the extensive nature of urban flood risk and the anticipated changes in the frequency and magnitude of hydro-meteorological events due to anthropogenic climate change.

Framing disaster risk management as a policy paradigm endorses the understanding of DRM as a complex social process, moving away from the prevailing focus on the hazardous event as the defining characteristic of the stages in that process. It further emphasises where primary responsibility for disaster risk production lies and from where the agency of the process to reduce and manage risk can emanate, and it might be more useful in providing an orientation about how to enact DRM within the broader paradigms of sustainable and transformative development in urban contexts. Considering DRM in these terms entails that those who adopt and deploy this policy paradigm should go through a transition of ideas that inform their decisions and actions. It is here where the lens of institutionalisation can enhance our understanding of how individuals and the organisations of which they are part adopt, embed and adjust new concepts and related practices in their everyday work.
2.3 The institutionalisation of change in the municipal state

Institutionalisation has gained prominence in understanding processes of change, particularly in areas such as gender, the environment, urban sustainability, disaster risk management and urban climate adaptation and mitigation (Levy, 1996, 1998; Allen and You, 2002; Young, 2002; Young, King and Schroeder, 2008; Anguelovski and Carmin, 2011; Carmin, Anguelovski and Roberts, 2012; Aylett, 2013, 2015a; Twigg, 2015; Persson, Eckerberg and Nilsson, 2016; Göpfert, Wamsler and Lang, 2019). Even more, it has lately received particular attention in accounting for the pivotal role of municipal governments in steering processes of change in some of those areas. Across this literature, institutionalisation has been particularly attractive to understanding not only the incorporation of new ideas or approaches within organisations, but also the translation of these ideas into practices and implementation. This understanding of institutionalisation has been mainly drawn from what is broadly known as organisational or sociological institutionalism. That is, the application of institutional theory to the study of organisations (Powell and DiMaggio, 1991; Greenwood et al., 2008b).

The foundation works of modern organisational institutionalism can be traced back to the end of the 1970s and the beginning of the 1980s (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). Building on these conceptual foundations, a growing interest emerged in explaining not only the endurance and permanence of institutions but also how they arise, change and with what consequences in organisational settings (Greenwood et al., 2008a). This brought the concept of institutionalisation to the fore, understood most fundamentally, as a process of ‘social change’ (Tolbert and Zucker, 1983). In this context, institutionalisation can been defined as “the process whereby social practices become sufficiently regular and continuous to be described as institutions” (Abercrombie, Hill and Turner, 2000, p.180). Institutions, in turn, are defined as “social practices that are regularly and continuously repeated, are sanctioned and maintained by social norms, and have a major significance in the social structure”

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20 Some consider sociological institutionalism as one of the three schools of thought within the new institutionalism or neo-institutional theory, the other two being rational choice institutionalism and historical institutionalism (Hall and Taylor, 1996; Campbell, 2004).
(ibid, p.180). This marked an important change from the original ‘taken-for-granted’ view of institutions to more agentic processes of institutionalisation that recognise that “changes in social practice both modify existing institutions and create novel forms” (ibid., p.180)21.

The influence of organisational institutionalism has spread across disciplines, which further depicts the fruitfulness of a broad field which has found much of its theoretical and analytical potential in the synergies with other theories and fields (Greenwood et al., 2008b). This potential is advanced by some scholars drawing on the idea of ‘institutionalisation’ and who combine insights from institutional theory with other theories and disciplinary fields in their attempts to understand processes of change in municipal government organisations that result from the challenges posed by new complex urban issues such as climate change. Among these theories, policy innovation, organisational science and actor network theory have been juxtaposed with institutional insights (Rutland and Aylett, 2008; Anguelovski and Carmin, 2011; Carmin, Anguelovski and Roberts, 2012; Aylett, 2015b; Göpfert, Wamsler and Lang, 2019). Inspired by this scholarly work, this research proposes a refined understanding of institutionalisation to consider how municipal governments adopt new and transversal policy paradigms to address changing urban issues (e.g. disaster risk).

To start with, institutionalisation can be defined as the process whereby concepts and related practices linked to an emerging and cross-cutting policy paradigm become embedded in the different departments of a municipal government. These eventually become routines (e.g. everyday concepts and practices) as the incorporation of the new policy paradigm entails the modification of the specific type of core work of each of those departments, and they nurture inter-departmental and inter-organisational innovation as to constantly accommodate to the changing conditions that define the issue under consideration.

A few conceptual implications derived from this definition. In the first place, the focus is on the process of institutionalisation rather than on the anchoring of

21 Ideas such as ‘institutional entrepreneurship’ were central in advancing this line of thinking (DiMaggio, 1988; Dacin, Goodstein and Scott, 2002; Garud, Hardy and Maguire, 2007).
institutions, which is in line with the process-oriented understanding of disaster risk management (Lavell, 2003). Secondly, the object of the institutionalisation process are not formal/informal institutions, but rather a rationale of continuous openness to change within a specific policy paradigm (DRM) or in relation to a specific policy issue (disaster risk). Thirdly, the process is conceptualised as to be constituted by phases, which are not linear nor clear-cut, but which are nevertheless useful to explain instances of permanence and disruption of concepts and practices. Specifically, three phases of institutionalisation are identified, namely: 1) emergence, 2) embeddedness and 3) sustained change.

The following sections explore different strands of literature to characterise each of the phases across which the process of institutionalisation unfolds. Section 2.3.1 starts with well-known theories of the policy process to explain the emergence of new policy paradigms. Drawing on organisational institutionalism, Section 2.3.2 compares ‘mainstreaming’ and ‘institutionalisation’ as two distinct approaches to the translation of cross-cutting policies into departmental/sectoral practices, and proposes the concept of embeddedness to refer to the formation of everyday work routines. Section 2.3.3 explores different interpretations of sustained change, ranging from responsiveness to change, to adaptability to ongoing innovation that are mainly discussed in global environmental change literature. Section 2.3.4 concludes with insights from network theory to account for the organisational landscape within which municipal governments exist and operate and the possibilities that networked spaces create for the institutionalisation of new policy paradigms.

Figure 2.1 synthesises the main concepts that are discussed in the following sections, including the phases of institutionalisation of the new policy paradigm (disaster risk management) and what do they represent for the leading organisation (municipal government).
Noteworthy, the figure also highlights the broader notion of ‘institutionalisation of change’ to refer to the different types of change that characterise each of the phases, namely: punctuations, incrementalism and adaptability\textsuperscript{22}. The latter is of particular relevance given the research gap identified by the Integrated Research on Disaster Risk (2011):

“Commonly identified in previous investigations are poor building standards, planning and design of infrastructure and human settlements. Less frequently addressed are questions concerning how and why decisions were made and management options chosen. This applies not only to major policy choices but to the many everyday incremental decisions and social and cultural practices, beliefs and perceptions that shape the resilience and vulnerability of communities” (Integrated Research on Disaster Risk, 2011, p.8, my emphasis).

The previous quote pinpoints a gap in the understanding of underlying drivers of disaster risk production and reduction, specifically in relation to two types of change: major changes (e.g. abrupt change through policy agenda setting) and incremental

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\textsuperscript{22} The notion of ‘institutionalisation of change’ can be already traced back to the work of Tolbert and Zucker (1983).
change associated with everyday practices, beliefs and perceptions. In short, it underscores the need to consider different types of change in tandem and to focus not only on practices but also more intangible aspects such as beliefs and perceptions.

2.3.1 Emergence and early adoption of new policy paradigms

The institutionalisation of a policy paradigm implies that it has to emerge first. Drawing on Kuhn’s (1970) scientific paradigms, Hall (1993) defines a policy paradigm as a system of ideas or interpretive framework within which policymakers in a particular field of policy work. The concept of policy paradigm emphasises the role that ideas or ‘the overarching terms of political discourse’ play in policymaking and, perhaps more importantly, how the flow of ideas might influence policy change (Hall, 1993). In this context, the emergence of a policy paradigm can be framed as a paradigm shift or change of policy paradigm.

Hall (1993) identifies three orders of policy change, from the most elemental to radical shifts, based on three key components of policy: 1) changes in the settings of policy instruments; 2) changes in the policy instruments themselves; 3) changes in the (hierarchy of) overarching goals behind policy, which are associated with experimentation and lessons learned from policy failures. A paradigm shift entails simultaneous changes in all three components of policy, that is, a modification in the overarching goals, instruments and settings of a policy in a particular field.

In explaining paradigm shifts, classical theories of the policy process can contribute to a better understanding of policy change within and across governments. Among these theoretical approaches, there are at least three of particular relevance: 1) the multiple streams framework, originally developed by Kingdon in 1984 \(^{23}\); 2) punctuated equilibrium theory; and 3) innovation and diffusion models (Weible and Sabatier, 2017). The multiple streams framework and punctuated equilibrium theory focus on agenda setting and policy change within a single government, and are therefore useful for advancing our understanding of the emergence of new policy paradigms. Innovation and diffusion models provide interesting analytical elements for a relational exploration of how new policies are adopted and diffused across

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\(^{23}\) Multiple streams framework is the current denomination to refer to further refinements of Kingdon’s original model (Herweg, Zahariadis and Zolnkhöfer, 2017).
governments or governmental units in terms of early and late adoption\textsuperscript{24} (Tolbert and Zucker, 1983).

Regarding how new issues enter the policy agenda, Kingdon (2003) introduces the concept of ‘policy windows’. They represent an opportunity for coupling three streams of processes that allow for the possibility of certain issues to become higher or ‘hot’ in the governmental agenda. The streams that come together at critical junctions are: 1) problem recognition, 2) the formation and refining of policy proposals and 3) politics. Critical junctions or policy windows might be the result of various factors, ‘focusing events’ such as disasters being one of them. Other factors include a new executive administration or changes of congressional committee chairs. Thus, windows are opened “by the appearance of compelling problems or by happenings in the political stream” (Kingdon, 2003, p.20). Which subjects receive serious attention by authorities is determined by problems and/or politics: problems as conditions that are considered necessary to be changed, and politics as the influence that is exercised by group pressures or electoral campaigns. It is policy entrepreneurs who can mainly exploit these opportunities when they arise, considering that windows open for only a short time and then close (Kingdon, 2003; Herweg, Zahariadis and Zohlnhöfer, 2017).

Focusing events might shift the level of public attention given to a problem, but other processes are necessary for these events to become problematised in the government agenda (e.g. the ‘national mood’ and the policy context) (Heikkila and Cairney, 2017). This might explain why, after many large disasters, no major policy change is observed and “the opportunity for transformation and change is rarely seized on” (Lavell and Maskrey, 2014, p.271). Noteworthy, there is an apparent understanding in the multiple streams framework that ‘focusing events’ are exogenous factors, an idea that does not accommodate well to the social production of disaster risk. Thus, disaster risk studies might challenge and reframe the notion of ‘focusing events’ by

\textsuperscript{24}The multiple streams framework and punctuated equilibrium theory are studies of policy change that compare the same policy over time in the same context. Innovation and diffusion models are a study of policy diffusion and convergence which compares the same policy over time in different contexts (Weible & Sabatier, 2017, pp.333-334).
considering them as the result of internal dynamics of the very same policy (and mainly political) process.

Punctuated equilibrium theory intends to explain, in a single theory, both stability and change in public policymaking; that is, policy stasis and policy punctuations. Like the multiple streams framework, it originally developed in the context of agenda setting in the US federal government, although it has been more recently expanded to other contexts (including local governments). The theory emphasises that “although policymaking often proceeds smoothly, with marginal or incremental accommodations, it also is regularly torn by lurches and significant departures from the incremental past” (Baumgartner, Jones and Mortensen, 2017, p.56). Equilibrium or near stasis is explained by issues being captured by a subsystem or community of experts, while disequilibrium or punctuations usually happen when issues are forced onto the macropolitical agenda (of the Congress and presidency) (Baumgartner, Jones and Mortensen, 2017). The latter recognises the distinction made by the multiple streams framework between the policy and political streams, and further confirms that major policy changes are often initiated in the political arena. Drawing on insights from punctuated equilibrium, Hall (1993) acknowledges that changes of policy paradigm become often intertwined with electoral competition and a broader societal debate.

Innovation and diffusion models have been among the most established and utilised theories to approach policy change in policy process research (Weible and Sabatier, 2017). Specifically, Berry and Berry's (1990) unified model of government innovation has been one of the most influential approaches, suggesting that both internal determinants and intergovernmental diffusion influence the probability that a government will adopt a new policy. Internal determinants cover motivation, mostly in relation to policy entrepreneurs, resources to overcome obstacles and other policies previously adopted that might influence the chances that the new policy will be embraced. The latter underscores the idea of ‘innovation interrelationships’

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25 Hall’s (1993) policy change typology differentiates between first order change (incrementalism), second order change (strategic action) and third order change (paradigm shift). The first two types refer to ‘normal’ policymaking, while the third one implies a radical shift. The author turns to punctuated equilibrium theory to account for stability and change of policy paradigms.
among a group of policies which, ultimately, might suggest something about the propensity of a government to innovate. Regarding diffusion, the adoption of a policy by one governmental jurisdiction might be influenced by the policy choices of other governments in at least five ways: learning, imitation, normative pressure, competition and coercion (Berry and Berry, 2017). A similar argument was already posed by Tolbert and Zucker (1983) to explain the adoption of new civil service procedures by municipal governments in the US. Their findings confirm that internal determinants of municipal administrations (e.g. efficiency and improvement of operations) tend to explain early adoption, while late adoption is related to social legitimation of new procedures (e.g. by the sanctioning of a state law) and consequent diffusion across municipalities.

Noteworthy, innovation and diffusion models solely focus on intergovernmental diffusion (across national, state or local governments), disregarding the possibility of diffusion across state and non-state organisations (e.g. non-governmental organisations, research institutes or international organisations) or diffusion within a single organisation (e.g. municipal government).

Climate change scholarly research has been drawing on some of these theories of policy change to account for the emergence of priorities in the government agenda, including climate change policy in municipal governments (Rutland and Aylett, 2008; Anguelovski and Carmin, 2011; Wamsler and Pauleit, 2016). Others have been more critical of classical theories of the policy process arguing that they fail to explain the genesis of new policy fields such as climate change, that is, how they come about in the first place since they are usually taken as given (Massey and Huitema, 2013). A distinction was made in Section 2.2.4 between ‘policy paradigm’ and ‘policy field’, emphasising the relevance of the concept of ‘policy paradigm’ in accentuating the role of ideas in policy-making and how these ideas change. In this regard, classical theories of the policy process have a valuable contribution to make.

Addressing DRM from the perspective of municipal governments entails that disaster risk can be considered a societal issue and disaster risk management a policy paradigm to tackle that problem. Even more, since DRM is a relatively new subject
for local governments in medium-sized cities in low- and middle-income countries, it can be regarded as a nascent policy paradigm (Lavell and Maskrey, 2014; Twigg, 2015). This includes the example of the municipal government of Santa Fe that created and implemented the first municipal DRM policy in a context where neither the national nor the provincial governments had embraced this approach to disaster risk (Viand and Briones, 2015a).

Drawing on literature of the policy process, in general, and policy change, in particular, might be pertinent to understand what allows disaster risk management to gain traction in the agenda of municipal governments. While large disasters seem to prevail, some emphasise that endogenous enablers characterise early adopters while diffusion is preponderant in late adoption (Carmin, Anguelovski and Roberts, 2012). Furthermore, “a focusing event may temporally increase momentum, but it fails to secure institutionalised routines and practices for mainstreaming” (Runhaar et al., 2018, p.1209). This highlights two important things: political leaders might capitalise on focusing events, but once momentum has passed something else needs to be in place to guarantee the sustenance of the new policy paradigm under consideration.

Literature on policy change focuses on the emergence and early adoption of a policy, which are deemed relevant to understand how new policy paradigms emerge within and across municipal governments, but it does not pay enough attention to how new policies are sustained in time, even less to how they adapt to changing conditions. On the one hand, this emphasises that nascent policy paradigms mirror the political momentum of new ideas, which Kingdon (2003) describes as “an idea whose time has come” (ibid., p.1). On the other hand, this turns our attention to a different sphere that transcends the rise of problems in the public agenda and their translation into policy alternatives, and moves to the sustenance of their related practices. In other words, not only initiating but also sustaining action (Carmin, Anguelovski and Roberts, 2012). Besides drivers of change, it is also important to think about the conditions that enable concepts and practices to stabilise as long as they are useful or relevant. It is here where institutional theory, in general, and organisational (sociological) institutionalism, in particular, become relevant.
2.3.2 Embedding cross-cutting policies in the everyday of municipal governments

Disaster risk, like climate change, are cross-cutting issues. Therefore, policy alternatives to address them should also have a transversal nature (Aguirre Madariaga, 2015b, 2015a). Traditionally, cross-cutting topics have been approached using a ‘mainstreaming’ or ‘integration’ lens, particularly in gender and the environment (Adelle and Russel, 2013; Wamsler, 2015b). In the DRM field, the international community has been strongly advocating for risk reduction mainstreaming since the World Conference on Disaster Risk Reduction in 2005, building on experiences from mainstreaming other cross-cutting issues such as HIV/Aids and gender (Wamsler and Pauleit, 2016). Conversely, the idea of institutionalising cross-cutting policy paradigms or approaches within organisations, with few exceptions, has been less explored (Levy, 1996, 1998; Twigg, 2004, 2015; Göpfert, Wamsler and Lang, 2019). Although they are often used interchangeably, ‘mainstreaming’ and ‘institutionalisation’ are rooted in different assumptions and hence have different connotations (see Table 2.1).

Table 2.1: Comparison between mainstreaming and institutionalisation

<table>
<thead>
<tr>
<th>Mainstreaming</th>
<th>Institutionalisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emphasis on cross-cutting nature of policy</td>
<td>Emphasis on nascent nature of policy paradigm</td>
</tr>
<tr>
<td>Sectoral approach</td>
<td>Organisational approach</td>
</tr>
<tr>
<td>More technical</td>
<td>More social</td>
</tr>
<tr>
<td>Directionality of change: unidirectional</td>
<td>Directionality of change: relational</td>
</tr>
<tr>
<td>Focus on practices (useful for ongoing transition of practices)</td>
<td>Focus on concepts (useful for one-off conceptual transition)</td>
</tr>
</tbody>
</table>

Addressing cross-cutting issues usually spurs the idea of mainstreaming. In this regard, mainstreaming relates more to the cross-cutting nature of certain policies rather than to the nascent or emergent character of their approach. The emphasis on the cross-cutting element often translates into the association of mainstreaming with a sectoral approach, that is, the incorporation of a certain aspect into the core work of different sectors (Wamsler, 2014). In the case of adaptation mainstreaming, for example, it refers to “the inclusion of climate risk considerations in sector policy and

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27 This is despite the connotation of mainstreaming as “a perturbation in the natural order of things” (Wamsler, 2015b, p.2).
practice” (Wamsler et al., 2017, p.257, my emphasis). The sectoral emphasis then results in a technical perspective of mainstreaming, usually associated with the specificities of each sector, and a rather unidirectional rationale in the incorporation of the new aspect into each specific sector. Finally, mainstreaming tends to focus on practices, that is, “to integrate a new topic into existing and often ingrained ways of operating” (Wamsler, 2015b, p.2, my emphasis). The latter is linked to the understanding of mainstreaming as a mode of policy implementation (Massey and Huitema, 2013; Birkland, 2016), which has resulted in various policy guidelines and tools for governments and development organisations to aid the implementation of DRR/DRM and climate change adaptation (La Trobe and Davies, 2005; Benson and Twigg, 2007; Wamsler, 2015a; Wamsler and Brink, 2016). This has led some scholars to conclude that “mainstreaming is a technocratic exercise, which is unlikely to change social relationships” (Wamsler, 2015b, p.12).

Institutionalisation, instead, starts with the premise of a new policy paradigm to address certain cross-cutting issues. Thus, the underpinning system of ideas, including an understating of the transversal nature of the issue under consideration, lies at the core. In gender studies, for example, Levy (1996) refers to ‘new perspectives’ and ‘underlying policy approaches’ to gender that might result from ‘a paradigm challenge’. In explaining shifts in policy paradigms, Hall (1993) asserts that this process “is likely to be more sociological than scientific” (ibid., p.280). That is, eventually, “supporters of a new paradigm secure positions of authority over policymaking and are able to rearrange the organization and standard operating procedures of the policy process so as to institutionalize the new paradigm” (ibid., p.281). Ultimately, at the centre, is the degree to which policy paradigms become embedded in the operating procedures and departmental routines of an entire organisation.

The sociological roots of institutionalisation are reflected in definitions such as “the process whereby social practices become sufficiently regular and continuous to be described as institutions” (Abercrombie, Hill and Turner, 2000, p.180). Hence, “while institutions shape social practices, at the same time those social practices constitute and reproduce institutions” (Gupta et al., 2010, p.460). In this regard,
institutionalisation refers to the dynamic nature of the formation of social practices and emphasises “the interactive and creative dimensions of the process whereby institutions are socially constructed” (Hall and Taylor, 1996, p.950). At the organisational level this means that, instead of thinking of siloed departmental changes in practices, it is in the social relations within and between departments from where change emanates (Aylett, 2013, 2015b). Lastly, institutionalisation considers not only ‘ways of operating’ but also ‘ways of thinking’, which might provide a complementary perspective to the practice-oriented mainstreaming lens.

Wamsler (2015b) acknowledges that the mainstreaming approach has been criticised in relation to various cross-cutting topics, including disaster risk reduction, on the basis of the risk of concept co-option, mainstreaming overload and diluted responsibilities. However, the mainstreaming strategies framework that she proposes for disaster risk reduction and climate change adaptation overcomes those criticisms (Wamsler, 2014). The author identifies various mainstreaming strategies, being sectoral mainstreaming one and arguably the most elemental of them. Beyond sectoral mainstreaming, organisational mainstreaming is recognised, which provides a broad-based perspective to the incorporation of the new aspect across an entire organisation. Two additional strategies complete her framework, which relate more to the conceptual understanding of the new topic in other urban organisations (inter-organisational mainstreaming) and in professional and educational spheres (educational mainstreaming). These strategies are complementary and reinforce each other, and they should all be deployed if a sustainable disaster risk reduction process is to be in place (Wamsler, 2014, 2015b; Wamsler and Pauleit, 2016). Therefore, this research considers her framework closer to the institutionalisation approach rather than to conventional conceptualisations of mainstreaming that exclusively focus on the sectoral add-on of a new topic. In addition, the focal point in her framework is ‘implementing organisations’ (e.g. city governments), which further confirms a common ground between her work and this research.

Thus far, the comparison has been framed between ‘mainstreaming’ and ‘institutionalisation’, but it is deemed useful to consider a separate concept to focus

28 First introduced by Wamsler in 2014, subsequent versions of her original work have refined the framework (Wamsler, 2015b; Wamsler and Pauleit, 2016).
specifically on the process whereby revised practices become ingrained in the everyday work of individuals and the organisations to which they belong. Here, the concept of embeddedness might be useful to specifically designate the process whereby social practices become routinised or everyday through repetition and familiarity. This is consistent with the broader understanding of public policy as both ‘rules-in-paper’ and ‘rules-in-use’ proposed by Weible and Sabatier (2017). In other words, “not just the formal structures of government as written down and adopted by officials and other authorities but also the actual rules-in-use that structure the day-to-day behaviors of actors engaged in policy process situations” (ibid., p.9). In short, addressing public policies as rules-in-use might contribute to a better understanding of the ways in which policies are embedded within and across government organisations, especially in regards to bureaucrats who tend to be in charge of implementation (Aylett, 2011; Uittenbroek, 2016).

In the context of organisations, including municipal bureaucracies, routinisation has been usually associated with mechanic repetition, inertia and resistance to change (Feldman, 2000; Aylett, 2011). This argument has been posed by some in climate adaptation mainstreaming to identify organisational routines as potential barriers to implementation (Uittenbroek, 2016). While these scholars recognise the importance of considering organisational practices when discussing the incorporation of climate adaptation in municipal governments, an alternative approximation to everyday practices and routines ‘in-the-making’ might be more productive. The latter is useful to concede the possibility of (organisational) change in the reproduction of practices (Feldman, 2000). Furthermore, not only practices are important but also concepts. In exploring the internal dynamics of organisational routines, Feldman (2000) emphasises that her perspective “moves away from viewing routines as either behavioral or cognitive and toward thinking about routines as something that includes both of these aspects” (Feldman, 2000, p.613). In organisational institutionalism, these two things go in tandem: ‘beliefs’ and ‘practices’, ‘meanings’ and ‘actions’, ‘values’ and ‘practices’. The underlying assumption is that the

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29 This is the conventional understanding of institutionalisation in Sociology (Abercrombie, Hill and Turner, 2000). However, for conceptual clarity and analytical purposes, a separate concept is suggested here to refer to one of the phases of the entire institutionalisation process. ‘Embeddedness’ has been widely used in organisational institutionalism to refer to ingrained, appropriate or taken-for-granted institutions in the organisational context (Greenwood et al., 2008b).
meanings that humans attribute to a situation influence how they act in relation to it (Greenwood, Suddaby and Hinings, 2002; Zilber, 2002; Levy and Scully, 2007).

All in all, the embedding of concepts and practices related to a new policy paradigm as to become routinised or quotidian is important for a couple of reasons. In the first place, it reinforces the relevance of the new policy paradigm while making it something inherent to the regular work of an organisation – contrary to an add-on subject and transient activities (Wamsler, 2014; Göpfert, Wamsler and Lang, 2019). Secondly, in the making of the everydayness, in the iterative nature of routines, there is an underlying idea of incremental change (Feldman, 2000; Aylett, 2011).

Lavell (2003) has been one of the few scholars to theorise about disaster risk management as an everyday concept and practice, building on the premise that disaster risk is produced on a continuous and daily basis: “How does one reach the stage at which risk management is assumed as a process, as a notion and as part of daily practice?” (Lavell, 2003, p.10). To answer this question, it is useful to review some of the frameworks that operationalise the incorporation of new policy paradigms into the daily practices of organisations, in general, and of municipal governments, in particular.

Climate change policy draws on the well-established work of environmental policy integration (EPI) (Runhaar, Driessen and Uittenbroek, 2014). The operationalisation of EPI as a process of day-to-day policy making mainly focuses on integration through administrative mechanisms and structures, including “hierarchical instruments; bureaucratic rules and standard operating procedures; staff training; specification of outputs and/or tasks; horizontal instruments; and mission statements” (Adelle and Russel, 2013, p.5). Likewise, institutionalisation frameworks identify similar entry points to embed a new policy paradigm in organisational routines. Levy's (1996) web of institutionalisation and Göpfert, Wamsler and Lang's (2019) adaptigation\textsuperscript{30} institutionalisation framework pinpoint to the following elements:

\textsuperscript{30} The label refers to the joint institutionalisation of climate change adaptation and mitigation.
organisational structures, standard operating procedures, internal training and plans. These elements frame everyday organisational practices, while simultaneously being reframed by those who enact these practices.

Integration, mainstreaming and institutionalisation underscore the tension of how to address cross-cutting issues within organisations (Levy, 1992; Runhaar et al., 2018). Some distinguish between a dedicated approach vis-à-vis a mainstreaming/integrated approach (Uittenbroek et al., 2014). Others consider a more balanced perspective as to avoid the risk of sectorisation (Wamsler and Pauleit, 2016). Lavell and Maskrey (2014) are quite critical of conventional mainstreaming and insist on the need for considering DRM ‘inside’ day-to-day development. The abovementioned indicators suggest various entry points to address the tension between the specificity and transversal nature of policy paradigms that aim to tackle cross-cutting issues.

The embedding process through the routinisation of practices which was described in this section approximates to the conventional definition of institutionalisation (Abercrombie, Hill and Turner, 2000). This research, then, expands the understanding of institutionalisation by adding two additional dimensions: the emergence of a policy paradigm and the ongoing adjustment of existing practices to keep pace with the changing conditions that define disaster risk. The work of Levy (1996, 1998) already anticipates the subsumed understanding of institutionalisation as sustained change, which is the topic of the following section.

2.3.3 Sustained change: between responsiveness, adaptation and innovation

Thus far, institutionalisation has been conceived as ‘initiating and sustaining action’ (Carmin, Anguelovski and Roberts, 2012). The idea of ‘initiating’ emphasises the element of sudden, abrupt change with the emergence of a new policy paradigm, while the concept of ‘sustaining’ refers to the regular practices that incrementally make the new approach part of the everyday work of an organisation. However, the notion of ‘sustain’ can be equally associated with the idea of ‘sustained change’. Levy (1996) states that sustained change “recognises the basic conflict between the

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31 Levy’s (1993) web of institutionalisation identifies 13 elements, the following being circumscribed by some under the ‘organisational sphere’: policy/planning; mainstreaming location of responsibility; procedures; staff development (Allen and You, 2002).
regular practices of organisations (…), and their responsiveness to change” (ibid., p.1). Hence, sustained change is underpinned by an intrinsic tension between permanence and change.

There are various ways of interpreting ‘sustained change’ in processes of institutionalisation. For some, it is about responsiveness to change. For a long time, this has been the prevailing approach in the disasters and hazard risk discipline and the related emphasis on ‘emergency response’ and ‘responding to’ disasters (see Section 2.2.2). This understanding has been criticised for securing the status quo (Lavell and Maskrey, 2014). However, for Levy (1996), responsiveness to change means the possibility of changing power relations and interest configurations within and across organisations, particularly in response to pressures of political constituencies. Thinking about the political underpinnings of disaster risk and its management, responsiveness entails the capacity of municipal governments to respond positively to citizen demands; that is, ‘receptive political systems’ (Satterthwaite, 2013). Citizens’ claims and group pressures were considered critical in the emergence phase (see Section 2.3.1), but they can be equally relevant in opening up spaces in which municipal governments jointly learn from and experiment with other actors in the city to address disaster risk and other urban issues (see Section 2.3.4).

A second interpretation of sustained change refers to adaptive organisations, an idea that mainly developed alongside climate change adaptation research (Pelling et al., 2008; Gupta et al., 2010; Pelling, 2011; Leck and Roberts, 2015; Paterson et al., 2017). While large changes and incrementalism have concentrated the attention of policy process research, less attention has been paid to the dynamics of adaptability in (municipal) government organisations (Kingdon, 2003). Here, complex adaptive system perspectives provide a radically different understanding of how organisations change, shifting “attention away from planned change to the “messy” processes of self-organization that produce unpredictable emergent change” (Shaw, 1997, p.235). Specifically, complex networks of adaptive agents “are capable of spontaneous novelty and emergent strategy” (ibid., p.235). In the light of the uncertainty which is posed by climate change, this translates into the need “to proactively respond
through planned processes and deliberate steps, but also through cherishing and encouraging spontaneous and autonomous change” (Gupta et al., 2010, p.459).

In the context of municipal governments, this spontaneous and creative type of change seems to unfold in rather imperceptible or unnoticed ways, across to what some refer as ‘shadow spaces’ (Pelling et al., 2008; Paterson et al., 2017). Defined as relational spaces within organisations that cut across or surpass formal organisational structures and processes within policy, they are important for learning, reflection and experimentation (Pelling et al 2008, p.868). Similarly, Leck and Roberts (2015) refer to ‘what lies beneath’, depicting the ‘invisible aspects’ that account for the significant inner social workings that contribute to learning and decision-making for adaptation in municipal governments. These scholars draw on the notion of shadow systems from literature on complex and creative organisations (Stacey, 1996; Shaw, 1997).

A third and final interpretation of sustained change considers the notion of a culture of innovation, which has gained prominence in the literature on mitigation policy and urban low carbon transitions (Anguelovski and Carmin, 2011; Aylett, 2011, 2013; Luque-Ayala, Marvin and Bulkeley, 2018). Succinctly, this can be defined as ‘institutionalising innovation’ in municipal government organisations (Aylett, 2013). This is deemed relevant given the recognition that “urban transitions are always unfolding and in the making” (Luque-Ayala, Marvin and Bulkeley, 2018, p.26).

Anguelovski and Carmin (2011) refer to ‘a culture of innovation and cooperation’ stimulated by mitigation policies: “Although institutionalisation is often associated with inertia and routine behaviour, cities where mitigation programs have been in place for a number of years often continue to experiment with different modes of climate governance” (ibid., p.171). Enabling a culture of innovation in the context of municipal governments, against resistance to change and supportive of learning and experimentation, echoes Berry and Berry’s (2017) concept of ‘innovation interrelationships’, that is, the likelihood that previous policy choices have an impact on the adoption of new policies. Among the factors that might explain this, some

32 Uncertainties further expand to social, economic and political changes (Pelling et al., 2008).
emphasise that cities that have been pioneers in mainstreaming climate adaptation usually had a record of previous experience in mainstreaming other cross-cutting issues, which highlights not only interrelations and learning, but also existing local processes and structures to advance this kind of approaches within municipal governments (Wamsler and Pauleit, 2016; Wamsler et al., 2017).

The work of Alexander Aylett on urban climate policy expands this line of research, focusing on the internal dynamics and functioning of municipal bureaucracies (Aylett, 2011, 2013, 2015a). His research reflects on the notions of ‘sustained innovation’ and ‘institutionalising innovation’ through collaborative and decentralised types of arrangements. Two important concepts are key in his work. The first one is the notion of ‘untraining incapacity’, which challenges conventional understandings of organisational culture as reproducing trained incapacity in bureaucracies (Aylett, 2011, 2013). This is relevant to acknowledge the possibilities that new policy paradigms might encourage not only for learning but also unlearning, including different ways of working with others. The second and related concept is ‘decentralised innovation’. Here, Aylett (2011, 2013) emphasises the potential of transversal issues to simultaneously activate two dynamics within an organisation: they can decentralise innovation, as they require the involvement of multiple departments; they can ‘bridge’ or bring together sectoral departments to jointly address the issue under consideration. Under this logic, then, innovation emanates from the relations between departments that operate at the fringes.

These dynamics have been also explored in organisational institutionalism to explain from where the entrepreneurial potential of elite firms in mature fields emanates (Greenwood and Suddaby, 2006). Similar to state bureaucracies, firms within mature organisational fields like accounting have been often understood as conservative and resistant to change. Greenwood and Suddaby (2006) challenge that argument by identifying two contradictory forces underpinning endogenous change in those contexts: ‘boundary bridging’ and ‘boundary misalignment’. These two processes are particularly relevant since they can sharpen awareness of alternatives. This is likely to happen as actors “come into contact with contradictory logics because they bridge organisational fields” or “become immune to coercive and normative processes.
because their market activities expand beyond the jurisdiction of field-level regulations” (Greenwood and Suddaby, 2006, p.27).

DRM being a transversal policy paradigm, it might encourage those dynamics of ‘bridging’ and ‘trespassing’ well-established boundaries between and across sectoral bureaus in a city government throughout the process in which it becomes institutionalised. It is across these dynamics from where the potential for innovation is realised. Importantly, these collaborative and decentralised processes of change might not necessarily unfold within (new) formalised organisational structures. They might also follow the pattern of a rather messy, spontaneous and creative process of change that characterises ‘shadow spaces’ in organisations, including municipal governments (Pelling et al., 2008; Leck and Roberts, 2015).

Both interpretations of sustained change as adaptive organisations and a culture of innovation emphasise the predisposition and openness to change of municipal government organisations, but in a particular manner. That is, through learning and experimentation which are encouraged by particular organisational arrangements and more organic spaces. Thus, ‘sustained change’ is quite different from the incremental changes that emanate from everyday practices and organisational routines. The distinction between the ‘embeddedness’ and ‘sustained change’ phases, then, can be better understood in terms of the way of changing organisational practices: 1) through incremental changes in everyday routines, and 2) through episodes of learning and more spontaneous experimentation.

To recapitulate, the previous sections introduced two phases of the institutionalisation of DRM: (1) the emergence of a new policy paradigm and (2) the embedding of related concepts and practices in the everyday life of municipal government organisations. Here, the focus has been placed on the possibilities for sustaining change given the dynamic nature of disaster risk (including climate change risk). Ultimately, this is about “expanding the focus – from preventing or resisting climate hazards – to a broader systems framework in which we learn to live and cope with an ever-changing, and sometimes risky, environment” (Wamsler et al., 2017, pp.257-258). Thus, in this thesis, sustained change is conceived as the
predisposition to change of municipalities based on learning and experimentation to accommodate to the contingent nature of disaster risk and to an ever-changing environment.

The relationality of integrated network structures and shadow spaces for learning and experimentation has been highlighted as one of the key elements in enabling responsiveness to change, organisational adaptability and/or building a culture of innovation within municipal governments. However, the relational dimension of the institutionalisation of DRM expands beyond the realm of a single organisation to consider the linkages with other organisations. Thus, it is suggested that a co-evolving process of institutionalisation unfolds within an organisation and across its relations with others.

2.3.4 Organisational landscape and networked spaces

Levy (1996, 1998) places the institutionalisation of gender in any particular organisational setting in the broader context of an organisational landscape. Borrowing the term from Safier (1993), organisational landscape is defined as “the configuration of the public, private and community sectors in any particular context” (Levy, 1996, p.17). Similarly, in disaster risk research, Tierney (2014) emphasises the need to pay attention to ‘organisational ecologies’, that is, the multi-organisational networks in which individual organisations operate and which are particularly relevant in the diffusion of ideas and practices. The role of networks in the transmission of ideas and practices has been a core element in organisational institutionalism, which can be already traced back to some of its foundational works (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). Even more important, perhaps, is the explicit recognition in more recent work that networks and institutions mutually shape one another in a co-evolutionary process. This acknowledges the generative potential of networks; that is, how institutional practices emerge from networks (Owen-Smith and Powell, 2008). Thus, networks are considered “both a circulatory system and a mechanism for sensemaking” (ibid., p.602).
The transmission of ideas and practices across organisations in institutionalisation processes recalls the notion of diffusion in Berry and Berry's (1990) unified model of government innovation and Tolbert and Zucker's (1983) work on early and late adoption of reform in municipal administrations (see Section 2.3.1). Berry and Berry (2017) identify five mechanisms underlying policy diffusion in the literature and acknowledge that multiple mechanisms can be in place and even change over time. Learning occurs when one jurisdiction adopts a policy previously adopted by other government on the basis of its effectiveness or success, while imitation tends to rather emulate a recognised ‘leader’ or ‘role model’ government independently of evaluating the character or effectiveness of a policy. Normative pressure considers the adoption of policies based on their wide adoption and legitimacy, competition explains adoption to achieve an economic advantage over other jurisdictions and coercion entails adoption based on incentives or mandate by a more powerful government.

Studies of policy diffusion focus on intergovernmental processes of institutionalisation, whether across national, state or municipal governments. However, mechanisms such as learning might also unfold across different types of organisations, which is acknowledged by some institutionalisation and mainstreaming frameworks (Levy, 1996; Wamsler, 2014). Even more, policy diffusion models have tended to consider diffusion simply as ‘transmission’, disregarding the possibility of the productive or generative potential of the relations between organisations. Echoing Owen-Smith and Powell (2008), it is not just policy ‘diffusion’ (the network as a circulatory system) but also the possibility of framing and reframing a policy across this process (the network as a mechanism for sensemaking).

Against this backdrop, and given the leading role of municipal governments in disaster risk management processes in cities (see Section 2.2.3), the focus moves to their linkages with other organisations and the resulting networked spaces that enable the institutionalisation of DRM through diffusion but also framing and reframing of ideas and practices. In short, the focus is on the productive nature of networked spaces to activate change. Here, literature on disaster risk, climate change and
sustainability at the urban scale identifies two relevant networked spaces: 1) policy-academia interfaces and 2) city-to-city networks (Remig and Wiese-von Ofen, 2013; Johnson and Blackburn, 2014; Luque-Ayala, Marvin and Bulkeley, 2018).

Remig and Wiese-von Ofen (2013) consider the institutionalisation of interfaces as a prerequisite for sustainability transformations, providing the example of the Local Agenda 21 process in Essen (Germany) as a continued fora of interfaces between city administrations, non-state organisations, interested companies and citizens. Regarding academia-policy interfaces, Levy’s (1996, 1998) web of institutionalisation highlights the reinforcing mechanisms between applied research, theory-building and the delivery of programmes and projects, which somehow corresponds to Wamsler’s (2014) mainstreaming strategy in the professional and education spheres. Likewise, the framework of Luque-Ayala, Marvin and Bulkeley (2018) suggests that learning and experimentation towards urban low-carbon transitions is increasingly boosted through the transferring of knowledge between academia and practitioner communities as well as transnational municipal networks.

City-to-city networks might take multiple forms, but transnational municipal networks working on issues such as climate, energy and sustainability have received considerable attention in climate change research (Bulkeley, 2010; Luque-Ayala, Marvin and Bulkeley, 2018). Examples include ICLEI Local Governments for Sustainability, C40 Cities Climate Leadership Group and The Rockefeller Foundation 100 Resilient Cities initiative. The UNDRR Making Cities Resilient campaign offers a relevant example of a growing network of municipal governments working towards disaster risk management in cities (Johnson and Blackburn, 2014; Amaratunga et al., 2018). These networks play a critical role in terms of learning and knowledge exchange across municipal governments, but they can also become a space throughout which cities start to advance their own agendas and gain room for political manoeuvre in international negotiations or for influencing other levels of government (Betsill and Bulkeley, 2007; Kern and Bulkeley, 2009).

The productive role of networks, both within and across organisations, might provide a complementary perspective to relatively recent conceptualisations of governance in
disasters and disaster risk research (Tierney, 2012; Waddell, 2016). As Tierney (2012) emphasises, “network-analytic approaches seem especially well suited to the study of governance arrangements, but to date, their use has been limited” (ibid, p.358). Networks are relevant for underscoring the relationality of processes of change, although they have been equally criticised for overlooking agency (May and Powell, 2008). However, it can be equally argued that networked spaces signal a new type of agentic process of change based on relational agency, where the ‘network’ becomes a unique type of actor on its own (Aylett, 2015b; Luque-Ayala, Marvin and Bulkeley, 2018). In this regard, referring to ‘the new agents of sustainability transformation’, the examples of Mieg (2013) cover transdisciplinary research, partnerships of sustainability-oriented universities and specialised transnational networks. This marks a turning point in the understanding of agency, from individual agentic actors to agency emanating from the relations between them. Nevertheless, the understanding of governance as ‘a system of governing’ is a useful reminder of issues of power and the differential opportunities that actors might have within networked configurations (Rydin, 2010; Wamsler, 2014). Ultimately, this reflects a concern around the question of who steers, and who can steer, any agenda for change: “Who is weaving the web?”, as Levy (1996, p.15) poses regarding her web of institutionalisation.

2.4 Conclusion

Risk and disasters brought about different social sciences to reflect upon the social construction/production of disaster risk. While a fruitful and vibrant exercise, it has never fully managed to amalgamate nor consolidate the multiple, sometimes contentious, perspectives very well though. The work of LA RED was an initial answer to this conundrum, by looking beyond the disciplinary entry points and proposing an understanding of disaster risk in relation to sustainable development, first, and transformation, later on. The lack of a clear understanding of the issue at stake has also made it difficult to have a consistent approach towards its

33 There is a prolific literature on urban climate governance (Bulkeley, 2010). Some of the latest proposals begin to recognise the productive potential of networks (Rutland and Aylett, 2008; Aylett, 2015b).
management, and a technical perspective has prevailed over more social approximations.

The dearth of theorisations with holistic and transdisciplinary perspectives is reflected in limited process-oriented and dynamic approaches to disaster risk, both in terms of its production but mainly its management and reduction. The latter highlights the need for a drivers of change type of analysis, including potential ‘pathways’ or ‘trajectories’ of change. Thinking of this process from the perspective of municipal governments has remained under-investigated in disaster risk research, even when their role has been increasingly recognised in both scholarly and policy discourse. Institutionalisation, an approach that has been advanced in other disciplines and fields to understand change in organisations, offers a fruitful ground on which to build an understanding of the possibilities for municipal governments to lead disaster risk management processes in cities.

The definition of institutionalisation proposed by this research provides an organisational and process-based approach to understanding DRM processes that are steered by municipal governments as the leading organisations at the urban scale. Three phases of institutionalisation have been contoured and corresponding theories and concepts suggested to characterise their main features and dynamics. However, the process of institutionalisation should be considered as a unified one. Even more, the common element that brings these phases together is change, which justifies the idea of the institutionalisation of change in the municipal state.
PART III  Research design
Chapter 3  Research approach and methodology

3.1  Introduction

This chapter presents the research design that underpins my thesis and the main arguments that justify the multiple choices I have made along the process. Section 3.2 begins by introducing the chosen research strategy, including the ontological and epistemological assumptions informing an abductive logic of enquiry, and the single-case study as the appropriate method for data selection, including the rationale for an exceptional case. The selection of the case includes what Yin (2014) defines as ‘bounding’, that is, delimiting ‘the case’ or unit of analysis. Not only the geographic and temporal scales of the case are delineated but also the units of analysis that constitute an embedded single-case study. A description of the array of research methods for generating and analysing primary and secondary data is provided in Section 3.3. Special attention is given to the multiple sources of evidence for triangulation purposes in the generation of data, while the emphasis is placed on the mechanisms for theorising (or generalising, according to some) in the data analysis. The analytical framework is introduced in Section 3.3.3. This is followed by a reflection on the overall quality of the research design (Section 3.4), ethical considerations and research limitations (Section 3.5) and my positionality towards the research and the researched (Section 3.6).

Acknowledging the multiple, sometimes contradictory and inconsistent, methodological approaches and classifications adopted in various textbooks of social research methods, my project follows Blaikie's (2007, 2010) overall logic of social research design and builds upon Mitchell (1983), Small (2009) and Yin (2014) to justify the relevance of case study in the generation of theory in social science research. The latter is of relevance in the context of an abductive research strategy, in general, and of a single-case study, in particular.

3.2  Abductive research strategy and embedded single-case study

A research strategy provides a logic of enquiry for advancing social scientific knowledge. That is, it constitutes a device for answering research questions, with a specific starting point, end point and set of procedures in between the two,
ultimately, to generate new knowledge. Each research strategy embodies a specific combination of ontological and epistemological assumptions, which entails the researcher being explicit about her/his view of social reality and her/his ideas of how knowledge can be generated (Blaikie, 2010).

An abductive research strategy guides my research, abduction being defined as “a process by means of which the researcher assembles lay accounts of the phenomenon in question, (...) and, in an iterative manner, begins to construct her or his own account” (Blaikie, 2010, p.156). This definition is consistent with an idealist ontology and the epistemology of social constructionism. The idealist type stands on the premise that “[s]ocial reality is made up of shared interpretations that social actors produce and reproduce as they go about their everyday lives” (Blaikie, 2010, p.93). In this regard, there are two key ontological assumptions underlying my research that make an abductive research strategy suitable to orient the overall design of the project, namely:

- Disaster risk is socially constructed

  “Most hazard is a reflection of both socially constructed as well as physical processes; exposure is a reflection of how social relations of production unfold in territory and geography; while vulnerability characterizes a range of social, economic, political and cultural conditions” (Oliver-Smith et al., 2016, p.5).

- Disaster risk is historically produced

  “(…) historical processes, operating asynchronously at different spatial and temporal scales, configure the specific circumstances in which disasters occur” (Oliver-Smith et al., 2016, p.5).

Acknowledging the multiple interpretations of reality that different actors might have, constructionism postulates that the role of social scientists in the production of social scientific knowledge consists of “reinterpreting this everyday knowledge into technical language” (Blaikie, 2010, p.95). Various ways of performing this

34 Noteworthy is the distinction between constructivism and constructionism, the former referring to the individual process of meaning-giving, the latter encompassing the collective exercise of knowledge generation and transmission (Blaikie, 2007, p.22).
‘translation’ role have claimed legitimacy, which requires critical reflection on behalf of the researcher in relation to her/his stance towards participants in the research, including the selection of certain methods for the generation and analysis of data over others. Whereas the purpose here has been to disclose the ontological and epistemological assumptions that informed my project, further elaborations will follow in the section on positionality.

To summarise, an abductive strategy aims to understand social life in terms of social actors’ meanings and motives. It develops theory that is grounded in the everyday activities and/or in the language and meanings of social actors. It proceeds by describing these activities and meanings in order to derive from them categories and concepts that can form the basis of an understanding of the problem at hand (Blaikie, 2010, pp.89-92). This research strategy suggests that a case study might be suitable as a method of selection of data from its source.

Different approaches, and hence definitions, of the case study abound in the literature. Whereas Blaikie (2010) considers case study as a method for selecting data, which is one of several elements of a research design, Yin (2014) regards case study as a type of research design on its own. However, Yin’s definition of ‘case’, understood as the main subject of study or unit of analysis, approximates to Blaikie’s view. Moreover, the latter builds upon the former to elaborate on the specificities of case study, which is also the direction taken here. Thus, my research adheres to Blaikie's (2007, 2010) ideas on the philosophical approach to social science research and overall research design, but it benefits from Yin (2014) and others regarding the rationale for selecting a case and the strategies and techniques for generalising case study findings with the final objective of theory development (Mitchell, 1983; Small, 2009; Yin, 2014).

Yin (2014) argues that there are at least two main reasons that justify the use of case studies. In the first place, the complexity of the social phenomenon under analysis, the understanding of which deems necessary an extensive and in-depth description. Secondly, the contemporary nature of the phenomenon being studied, over which the researcher has little or no control, or where relevant behaviours cannot be
manipulated (as in the case of experiments). In short, a case study can contribute to a thorough understanding of a complex and contemporary social phenomenon such as the institutionalisation of disaster risk management in the everyday life of municipal government organisations.

When using case study as the method for selecting data, it is important to consider two additional elements: the number of cases and of units of analysis. Regarding the first criterion, the options are single-case or multiple-case studies. In terms of units of analysis, a holistic case study has only one unit of analysis, while an embedded case study may have a sub-unit or a number of sub-units (Yin, 2014). My research design is based on an embedded single-case study. The city of Santa Fe, the first municipality in developing and implementing an urban disaster risk management policy in Argentina, is analysed over a ten-year period. The primary study site is represented by the city of Santa Fe, Argentina, while the temporal scale covers three consecutive political administrations that extend from December 2007 to December 2017.

The case study has been selected based on the distinctive experience of one specific municipal government, in a context where the provincial and national governments were still driven by the traditional Civil Defence emergency management approach. Therefore, the rationale underpinning the selection of the single-case study is what Yin (2014) calls the ‘extreme’ or ‘unusual’ case, in comparison to regular situations. Similarly, Mitchell (1983) refers to ‘deviant cases’. According to Blaikie (2010), these types of extreme, deviant or least likely cases serve better the purposes of theory building and theory testing vis-à-vis the use of typical cases which might be more useful for generalising. The exceptional case selected by this research is aimed, mainly, at elaborating theory rather than testing a pre-existing solid theoretical framework. Specifically, the case study is used to understand the process throughout

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35 A third reason might include the preferences of the researcher or her/his department, although this applies to the entire research design and not just the selection of a particular type of method of selecting data (Blaikie, 2010).
36 The third political administration is only covered for the first two years (Dec2015-Dec2017). The cutting point is defined by the end date of the researcher’s fieldwork.
37 Despite alleged changes towards a DRM paradigm, preparedness for response and response were still the focus of both provincial and national governments. A key example was the remaining denomination of Civil Protection in the title of the new national law: National System for Integral Risk Management and Civil Protection (Congreso de la Nación Argentina, 2016).
which disaster risk management becomes an everyday concept and practice in municipal government policy, planning and management.

The main reasons that justify the selection of the case relate both to the context of the city and the particularities of its municipal government. Part IV expands on the contextual and case characteristics, but a summary is provided here to justify the exceptional nature of the case. The combination of the following elements makes the case distinctive:

- Flood risk (extensive/intensive, fluvial and pluvial) has been a historical problem for small and medium-sized cities in the Litoral region of Argentina, but the city of Santa Fe experienced the two largest disasters in April 2003 and March 2007 (Celis, 2006; Celis and Herzer, 2009). The flooding of the Salado river in 2003 represented one of the major disasters in the history of Argentina in terms of damages and losses (Negri and Zagalsky, 2005; Secretaría de Ambiente y Desarrollo Sustentable, 2015).
- In December 2007, an alternative political coalition took office in the city and province of Santa Fe and, for the first time since the return of democracy in 1983, challenged the hegemony of the Partido Justicialista (PJ)\(^\text{38}\). Since then, the Frente Progresista, Cívico y Social (FPCyS) has been governing the city with increasing political support in mayoral elections from low-income electoral districts, traditionally the constituency of the Peronist party (Unión Cívica Radical Santa Fe, 2016).
- Santa Fe has been the first municipality and still the only formalised experience in the country in initiating and sustaining an urban disaster risk management process over a ten-year period of time\(^\text{39}\) (Viand and Briones, 2015a).
- The city of Santa Fe is considered a ‘good practice’ case study in international circles, a role model city of the UNDRR Making Cities Resilient campaign and member of the 100 Resilient Cities (100RC) initiative pioneered by The Rockefeller Foundation. It was the first Argentinean city in joining the UNDRR

\(^{38}\) Popularly known as the Peronist party.

\(^{39}\) It is possible to identify other DRM experiences at sub-national levels within the country, including provinces (e.g. Mendoza and Neuquén), metropolitan areas (e.g. Resistencia) and neighbourhood initiatives. However, by the end of 2017, it was not possible to find other formalised and long-term examples at city or municipal scale.
campaign in 2010 (37 cities by 2018) and the 100RC in 2014 (only followed by Buenos Aires in 2017). In Latin America, the Making Cities Resilient campaign reported 24 signatory cities by December 2011 and 1,899 by June 2018. The 100RC platform has 16 member cities in the region, including Santa Fe.

The temporal scale of the case study covers a ten-year period from December 2007 to December 2017, including both historical as well as contemporary events. Figure 3.1 summarises the three combined criteria that were considered for defining the temporal scale, namely:

1. Political cycles at municipal, provincial and national government levels, according to the elections for executive positions, which are significantly stronger in Argentina due to its presidential system\(^{40}\).
2. The materialisation of large-scale disasters, which includes the two largest flooding events in the history of the city in April 2003 and March 2007.
3. Paradigm shifts or changes in the policy approach to (urban) flooding, specifically, or disruptive events, in general.

\(^{40}\) In the province of Santa Fe, the governor and city mayors are elected every four years, like the president at national level since the constitutional reform of 1994. Re-election of the governor is not permitted, while the mayor of Santa Fe at the time of fieldwork was the first one consecutively re-elected in the history of the city.
Given my interest in the institutionalisation of new ideas and related practices, the main selection criterion responds to the third rationale. However, it is worth noting that my project does not have a comparative purpose per se. Hence, it is not aimed at contrasting the institutionalisation of the three policy paradigms identified in the graph (disaster management, disaster risk management and resilience), but rather at exploring the institutionalisation process of one of them, that of disaster risk management. Succinctly, to understand the conditions that enable the emergence, embeddedness and sustained change of the disaster risk management paradigm.

While the third criterion from the list above has been prioritised, the other two elements are not completely disregarded. Instead, these are considered as potential entry points for emergence, embeddedness and/or sustained change. That is, enablers of the institutionalisation process. When the main unit of analysis is a municipal government, it is important to consider political or electoral cycles, either to explain change or the stability of policy paradigms. The culmination of 2007 marked a significant political change at provincial and municipal government levels in Santa Fe, not coincidentally after two large disasters affected the capital city. Since then, the same political coalition has remained in power for three consecutive municipal
administrations, which seems to have contributed more to the institutionalisation process rather than introducing significant changes. Instead, replacements of non-directly-elected authorities in key positions, often designated by the mayor in office, appear to be more important (e.g. replacement of DRM Office Director). While changes at municipal and provincial government levels might not have been fundamental during this decade, changes at the national government level have been (especially with the arrival of a new political coalition in 2015).

In sum, my project focuses on the decade between December 2007 and December 2017. Within this period, I argue that the institutionalisation of DRM unfolds throughout all its phases. As Figure 3.1 shows, there is an incipient transition towards resilience that could be regarded as the emergence of a new policy paradigm. This brings to the fore another important consideration: changes of policy paradigm are not clear cut, but rather occur in an overlapping manner. A suggestion for future studies might be a longitudinal rationale for the same case study, where time intervals would cover the three different approaches identified in the timeline and, within each of them, would consider emergence, embeddedness and sustained change, accordingly.

After ‘bounding’ the spatial and temporal dimensions of the case, it is necessary to define its units of study. The embedded nature of the single-case study means that more than one unit is considered. Specifically, it is possible to identify three embedded units of analysis in this single-case study. In decreasing order, from the broader unit to the nested ones, these sub-units are:

- **Main unit of analysis:** municipal government of the city of Santa Fe (Executive and Legislative branches)
- **Intermediary units of analysis:** departments (for the Executive) and commissions (for the City Council)
- **Smallest unit of analysis:** individuals (leaders such as the mayor, DRM Office director, chief resilience officer, city councillors who presented most DRM-related projects) and executive programmes within each department (Monitoring and operations programme in the DRM Office; maintenance of urban drainage
programme in the Department of Water Resources; improvement of road network programme in the Department of Public Works; integrated solid waste management programme in the Department of Environment).

The focus of my research is on the organisational arena. Thus, the primary unit of analysis is the municipal government of the city of Santa Fe considered as an organisation as a whole. Subunits unpack this integral entity into some of its parts, starting from the departments and commissions which mediate the organisation and individuals, and followed by leaders and programmes that ascribe meaning and enact everyday practices.

Finally, as reviewed in the literature, the inter-organisational linkages deserve attention when analysing institutionalisation processes within a single organisation. In this regard, there are two alternatives for considering this dimension:

1. Linkages with organisations of the same nature (e.g. other municipal governments). This includes relations with neighbouring cities (Santo Tomé) and with local governments in transnational city-to-city platforms.
2. Linkages with local organisations of a different nature. This covers civil society organisations active in urban habitat issues in low-income neighbourhoods (Canoa and MLST) or working on disaster risk awareness and disaster response (Caritas Santa Fe) as well as the auxiliary role of Red Cross Santa Fe to public authorities in humanitarian services. It also includes the university.

41 With a population of 66,133 inhabitants (2010), Santo Tomé constitutes the second biggest city of what is known as Greater Santa Fe (CRCLATAM, 2018b). Conglomerado Gran Santa Fe (Greater Santa Fe) is the division used by the National Institute of Statistics and Census (INDEC) for statistical and census purposes. Greater Santa Fe includes: Santa Fe, Santo Tomé, Recreo, Sauce Viejo and San José del Rincón. The Interinstitutional Cooperation Programme for the Emergency (ProCIFE) also includes Monte Vera as there is a channel that overflows in times of heavy rains and affects the city of Santa Fe downstream.

42 The auxiliary status and role of Red Cross National Societies (including their local branches at subnational levels) is one of the main distinctive features that differentiates them from non-governmental organisations and other civil society organisations that undertake humanitarian tasks. It entails that they are expected to support and supplement public authorities at all levels of government in the humanitarian field, whilst preserving their independence to act in accordance with the fundamental principles of the International Red Cross and Red Crescent Movement. It is a simultaneously independent and mutually reinforcing role that characterises the relationship between National Societies and public authorities. The translation of the auxiliary status into practice varies from country to country and it depends on the national context and legislation (International Federation of Red Cross and Red Crescent Societies, 2012, 2015).
faculties, FADU and FICH, of the UNL public university) and one professional association (Professional Association of Architects of the Province of Santa Fe).

A few reasons justify the focus on these linkages. In the first place, they represent the organisational landscape in which the municipal government operates. Secondly, these organisations are closely intertwined with the main unit of analysis and contribute to the institutionalisation of DRM within the municipal government. Thirdly, they might work as contrasting cases that either emphasise the exceptionality of the municipal government (vis-à-vis other local governments) or the leadership of the municipal government in managing disaster risk in the city (vis-à-vis local organisations of a different nature).

Importantly, bearing in mind that the main unit of analysis is the municipal government of Santa Fe, these other organisations are only considered in their relations with the municipal government rather than individually (for example, the research does not look at how the institutionalisation of DRM takes place within each of them). Even more, linkages with different organisations have distinct relevance depending on the phase of the institutionalisation process within the municipal government.

3.2.1 Research participants

Research participants were selected based on the three embedded units of analysis of the main case and the organisational landscape 43. The selection of research participants followed a combination of two techniques: sampling for range and snowballing (Small, 2009). An initial step was to pinpoint those organisations who were part of the Municipal Disaster Risk Management System created by municipal ordinance in 2008 (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a). This was followed by the identification of sub-categories in order to consider a given

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43 Research participants encompass all individuals I interviewed. Additionally, some of them were observed in their working environment and/or invited to participate in a focus group. For details of research participants and methods, see Table 3.3.
number of participants for each category, although the exact number of participants by sub-group was not defined at the beginning.\footnote{According to the logic of grounded theory, this is something that cannot be determined before the study begins as it is heavily influenced by the categories and hypothesis that emerge as the research proceeds (Blaikie, 2010, p.143).}

Regarding the municipal government, those departments from the Executive branch whose roles and responsibilities were detailed in the two manuals of procedures for heavy rains and for rising river levels were given priority for consideration (Gobierno de la Ciudad de Santa Fe, 2012a, 2013a). Following this preliminary approach, the ‘most accessible’ research participants were interviewed who, in turn, would recommend and refer me to other participants.\footnote{My main gatekeepers were the original ‘architects’ of the DRM municipal system. They were receptive to my research project and responsive to my questions from the beginning. The recognition they have both within and outside the municipal government certainly facilitated the referral process.} In general, within the municipal government, I would start with the heads of departments who would already know me from previous workshops or meetings I had attended. It would be them who later referred me to people in lower ranks I also wanted to interview.

Regarding participants from the organisational landscape, other levels of government and local organisations who were originally defined as part of the Municipal Disaster Risk Management System and invited to participate in workshops and activities during the first years were identified (Universidad Nacional del Litoral, 2009). Representatives from other levels of government included participants working in water resource management and civil protection/emergency management, while local organisations spanned auxiliaries, civil society organisations, universities and professional associations. As for other municipal governments, participants from the second biggest city in the area were selected as well as international local government leaders in the DRM field.

The total number of research participants by unit of analysis together with the number of semi-structured interviews that were conducted are summarised in Table 3.1. Semi-structured interviews were the main research method for generating data from research participants outside the municipal government of Santa Fe.
Table 3.1: Research participants by unit of analysis

<table>
<thead>
<tr>
<th>Unit of analysis</th>
<th># Research participants</th>
<th>Semi-structured interviews</th>
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<tr>
<td>Main unit of analysis</td>
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<tr>
<td>Municipal government of Santa Fe</td>
<td>37</td>
<td>45</td>
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<td>Organisational landscape</td>
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<td>Other municipal governments</td>
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<td>7</td>
</tr>
<tr>
<td>Other levels of government (provincial and national)</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Auxiliaries and civil society organisations</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>University and professional associations</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>76</td>
</tr>
</tbody>
</table>

3.3 Research methods for data generation and data analysis

The nature of the research suggested that mainly qualitative methods were appropriate for data generation and data analysis. Blaikie (2010) indicates that qualitative methods tend to suit better abductive research strategies because of their focus on social actors’ meanings, motives and interpretations. For triangulation purposes, various qualitative research methods were designed to generate data, while careful consideration has been given to these various sources of evidence during the analysis.

3.3.1 Data generation: case study evidence from multiple sources

Throughout the lifespan of the project, I had the opportunity to deeply immerse myself and explore the institutionalisation process of disaster risk management from the perspective of local governments. I was able to do so mainly across two scales:

- Locally, by grounding my research in the specific case study of Santa Fe where I joined the daily activities of the municipal government and contextualised my project in the state-of-the-art research of local and regional scholars.
- Internationally, by participating in global and regional platforms (UNDRR Global platform, Mercociudades), interviewing representatives from diverse local governments working in the field, joining workshops organised by international organisations and networks (UNDRR, UN-HABITAT, 100RC, C40) and collaborating in the development of policy guidelines and reports together with a community of dedicated advisors, researchers and subject-matter experts.
The immersion experience mainly expanded across an eleven-month fieldwork (January-November 2017). During this time, a series of qualitative research methods was used for generating primary data in natural and semi-natural social settings and for collecting secondary data from social artefacts. The distinction between primary and secondary data reflects the distance of the researcher from the original source of data, which has further implications on her/his ability to control the quality of the data and validity of the research. Primary data refer to new data generated by the researcher who is responsible for the design of the study, while secondary data account for data that have already been collected by someone else (either by another researcher for a different research project or by an organisation such as a municipal government for statistical and reporting purposes).

In my research, primary data were generated through:

- participatory observations at two relevant departments in the municipal government;
- 58 semi-structured interviews with representatives from the municipal, provincial and national government levels;
- 18 semi-structured interviews with representatives of other key urban actors;
- facilitation of a focus group with municipal government representatives; and
- attendance at 20 multi-actor workshops and advisory board meetings related to the research topic.

In addition, archival research was pursued to complement primary data with secondary sources.

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46 Fieldwork was preceded by a two-week pilot in April 2016. During this time, I conducted some interviews and I made arrangements for potential placements at the municipality in the following year.

47 The natural social setting includes the place where participants conduct their daily work and the generation of data while they undertake their everyday tasks. Semi-natural social setting covers the place where participants conduct their everyday work (e.g. municipal office or maintenance plant), but they are abstracted from their everyday tasks to generate data (e.g. during an interview); it might also include the simulation of everyday tasks or situations in a focus group. Social artefacts refer to statistics and documents produced by research participants as part of their job (e.g. censuses, reports, manual of procedures or plans) (Blaikie, 2010).

48 Blaikie (2010) further distinguishes between secondary and tertiary data, on the basis of whether data collected by a third party are available in raw form (e.g. data sets or interview transcripts) or have been already processed and analysed, respectively. In the latter case, the possibility of the researcher to access and manipulate the original raw data might be limited.
There is a rationale underpinning the sequence of research methods (see Table 3.2). However, it is important to acknowledge that when doing participatory research the chronology of methods might unfold quite spontaneously, without necessarily following a fixed schedule the researcher defines alone but rather according to her/his level of involvement in the social setting of which she/he is temporarily part. For example, I would constantly adapt to the agenda of the offices where I was doing my placements and participate in those activities to which I would be formally invited, or informed about, through the press mailing list of the local government⁴⁹.

Table 3.2: Chronology of fieldwork

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
</tr>
<tr>
<td>1</td>
<td>Archival research</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Participatory observations - My Diary</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Internship at DRM office</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Internship at Resilience office</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Coordination of interviews</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Interviews with DRM Office rep.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Interviews with international reps. (5th UNDRR Global Platform)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Interviews with municipal reps. in Santa Fe</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Interviews with municipal reps. in neighbouring municipalities</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>UNDRR Scorecard workshop with municipal reps. in Santa Fe</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Interviews with other key organisations</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Attendance at events organised by others</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Report for UNDRR Americas with results from Scorecard workshop</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Processing and synthesis of secondary data</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Preliminary analysis for feedback report for DRM and Resilience offices</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Sharing feedback report with research participants</td>
<td></td>
</tr>
</tbody>
</table>

Participatory observations were held at the DRM Office (February-October) and Resilience Office (April-June) through a placement scheme, alternating days but on average three days a week. The placement at the DRM Office allowed me to trace the daily activities of the area, including the follow up of the Water Route activity with primary and secondary schools and a UNL-FICH extension programme supported by the office. It also facilitated access to affected neighbourhoods during a flooding period and attendance at raising awareness activities conducted by COBEM in municipal day-cares and apprenticeship schools in low-income settlements (usually the same that have been traditionally affected by fluvial and pluvial floods). The shorter stay at the Resilience Office coincided with the last stage of the

⁴⁹ My personal e-mail address was added to the press mailing list of the municipal government upon my request.
resilience strategy development under the framework of the 100 Resilient Cities initiative. Thus, I had the opportunity to participate in various 100RC multi-stakeholder workshops, a meeting of the Resilience Advisory Board and the launching event of the final strategy. During these placements, I kept track of my daily observations in what became a two-hundred-page diary. Only after a certain time spent at these two offices, did I conduct my interviews with some of their members\textsuperscript{50}.

Semi-structured interviews were conducted following sampling for range and snow-balling techniques. Most of my interviews addressed representatives of the Executive branch of the municipal government of Santa Fe, current and former, including politically appointed authorities as well as technical bureaucrats (permanent and temporary)\textsuperscript{51}. In total, 43 interviews were held at this level covering the following departments: DRM Office, Resilience Office, Water Resources, Public Works, Solid Waste Management, Education, Communications, Cooperation Agency, Urban Planning and Habitat Agency. Additionally, two representatives of the City Council were interviewed, including the councillor who presented most ordinance projects on the topic of flood risk management and the secretary of the Commission of Urban Planning, Habitat, Public Works and Disaster Risk Management. Research participants were interviewed following this order, starting with those that specifically work on disaster risk management and urban resilience, followed by others from the operational bureaus with physical intervention in the city, continuing with the subtler role of personnel dealing with meaning formation and citizen culture, and concluding with representatives of the department that has generated most difficulties in incorporating the DRM approach – that is, urban planning, both from an executive and legislative perspective. Details of research participants from the main unit of analysis and their involvement in various research methods can be found in Table 3.3.

\textsuperscript{50} A third placement was originally planned at the Habitat Agency, but I did not have time to accomplish this.

\textsuperscript{51} The distinction between authorities and bureaucrats is based on the categorisation used by the municipal government in public indicators (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). Authorities are divided between government personnel (secretaries and sub-secretaries) and cabinet personnel (executive directors and coordinators), while bureaucrats include both administrative and technical personnel who work on a permanent or temporary basis.
In order to dig into the specificities of each department of the Executive branch, I approached representatives of different areas with a series of questions structured around a list of topics. The underpinning rationale was to develop a common ground for the analysis independently of the departments that were considered. The final structure of the interview can be summarised as follows:

1. Organisational structure of the department (including human resources and budget)
2. Main functions and responsibilities of the department
3. Role of the department in the DRM process (before, during and after a flooding event)\(^{52}\)
4. Conceptual and practical understanding of disaster risk management
5. Main challenges and achievements of the department in relation to managing disaster risk
6. Room for improvement: what would it need to change?

\(^{52}\) While an alternative temporal approach is proposed in this research that transcends the understanding of DRM in terms of before, during and after event, there is a reason that justifies the framing in these terms during interviews. This is the language that has been used within the municipal government and the way DRM has been usually framed (both in formal documents and in training sessions, presentations, communication materials and more informal conversations). Hence, it was the vocabulary to which research participants were used to and could easily understand.
To complement the perspective of the municipal government, 18 semi-structured interviews were conducted with representatives from other relevant organisations in the city. Beyond the city of Santa Fe, the biggest neighbouring city (Santo Tomé) and other levels of government were also covered, although with less level of detail. Five interviews were conducted in the municipal government of Santo Tomé, five at provincial government level and one at the national government. The remaining two interviews were held with DRM experts from Makati (Philippines) and Aqaba (Jordan), two role model cities of the *Making Cities Resilient* campaign, during the 5th UNDRR Global Platform in Cancun, México, in May 2018.

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Table 3.3: Main unit of analysis: research participants and triangulation of methods

<table>
<thead>
<tr>
<th>Branch</th>
<th>Department / Commission</th>
<th>Political administration (proxy)</th>
<th>Authority or Bureaucrat</th>
<th># Research participants</th>
<th>Semi-structured interviews</th>
<th>Focus group</th>
<th>Participatory observations (placements)</th>
<th>Participatory observations (events by others)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>Communications</td>
<td>Contemporary</td>
<td>Authority</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>DRM</td>
<td>Past</td>
<td>Contemporary</td>
<td>Authority</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bureaucrat</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Contemporary</td>
<td>Authority</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cooperation Agency</td>
<td>Contemporary</td>
<td>Authority</td>
<td>2</td>
<td>2</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Public Works</td>
<td>Contemporary</td>
<td>Authority</td>
<td>2</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>Contemporary</td>
<td>Authority</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Solid Waste Management</td>
<td>Contemporary</td>
<td>Authority</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bureaucrat</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>Contemporary</td>
<td>Authority</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Urban planning</td>
<td>Past</td>
<td>Authority</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bureaucrat</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Resources</td>
<td>Contemporary</td>
<td>Authority</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bureaucrat</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td>Urban planning</td>
<td>Contemporary</td>
<td>Authority</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>37</strong></td>
<td><strong>45</strong></td>
<td><strong>8</strong></td>
<td><strong>8</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

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53 Interviews in the city of Santo Tomé were held in the context of a CDKN action research project that focused on climate change adaptation in secondary cities in Latin America (CDKN, 2018; CRCLATAM, 2018a). I participated as an interpreter at one of the workshops with municipal government representatives, where I introduced myself to the main authorities and arranged a few interviews.
In total, 76 semi-structured interviews were conducted with 64 research participants until saturation was reached (see Table 3.1). The difference in the numbers can be explained by two factors: (1) in a few cases, more than one interview was conducted with the same research participant; (2) there were some interviews with two, three or more participants. Key informants and leaders in the process were usually interviewed twice, many during the pilot and again during the field research. In another few cases, some participants would extend the interview beyond one single meeting to provide detailed accounts of some issues in which I was particularly interested. Interviews with multiple participants occurred spontaneously and I had no control over the selection of interviewees. 10 out of the 76 interviews were conducted during the pilot study in April 2016. All semi-structured interviews were conducted in Spanish and lasted between one and two hours; they were audio-recorded and transcribed into Spanish, with no translation into English except for specific quotes used in the thesis.

After the interview period, I facilitated a focus group with nine municipal government representatives, eight of whom I had previously interviewed, around the topic of disaster risk management. The focus group was organised in the context of the UNDRR Scorecard piloting project in Latin America where the city of Santa Fe was selected among 50 other Latin-American cities. Therefore, it was structured around a pre-developed methodology, the Scorecard, the main objective of the activity being to test the usefulness of the tool (UNDRR, 2019b). I took this as an opportunity to facilitate a collective discussion between key research participants, as the Scorecard entailed a self-assessment of the municipal government of its progress on disaster risk reduction54. The entire pilot exercise consisted of three stages: (1) filling of the Scorecard matrix by two members of the DRM Office; (2) review and validation of the original Scorecard results during a focus group with other municipal government representatives; (3) follow-up focus group to validate the results from stage 2 with members of other local actors. I facilitated the second stage, while the third phase was led by UNDRR consultants and I participated as an observer. The focus group with municipal government representatives lasted five hours and was

54 The Scorecard self-assessment exercise is organised around the Ten Essentials for making cities resilient, a long-established check-point list for guiding the implementation of DRM at the local level (UNDRR, 2019g).
audio-recorded\textsuperscript{55}. In addition, I wrote a report to UNDRR Americas summarising the main results and including the completed matrix (see Figure 8.1).

Throughout the fieldwork, I attended several meetings, seminars and workshops which helped in contextualising my project in the broader agenda of the municipal government, the state-of-the-art research of academics in the region and the international debates in the DRM field (see Table 3.4). A few visits to the city of Buenos Aires allowed me to attend the 100RC launching event in the city of Buenos Aires and the National Meeting of Local Governments organised by the Argentine Network of Municipalities against Climate Change (RAMCC). Finally, I participated in the 5\textsuperscript{th} UNDRR Global Platform held in Cancun (Mexico), where the city of Santa Fe was representing the Mercociudades network\textsuperscript{56}. Attending 100RC workshops in Santa Fe and Buenos Aires, using the UNDRR Scorecard tool in Santa Fe, observing the CDKN action research project in Santo Tomé and participating in the UNDRR Global Platform allowed me to grasp the regional and international context in which the case study city was embedded as well as the subject matter leadership of Santa Fe in various Latin American and global platforms. Comprehensively understanding the case of Santa Fe requires a consideration not only of the influence of this context but also of the role that the city has played in it.

\textsuperscript{55} I was given oral consent by participants in the activity to audio-record the discussion and use these data in my research.

\textsuperscript{56} Mercociudades is the network of cities of the MERCOSUR. Santa Fe held the presidency of Mercociudades for 2016-2017 and incorporated disaster risk management as a key topic in the agenda of this regional network of cities. For more details, see footnote 221.
Archival research throughout fieldwork comprised mainly three sources of secondary data. In the first place, information provided by the DRM Office’s Monitoring and Operations Executive Programme included a compilation of reports with the number of evacuated people by flooding events and raw data on claims reported by residents during periods of protocol activation due to heavy rains. These data were deemed relevant to depict the flood risk profile of the city. Secondly, e-mails from the press mailing list administered by the Department of Communications would become a valuable source to capture how the local government depicted itself discursively to the public and to grasp the views of key individuals that I could not interview (e.g., city mayor). Finally, publications from the Statistics Office of the municipality, including the annual report Santa Fe Como Vamos, were also considered.
I devoted the last two weeks of the field period to writing a feedback report for the DRM and Resilience offices. A printed copy of the document was handed in to high-ranking members of these offices and shared with the former director of the DRM Office by e-mail. The latter was the only participant who gave me feedback via Skype. The report summarised my experience and contributions while at these two offices and consolidated preliminary reflections. Targeted at policy makers, it included a diagnosis section (with some tools for quick assessment) and suggestions for improvement that could potentially be considered for their future work.

### 3.3.2 Data analysis: generating theory from lay accounts

Prior to any analysis and selection of specific methods, the analysis of data entails a reflection upon the relation between theory and research, between theoretical ideas and data, in the abductive research strategy. Central to this discussion is the recognition that a well-developed theory is neither set out at the beginning nor produced at the end of the project; instead, the generation of theory is an iterative refinement exercise where “data and theoretical ideas are played off against one another in a developmental and creative process” (Blaikie, 2010, p.156).

Considering my experience through this lens, an intertwined process where theory and research were woven can be traced back. The initial stages of my research started with some sensitizing concepts, specially ‘institutionalisation’ and ‘mainstreaming’, and the diagrammatic representation of two analytical tools: Levy's (1996) web of institutionalisation and Wamsler's (2014) mainstreaming strategies framework. These two abstract models proved useful while in the pilot for screening and making sense of the sustained nature of the DRM process in the city of Santa Fe. Later on, during the 11-month fieldwork, lay accounts from research participants about their understanding of disaster risk management and their everyday practices for managing flood risk, ascribed meaning to those initial concepts and suggested preliminary linkages between them. Concepts such as ‘transversalidad’ (transversality) and ‘cultura de la prevención’ (culture of prevention) characterised the language of municipal government representatives.
The alternation between immersion episodes in the social world of research participants and periods of reflection away from their everyday realities, aided the elaboration of creative analogies and concepts while in the field. Among those moments of self-reflection where this two-way dialogue between data and theory materialised, I can recall a few: from notes during a two-week pilot, through documentation of my reflections in a field diary, to the testing and refinement of a semi-structured interview template, to the elaboration of a report for the departments where I conducted my placements, to the initial coding of different sources of evidence. Thus, analogies and concepts would mainly arise from embedding myself in participants’ everyday lives; they were my source of inspiration.

Some examples of these analogies and how they emerged in situ might be illustrative: ‘x-raying’, while drawing and re-constructing organisational charts during interviews; ‘jazz ensemble’, an image inspired by the former director of the DRM Office when recounting his job; ‘satellite offices’, based on the *sui generis* expression used by one of the interviewees to describe the nature of certain bureaus in the municipal government; ‘centrifugal and centripetal forces’, a visual representation evoked while talking with another participant about the role of a DRM Office. All these analogies are brought back in Part V and informed the analysis of empirical data.

Back from the field, the revision of complementary literature to frame what I had observed, contributed to the elaboration of a preliminary analytical framework. As an integral part of the iterative process of generating theory from data, it was delineated to guide the analysis of the multiple sources of evidence and more broadly to orient the writing exercise. Thus, a preliminary analytical framework at a post-fieldwork, mid-stage of my research process represented a ‘conscious’ attempt to connect data and theory with the ultimate objective of theory building in mind. All in all, my analysis of data has evolved as a steady, sometimes imperceptible, process and theoretical ideas have been insinuated alongside the generation of data as well as during the post-fieldwork analysis.
Acknowledging this background, it is time to move to the specific methods for data analysis. The analysis of data refers to the process and related techniques undertaken to relate data to research questions, in order to answer these initial interrogations and ultimately generate theory (Blaikie, 2010). In my analysis, I followed a grounded theory approach where the central activity has been a coding exercise which started from participants’ lay accounts of reality. Specifically, I used a range of qualitative techniques, ranging from open and axial coding, through categorisation or classification, to making connections between categories. The initial coding, development of categories and the sketching of emerging connections between them were performed manually, after all the interviews and the focus group were transcribed and participatory observations in the field diary cleaned up.

In coding the transcribed interviews, the initial open coding exercise was to code each interview itself, given the number and duration of interviews I conducted. Thus, I organised the interviews according to the organisation each participant represented, separating between interviews with members from the municipal government of Santa Fe and interviews with members from other organisations or levels of government. Interviews with municipal government representatives, in turn, were arranged by sectoral/departmental area and, within each area, by political authorities and bureaucrats (including street workers in operational bureaus). The objective was to grasp differences in the understanding of disaster risk management according to sector and type of job. After this preliminary attempt, a second exercise consisted of organising the interviews in a temporal manner. That is, to start with those who originally crafted and adopted the DRM policy paradigm in the municipal government, followed by those who joined later. Within each single interview, a similar approach was followed, highlighting temporal references to specific events or relevant changes in daily activities. This ‘meta coding’ was intended to avoid having copious individual codes that would not add much to answering my questions.

Axial coding followed by creating specific categories and assigning those categories to segments of text. Importantly, many of these categories emerged from the lay language of research participants and the reiteration of certain terms such as: DRM as a State policy; transversality/cross-cuttingness; operativity; protocols; critical
points; culture of prevention; role model; teaching/pedagogy. These categories were complemented with others that echoed the terms of the questionnaire and referred to internal relations (intra- and inter-departmental) and external relations (with other organisations), main challenges, and things to change or improve. In total, twenty codes were generated at this level and some connections delineated between the main categories. The transcribed focus group and notes from participatory observations aided this classification exercise and drawing of connections.

To illustrate the resulting categories and their relations, I used direct quotations from participants’ narratives in order to vividly portray their perceptions, knowledge and everyday vocabulary in Part V. I paid special attention to the temporal references participants made in their accounts (e.g. period when they were part of the government) and the sector/area where they worked, given the process and organisational-based nature of my approach.

3.3.3 Analytical framework

The analytical framework that is presented here is the synthesis of an ongoing crafting and refinement process throughout the two-way dialogue between my data and the existing literature. Thus, the categories of the framework and the connections between them resulted from participants’ lay accounts and my reinterpretation through the conceptual ideas I came across in the literature I reviewed. Characteristic of an abductive strategy, this was not a linear but rather iterative process.

The analytical framework consists of the three phases of institutionalisation and three lenses to unpack each of these phases (see Figure 3.2). The lenses, as broad categories, resulted mainly from the reiteration of certain concepts from participants when narrating their experience with disaster risk management in their everyday work57. A sort of temporality seemed to also emerge across these concepts, mainly when contrasting the narratives about the first years under analysis with more contemporary accounts. The review of the literature, as summarised in Part II, contributed with the three phases (emergence, embeddedness and sustained change) that make sense of those categories in a temporal manner.

57 I explain in more detail what these concepts are and how they emerge in Part V.
The diagrammatic representation of the analytical framework (Figure 3.2) illustrates the relations between the three phases and three lenses to explore the institutionalisation of cross-cutting policy paradigms such as DRM in municipal governments. The three analytical lenses are concept/practice, specific/cross-cutting and policy/planning/management. While they originally emerged from the narratives of participants, the literature later confirmed their relevance for understanding institutionalisation processes of cross-cutting policy paradigms.

**Figure 3.2: Diagrammatic representation of analytical framework**

The *concept/practice* lens is important for new policy paradigms as not only practices but mainly their underpinning ideas matter for those who should enact them. This lens is omnipresent across organisational/sociological institutionalism as well as in policy process research, with a particular emphasis on processes of framing and creating a shared understanding in climate change and disaster risk research (Lavell, 2003; Ekstrom, Moser and Torn, 2011; Runhaar, Driessen and Uittenbroek, 2014).
Secondly, the *specific/cross-cutting* lens gains relevance in the case of transversal policy issues such as disaster risk and therefore the policy paradigms for addressing them (e.g. DRM). This dialectical tension cuts across the literatures on mainstreaming and integration, where some distinguish between dedicated vis-à-vis mainstreaming or integrated approaches (Uittenbroek *et al.*, 2014; Uittenbroek, 2016). Others, instead, advocate for the simultaneity of ‘direct’ and ‘indirect’ approaches when implementing DRM and climate change adaptation (Wamsler, 2015b; Wamsler and Pauleit, 2016).

Finally, the *policy/planning/management* lens becomes relevant for municipal government organisations in decentralised countries, where city governments have a considerable degree of autonomy that entails decision-making power across these three dimensions. This lens follows the work of scholars like Ekstrom, Moser and Torn (2011) who distinguish between the phases of understanding, planning and managing in the process of climate change adaptation.

Noteworthy, these are bifocal and trifocal lenses which means, for example, that it is not ‘concept’ or ‘practice’, but rather the concept/practice lens that filters the work of an organisation at a specific phase⁵⁸. This is to emphasise the co-constituting dynamic between the two or three elements of each lens. That said, for analytical purposes and for a better understanding of each of the phases, it is useful to highlight those elements that appear more relevant at particular moments in time (see elements highlighted in bold in Figure 3.2). This might also have an empirical justification, as municipal governments might not be able to focus on everything at the same time, so priorities need to be defined. However, it is always important to bear in mind, both for researchers as well as policy-makers, that each lens is bifocal or trifocal. Those who aim to properly understand the institutionalisation of cross-cutting policy paradigms need to know how to use these kinds of lenses, otherwise their vision would be blurred or partial.

As noted in the literature review, the institutionalisation of a new policy paradigm within a municipality does not happen in a void. Hence, it is important to

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⁵⁸ This draws on the metaphor used by Levy (1992) to illustrate how researchers and practitioners should approach cross-cutting issues such as gender and the environment with a pair of bifocals.
contextualise the institutionalisation process within a municipal government organisation across its relations with other organisations (e.g. other municipal governments and local non-state organisations). In this regard, the relations with other organisations and resulting networked spaces also seem to follow a temporal pattern that the salience of certain elements of the lenses might contribute to understand. Thus, the analytical lenses also prove useful for exploring the relational dimension of institutionalisation.

The main purpose of this section has been to introduce the analytical framework, its main categories and the relations between them. Further elaborations on the analytical framework and its application are provided in the findings and discussion (Part V) and resumed in the conclusions (Part VI).

3.4 Judging the quality of the research design

Scholars working on case study research pay special attention to certain issues that have traditionally raised concerns about the relevance and validity of case studies in social science research (Mitchell, 1983; Small, 2009). Whereas some of these issues have been briefly mentioned across the chapter, the level of criticism deems it relevant for a special section to consider them separately. Defining case study as a method for selecting data, there are at least two major intertwined issues to address:

- ‘How many cases do I need?’, as the title of Small's (2009) article synthesises;
- How can I generalise and/or theorise from case studies?

The first question refers to the thoughtful selection of units of analysis, which seems even more relevant when the research design is based on a single-case study. In the field of urban studies, Bartlett and Satterthwaite argue that “[e]very city is unique – formed or shaped by local economic, social, political and environmental circumstances, as well as national and often global influences” and therefore “(…) we can’t assume that what worked well in one city can be duplicated in others” (Bartlett and Satterthwaite, 2016, p.xxi). Similarly, Small (2009) states that making general statements and referring to the representativeness of certain ‘cities’, ‘slums’
or ‘neighbourhoods’ based on single-case studies or ‘small-n case studies’ is completely misleading and inappropriate:

“All too often, the solution requires thinking of neighbourhoods in the abstract, devoid of historical and political context, further reinforcing the tendency to think of cases within sample-based logic or statistical inference/logic” (Small, 2009, p.31).

At the centre of these arguments is the distinctive opportunity that a case study offers to understand a phenomenon in relation to its context. Bearing in mind these contextual conditions, “a well-executed single-case study can justifiably state that a particular process, phenomenon, mechanism, tendency, type, relationship, dynamic, or practice exists” (Small, 2009, p.24). In this regard, a case study might be useful to unveil underlying processes in society. This is even more relevant for extreme, deviant or least likely cases, as the case study selected in this thesis.

Originally, the research design of my thesis included neighbouring cities as companion cases, not only to contextualise the case in terms of metropolitan dynamics but also for comparative purposes regarding the differentials of city size and local government capacities in institutionalisation processes. While interviews were conducted with a few representatives of Santo Tomé, the second biggest city in Greater Santa Fe, this case was not thoroughly investigated as to allow for a comparison between municipal governments and their role in DRM. However, consideration of Santo Tomé, even with less level of detail, contributed to enhance the understanding of the influence that Santa Fe could have in other cities in the field of managing flood risk. Future studies might benefit from a joint consideration of other neighbouring municipalities, mainly as to understand how institutionalisation processes might take place in smaller cities with fewer resources, but that could nevertheless benefit from the economies of scale of infrastructure and knowledge from the main city in the metropolitan area.

The selection of the case also entailed the delineation of a temporal scale. Some might argue that when exploring processes around the configuration and diffusion of ideas, it is hard to define clear-cut temporal boundaries. While I agree with that, I also provided details of the additional criteria for defining the temporal scale, which
included changes of political administrations. This is deemed relevant as a reminder that the research focuses on changes in policy paradigms, not overarching changes of ideas (including the ongoing transition of approach for managing disaster risk in academic circles and the international community). Future studies, though, might benefit from exploring the transition between policy paradigms across the same municipality, rather than focusing on the various phases of institutionalisation of one single paradigm. While the transition to a new resilience policy paradigm is somehow addressed in the analysis, the previous disaster management paradigm is not very well covered, mainly due to the highly sensitive nature of the issue after the two large disasters and the difficulties in accessing former authorities that would be willing to speak about their responsibilities at that time. Additionally, this period has been more thoroughly covered in the local literature.

The second issue in case study research refers to the possibility of making generalisations from case studies. The key relies on the distinction between statistical generalisations, which are appropriate for a deductive logic of enquiry, and theoretical generalisations, which are applicable to an abductive research strategy. Thus, Blaikie (2010) makes a distinction between ‘generalising’ and ‘theorising’, the former being more relevant for typical cases, the latter for least likely cases. Beyond this division, he also identifies various logics that have been proposed for generalising from case studies. Mitchell (1983) elaborates on the idea of ‘logical inference’, Yin (2014) proposes ‘analytic generalisation’ as the preferred strategy, and Blaikie (2010) adds the grounded theory approach upon which much of the abductive research strategy builds. Both logical inference and analytic generalisation follow the logic of analytic induction to refine an initial hypothesis:

“(…) case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a “sample”, and in doing case study research, your goal will be to expand and generalize theories (analytic generalizations) and not to extrapolate probabilities (statistical generalisations)” (Yin, 2014, p.21).

Grounded theory, instead, follows the logic of abduction to develop new theories from lay accounts. The problem with this approach is the lack of an articulated
method, although some ideas have been suggested by Blaikie and others (Blaikie, 2010). Similarly, the detailed narrative of the research design of this thesis might contribute with an example of how this can be performed. However, abduction and building theory from lay accounts, through participatory research, comes not without challenges, especially in terms of ethical considerations.

3.5 Ethical considerations and limitations of the research

Besides the number of cases and the issue of generalisability, there is a third central element to consider regarding the quality of the research design which pertains to the ethics of the entire research process. For this research, a rigorous ethical approval process has been followed, including a risk assessment and data protection revision, in accordance with UCL Research Ethics procedures and guidelines. The ethics assessment, where the research design was documented in detail, was conducted prior to the fieldwork but also after finalising this stage, to report any potential issues or changes during the data gathering phase. Similarly, I checked with doctoral researchers in Argentina and with the municipal government whether any specific ethical approvals would be required to conduct my fieldwork, although they confirmed none were necessary.

However, even when all ethical protocols were followed, it is important to reflect about the implications of conducting participatory research within a municipal government in a medium-sized city, in general, and during an electoral year, in particular, and the limitations these might have on the research. Thus, ethical considerations and research limitations are tightly intertwined.

To begin with, I would like to shed light on the implications of conducting research about a municipal government in a medium-sized city from where I am originally coming. Santa Fe is a relatively small city and people tend to know each other, which is especially the case of those working in public positions such as the municipal government. This also holds true for those with a high degree of exposure due to the relevance of the work that they do (e.g. leaders of community-based or non-governmental organisations) or the professional expertise that they have in a particular field (e.g. professors or advisors). Thus, participants’ anonymity could be
compromised by the position they hold and the views they express. Even though this was clearly stated in the information sheet, I had to be very careful and try to minimise this risk\(^\text{39}\). This has critical implications when researching DRM (or any other cross-cutting issue) from an organisational perspective, since information concerning the sector/department and rank in the organisation is relevant and might not be disclosed for anonymisation purposes. In my analysis, I only provide information about the broader sector where a participant works, but not their job position nor period when they were part of the municipal government.

Closely linked to that, a second limitation concerns the selection of research participants through snowballing or referral process in an environment where people know each other, which might have compromised the heterogeneity of opinions. Thus, the research might be biased towards the views and positionality of municipal government authorities who were my first point of contact and suggested who to talk to and interview. To counter this limitation, I interviewed civil servants in the Executive and City Council members from other political affiliations, but even they were quite moderate in their critical opinions about the administrations under analysis.

The second point to consider refers to the ethical implications of conducting participatory research and immersing myself in the work of the organisation I was researching. Understanding an organisation not just from the inside but as an active part of it comes not without challenges, and there are ethical implications when writing about others as a ‘self-chronicler’ based on your participant observations. The level of trust that I built up with some of the participants while doing the placements was quite high, and they would sometimes disclose information and express their opinions without being fully aware of how I might use that in my research. Thus, I had to find a balance between protecting the integrity of research.

\(^{39}\) All participants were informed about the nature of the study, verbally and through an information sheet. They all gave their consent to take part in the research, either by signing a consent form or orally. Confidentiality of data and anonymity of participants were guaranteed, although it was anticipated in the information sheet that their anonymity may be compromised by the position they hold and the views they express. Participants had the right to withdraw from the study at any time and to request any specific comments they made were deleted from the research. From all interviewees, only one requested me to send them the transcription to revise the content. After so doing, I received an amended version with highlighted parts that should be deleted or modified.
participants and the quality of my research, sometimes at the expense of being fully able to be critical about certain conclusions I reach in this thesis.

Among the main limitations the abovementioned consideration has is that issues of power might not be very well depicted, especially regarding the intra and inter-departmental relations in the municipal government organisation. Thus, instead of concentrating on conflicts and tensions, I rather preferred to focus on those things that seemed to have worked and how they did so. In this sense, I adopted a more constructive rather than critical perspective. This might be judged by some as a naïve and a-critical positionality, but it is also an ethical decision one has to make when writing an open-access dissertation. The combination of the potential lack of anonymity of some participants with the fact that I spent a relatively long time in the municipality of my home city, might have compromised the level of information I can disclose and constrained the opinions I can make. This has not to do with a lack of critical perspective, but rather being respectful of the integrity of research participants.

Finally, all the above is even more relevant as the field study was conducted during an electoral year when political tensions were exacerbated. 2017 was a year of political agitation and mobilisation in the country, mostly exacerbated by the electoral campaign for national legislative elections. In Santa Fe, candidates were also running for the City Council. Whereas politics permeates almost every aspect of quotidian life and decisions, it emanates more strongly at electoral times. This has implications for the answers provided by research participants during interviews but also when having more informal conversations. That is, in a highly politicised context, it has been hard sometimes to ponder the answers given by participants and whether certain opinions or critiques were made from a partisan perspective.

Alongside research limitations, ethical considerations also bring to the fore the positionality of the researcher, which is where we turn next.
Positionality

Positionality, or the researcher’s stance, refers to the attitude a researcher takes towards the overall research process and involved research participants, that is, towards research and the researched (Blaikie, 2010). Making this stance explicit, entails the researcher seeking to understand her/his role in the research process through active reflexivity (Mason, 2002). Thus, there are two main reflections to elaborate on regarding my positionality as a researcher: the first one, which relates to my own academic and professional trajectory; the second one, which is linked to where I originally come from and my connection to the case study.

**Positionality I: my previous knowledge of the topic and research design preferences**

On several occasions, participants in the research asked me about my career and professional background, especially as they found it hard to understand how an International Relations graduate ended up researching disaster risk management in cities of the global South. My previous research experiences, during my bachelor’s and masters’ degrees, centred on the impacts of large dams and coalition analysis (Santa Fe, Argentina), urban water-related risks and governance (Arequipa and Lima, Peru) and the role of local governments in urban resilience (Barcelona, Spain) (Filippi et al., 2014; Hordijk, Brandeler and Filippi, 2016; Filippi, 2018). Hence, I have kept an interest in environmental issues and a holistic approach towards their understanding, combining the fields of urban studies, disaster risk management, urban resilience and public policy. Whereas this might be a sign of consistency across my academic career, it has also resulted in a struggle to encapsulate myself under a single discipline and/or field of study.

In all previous research projects, I followed a similar research design as described here, and conducted fieldwork with varying degrees of depth and involvement in the social world of participants. However, a few differences characterised the field research of my doctoral thesis. In the first place, the extended duration of the field study, as my previous experiences lasted less than four months. Secondly, participatory research was for the first time conducted in a local government setting, as my previous participatory research was at the neighbourhood level. This would
have different implications regarding the anonymity of research participants and my exposure as a researcher for making my findings public, but it would also entail the possibility of influencing policy decisions more clearly. Thirdly, the familiarity with the study site, since I only conducted fieldwork in my home city for my bachelor dissertation in 2006.

Throughout the research process, I was involved in consultancy projects that put me in contact with relevant literature and experts in the field. I revised the UNDRR Global Assessment Reports on the basis of urbanisation, poverty and urban risk, and developed one of the Words into Action guidelines to aid the implementation of the Sendai Framework (World Bank Group, 2016; Hardoy and Filippi, 2019). I attended the 5th UNDRR Global Platform and had the opportunity to discuss with local government experts in the field. Having not worked in the government before, all this helped me to contextualise the empirical and policy relevance of my research and be aware of contemporary challenges. Importantly, I carried out most of this work during the first year of my doctorate, during the exploratory phase of a relevant research problem to address.

All the aforementioned denote a certain awareness on behalf of the researcher of the transdisciplinary field she was approaching and the appropriate methodological lenses to explore it. Highlighting my academic trajectory, though, has not been intended to underscore my expertise but rather to make explicit the conceptual and methodological baggage that might have influenced the selection of the research problem, the case study and the research design that inform this research.

*Positionality II: being a foreigner as a local or a local as a foreigner?*

The local-foreigner mixture had implications in the way the fieldwork was conducted and it might also influence some of the conclusions this research will reach. Among the advantages of being ‘local’, having been born and brought up in the city of Santa Fe made me aware of the history and idiosyncrasy of that specific urban context – its people, language, values and places. At the same time, being a ‘foreigner’ in my hometown would enhance the advantage of a certain degree of ‘impartiality’ or ‘neutrality’.
I felt like a ‘foreigner’ for several reasons. First, I had not lived in the city for more than 15 years. Thus, I had not experienced any of the two major flooding disasters nor witnessed the reconstruction process started afterwards. Secondly, I had never worked for the government nor any state organisation, so the public administration was an entirely new sphere to me. Similarly, I had never actively participated in any political movement nor party. Finally, I did not study at the main (public) university which has played a central role not only in the academic but also political realms in the city and region. Hence, I was not influenced by the militant discourses nor student movements that informed and formed many of the leaders of the incumbent municipal government. Perhaps more importantly, this sense of ‘foreignness’ also prevailed among many research participants.

Across members of the local government, their most common perception was to consider me as an expert, and therefore an asset with valuable knowledge, from a UK university. As a result, I was granted permission to do my placements as well as access to advisory board meetings relatively easily. My perception was that, differently from local researchers, they considered me as a ‘safe’ academic that could write about the case of Santa Fe and disseminate its ‘role model’ character. A similar perception characterised representatives from other organisations, which facilitated access to their opinions, materials and activities. Most of the time, however, when introducing myself, I would repeat: “I am here to learn from you”.

3.7 Conclusion

An abductive logic of enquiry compounded with an embedded single-case study were defined as the appropriate research design to address disaster risk management from an organisational and process-based perspective at the urban scale. Theory and research have co-constituted each other in an iterative process, following a grounded theory approach that aims to generate theory from participants’ lay accounts of their everyday life. However, the generation and analysis of data is not a neutral exercise. The researcher usually has preconceived ideas from the literature and previous (field) research as well as a clear objective in mind that orients the entire process. As this chapter has tried to elucidate, there are clear advantages in this type of research design, but also limitations one should be aware of and make explicit.
Case study research is characterised by a blurred distinction between the case and the context of which it is part (Yin, 2014). Therefore, context deserves relevant consideration for a nuanced understanding of the case in order to answer the main research questions and draw meaningful theoretical conclusions (Mitchell, 1983). Part IV is intended to ‘set the scene’, or rather multiple scenes, where the main processes that this research aims to understand unfold.
PART IV  Context: historical account of Santa Fe and idiosyncrasy of its municipal government
Chapter 4  *Urbs, civitas and polis: the same city, different perspectives*

4.1  Introduction

Counter to more conventional ways of structuring ‘context’ chapters, this section focuses on the case as the context. Taking the city and its municipal government as the entry points, Part IV denotes the agency of these two entities rather than thinking of them as structurally determined by national socio-economic trends and configurations of power, that is, by the fate of the country’s economy and the anchored politics of a particular federalism and political party system. Hence, archetypical ‘contextual’ characteristics are intertwined along the chapters rather than distinctively separated by sections about the national, provincial and municipal layers.

Chapter 4 introduces the city of Santa Fe drawing on three compounded perspectives defined by a recognised local scholar: *urbs*, the physical city; *civitas*, the social city; and *polis*, the conceptual or imaginary city (Arroyo, 2006, 2017). Section 4.2 elaborates on the *urbs*, expanding on the foundational location of Santa Fe de la Vera Cruz, the process of urban expansion and the historical exposure to flood risk. In Section 4.3, the *civitas* synthesises the evolution of the main urban socio-economic indicators in concert with national trends since the return of democracy in 1983. The *polis*, in Section 4.4, navigates the distinctive representations of the city in the collective imaginary of the *Santafesinos*. Each of these sections uncovers a specific risk factor in a thorough and historical manner.

Section 4.5 brings back the prevailing understanding of flood risk in academic and scientific circles, showing an incipient transition from an exclusive focus on hazards to the intermittent consideration of social and political factors, especially in the aftermath of the 2003 disaster. This is followed by a description of the structural and non-structural measures that had resulted from that scientific understanding and that had been in place to deal with flooding prior to 2008 (Section 4.6).
4.2 *Urbs*: foundational location, urban expansion and exposure to flood risk

Located at an altitude of 18 metres above sea level, between the flood plains of the Paraná and Salado rivers, and with an annual average temperature of 18.5º C and annual average precipitation of 1,086 mm, the city of Santa Fe has been historically exposed to extensive and intensive fluvial and pluvial flood risk (ProCIFE, 2005; Gioria, 2008; Celis and Herzer, 2009). A medium-sized city of approximately 400,000 residents\(^{60}\), over half a million at the metropolitan scale, the city of Santa Fe has 70% of its territory represented by rivers and swamplands\(^{61}\) (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017) (see Map 4.1).

\(^{60}\) According to the last national census, the city had a population of 391,231 inhabitants in 2010 (INDEC, 2010). The projected population for 2016 was estimated in 417,224 (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017).

\(^{61}\) The total area of the municipal jurisdiction accounts for 268 km\(^2\), but only 80.4 km\(^2\) is susceptible to be urbanised (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017).
Map 4.1: Administrative boundaries and location of the municipality of Santa Fe, neighbouring urban centres and main rivers

Source: Author’s elaboration based on (ESRI, 2019; IGN, n/d; Municipalidad de la Ciudad de Santa Fe, 2010)
With a history of almost 450 years, the origins of the city can be traced back to the first group of settlements founded by the Spanish colonisers in the current territory of Argentina during the second half of the 16th century. Following the route of silver and other extracted minerals from Peru and Bolivia, these settlements would be located in the North-western part of the country, Santa Fe being the southern and thereby last point of this first colonising enterprise (Asensio, 2006; Fedele, 2011). On November 15, 1573, the Spanish conqueror Juan de Garay founded Santa Fe de la Vera Cruz, approximately 200 metres away from the current archaeological site of Cayastá, on the shores of the Quiloazas river, nowadays known as San Javier river. The strategic foundational location would be based on military and transportation purposes of the Viceroyalty of Peru; the same reasons that 80 years later would demand the relocation of the city to its present site. The constant flooding of the Quiloazas river and the hostility of native groups triggered the moving of the city at the beginning of the 1650s, which would be finalised a decade later (Gobierno de la Ciudad de Santa Fe, 2018a; Universidad Nacional del Litoral, 2018).

The close connection of the city with its rivers, particularly the Paraná river system, evolved from colonial times to the agro-export boom at the turn of the 20th century, confirming the economic function of riverine cities in the Litoral region. The Paraná-La Plata river basin constitutes the oldest and most important navigation route of Argentina and would coin the denomination of ‘littoral’ to the region it cuts across, even in the absence of an actual sea front. The first decades of the 20th century would see the rise of modern harbours in the most developed cities in the region and the first urban plan of Santa Fe would emerge in this context in 1927 (Fedele, 2011).

62 In chronological order, these settlements correspond to the current cities of Santiago del Estero (1553), Córdoba (1558), Mendoza (1561), San Juan (1562), Tucumán (1565) and Santa Fe (1573). Except for Santa Fe, none of them had an important river in their surroundings, which might explain the strategic selection of the site by its founder. Some define this first group of cities as ‘Mediterranean’, locked settlements, which would be followed by a second wave of port cities, epitomised in the second foundation of Buenos Aires in 1580 (Fedele, 2011).

63 There is no agreement about the etymology of the name of the city, though some conjectures have been made by local historians (Universidad Nacional del Litoral, 2018).

64 Littoral usually designates areas by the sea or with a sea front. In Argentina, though, the Litoral region comprises six provinces which are surrounded by rivers.
The riverine condition would not just have an economic function, represented in the figure of the harbour, but also various social and cultural implications. Through its port, a milieu of goods would be transferred, and the arrival of migrants would populate the city and erect the first agricultural colonies in the province of Santa Fe (Fedele, 2011; Ullberg, 2013b; Calvo and Del Barco, 2014). Figure 4.1 synthesises the population growth in the city of Santa Fe vis-à-vis the main trends in the homonymous province and the country during the 1816-2010 period.

In 1816, the United Provinces of the Río de la Plata declared their independence from Spain. Paradoxically, they would return to their European origins at the end of the 19th century to populate the country. Under political mottos such as ‘Gobernar es poblar’\(^{65}\) and ‘Orden y Progreso’\(^{66}\), the newly formed nation-state would promote foreign immigration as a way of securing control in a scarcely populated country while advancing economic and social progress. One of the main policies was the creation of farming colonies, many of them located in the province of Santa Fe. This first wave of European immigration in the late nineteenth century would continue at the turn of the new era, mainly boosted by World War I. European immigration

\(^{65}\) ‘To govern is to populate’, coined by the Argentine political theorist and diplomat Alberdi (1810-1884).

\(^{66}\) ‘Order and progress’, taken from Comte’s ideas, was the slogan of the first presidency of Roca (1880-1886).
actively participated in the expansion and apogee of agriculture in the country, which started to be known as the ‘barn of the world’. The province of Santa Fe played a key role in this process, contributing a large proportion of agriculture exports during this period. The role of the city during this period would be mainly as an administrative and political centre as well as the node for concentrating and extracting grain and meat outside the region through the railway and harbour infrastructures (Fedele, 2011; Calvo and Del Barco, 2014).

Throughout the 1940s and 1950s, the industrialisation wave would boost internal migration to the city, mainly from the northern provinces. The first shanty towns or villas would be a by-product of the industrial era, mainly located in the low-lying marshes of the Salado river in the westside of the city. From the 1960s onwards, a new process of foreign migration would take place in the city, mainly from the neighbouring countries of Bolivia, Chile, Paraguay and Uruguay. Many of these migrants would settle in the outskirts of the city and work in the quintas (Ullberg, 2013b).

The early colonisation experience of Latin America might explain, partially, the level of urbanisation in the region, in general, and in Argentina, specifically. Compared to other regions of the global South, Latin America presents the highest rate of urban population. In Argentina, the last national census reported that 90.2% of the total population was urban in 2010. At provincial level, the registered figure for Santa Fe was 89% (INDEC, 2010). By 2010, Santa Fe was the third biggest province of Argentina and its homonymous capital city constituted the eighth biggest city of the country. Given the focus of the thesis over the 2007-2017 period, it is worth disaggregating population growth within the municipal jurisdiction over the last two inter-census periods: 1991-2001 and 2001-2010. A higher resolution analysis, as shown in Map 4.2, might shed light on contemporary urban expansion trends and drivers.

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67 Land devoted to peri-urban agriculture to provide urban residents with local fruits and vegetables.
68 Argentina has 24 provinces, including the Autonomous City of Buenos Aires.
69 Santa Fe Como Vamos uses the division by municipal districts which were defined in 2008 (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2015).
Average population growth in the city for the 1991-2001 and 2001-2010 periods was 5.80% and 5.86%, respectively (Gobierno de la Provincia de Santa Fe, 2018). However, downscaled rates at municipal district level reflect sharp contrasts within the city. The expansion of the city and concomitant population growth have unfolded in two main directions over the last 25 years, underpinned by different logics and characteristics: towards the west, where most of the urban poor live, and towards the La Costa district, where predominantly middle- and upper-middle income households have been settling while searching for affordable housing. The expansion in these two areas has had a common denominator: it was incentivised by the development of flood defences during the ‘90s (Grand and Arrillaga, 2009). Thus, rather than densification through verticalisation⁷⁰, the city has mainly expanded horizontally towards low-lying areas in the Salado and Parana rivers’ floodplains.

Map 4.2: Intercensal population growth by municipal district in the city of Santa Fe (2001-2010)

Source: (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2015, p.25, my translation)

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⁷⁰ Only more recently has high-rise infrastructure started to be developed in the city.
Going deeper into the root causes of these urban dynamics, Ríos and Natzenzon (2015) refer to the spread of the neoliberal model in Argentina and its two main drivers: the expansion of agribusinesses in rural areas and the boom of real estate businesses in urban areas. Whereas the seeds of these two processes can be traced back to the last dictatorial government in the 1970s, they reached their maximum expression in the 1990s and beginnings of the 2000s. The expansion of the agriculture frontier in the north of the province of Santa Fe would have implications on the impacts of floods in the capital city, both for the reduction of soil absorption capacity upstream as well as for the resulting rural-urban migration that would settle in flood-prone informal settlements. The real-state businesses would have consequences not only for low- but also middle- and high-income residents. The occupation of low-lying areas in the West by marginalised settlements would juxtapose with the “legal” occupation of greener and riverine areas by middle- and high-income residents in La Costa district (and beyond the municipal jurisdiction) to occupy the alluvial plains of the Paraná river. Thus, combined socio-economic dynamics under a neoliberal model have oriented land occupation and urbanisation processes in the city over the last decades. This has not been exclusive to the city of Santa Fe but rather part of broader trends in the country and region (Ríos and Natzenzon, 2015).

4.3 **Civitas: socio-economic trends since the return of democracy**

Argentina is usually described as a middle-income country according to the standards of international organisations and financial institutions. However, behind this oversimplified categorisation, swings between periods of stability and crisis have epitomised the profile of a country which seems to be lacking economic, and arguably broader policy, stability over the last thirty years. Furthermore, some also emphasise that governance indicators from those same international organisations such as corruption, judicial independence and bureaucratic capabilities, often ranked Argentina alongside countries with lower levels of development (Ardanaz, Leiras and Tommasi, 2012). This last point will be further elaborated in Chapter 5, which addresses the political context.

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71 By 2009, Argentina was defined as an upper-middle income country according to the World Bank and ranked number 38 in the Human Development Index (UNISDR, 2009).
It has become common language to recognise Argentina for its instability and pendulous swings, which refer to changes across the left-right ideological spectrum of its political leadership as well as to the ups and downs of its main macroeconomic indicators (Ardanaz, Leiras and Tommasi, 2012). Inaugurating the return of democracy in 1983, the presidency of Alfonsin would conclude with hyper-inflation in 1989. The ‘broken promises’ of democracy (Bobbio, 1984) would find a remedy in the Washington Consensus, which would pave the way for a neoliberal reform characterised by the privatisation of state-led companies, the removal of controls over the economy and the famous *convertibilidad*72. Menem’s administration would be remembered for its legacy of unemployment, the erosion of the provisional system and the growth of the external debt (Acuña, 1994). International economic recipes would not last long and the newly elected coalition of *La Alianza* would resign power two years after taking office in 1999. The economic, financial and institutional crisis of December 2001 would resonate internationally for the five presidents that succeeded in 11 days, the devaluation of the national currency and the restriction over the personal savings of many Argentines (the famous *corralito*73). Nestor Kirchner, former governor of Santa Cruz, would be elected in 2003 and succeeded by the two consecutive administrations of his wife. *Kirchnerismo*, a reinvented form of Peronism, was characterised by a populist sentiment and a nationalist economic slogan, and coincided with what some have termed a left turn in the Latin American region74 (Levitsky and Roberts, 2011). Progressive policies and the strong support for the human rights movement would be later eroded by scandals of corruption and judicial prosecution against the Kirchner couple and their main cabinet members. In this context, the centre-right coalition of *Cambios*75 would take Macri to the presidency in December 2015 (Ríos and Natzenzon, 2015).

Flood risk in the city of Santa Fe has been configured within (and moulded by) this national context, to be finally manifested in the disaster of April 2003. Official indicators, international reports and scholarly analysis agree that the catastrophe

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72 *Convertibilidad* was the exchange parity between the local currency (Argentine Peso) and the US Dollar.
73 *Corralito* would become part of the jargon of the crisis, alongside *cacerolazos* and *piquetes* as new forms of social mobilisation.
75 In English, Let’s Change
accentuated an already fragile and highly vulnerable socio-economic situation in the city and province of Santa Fe, corroborating the vicious cycle of poverty and disaster risk (CEPAL, 2003; ProCIFE, 2005; Herzer and Arrillaga, 2009; Viand, 2009). Not only had precarious socio-economic conditions in the city underpinned the disaster, but these were further exacerbated by the emergency. Thus, when moving beyond hazard and exposure in the disaster risk equation, vulnerability receives further relevance.

Indicative of the levels of socio-economic vulnerability of individuals and households in the city are poverty and unemployment trends. These have been reported by the Instituto Nacional de Estadística y Censos (National Institute of Statistics and Censuses, INDEC) for Greater Santa Fe, which is taken as a proxy of the capital city. Importantly, due to a national declaration of statistical emergency for the period 2007-2015, poverty and unemployment related figures are considered before and after that period.

In 2005, poverty reached 41% of the total population of Greater Santa Fe while extreme poverty extended to 17.1%. Thus, almost 60% of the residents in the city of Santa Fe and neighbouring urban areas were living under deprived socio-economic conditions (Ullberg, 2013, p.62). These figures reflect, in part, the compounded effects of the 2001-2002 national economic and financial crisis together with the impact of the 2003 disaster. However, historical trends trace a raising pattern already back to the 1980s. By the second semester of 2016, poverty and extreme poverty in

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76 Various definitions of vulnerability exist, in relation to who/what is vulnerable, to what and according to which variables. This section focuses on the individual and household levels in relation to some socio-economic indicators, which has also been the approach adopted by many scholars working on disaster risk in Argentina (Arrillaga, Grand and Busso, 2009; Viand, 2009; Natenzon and Saettone Passe, 2015). These scholars use national census data at individual and household levels, the most disaggregated and comparable (cross-country and longitudinally) data on socio-economic trends.

77 In the Encuesta Permanente de Hogares (Permanent Household Survey), INDEC defines Greater Santa Fe as constituted by the following municipalities and communes: Santa Fe, Santo Tomé, Sauce Viejo, Recreo, San José del Rincón and Arroyo Leyes. Figures are only available for Greater Santa Fe and not disaggregated at city level. These are the most consistent statistics calculated systematically over the years. INDEC’s statistics are sometimes complemented by downscaled data at city level, but which have been collected and/or compiled by different organisations, following different calculations and systematised for shorter periods of time. Santa Fe Como Vamos, the joint annual publication of the municipality of Santa Fe and the Chamber of Commerce of the city of Santa Fe, has been trying to compile in a single report these various figures since 2011.

78 This declaration refers to the lack of reliable official data between January 2007 and December 2015 and points to the controversial performance of the INDEC during those years (INDEC, 2018).
Greater Santa Fe dropped to 29.3% and 6.2% of the entire population, respectively. However, these numbers were still high as more than one third of the population were deprived of basic needs (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017).

Poverty rates have been tightly connected to unemployment and underemployment\textsuperscript{79}. By 2005, Greater Santa Fe showed a 20-year steady uptrend in unemployment levels; since the return of democracy, unemployment had almost never stopped (Arrillaga et al., 2005). The peak of the curve reached almost 25% of unemployment and 25% of underemployment in the biennial 2002-2003, which reflected much of the situation of the country after the economic, financial and institutional crisis of December 2001. At the end of 2016 (figures corresponding to the fourth quarter), the unemployment rate of Greater Santa Fe was 5.1% of the economically active population. While this might be considered a low ratio, it should be analysed in tandem with an underemployment rate of almost 10% (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). These national statistics for Greater Santa Fe seem to correspond better to the 15.1% rate of unemployment reported for the city of Santa Fe by the 2016-2017 Household Panel Survey (Social Observatory of UNL, 2017). Beyond unemployment and underemployment, an acute problem in Argentina over the past few years has been inflation, with an accumulated annual rate of 40.7% in 2016\textsuperscript{80} and the subsequent impact on the real income of workers (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017).

In terms of employment, it is relevant to analyse the distribution by type of employer. Formal employment\textsuperscript{81} in Greater Santa Fe registered 73.9% of jobs in the private sector and 24.3% in the public sector for the last quarter of 2016\textsuperscript{82}. In the city of Santa Fe, formal private employment reported an annual averaged increase of 2.6% during the period 2008-2016, the five main activities being: wholesale and

\textsuperscript{79} Underemployment includes individuals who work less than 35 hours a week but would otherwise work more.
\textsuperscript{80} Official accumulated inflation rates for the precedent years were 25.7% (2010), 22.5% (2011), 25.2% (2012), 27.9% (2013), 38.5% (2014) and 27.8% (2015) (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2016, p.156).
\textsuperscript{81} Informality is a well-known phenomenon in the Argentine economy though difficult to estimate.
\textsuperscript{82} The remaining 1.9% of jobs corresponds to ‘others’.
retail trade (23.4% of total number of jobs in 2016), education (12.9%),
manufacturing (10.1%), personal services (9.5%) and construction (8.7%). Indeed,
wholesale and retail are among the most important sectors of the local economy.
Public employment also represents a central source of employment in the city and
neighbouring areas. A few reasons explain the relevance of the state as employer.
Firstly, the concomitant placement of provincial and municipal central
administrations in the city of Santa Fe as the capital of the province. Secondly,
teachers in public education account approximately for 50% of formal jobs paid by
the provincial government in Greater Santa Fe. Finally, basic service provision such
as energy and water is still run by state companies. Thus, whether provincial or
municipal, the state constitutes one of the main employers for the Santafesinos³³
(Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017,
pp.82-96).

Another relevant socio-economic indicator for the city relates to access to basic
services. Differently from other provinces where many of the basic services were
privatised in the 1990s, some public services are still in the hands of the state in the
province of Santa Fe. This is the case of water and sanitation and electricity, the
 provision of which is under the responsibility of Aguas Santafesinas S.A. (ASSA)³⁴
and Empresa Provincial de la Energía (EPE)³⁵, respectively. Natural gas provision is
privatised in the province and run by Litoral Gas S.A. since 1992³⁶. While these
companies are responsible for the generation and/or distribution to end users, it is
often the municipal government that builds the trunk infrastructure for expanding
coverage. By April 2017, access to basic services in the city was led by electricity
(99.6% of households), followed by running water (94.2%), sewerage (63.8%) and
connection to the natural gas network (59.2%) (Observatorio Social, 2017).

³³ From a national perspective, though, the province of Santa Fe was the second with the lowest
number of inhabitants employed by the public sector by 2007, with a ratio of 33 public employees per
1,000 inhabitants (Ardanaz, Leiras and Tommasi, 2012, p.25).
³⁴ ASSA is a state company that provides water and sanitation services to 15 cities in the province of
Santa Fe (including the city of Santa Fe). The provincial state is the main shareholder (51% of the
social capital), followed by the municipal governments of the cities under coverage (39%) and the
employees of the company (10%) (Aguas Santafesinas S.A., 2018).
³⁵ EPE is the provincial energy company which generates and distributes electricity across most of the
territory of the province of Santa Fe (Empresa Provincial de la Energía de Santa Fe, 2018).
³⁶ The coverage of Litoral Gas S.A. extends across the province of Santa Fe and northeast of the
The previously described socio-economic indicators have a clear spatial distribution in the city. Several works, mostly produced after the disaster of 2003, have calculated socio-economic vulnerability indexes across the city and compared them with the most affected areas during the catastrophe. They all reached similar conclusions, emphasising that the areas that registered most of the damages and losses overlapped with those with the highest levels of socio-economic vulnerability (ProCIFE, 2005; Arrillaga, Grand and Busso, 2009; Grand and Arrillaga, 2009; Viand, 2009; Calvo and Viand, 2015). Furthermore, some of these areas have been the ones growing the most over the last 25 years (see Map 4.2).

Socio-economic disparities, while spatially represented, have also had an ideational component. Ullberg (2013) emphasises that Santa Fe was one of the cities with the largest social and economic inequalities in the country at the turn of the 21st century, and that these divisions were “ideational as much as spatial and material” (ibid., p.70). She further suggests that the seeds of the ideational stratification should be traced back to the colonial path, where the *peninsulares* (Spanish population) constituted the elite, followed by the *criollos* (children of European parents) and then the *indígenas* (native population)\(^\text{87}\). Likewise, Fedele (2011) associates the social stratification with a legacy of the colonial path and a shared characteristic with many other ‘Mediterranean’ cities in Argentina. In this mental representation, the Westside of Santa Fe, together with the Salado river, have been usually depicted as ‘the backyard’ of the city. The latter would be an idea taken forward and materialised in various urban plans (Szupiany, 2018).

The stratified society would also justify the creation of a support system for the most vulnerable people. Mutualism and associativism are identified as the oldest precedents in the city, originally developed to aid and support migrants of a shared nationality at the beginning of the 20th century (Masi and Kessler, 2009; Ullberg, 2013b). Long-standing civil society organisations in the city are Caritas Santa Fe and *Movimiento Los Sin Techo* (Movement of the roofless, MLST), both linked to the Catholic church. Red Cross Santa Fe, an auxiliary in the humanitarian services of the city government, has also a well-established trajectory since its foundation in 1938.

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\(^{87}\) When Europeans started to mix with natives, the notion of *mestizo* originated.
Canoa is a less well-known organisation but which has stood out for its role during and after the catastrophe. More spontaneous social mobilisation has characterised contemporaneous collectives, such as the Marcha de las Antorchas (March of the torches) and Carpa Negra (Black Tent), which formed after the disaster in 2003 (Guala, 2009; Ramírez, 2009; Hardoy, Pandiella and Velásquez Barrero, 2011).

4.4 Polis: imaginaries of the city

Arroyo (2006) thinks of the polis as the conceptual city. A history of almost 450 years has been prolific in forging various epitomes that depict some of the distinctive features of the city in the collective imaginaries of the Santafesinos and the folklore of the city.

Santa Fe la Vieja\textsuperscript{88} denotes the origins of a colonial town and the reminiscence of its first geographic location nearby current Cayastá. The Spanish colonial town, originally founded for defence and transportation purposes and later relocated, would persist until 1816 when the United Provinces of the Río de la Plata\textsuperscript{89} declared their independence from the Spanish crown. An early antecedent against the colonial rule can be traced back to the Revolución de los Siete Jefes\textsuperscript{90} which, according to Ullberg (2013), also impregnates the Santafesinian idiosyncrasy. Carried out in 1580, the first insurrection by native Creole soldiers erupted in Santa Fe (Ullberg, 2013b).

During the 19th century, the city would play a protagonist role in the building of the Argentinean modern nation-state. Santa Fe, cuna de la Constitución\textsuperscript{91}, accentuates the historical relevance of the city in the institutional design of the country. Not only would the first national constitution be sanctioned in the city in 1853, together with several of its reforms\textsuperscript{92}, but also the first prototype of a provincial constitution would be endorsed in 1819 by the Brigadier Estanislao López, first governor of the province

\textsuperscript{88} In English, the old Santa Fe. It is the label assigned to the archaeological site where the ruins of the original settlement remain.

\textsuperscript{89} The United Provinces of the Río de la Plata designated the alternative political organisation to the Viceroyalty of the Río de la Plata. The latter was created in 1776, under the rule of the Spanish empire, to rectify the commercial routes and confirm the strategic role of the city of Buenos Aires and its port (Fedele, 2011, p.200).

\textsuperscript{90} In English, Revolution of the Seven Chiefs

\textsuperscript{91} In English, Santa Fe, the cradle of the Constitution

\textsuperscript{92} The city of Santa Fe hosted the reforms of the National Constitution of 1860, 1866, 1898, 1949, 1957, 1972 and 1994 (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2016).
of Santa Fe. The *Estatuto del ‘19* constitutes a clear example of the precedence of provinces to the national state, which characterises a federal system of government (Press mailing list, 23/07/2018). One of the most emblematic representations of this epitome is the recently inaugurated Museum of the Constitution, which is the endpoint of the *Camino de la Constitución*.

The port city imaginary seems to be somehow eroded from the collective envisioning of the last few decades, probably as this functional role had slowly faded away. However, it was a central feature and determinant of the location of the city. At the times of the Viceroyalty, the city had the privilege of being designated as ‘*puerto preciso*’. The latter granted the right of charging taxes to every ship navigating towards Paraguay through the Paraná river, which significantly raised the revenues of the city and contributed to the expansion of its population (Gobierno de la Ciudad de Santa Fe, 2018a). This ‘colonial’ port was placed in Colastiné. At the turn of the 20th century, the port-city epitome would be reified in the context of a modern city and its first urban plan. The increase in agriculture production and exports to Europe boosted the construction of a new modern harbour in the proximities of the city, which would be inaugurated in 1910 (Ullberg, 2013b). Here, the harbour would not be so much associated with the colonial past but with foreign immigration, a cosmopolitan society and, above all, economic progress. In his detailed analysis of the *Proyecto de Urbanización* of 1927, the first drafted urban plan for the city and among the first ones in the country, Fedele (2011) proposes an interesting conceptualisation of Argentinean cities based on the preponderance of the city-river nexus, in general, and the riverine infrastructures that usually characterise this linkage, in particular. The distinctiveness of the city of Santa Fe relies on its hybrid nature as it falls ‘in-between’ the traditional and the progressive city (Fedele, 2011).

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93 The Statute of 1819 set an important precedent for the Magna Carta of 1853.
94 The Constitution itinerary connects the most emblematic places and historical buildings in the city related to the constitutionalists and their work.
95 Port activities had decreased from the 1970s onwards, as other harbours in the region expanded. The latter includes ports in the cities of Rosario and San Martin (Ullberg, 2013b). There is a project from the municipal government to relocate and reactivate the harbour which is integral to the Resilience Strategy launched in 2017.
96 The exact translation would be ‘precise harbour’, though there is no exact equivalent in the English language.
97 The Urbanisation Project (1927) was one of the first experiments inaugurating the modern urban planning tradition in the Argentina of the 1920s (Fedele, 2011).
Whereas this binary has been usually defined by the existence or lack of this nexus, the imbrication of colonial and modern ingredients in Santa Fe city might be better illustrated by the different trajectories of the port itself.

The drafting of one of the first urban plans in the country was not casual; instead, it brings to the fore another feature of the city: the university city. In October 2019, the Universidad Nacional del Litoral (National University of the Littoral region, UNL) will commemorate its 100th anniversary. Whereas this is not the only university in Santa Fe, it is the oldest and largest in terms of number of students, professors and national funding for research (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). Together with the Universidad Tecnológica Nacional (National Technological University, UTN), these are the two public and free universities in the city. A third private university, Universidad Católica (Catholic University), completes the list. These universities have also played an important role in the political life of the city, being incubators of their future leaders and partisan ideals (Interview with professor of UNL-FICH, 25/10/2017). This has been another feature of the progressive and cosmopolitan city, but also of the political city. As will be explained later, many of the members of the Radical party would come from the public universities, specially the UNL. The relevance of the city as a regional hub for knowledge production is further embodied in the national research centres spread across the city and its surrounding areas.

These predominantly positive images would contrast with more contemporary pessimistic imaginaries marked by the economic, financial and institutional crisis of 2001 and the compounded impacts of the disastrous flooding of 2003 and 2007 (Ullberg, 2013b). Valsagna (2011) emphasises the negative perception of the city and its municipal government that predominated among citizens at the time the new administration of the FPCyS took office in December 2007. According to an opinion poll conducted in the previous months, the prevalent images were of the flooded city.

Fedele draws on the work of Guido (1939) and Canal Feijóo (1951), who characterise Argentinean cities as ‘Mediterranean’ or ‘littoral’ cities, depending on their landlocked or riverine condition. The first ones represent the colonial, archaic and traditional cities, while the second ones encompass those port cities with a more progressive and cosmopolitan character (Fedele, 2011, pp.201-204).

CERIDE-Conicet (Santa Fe), INALI (Santo Tomé) and INA (Sauce Viejo).
and the corrupted and inefficient government (Valsagna, 2011). ‘Ciudad inundada’\(^{100}\) would be the other side of the coin of ‘ciudad preparada’\(^{101}\), recently replaced by the idea of ‘ciudad resiliente’\(^{102}\). The latter would become a slogan of the current administration which, while loosely applied, has been effective in attracting international attention and financing as well as recognition from the national government.

It is difficult to trace the multiple imaginaries of the city across such a long urban history, even more to corroborate which ones are still vivid in the culture of the Santafesinos. I have compiled here those that resonate in my mind as Santafesina myself, some of which I embraced throughout my early years at school, others which I recognise in monuments and symbolic marks across the city. Many of these epitomes often reverberate in political discourses and official publications of the municipal government; others, are revived in the writings of local scholars and intellectuals. Taking forward the proposal of Fedele (2011) might be an interesting way of understanding the fusion (also translated into tensions and contradictions) of imaginaries that have depicted the city since its foundation\(^{103}\).

4.5 Local scientific knowledge of flood risk

Until 2003, most scientific knowledge production about flood risk in the city primarily focused on a single factor of the disaster risk equation: the hazard, including intensity, frequency and associated changes over time. The main public entities responsible for the monitoring and reporting of hazard-related data have been the Instituto Nacional del Agua\(^{104}\) (National Water Institute, INA), the Servicio...
Meteorológico Nacional (National Meteorological Service, SMN) and the Comisión Nacional de Actividades Espaciales (National Commission of Space Activities, CONAE). From the three of them, only INA has had local representation with a regional office in the neighbouring city of Sauce Viejo\textsuperscript{105}. In addition, the Faculty of Engineering and Water Sciences of the UNL (UNL-FICH) has been a relevant actor in processing and compiling data from these other organisations for the analysis of the Paraná and Salado river basins (Haidar, 2007; Calvo and Viand, 2015).

INA has been the main source of studies and reports regarding flood risk in the Litoral region and in the city of Santa Fe. Furthermore, it has often been the organisation consulted for advice and for which professionals are hired for consultancy work on behalf of the municipal and provincial governments of Santa Fe. In 1986, the former INCYTH elaborated an assessment of the hydrological characteristics of the Salado river basin, which would be the last comprehensive study of the basin until the disaster of 2003 (CEPAL, 2003). At city level, a report was produced by INCYTH in 1992 where hazardous areas, based on the overflow of the Paraná and Salado rivers, were identified (Ramírez, 2009). Recently, one of the main contributions of INA has been an assessment of critical areas in the city due to heavy rains\textsuperscript{106} (Instituto Nacional del Agua and Municipalidad de la Ciudad de Santa Fe, 2015). Part of the Pluvial Drainage Master Plan for the city, also designed and regularly updated by INA, this assessment became the basis for the definition of critical points (see Section 7.3.1.1). However, according to some research participants, the expertise of INA has not been recognised nor fully used by the municipal and provincial governments over the last decades (Interview with former representative of Provincial Department of Water Resources, 01/08/2017; Interview with representative of Department of Public Services and Water Resources of Santo Tome, 23/06/2017). This could be partially explained by the significant cuts in

\textsuperscript{105}The national scope of the three public organisations responsible for the monitoring of meteorological and hydrological conditions and subsequent early warning is central to understand their limited capacity to perform their mandated functions in a context where the national government was dismantled in the '90s (Calvo and Viand, 2015).

\textsuperscript{106}The change of focus to frequent pluvial flooding seems to recognise the cumulative impact that heavy rains are having in the city and which might require more (or equal attention) than traditional fluvial flooding.
(human and financial) resources that national technical bodies such as INA and SMN faced over the 1990s and their consequent loss of prestige (Calvo and Viand, 2015).

UNL-FICH and its water resource engineers have been among those who have been largely dedicated to the study of the hydrological cycle and water resources management in the region as well as to assess the impacts of hydro-meteorological events in the city (Wolansky et al., 2003; Paoli, 2009; Gaviño Novillo, 2010; Paoli, 2015). Historical trends and projections for rains and rising river levels have been elaborated by them. The main hazards triggered by natural phenomena in the city are heavy rains, rising river levels (Paraná and/or Salado rivers) or a combination of both. The complexity around these hydro-meteorological events relates to their tight interaction with human interventions globally (e.g. climate change and commodification of crops) and regionally (e.g. irrigation and drainage infrastructure and land use changes), to the extent that it is difficult to dissociate natural from anthropogenic components. Having said that, knowledge of the geophysical conditions of the region is central.

From a geomorphological perspective, which considers the relative position of the city in the Paraná and Salado river systems combined with pluvial conditions and water table levels, Santa Fe is a city with a very critical hazard profile (ProCIFE, 2005; Calvo and Viand, 2015). This situation is exemplified by the record of large floods in Greater Santa Fe since the turn of the 20th century: eight flood emergencies, seven of which took place in the last four decades, and three of them in the last ten years (Herzer and Arrillaga, 2009). Even more, physical, social and economic impacts exhibit a rising trend over that period (Arrillaga, Grand and Busso, 2009). According to DesInventar database, the province of Santa Fe has been the most negatively affected by floods in the Litoral region over the last 40 years, the city of Santa Fe being the locality that concentrates most of the impacts (Celis, 2006; Celis and Herzer, 2009).

The most extraordinary river levels in the region have been related to the Paraná, though the most disastrous event in the city of Santa Fe has had the Salado river as

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107 Santa Fe has the largest population out of the six provinces of the Litoral region, which is relevant in terms of negative impacts on people’s lives and assets.
the trigger of the catastrophe. Thus, most of the studies have concentrated on the Paraná river since it has historically represented a more severe threat to the urban population and infrastructure, leaving the Salado further relegated (Calvo and Viand, 2015). When referring to river overflows in flat areas such as the Litoral region, at least three parameters are deemed relevant: maximum river flow, peak river level and number of days the river remains at those levels (see Table 4.1). The average annual flow of the Paraná river is 17,000 m³/s, although historical peak flows reached exponentially higher levels over the 20th century. Likewise, the average annual discharge of the Salado river oscillates between 140-170 m³/s, its historical maximum flow having been registered in 2003 (Cardona et al., 2015).

Table 4.1: Extraordinary records of Paraná and Salado rivers in Santa Fe since 1900

<table>
<thead>
<tr>
<th>Year</th>
<th>River</th>
<th>Peak level (m) *</th>
<th>Max. river flow (m³/seg)</th>
<th># of days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>Paraná</td>
<td>7.00</td>
<td>50,000</td>
<td>n/d</td>
</tr>
<tr>
<td>1914</td>
<td>Salado</td>
<td>n/d</td>
<td>2,750</td>
<td>n/d</td>
</tr>
<tr>
<td>1966</td>
<td>Paraná</td>
<td>6.94</td>
<td>42,000</td>
<td>n/d</td>
</tr>
<tr>
<td>1973</td>
<td>Salado</td>
<td>7.19</td>
<td>2,430</td>
<td>90</td>
</tr>
<tr>
<td>1977</td>
<td>Paraná</td>
<td>n/d</td>
<td>39,000</td>
<td>n/d</td>
</tr>
<tr>
<td>1977</td>
<td>Salado</td>
<td>6.55</td>
<td>1,790</td>
<td>22 days above 1,000 m³/seg</td>
</tr>
<tr>
<td>1981</td>
<td>Salado</td>
<td>n/d</td>
<td>n/d</td>
<td>4 days above 1,000 m³/seg</td>
</tr>
<tr>
<td>1892-1983</td>
<td>Paraná</td>
<td>7.33</td>
<td>61,100</td>
<td>n/d</td>
</tr>
<tr>
<td>1992</td>
<td>Paraná</td>
<td>7.43</td>
<td>56,000</td>
<td>n/d</td>
</tr>
<tr>
<td>1998</td>
<td>Paraná</td>
<td>7.16</td>
<td>47,500</td>
<td>n/d</td>
</tr>
<tr>
<td>1998</td>
<td>Salado</td>
<td>7.10</td>
<td>2,350</td>
<td>61 days above 1,000 m³/seg</td>
</tr>
<tr>
<td>2003</td>
<td>Salado</td>
<td>7.86</td>
<td>4,000</td>
<td>31 days above 1,000 m³/seg</td>
</tr>
</tbody>
</table>

* Paraná river measured at the port of Santa Fe; Salado river measured in Recreo

Source: Based on (Cardona et al., 2015, pp.5-6)

The extraordinary records of the Paraná and Salado rivers in different points of the city are represented by the ‘water marks’, an installation specifically designed to raise awareness across the Santafesinos (see Photo 4.1).
Annual average precipitation levels in the city have shown a raising trend since the 1970s (see Figure 4.2), which can be attributed to anthropogenic climate change and related changes in annual average temperature (Secretaría de Ambiente y Desarrollo Sustentable de la Nación, 2015). Changes in precipitation levels directly impact on river levels, not only in the specific territory but mainly upstream. Heavy rains in the South of Brazil, where the Paraná river begins, have a direct impact downstream. Importantly, the Paraná river is artificially regulated by the Brazilian dam system, which controls the discharge of the river in Argentinean territory. In the case of the Salado, the ‘artificial regulation’ has been mostly associated to a transition in the mode of production in the lower river basin.\footnote{There is no strict limit for the lower part of the Salado river basin, though it is conventionally defined since it enters the territory of the province of Santa Fe nearby the locality of Tostado. The city of Santa Fe is situated within this area.}

\textbf{Photo 4.1: Totem with extraordinary records of Paraná and Salado rivers in Santa Fe}

Source: Filippi (Alto Verde, Santa Fe, 10/10/2017)
Researchers in the region have increasingly identified the change in the production system, from cattle raising to a predominantly agriculture-based production scheme, as one of the main anthropogenic factors interfering in the natural hydrologic cycle of the lower Salado river basin (Giacosa et al., 2009; Ríos and Natenzon, 2015). Since the 1970s, land use changes in the province of Santa Fe have been tightly connected to the expansion of the agriculture frontier, specially of monocultures such as soya, further incentivised by global commodity prices (CEPAL, 2003). This transition has significantly altered the natural absorption capacity of the soil, raised water table levels and accelerated water runoff. Agriculture expansion has evolved in tandem with a system of artificial channels, many of them clandestine or not properly planned, which have not only affected the natural hydrological cycle but also further intensified agriculture activities (Giacosa et al., 2009). Additionally, the anthropisation of rural areas in the Litoral region has been marked by the development of road infrastructure, which has had a crucial impact on the dynamic of water resources, specially at times of extraordinary heavy rains (Paoli, 2009). Similarly, in urban areas, drainage infrastructure has tended to accelerate the speed of water runoff, while the growing occupation of river flood plains has interposed with the natural overflow of rivers (Giacosa et al., 2009).
Disaster risk studies which transcend the exclusive focus on hazards only started to emerge after the disaster of April 2003 (CONICET Santa Fe, no date; ProCIFE, 2005; Viand, 2009). Furthermore, the disaster generated a broad interest around the topic from various disciplines, not just applied sciences, and a vast scientific production emanated trying to explain the reasons and consequences of the event (Herzer and Arrillaga, 2009). A comparison between various analyses of the 2003 floods insinuates this transition.

CEPAL (2003), for instance, mainly emphasised the exceptional nature of rains and the resulting (also exceptional) river flow levels of the Salado. Consequently, not much responsibility was attributed to those who never finished the flood defence nor alerted the population on time. By contrast, the analysis of social scientists in the region tended to pinpoint the irresponsibility of authorities and attributed the disaster mainly to political reasons (Haidar, 2007; Cello, Frade and Haidar, 2013; Ullberg, 2013a; Calvo and Viand, 2015). One of the main criticisms in the aftermath of the disaster was the neglect of municipal and provincial authorities of the various assessments and evaluations produced by scientific organisations regarding the exposure of the city to flood risk, even when many of these studies had been requested by themselves. This issue also impinged on members of the universities and research centres in the area, calling for a critical self-reflection about their role and responsibility in the disaster and questioning the relevance of scientific knowledge production when it is not able to permeate political decisions (Interview with professor of UNL-FICH, 22/08/2017; Interview with professor of UNL-FICH, 19/04/2016). As Natzenzon (2015) concludes:

“(…) the hazard ends dominating the whole explanation of the process, placing the emphasis on the physic-natural processes and diverting the attention from the responsibility, reflexivity and subjectivity that are at the centre of the social theory of risk” (Natzenzon, 2015, p.XIII, my translation).

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109 The dean of the UNL at the time of the disaster, who would later become city mayor, publicly reiterated that these studies were produced by the university upon request, in many cases, of provincial authorities (Gualá, 2009; Ramirez, 2009).
A final remark regarding local scientific knowledge relates to how flood risk has been measured over the years. The prevalent approach, before and after 2003, has been the calculation of risk based on the impacts of events. Prior to the catastrophe, the most comprehensive calculation of (flood) risk has been the DesInventar database and related analysis (Celis, 2006; Celis and Herzer, 2009). The flood of April 2003 was vastly documented in terms of impacts, precisely as it was the largest disaster in the history of the city and even among the worst catastrophes in Argentina\textsuperscript{110}. International organisations conducted economic evaluations and the provincial and municipal governments had to calculate damages and losses themselves for compensation and judiciary purposes\textsuperscript{111}. Similarly, damages and losses of heavy rains in March 2007 were calculated. However, regarding this event, it would be difficult to find any additional publications beyond the reports of the municipal government.

Since 2008, the municipal DRM Office has kept track of a few indicators that reflect the impacts of hydro-meteorological events that reach certain protocol levels\textsuperscript{112}. These indicators cover the number of evacuated people and families in municipal shelters, the number of days that people remain evacuated in those places and the number of claims self-reported by residents to the Sistema de Atención Ciudadana (Citizen Service System, SAC). However, the DRM Office has rarely systematised this information except for presentation purposes at workshops and conferences when some events are compared to report progress\textsuperscript{113} (Gobierno de la Ciudad de Santa Fe, 2018b).

The catastrophe of 2003 brought to the fore the concept and calculation of social vulnerability (ProCIFE, 2005; Arrillaga, Grand and Busso, 2009; Grand and

\textsuperscript{110} This is a relevant fact as to denote that the history of the country has not been marked by large disasters where the death toll has been equivalent to other countries in the region such as Chile, Peru or Colombia. Some have argued that this might be one of the reasons that explains the late adoption of a disaster risk management approach at the national level (Negri and Zagalsky, 2005).

\textsuperscript{111} Two judicial processes were initiated against provincial and municipal authorities, including the incumbent provincial governor and city mayor at that time: the first one, to determine the responsibility of public authorities before, during and after the disaster of 2003; the second one, to claim an economic compensation for damages and losses for affected residents (Ullberg, 2013b). After ten years, these two cases were still unresolved (Calvo and Viand, 2015).

\textsuperscript{112} Protocol or alert levels are defined by the severity of the event or the number of evacuated people.

\textsuperscript{113} The most common comparison made by the municipal government is between heavy rains in March 2007 and March 2015.
Arrillaga, 2009; Viand, 2009). However, this would only be an incipient and intermittent exercise within academic circles, not systematically reproduced later. The closest equivalent at municipal government level was a census conducted in flood-prone areas for relocation purposes (Gobierno de la Ciudad de Santa Fe, 2014b). It would not be until 2015 that the first probabilistic risk assessment would be produced for the city of Santa Fe, assessing the vulnerability of the building stock to rising river levels, by an international consultancy team (Cardona et al., 2015).

4.6 Managing flood risk prior to 2008: structural and non-structural measures

Before the new DRM paradigm took hold, local scholars had tended to conceptualise practices to reduce or manage flood risk in terms of structural and non-structural measures (Wolansky et al., 2003; Paoli, 2009, 2015). This has been mainly the approach of water resource engineers from UNL-FICH who, until then, had monopolised the field. Structural or ‘hard’ measures refer mainly to infrastructural interventions in the urban space, whereas non-structural or ‘soft’ mechanisms entail complementary activities in the fields of spatial planning, education and culture. For these scholars, the notion of integrated risk management is associated with a balanced consideration of both types of interventions.

The 1990s were characterised by significant investments in structural measures to mitigate disaster risk from a hazard perspective at national, provincial and municipal levels (Grand and Arrillaga, 2009). Specifically, in the city of Santa Fe, this translated in the construction of two flood embankments: one circumscribing the west border of the municipal jurisdiction, to protect the city from the overflows of the Salado river; the other one along the Provincial Route No 1 in La Costa district (and beyond the municipality), to protect inhabitants from the rising levels of the Paraná river (Grand and Arrillaga, 2009). Financed by the World Bank, these interventions encouraged the urban expansion and population growth over these areas in the following years (see Section 4.2). The main issue, though, would not be the population growth per se, but the ‘false sense of security’ that flood defences would generate for those who would settle in their proximities. This issue has been
documented by many local researchers as an intrinsic problem of stand-alone structural measures to manage flood risk (Wolansky et al., 2003; Haidar, 2007).

The absence of raising-awareness, educational and socialisation measures, has been compounded by the lack of regulatory measures (mainly in the fields of water resources management and spatial planning), a deficient organisation for emergency response and an almost non-existent insurance industry for flood risk (Paoli, 2009; Universidad Nacional del Litoral, 2009, 2011).

Santa Fe is the only province in the country which does not have a Water Law to regulate the management of water resources within its territory (El Paraninfo, 2017). This is particularly striking in a province where the impacts of floods have been considerable, specially due to rising river levels (Celis and Herzer, 2009). This exemplifies the provincial jurisdiction over natural resources, including water resources, proclaimed by the reformed National Constitution (Convención Constituyente, 1994). The provincial law 11730 was passed in 2000 to deal with private goods in flood-prone areas (Legislatura de la Provincia de Santa Fe, 2000). However, it would not be regulated until 2003 nor have the required cartography to delimitate flood-prone areas until February 2009 (Grand and Arrillaga, 2009). Even more, one of the key informants of this research confirmed that the aforementioned law was never implemented (Interview with professor of UNL-FICH, 19/04/2016). According to Paoli (2009), there is a national legal vacuum on this topic and the main reason provinces like Santa Fe have passed this type of legislation relates to pressures from the World Bank for conditional loan transfers to finance flood protection infrastructure. Thus, legal ambiguities and the lack of uniform national legislation are among the reasons that might explain the absence of an insurance industry for flood risk in the country. In sum, there are no clear criteria to define responsibilities and related compensation rights114 (Paoli, 2009).

Insurance for flood risk is not widespread in Argentina. In general, the insurance industry does not cover domestic damages and losses from urban flood risk. Houses

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114 The absence of flood risk maps (based on return periods for different river overflow levels) and the lack of appropriate (land use) regulation for the occupation of flood plains make this task difficult (Paoli, 2009, p.125).
are not insured for flooding impacts and only cars, in very specific cases, might be covered (E-mail correspondence with representative of the insurance sector, 21/07/2016). There are new insurance options for the agriculture sector, though it is usually only large-scale farmers who can have access to this alternative (Calvo and Pereira, 2015).

Regarding the organisation for emergency response, the overarching national disaster management framework since the 1970s has been the Civil Defence, later converted into Civil Protection\textsuperscript{115}. In the 1990s, the Sistema Federal de Emergencias (Federal System of Emergencies, SIFEM) was created and downscaled to the provincial levels. The translation of SIFEM to the municipal arena, although planned, would never be implemented (Negri and Zagalsky, 2005). In this context, the ruling scheme at the time of the major disasters of 2003 and 2007 in the city of Santa Fe was the Civil Protection organisation\textsuperscript{116} (Haidar, 2007).

The Civil Defence law of the province of Santa Fe, sanctioned during the last dictatorial government in 1977, stipulates that early warning and evacuation fall within the mandate of municipal governments\textsuperscript{117} (Haidar, 2007; Calvo and Viand, 2015). Specifically, the provincial law 8094/77 and its regulatory executive decree 4401/78, state that both provincial and municipal governments need to organise and prepare for response\textsuperscript{118}. However, besides regulations, preparedness for response would not be undertaken seriously either by the provincial or the municipal government of Santa Fe by 2003. As an effort to respond to the institutional crisis triggered by the emergency, the first specific entity for disaster risk management

\textsuperscript{115} The change of name represented an evolution within the organisation in the understanding of disaster risk and its management, although in practice it remained focused on the emergency itself (Interview with representative of Civil Protection of the Province of Santa Fe, 18/08/2017).

\textsuperscript{116} A new national law, aimed at incorporating the international change of paradigm in the field, was sanctioned in 2016 but not regulated until 2017 (Congreso de la Nación Argentina, 2016). Hence, the implications of this new legislation are not addressed in this thesis.

\textsuperscript{117} The law is still valid and operating across the province, although it has been somehow contradicted by the municipal ordinance that created the Municipal DRM System in the city of Santa Fe in 2008 (see Section 6.2).

\textsuperscript{118} In the case of the provincial government, preparedness for response should follow three planning stages: (1) provincial plan of Civil Defence (general principles); (2) provincial programme of Civil Defence (short-term activities of the plan); (3) provincial emergency plan (measures to deal with emergencies). In the case of municipal governments, each municipality should have (1) a municipal Civil Defence plan (aligned to the provincial Civil Defence plan) and (2) a municipal emergency plan (Calvo and Viand, 2015, p.135).
would be created in the city in 2005. Thus, the Sub-secretariat of Disaster Risk Management would become the organisational predecessor of the DRM Office that would later lead the new municipal DRM system in Santa Fe (Calvo and Viand, 2015). One of the first measures of the Sub-secretariat was the elaboration of the first Municipal Contingency Plan in 2005 (Ullberg, 2013a).

4.7 Conclusion

Chapter 4 provided a historical perspective to the configuration of urban flood risk in the city. The spatial city focused on the construction of exposure, while the social city focused on the differential patterns of socio-economic vulnerability of its inhabitants. Combined, these two dimensions accounted for the spatial distribution of socio-economic vulnerability. Conceptual visions of the city underpinned the urbs and the civitas, and might be useful to understand the geographic placement of Santa Fe and some of its long-standing social fractures. This historical and holistic approach contrasts to prevailing understandings of disaster risk in the city and the related measures that have been taken forward to manage it. Even more, the polis anticipates the political dimension of the city and its role in the institutional organisation of the country, which is the theme of Chapter 5.
Chapter 5  The configuration of the municipal government

5.1  Introduction

Chapter 5 is devoted to the leading actor of the local DRM process, that is, the municipal government. It begins with a characterisation of the system of government in Argentina (Section 5.2) and its implications for municipal autonomy (Section 5.3). This is followed by a brief depiction of the ‘inundadores’\(^{119}\), the two municipal administrations that had faced the emergencies of 2003 and 2007 and which paved the way for a turnaround in provincial and municipal elections in September 2007 (Section 5.4). Section 5.5 introduces the new political coalition that would rule the province and the city of Santa Fe for the following three consecutive administrations and its ideological basis.

5.2  Republicanism and federalism in Argentina

Argentina is a representative, republican and federal state. Republicanism refers to the horizontal division of power between the executive, legislative and judicial branches. Federalism relates to the vertical division of power across territorial politico-administrative units and it entails political autonomy and devolution of responsibilities and resources to provincial and municipal government levels\(^{120}\).

At national level, the country combines a presidential form of government with a bicameral legislature\(^{121}\) and a Supreme Court. This structure is then replicated at the

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\(^{119}\) Denomination used by the local social movements that emerged after the floods of 2003 to refer to the political authorities responsible for, according to them, the disaster. It means ‘those who flooded us’ or ‘the ones who triggered the floods’ and it would become the main adjective given to municipal and provincial authorities alike by the collectives of affected people (Guala, 2009; Ramírez, 2009).

\(^{120}\) It is important to differentiate between decentralisation and federalism. Federalism is a system of government, underpinned by the motto of mutuality between the central government and subnational units. Decentralisation is a shift of fiscal, policy and/or political authority from central towards subnational governments. Thus, decentralisation can be considered across the spectrum of unitary-federal systems of government. Federalism is often correlated to decentralisation, although the degree of decentralised functions might vary significantly between countries and within a single country across time (Rodden, 2004; Ardanaz, Leiras and Tommasi, 2012). Noteworthy, less than 25% of countries in the world have a federal system of government (Sozzo, 2017).

\(^{121}\) The National Congress is composed of an Upper Chamber or Senate and a Lower Chamber or Chamber of Deputies. The Senate, organised around the principle of territorial representation, gives equal weight to each province (3 senators per province). Composition of the Lower
subnational levels of government. In all provinces, government consists of a directly elected executive (governor), an elective legislature and a judiciary. In the case of municipalities, a directly elected mayor and city council are the equivalent of the executive and legislative bodies. This division of power, though, is quite often depicted as somehow fictitious. In the first place, the executive branch and its main leaders have prominence over the other powers, which in a way echo the unipersonal characteristics of a presidential national government system. Secondly, the legislative and judiciary powers tend to be manipulated by the executive (Ardanaz, Leiras and Tommasi, 2012). Thirdly, prominence and influence are facilitated by the ready availability of resources, with striking differences in personnel and budget in favour of the executive vis-à-vis the legislative and judiciary branches in all three levels (Oszlak, 2003).

Provinces pre-existed the modern nation-state; indeed, provinces united to sanction the Constitution of the Confederation in 1853, soon after turning into the National Constitution of 1960 with the incorporation of the Province of Buenos Aires (Dirección Nacional del Sistema Argentino de Información Jurídica, 2015). Since the last constitutional reform of 1994, the federation has consisted of 23 provinces and a semi-autonomous federal capital. Political autonomy of provincial governments entails that they sanction their own provincial constitutions and have independence to define their own electoral systems. In addition, they also enjoy policy autonomy over vital areas such as education and health, a decentralisation process that started in the 1960s and was further consolidated over the 1990s (see Box 5.1). Fiscal autonomy translates in a federal tax-shared system and the right of provinces to raise their own (provincial) taxes. The combination of all these features makes Argentina one of the most decentralised countries in the world. However, decentralisation has evolved in the context of a structure of incentives of a particular federal system, which has had some pervasive implications in terms of political and fiscal arrangements (Ardanaz, Leiras and Tommasi, 2012).

Chamber is based on the principle of proportional representation according to population size. However, the 'proportionality' criterion was altered by Perón in 1946 and during military governments (Orlansky, 1994; Gervasoni, 2010).

122 The judicial power of municipalities is very limited and often restricted to minor offences. The provincial government reserves most of the judiciary autonomy in the federal system (Asensio, 2006).
Box 5.1: The ‘90s in Argentina and the role of the state: reduction, retreat or metamorphosis?

Oszlak (2003) emphasises that Argentina is probably the country that has experienced the most radical transformations in the configuration, size and role of the national state over the 1990s. However, he prudently identifies the seeds of this process already back to the end of the 1950s. Orlansky (1994) further elaborates on the historical trends underlying the transformation of the Argentinean welfare state in the ‘60s and reckons a decentralisation process of the ‘social’ functions of the national state during the neoliberal period that characterised the dictatorial rule of the mid-1970s. At that time, primary education and some healthcare responsibilities as well as the provision of some services such as electricity and water were transferred to the provincial and municipal governments.

The decentralisation effort would accelerate and accentuate in the ‘90s under a democratic government of neoliberal ideology. During Menem’s first administration, medium education and public hospitals were transferred to provinces. Thus, by 1999, provincial governments were in charge of 96% of overall education spending, 70% of health spending and 62% of spending on social programmes (Ardanaz, Leiras and Tommasi, 2012). In addition to changes in its social functions, a major change in the ‘90s would be the retreat of the national state from its productive role and the consequent privatisation of the main state companies. Agreeing with Ozslack (2003), Orlansky (1994) also questions the official statements of ‘minimisation’ or ‘reduction’ of the state after the reforms. She considers that this transition could only be observed in relation to the productive role of the national state, but not regarding its political and social apparatus. Whereas social functions were devolved to provincial and municipal governments, the national state grew and intensified its political role by significantly increasing the number of employees working in the Presidency and the Ministry of Interior, among other dependencies of the national government. Thus, while provinces would have more managerial responsibilities and therefore higher public employment, the national state would keep a relatively strong subtle control over sub-national levels through the arrangements of fiscal federalism and political favour exchange. The ‘cashier’ (Oszlak, 2003) or ‘rentier’ (Gervasoni, 2010) state are some of the portrayals ascribed to the reformed national state in the literature. Not only provinces and municipalities would remain highly dependent on national funding, but this would further diminish their capacities to generate their own resources.

Deregulation and privatisation characterised changes in the productive role of the state as part of the neoliberal reform. The retreat of the state, close to the notion of the ‘absent state’, would only apply to this dimension (Oszlak, 2003). Decentralisation referred to the social role of the state and the resulting devolution of responsibilities to provinces (and to a lesser degree municipalities) in the fields of education, health and social services. Here, ‘metamorphosis’ might better describe the simultaneous processes of minimisation or reduction of the national state and the expansion of provincial and municipal governments (Oszlak, 2003). Finally, in relation to the political role of state, it is more accurate to think about ‘political hypertrophy’ (Orlanksy, 1994). The national government increased its control over provinces through the mechanisms of fiscal federalism and the negotiation of political favours.
Analysts of Argentina’s federalism usually underscore two outstanding characteristics of the system. Firstly, the level of national legislative overrepresentation is among the highest in the world\(^{123}\) (Gibson and Calvo, 2000; Gervasoni, 2010). Secondly, Argentina is one of the countries with the largest vertical fiscal imbalance\(^{124}\) worldwide (Wibbels, 2003, 2005). These two elements co-constitute and reinforce each other.

Politically, provinces with fewer inhabitants are the ones whose citizens’ votes count more. Hence, provincial leaders (mainly governors) from demographically small constituencies have a greater degree of power to negotiate formal fiscal arrangements and discretionary transfers with the national government, in exchange for votes in national elections and within Congress. The latter entails the role of the national legislature being relatively superfluous as agreements for the approval of laws tend to be settled outside formal structures and rather informally between the president and governors. In turn, smaller provinces, though not necessarily the poorest, tend to receive more federal transfers per capita. This not only questions the redistribution grounds of federalism, but also provides governors of smaller provinces with greater room for manoeuvre for clientelistic and patronage purposes within their jurisdictions (Gervasoni, 2010; Ardanaz, Leiras and Tommasi, 2012).

Fiscal federalism organises the way subnational governments are financed. In Argentina, it basically consists of two types of transfers: (1) legally mandated transfers via the Federal Tax-Sharing Agreement, widely known as coparticipación\(^{125}\); (2) discretionary fiscal transfers. Coparticipación is a mechanism for sharing national tax revenues between provincial governments according to an automatic revenue sharing formula. Established in 1934, this scheme was originally designed to distribute transfers proportionally to the share of tax revenues collected

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\(^{123}\) Overrepresentation in the Argentine federal system is partially related to the disproportional distribution of the population across the country. More than 60% of its 40.1 million population is concentrated in three provinces (Buenos Aires, Santa Fe and Córdoba) and the Autonomous City of Buenos Aires (INDEC, 2010).

\(^{124}\) Vertical fiscal imbalance refers to the mismatch between the level of public spending and taxation capacity of provincial governments. Hence, “provincial politicians enjoy a large share of the political benefit of spending, yet pay only a small fraction of the political cost of taxation” (Ardanaz, Leiras and Tommasi, 2012, p.13).

\(^{125}\) In English, co-participation
in each province. However, several reforms\textsuperscript{126} distorted this mechanism as to redistribute revenues in favour of low-population provinces but not necessarily the poorest ones (Remmer and Wibbels, 2000; Wibbels, 2003; Gervasoni, 2010). Gibson and Calvo (2000) assert that this mechanism systematically favours those provinces that they described as peripheral (provinces excluding the four more populous and economically advanced provinces of Buenos Aires, Santa Fe, Cordoba and Mendoza) and that in many cases include what they label ‘low-maintenance constituencies’\textsuperscript{127}. Discretionary transfers include multiple mechanisms that Wibbles describes as ‘subnational soft budget constraints’, ranging from irregular transfers, to provincial debt assumption by the national government to exporting overspending via provincially owned banks (Wibbels, 2003, 2005). The most well-known of highly discretionary funds to provinces have been the \textit{Aportes del Tesoro Nacional} (National Treasury contributions, ATNs) (Gervasoni, 2010).

Political arrangements linked to overrepresentation and ‘low-maintenance constituencies’ are facilitated by the control of the national government over fiscal resources. Orlansky (1994) argues that recurrent discontinuities of the constitutional order in the country over the 20\textsuperscript{th} century favoured the central government in capturing financial resources which collection would otherwise correspond to provinces. Large vertical fiscal imbalances, in turn, benefit provincial governments with a pull of financial resources without paying the cost of taxation in their own jurisdictions. That is, provinces end up being fiscally independent from their constituencies and with a weak tax link with local citizens and businesses (Ardanaz, Leiras and Tommasi, 2012).

In the province of Santa Fe, political federalism translates into three senators in the upper chamber and nineteen deputies in the lower chamber of the National Congress\textsuperscript{128}. As for fiscal federalism, figures for the year 2008 reported that the provincial government of Santa Fe financed approximately 70\% of its budget with

\textsuperscript{126} Reforms to the original federal tax-sharing agreement took place under the presidencies of Peró (1946-1952), Frondizi (1958-1962) and Lanusse (1971-1973) (Gervasoni, 2010).

\textsuperscript{127} The expression emphasises the relative low cost of votes in these provinces for the national government. That is, votes in these provinces count more vis-à-vis the weight of individual votes in the four most populous and developed provinces.

\textsuperscript{128} As of 2018, the Senate is composed of 72 senators and the Lower Chamber by 257 deputies. Based on population size, Santa Fe is the third province with more national deputies.
federal transfers, 65% of which corresponded to the formal tax-share system and 5% to discretional transfers. This places Santa Fe within the ten provinces that receive the lowest levels of federal transfers out of 24 subnational units (Ardanaz, Leiras and Tommasi, 2012, p.13). The remaining 30% of the provincial budget is made of taxes collected by the provincial government itself\textsuperscript{129}.

Scholars have reflected on the critical implications that this structure of incentives might have for the economy and democracy of the country. Some remind us of the association between large vertical fiscal imbalances and macroeconomic problems such as fiscal deficits and inflation (Gervasoni, 2010). Others question the low levels of subnational democracy that are to be expected when fiscal federalism finances the survival of provincial elites who stay in power indefinitely based on corruption, patronage, control over the judiciary, ownership of the media and so forth (Ardanaz, Leiras and Tommasi, 2012).

5.3 Republicanism and federalism at municipal government level

In the literature, republicanism and federalism in Argentina have been mainly analysed in relation to the provincial subnational level. However, less attention has been paid to the implications of this system of government for the municipal scale (Asensio, 2006).

A three-tier federal system means that municipalities\textsuperscript{130} are in essence self-governed. The municipal regime was already conceived in the original constitutional contract of 1853, but it would not be until the reform of the National Constitution in 1994 that the autonomy of municipalities would be formally recognised (Convención Constituyente, 1994). Municipal self-government encompasses two of the three republican powers granted to the federation and provinces, the executive and the legislative, while the judiciary remains in the purview of higher levels of

\textsuperscript{129} Outside the federal tax-sharing scheme, taxation rights vary across provinces. Each provincial government can define which taxes are to be collected by the province and which ones by municipalities (Asensio, 2006).

\textsuperscript{130} The third tier of government is constituted by municipalities and communes, depending on the number of inhabitants. Criteria vary across provinces; being above 10,000 inhabitants the criterion that confers the status of municipality to a locale in the province of Santa Fe (Asensio, 2006).
Representatives of the executive and deliberative bodies, mayor and councillors, are directly elected by the population of each municipality. This political structure is then complemented with a bureaucracy or administration (Asensio, 2006). The political organisation of the third level of government, though, is defined by provinces through their provincial constitutions and organic laws of municipalities and communes.

In the same way that the National Constitution does not neatly define the mandate of provinces, leaving them with jurisdiction over anything that is not specifically delegated to the federal government, the provincial constitutions are quite vague in the responsibilities of municipal governments. The latter is somehow corrected by the organic laws. The mandate of municipal governments varies, not only across but also within provinces, based on provincial legal stipulations and population size of urban areas. In general, however, municipal governments are responsible for land use planning, parks and leisure, solid waste collection, street maintenance, urban traffic and local legislation (Asensio, 2006).

Regarding financing, municipalities rely on their own taxes, transfers from other levels of government and credit. Overall, the contribution of local governments to their total public expenditure is not negligible, accounting for almost 55% on average in 2004 (Asensio, 2006, p.367). However, a closer look at the specific situation of certain provinces retrieves important regional differences. In the province of Santa Fe, the financial capacity of local governments was slightly below the national average, their average contribution to public spending being 54.1% in 2004. Thus,

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131 See footnote 122
132 These represent the average functional profile of local governments in Argentina based on norms and practices and the frequency of provision (Asensio, 2006, p.356).
133 Usually known as municipal tasas (fees)
134 Transfers from other levels of government include tax-sharing from national and provincial sources. The federal tax-sharing system transfers resources from the national tax collection to the provinces and, through them, to the municipalities. Provinces also distribute provincial revenues with their local governments. In addition to tax revenues, discretionary transfers take place. While most literature on discretionary transfers focuses on the provincial level, there are instances where the national government circumvents the province and goes directly to the municipalities. This is often the case when mayors of the most important municipalities are not politically aligned with their provincial governor (Ardanza, Leiras and Tommasi, 2012). This seems to be the case of the municipality of Santa Fe since December 2015 and the direct financial support it has been receiving from the national government.
more than 50% of public spending in municipalities and communes in the province was financed through their own resources\textsuperscript{135}.

Drawing on the three decentralisation criteria suggested by Rodden (2004), it is possible to broadly assess the degree of autonomy of municipal governments in Argentina. In terms of political autonomy, while municipalities benefit from direct and free elections of their authorities, they are also accountable to their provincial governments as they must comply with provincial constitutions and organic laws. Regarding policy autonomy, similar to provincial governments, municipalities have jurisdiction over certain issues and policy fields. However, as Asensio emphasises: “Overlapping activities and little accuracy in the correct delimitation of certain functional responsibilities are features of the Argentine intergovernmental scene” (Asensio, 2006, p.375). Finally, municipal fiscal autonomy varies across provinces, in some cases being very limited and highly dependent on other levels of government.

In Santa Fe province, the regime of municipalities originates in the Provincial Constitution\textsuperscript{136} (Convención Constituyente, 1962). These general rules are complemented with the provincial organic laws for municipalities (1939) and communes (1985), which are sanctioned by the provincial legislature. Municipal governments in the province are constituted of two main bodies: an Executive Department, in the hands of the mayor, and a unicameral City Council, composed of a certain number of councillors according to the number of inhabitants of each city. City mayor and councillors are directly elected and their posts last four years. Whereas no specific definition is stipulated for the (consecutive) re-election of mayors, city councillors can be re-elected indefinitely. The provincial legislature reserves the right to change the selection mechanism for mayors (Legislatura de la Provincia de Santa Fe, 1939).

\textsuperscript{135} However, as an average, this figure masks important differences across municipalities in the province. This pertains to the largest city in the province, Rosario, which has had a stronger financial capacity compared to other municipal governments. By 2016, the financial capacity of Rosario was 53.4\% vis-à-vis 37\% for the city of Santa Fe (see Figure 5.1).

\textsuperscript{136} The constitutional basis of the province can be traced back to the Statute of 1819 (see Section 4.4). The first provincial constitution was sanctioned in 1872 and last reformed in 1962.
The Central Administration of the Municipality of the City of Santa Fe is organised around four entities, the main two being the Municipal Executive Department and the City Council\textsuperscript{137}. As of 2016, the Executive Department of the city of Santa Fe was constituted of 184 authorities and 3,332 bureaucrats, distributed across thirteen departments (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). Authorities comprise directly elected representatives (in this case, the mayor) and her/his politically appointed cabinet personnel. Bureaucrats account for municipal permanent and temporary staff, both technical as well as administrative.

In 2016, the City Council had 111 authorities and 134 bureaucrats (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). Authorities include elected representatives (17 councillors\textsuperscript{138}) and their technical advisors and secretaries. Bureaucrats refer to permanent and temporary staff who support the regular functioning of the council. By 2016, the Council was organised around five thematic commissions, the Commission on Urban Planning, Habitat, Public Works and Disaster Risk Management being one of them\textsuperscript{139}. The main building of the Executive and the City Council sit next to each other, further facilitating the contact between executive administrators and councillors (see Photo 5.1).

The Organic Law of Municipalities defines the mandate of the City Council, mayor and municipal employees or bureaucrats. The main responsibilities of the Executive Department include dealing with emergencies, basic service provision and urban planning (Legislatura de la Provincia de Santa Fe, 1939).

\textsuperscript{137} These are the main two entities in terms of human and financial resources as well as in the level of responsibilities and decision making power. In addition, there are a few decentralised entities such as the Municipal Audit Office and Pension Fund.

\textsuperscript{138} This has been the number of city councillors since December 2015. In the previous years, the city council was composed of 13 (2007-2013) and 14 (2013-2015) councillors.

\textsuperscript{139} The other four commissions were: Commission of Government and Citizen Security; Commission of Finance, Economics and Local Development; Commission of Public Services, Transport and Environment; Commission of Social Development, Culture, Education, Health and Human Rights (Gobierno de la Ciudad de Santa Fe, 2012b).
To measure the financial autonomy of the municipal government, two indicators have been tracked by the municipal government of Santa Fe itself since 2009:\textsuperscript{140}

1. The coefficient of financial capacity, which calculates the proportion of the total public spending that the municipal government is able to finance with its own resources (see Figure 5.1).

2. Financial autonomy, which measures the freedom of the municipal government to spend the revenues transferred from other jurisdictions (provincial or federal) at will. That is, whether revenues are simply transferred or rather earmarked for specific purposes (see Figure 5.2).

\textsuperscript{140} Fiscal data of the municipal government of Santa Fe are publicly available for the period 2009-2017. Thus, there is only one year (2008) missing from the period under analysis in this thesis.
Figure 5.1: Coefficient of financial capacity of the Municipality of Santa Fe (2009-2017)


Figure 5.2: Financial autonomy of the Municipality of Santa Fe (2009-2017)

In his analysis of local government organisation in Argentina, Asensio (2006) acknowledges that in many municipalities budgetary management reforms have been pursued. As part of this process, the municipality of Santa Fe undertook the Reforma de Administración Financiera en el Ámbito Municipal (Reform of Municipal Finance Management, RAFAM)\textsuperscript{141}. Since 2008, in the name of efficiency and evaluation by results, the budget of the Executive Department is organised by executive programmes. In addition, specific objectives and targets need to be defined for each programme, which are assessed quarterly. The municipal annual budget and annual expenditure report are publicly available online at the beginning and end of each budgetary cycle, respectively (Gobierno de la Ciudad de Santa Fe, 2018c). In tandem with this budgetary reform, an administrative decentralisation through the delineation of eight municipal districts was implemented, among other purposes, to improve municipal tax collection (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008b).

All in all, important changes erupted while others were consolidated in the Argentina of the 1990s, not only in the configuration of the various state levels but mainly regarding the raison d'ètre of the State itself. Much of the analysis about the Ley de Reforma del Estado\textsuperscript{142} (1989) has concentrated on the productive role of the state, leaving aside the implications of the decentralisation of its social functions and the resulting enlargement of the public administration apparatus at provincial and municipal levels. Being the provincial capital, the impacts on the city of Santa Fe would be significant as it accommodates both provincial and municipal governments. The reform of the National Constitution in 1994 confirmed the decentralisation momentum by formally recognising the autonomy of the third tier of government, while new public management ideas resonating in the national sphere would slowly begin to permeate the local scale. More than a decade later, the administrative decentralisation and implementation of RAFAM exemplified some of these changes in the municipality of Santa Fe. In between, the crisis of December 2001 would inaugurate the era of Kirchnerismo and the intention to bring back the ideology of a

\textsuperscript{141} RAFAM is a planning technique to define municipal budgets by programmes. The software that has been developed to facilitate this exercise receives the homonymous name (Gobierno de la Ciudad de Santa Fe, 2018c).

\textsuperscript{142} In English, law of the reform of the state
strong State. Thus, municipal government administrations would be navigating through the intricacies of new ideas and political traditions, trying to pave their way towards more autonomic governments though always dependent on the fortunes of the higher levels.

5.4 The ‘inundadores’\textsuperscript{143}: the administrations during the disasters of 2003 and 2007

The political party system of Argentina has traditionally had two main parties of national scope: the \textit{Unión Cívica Radical}\textsuperscript{144} (Radicals, UCR) and the \textit{Partido Justicialista}\textsuperscript{145} (Peronists, PJ) (Ardanaz, Leiras and Tommasi, 2012). In addition, provincial partisan organisations have coexisted alongside these traditional national parties. Since the return of democracy in 1983, the governorship of the province of Santa Fe has been under the control of the PJ political party. It would not be until December 2007 when the Peronists would be for the first time defeated in provincial elections by the FPCyS coalition. Even more, this amalgamation of parties of provincial scope would be re-elected to run the province in the next two elections in 2011 and 2015. Results at provincial level highly influenced electoral tendencies in the capital city of Santa Fe, where the FPCyS would rule the city over the same period of time.

The floods of 2003 represented a breaking point in the citizen-state relationship. Blame towards provincial and municipal government authorities for their responsibility in the catastrophe was followed by a feeling of ‘official’ abandonment in the aftermaths of the event and the lack of concrete response to the demands of a large proportion of the \textit{Santafesinos} (Guala, 2009). This was of particular relevance for those in the lower-income strata, who have traditionally voted for the \textit{Partido Justicialista}, a sort of partisan loyalty that has characterised the history of Peronism in Argentina (Auyero, 2000). The disaster of 2003, which principally overwhelmed those sectors, would break this ‘blind’ affiliation often based on clientelistic practices

\textsuperscript{143} See footnote 119
\textsuperscript{144} Founded in 1891 by Leandro Alem, the UCR is one of the oldest modern political parties in Latin America (Unión Cívica Radical, 2018).
\textsuperscript{145} The social and political basis of the PJ were originally the workforce of the industrialisation period of the 1930s and 1940s. Colloquially known as the Peronist party, it derives its label from its main leader Juan Domingo Perón (Auyero, 2000).
and the politics of subsidies. This time, however, subsidies would not be enough to compensate for the consequences of the disaster. Even more, according to the *inundados*[^146], the logic of subsidies would be inappropriate since floods had been the entire responsibility of the state and therefore authorities had had the duty and obligation to deal with the consequences:

“(…) the perception that the State has reduced them [affected residents] to beneficiaries of a compensation or economic aid, in opposition to what they consider a right – of the affected citizens – because it was the State who allowed this tragedy to occur” (Guala, 2009, pp.167-168, *my translation*).

For many Santafesinos flooded in 2003, many of whom would be affected again in 2007, incumbents at that time were synonymous with corruption and impunity and were identified as the ‘*inundadores*’, in opposition to their self-ascribed label of the ‘*inundados*’. Underlying the antagonism between *inundadores* and *inundados*, there was a crisis of representation signed by the failure of the authorities to comply with the essential duties and obligations towards the represented community (Guala, 2009). A public letter from a collective of affected people, the *Marcha de las Antorchas*[^147], synthesises the post-disaster perception of residents towards municipal and provincial government members:

“We are witnessing a repetitive story, two [provincial] governments of Reutemann and two [provincial] governments of Obeid equally implicated in the lack of foresight, perversion and corruption. That is the reason why everything is covered, because the political corporation in Santa Fe protects itself in a permanent exchange of favours (…) That is why we keep saying: everything is covered, everything is denied, everything is negotiated” (*Marcha de las Antorchas*, Open letter, in Ramírez, 2009, pp.189-190, *my translation*).

The inflection point of that crisis would be the day of the catastrophe, 29th April 2003, although the affected residents would have to wait another four years to finally corroborate that the responsible individuals for the tragedy were leaving power[^148]. Two days prior to the disaster, national elections took place in the country, this being

[^146]: In English, people affected by floods
[^147]: March of the torches
[^148]: See footnote 111
one of the main political reasons to which the disaster has been attributed (Haidar, 2007; Guala, 2009). Incumbents and politicians were more worried about winning the election and hiding any potential problems than acknowledging and dealing with the floods. Provincial and municipal elections would follow in September, paradoxically validating the prevailing constellation of power149. Hence, those who had inaugurated the unfinished flood defence in 1997, including the former provincial governor Obeid, would win the elections again in 2003. The inundados would have no other option than waiting for another political cycle to break the traditional political structures that had dominated the province and the city for over two decades.

In this context, the catastrophe did not mark a radical breaking point but rather a transition phase within the same political regime. The first changes triggered by the disaster mainly entailed organisational modifications at provincial and municipal government levels (Grand and Arrillaga, 2009). The former Dirección Provincial de Obras Hidráulicas (Provincial Office of Hydraulic Works), part of the Ministry of Public Works and Services, was transformed into a separate ministry, the Ministerio de Asuntos Hídricos (Ministry of Water Resources). In addition, a specific entity was created to deal with the economic compensation to those whose houses had been destroyed or damaged by the flooding of the Salado river. The Unidad Ejecutora de Recuperación de la Emergencia Hídrica y Pluvial (Executive Unit for Emergency Recovery), with around 300 employees, would operate for two and a half years.

At municipal government level, the Sub-secretariat of Water Resources was scaled up to the range of secretariat. Furthermore, the first municipal DRM Office was created under the new Secretariat of Water Resources, its main task being the elaboration of a contingency plan for floods. The contingency plan was presented in July 2005, but would prove inadequate during the heavy rains of March 2007. Grand and Arrillaga (2009) conclude that all these changes represented a revalorisation of the governmental units in charge of water resources management and the incipient incorporation of a DRM perspective in the municipality of Santa Fe.

149 Electoral results were favoured by a controversial electoral system, known as Ley de Lemas (double simultaneous vote), which was for the last time used in the province in September 2003.
A more fundamental turning point seemed to be encouraged by the pluvial floods of March 2007 and a new window of opportunity that opened up with the elections in September 2007:

“Because since the ‘83, we had had governments of the same political colour, with some small interstices. And the city, when it enters these long periods, the relations tend to stabilise based on the existing political interests and that produces a plateau effect… And the city was in its worst moment… After the crisis of 2001, the hit of the flooding of 2003 absolutely damaged the social and physical body of the city… And after that, the floods of 2007 again… In that context, the Civic and Social Front wins, not only in the municipality of Santa Fe but in the province. Consequently, the dean of the university at that time, the engineer Mario Barletta, would become mayor, and Hermes Binner, a leader of the south, from the city of Rosario, won the governorship. Which means that the renovation is, in political terms, very important since long-standing lines of continuity are interrupted” (Interview with professor of UNL-FADU, 23/10/2017, my translation).

Therefore, the disruption of traditional political dynamics cost the provincial and municipal elections to the PJ political party and rewarded a new political coalition not associated with the disaster. However, it would entail an enormous challenge for the upcoming administrations to rebuild the trust from, and the relationship with, the Santafesinos (Interview with former representative of DRM Office, 18/04/2016; Interview with representative of Department of Communications, 22/04/2016). To rebuild a trustworthy relationship between the state and citizens, that is, between the municipal government and the Santafesinos, was among the top priorities of the new administration that assumed power in December 2007 (Valsagna, 2011).

5.5 The FPCyS coalition: three consecutive municipal administrations for the analysis

The Frente Progresista Cívico y Social (Progressive, Civic and Social Front, FPCyS) has been a relatively unique political experiment for the country, the origins of which could be traced back to the city of Rosario and its long-established Socialist party150 (Hardoy and Ruete, 2013; Hardoy, Herrera and Mastrangelo, 2016). In 2006, the FPCyS formed as a coalition between various political parties, the main two being

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150 With a population of 967,765 inhabitants, Rosario is the largest city in the province of Santa Fe (INDEC 2010). The Socialist party has been running the city since the return of democracy in 1983.
the Socialist party and the Radicals\textsuperscript{151}, to run for provincial and municipal elections. For the very first time, the province of Santa Fe and its capital city would be governed by this progressive, left-centre political coalition; a Socialist party and an extended coalition which have only had political representation in the province of Santa Fe\textsuperscript{152} and some of its cities, but which have not had representation in other provinces\textsuperscript{153} nor national scope\textsuperscript{154}. A key feature of the FPCyS has been a strong case for the role of the state in guaranteeing the well-being of the population (Partido Socialista, 2013).

In the municipality of Santa Fe, many of the new political authorities that assumed power in 2007 came from the university, including the mayor Mario Barletta who had been the Provost of the Universidad Nacional del Litoral (UNL) for over eight years at the time of the electoral campaign. Even more, Barletta himself was an expert on water resources from UNL-FICH, which would also have implications for the priority given to flood risk management in the new municipal agenda. Similarly, many of those he appointed in the main leadership positions were, and many still are, professors or had another related role at the university:

“And what is going to happen is a broad call from Mario Barletta to the technical groups of the universities, which are three in the city. This is another feature that deserves to be highlighted. The three universities had always been in the city; however, this is the first time that there are so many people from the universities and from all disciplinary backgrounds working in the teams of the municipality, beyond politico-partisan affiliations” (Interview with professor of UNL-FADU, 23/10/2017, my translation).

*Militancia universitaria* (political affiliation within the university) is an emblematic feature of public universities in Argentina. *Franja Morada* (purple stripe), historically and ideologically linked to the UCR, would be the student political movement from which the new municipal administration would draw electoral

\textsuperscript{151} The other founding political parties of the alliance were: GEN, Movimiento Libres del Sur, CC-ARI and Partido Demócrata Progresista (PDP). Over the years, some of the original parties stepped out of the coalition, while factions of others remained.

\textsuperscript{152} Elected in 2007, Binner was the first Socialist provincial governor in the history of Argentina.

\textsuperscript{153} The electoral victory of the FPCyS in the province of Santa Fe inspired the formation of similar coalitions in other provinces, though they did not manage to win elections in their jurisdictions.

\textsuperscript{154} Binner was a presidential candidate for the Frente Amplio Progresista (Broad Progressive Front, FAP) in 2011, but ended second in the results (Partido Socialista, 2018).
support and within which many of the new authorities themselves delineated their political aspirations when they were students. Therefore, the nexus between the municipal government and the university would not just be political–scientific but rather political–political. This is central to understand the type of people that came to replace the previous administrations as well as to be aware of the positionality of local scientific knowledge production.

The FPCyS would rule the city (and the province) for three consecutive political cycles, but this continuity would not evolve in a pseudo democratic regime; instead, there has been political contestation during elections as well as in the legislative body. Differently from other Argentinean provinces and their capital cities, where ruling provincial parties (or families) remain in power for many years with almost no space for political opposition, this has not seemed to be the case in the city of Santa Fe (Ardanaz, Leiras and Tommasi, 2012).

Results in mayoral elections and the composition of the city council might be used as indicators of subnational democracy (Gervasoni, 2010). In relation to electoral results for the executive leadership, the main opposition party and second political force was the PJ, later on succeeded by the Frente Para la Victoria (Front for the Victory, FPV). The spatial distribution of electoral preferences show a progressive tendency of the FPCyS to win more electoral districts, especially those with the lowest income level. In terms of votes, the FPCyS obtained 32.1% of the total votes in 2007, 45.05% in 2011 and 40.3% in 2015 (Unión Cívica Radical Santa Fe, 2016). Importantly, after Barletta, José Corral won the following two elections, being the only mayor in the history of the city to be consecutively re-elected\(^{155}\).

The composition of the unicameral City Council is an indication of legislative counter-balance or legislature co-option, depending whether the ruling party in the Executive Department has an absolute majority in the legislative body. In general,

\(^{155}\) Consecutive re-election of the executive post is usually associated with less democratic levels, depending on the number of times consecutive re-election is allowed. In the province of Santa Fe, the organic law of municipalities does not stipulate any precise rule about the consecutive re-election of mayors.
The ruling coalition has not had an absolute majority over the period under analysis\textsuperscript{156}, which means it has had to negotiate with other political forces to obtain quorum and pass its legislation. As one of the research participants acknowledges, political alternation and competition have uplifted the quality of political debates in the deliberative body:

“\textit{I think, based on what older people within this commission say, that the political level in the city has improved a lot, a lot, a lot. Also, the fact that after thirty years of Peronism another administration arrived, with a different profile, with a different rhythm, has made the opposition try to leverage}” (Interview with representative of City Council, 08/11/2017, \textit{my translation}).

The influence of the executive expands not only horizontally across branches within the same jurisdiction but also vertically across different levels of government. Since the return of democracy until 2007, the PJ had ruled the province and the city of Santa Fe. The victory of the FPCyS in 2007 granted the winning coalition the leadership over both jurisdictions, the province and capital city. However, the emergence of the national right-wing coalition of 	extit{Cambiemos} during the presidential campaign in 2015 would pave the way towards a fracture within the FPCyS, shaking political continuity across jurisdictions\textsuperscript{157}. Thereafter, the municipal administration has been mainly represented by the Radicals, while the provincial government identified with the Socialist party.

Political alignment across jurisdictions has clear implications for governability. Santa Fe being the provincial capital, both municipal and provincial governments sit in the city. This means that governmental decisions of the region have been traditionally taken from there (Fedele, 2011). In theory, this should facilitate the articulation between the two levels of government, as they are physically in the same place (Haidar, 2007). However, the latter has generally depended on the political colour of the administrations in power: the same political party would entail coordination and

\textsuperscript{156} The only exception was the two-year period 2011-2013, when the FPCyS had an absolute majority in the City Council for the first and only time (\textit{El Litoral}, 2011).

\textsuperscript{157} The Radical fraction of the FPCyS supported \textit{Cambiemos} at national level, while the Socialist did not. At provincial and municipal level, the Radicals kept aligned with the FPCyS until 2017. The fracture of the coalition became more evident in the (national and municipal) legislative elections in 2017, at the time the field research for this thesis was conducted.
capacity to work together; different – or opposite – political parties would translate into blockages in negotiations and bottlenecks in the transferring of resources. Since December 2015, the trespassing of the national government over the province to directly negotiate and transfer fiscal resources to the municipality would become a common rule.

After taking office in December 2007, the new administration started running changes not only in the city but also within the municipal government itself. Some have noted that Argentina lacks an organised and professionalised civil service (Aradanaz, Leiras and Tommasi, 2012). Precisely, modernisation of the public administration was among the main objectives proposed by the new municipal government. In the first place, the administrative modernisation was associated with the incorporation of information technologies (Municipalidad de la Ciudad de Santa Fe and Bolsa de Comercio de Santa Fe, 2017). The new ideas of digital and open government have had a twofold purpose: to improve transparency and accountability and to ease administrative tasks for residents\(^\text{158}\).

Secondly, modernisation of the municipal administration also entailed an administrative decentralisation via the delineation of municipal districts, with the aim of getting the state closer to residents not only virtually but also physically (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008b). Finally, as previously mentioned, the administrative reform was signed by changes in the management of public resources. The creation of executive programmes for organising the tasks and finances of each area of the Executive and the evaluation by results through the RAFAM system were complemented with the publicity of municipal annual budgets and spending. An official organisational chart of the Executive Department was also included for the first time in the decree regulating the structure of the new administration (Gobierno de la Ciudad de Santa Fe, 2007).

\(^{158}\) Regarding transparency, a municipal archival centre was created for accessing municipal legislation online. Similarly, payroll data of municipal employees, details of government authorities (including their asset declarations), public bids and recruitment procedures for municipal posts were all made publicly available via the municipal government’s website (Gobierno de la Ciudad de Santa Fe, 2018d). As for administrative efficiency, a system was set up for centralising residents’ claims (SAC) and a virtual office developed for payment of municipal fees.
Self-reflection from those who joined the municipal government in the first years of the FPCyS era, has attributed the open and participatory management style of the new administration to the trajectory of many of its leaders and authorities in the (public) university (Valsagna, 2011). Some awards have been granted to the municipal government for introducing these changes (Schejtmann, Calamari and Adúriz Basombrio, 2014), while others have been more critical regarding certain aspects such as access to public information (Ullberg, 2013a). However, it is not the aim of this section to assess the impact nor to evaluate all these measures, but rather to introduce some important changes that have characterised a metamorphosis of the municipal administration itself over the period under analysis.

5.6 Conclusion

While Chapter 4 elaborated on the historical configuration of flood risk in Santa Fe, this chapter has intended to emphasise the political intricacies that underpinned many of the decisions that might have contributed to the production or reduction of disaster risk in the city. This is tightly connected to the understanding of the system of government and the political party system that characterises the country. The complexities of a federal system that, on the one hand, allows for greater political autonomy and policy flexibility of municipal administrations; but, on the other hand, which has important implications in terms of municipal financing capacity and organisation. In a context where greater responsibilities were transferred to the subnational levels, the major disasters of 2003 and 2007 would be indicative that further steps were necessary for these responsibilities to be taken seriously.

Part IV does not claim to be comprehensive of the nearly 450-year history of the city nor exhaustive of the complexities of the political reality of the country. It was aimed at portraying the landscape where the main processes analysed throughout this thesis have been shaped and unfolded. The configuration of the city, its flood risk profile and the idiosyncrasy of the municipal government are permeated by distinctive elements of the locale. However, the colonial legacy of the Spanish enterprise and the influence of the provincial and national spheres since the formation of the modern nation-state cannot be disregarded. The bulk of the literature that has been reviewed in these two chapters recognises the contributions of local scholars to the
fields of history, political science, urbanism and, more recently, disaster risk management. Thus, Part IV has benefited from a localised perspective of the national, provincial and local contexts and their particularities.
PART V Findings and discussion: the institutionalisation of disaster risk management in the municipal government of Santa Fe
X-raying the municipal government: three phases, three lenses and networked spaces

Part V comprises the findings and discussion of the research, although, as has been reiterated in the research design, the analysis has simultaneously informed the framing of concepts (Part II), the crafting of the analytical framework (Part III) and the depiction of the city and its municipal government (Part IV) in an iterative exercise. The institutionalisation of disaster risk management, understood as the unfolding of three phases (emergence, embeddedness and sustained change), is analysed from the perspective of the municipal government of Santa Fe during the 2007-2017 decade. Part V is organised in four chapters, three of them dedicated to analyse one of the three phases of institutionalisation in the municipal government and the fourth one to place the process in the broader organisational landscape.

Chapters 6-8 explore the institutionalisation process of disaster risk management exclusively in the realm of the municipal government of Santa Fe, its constitutive departments, executive programmes and main leaders. Chapter 6 starts with the emergence of gestión de riesgo\textsuperscript{159} in the agenda of the municipal government and its definition as a política de Estado\textsuperscript{160}, which represents a purposive decision of the leading authorities to adopt the new policy paradigm as a top priority. To understand how this policy paradigm becomes part of everyday and routinised practices across the organisation, Chapter 7 moves to the embeddedness phase. The analysis centres first on the role of a DRM Office, which has been central in ‘orchestrating’ the preparation for response and response, to then continue with the sectoral specificities of DRM in the transition from preparedness for response to disaster risk reduction (DRR). The third phase of institutionalisation, sustained change, is the theme of Chapter 8, which focuses on who innovates within the municipal government. This is central to understand how DRM is sustained in the long run but permanently adapting to the changing conditions that define flood risk. Each chapter commences with an analysis of the case, which is then followed by a discussion to link back to

\textsuperscript{159} In English, disaster risk management
\textsuperscript{160} In English, state policy
the literature that has been reviewed. These three chapters close with a reflection on the analytical lenses.

Three analytical lenses are used for ‘x-raying’ the municipal government across the phases of emergence, embeddedness and sustained change\textsuperscript{161}. These lenses, already introduced in Chapter 3, are combined to delineate the main characteristics of each phase. Even more, the combination of bifocal and trifocal lenses with the phases suggests the temporality of certain elements which gain more relevance than others depending on the phase of the institutionalisation process (see elements highlighted in bold in Figure V.1).

\textsuperscript{161} ‘X-raying’ represents the idea of having a close, detailed and in-depth look at the municipal government of the city of Santa Fe to unveil how DRM is framed and ascribed meaning as an everyday concept and translated into ordinary practices. The practice of x-raying can be traced back to medical studies, in the same way that notions of ‘cases’ or clinical studies firstly appeared in medicine (Blaikie, 2010). Thus, a parallel can be drawn methodologically between the practice of x-raying in clinical ‘cases’ and the idea of ‘x-raying’ in case study research design.
Similarly, it is ventured that the work of certain departments of the municipal government is more critical at certain moments of the process, and this can be better understood in terms of those lenses and their related salient elements (see Table V.1). The identification of leading bureaus within the organisation is deemed relevant to understand who is steering the process during each phase. Exploring the institutionalisation of DRM in all its breadth and extent, therefore, calls for an organisational approach that considers the entire municipal government.

Table V.1: Institutionalisation of DRM in the municipal government of Santa Fe: phases, lenses and main departments

<table>
<thead>
<tr>
<th>Phases</th>
<th>Combined lenses</th>
<th>Main department in municipal government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergence</td>
<td>Concept / Cross-cutting / Policy (new)</td>
<td>• Mayor&lt;br&gt;• Department of Communications&lt;br&gt;• Risk Communication Programme</td>
</tr>
<tr>
<td>Embeddedness I</td>
<td>Practice / Specific / Planning</td>
<td>DRM Office</td>
</tr>
<tr>
<td>Embeddedness II</td>
<td>Practice / Specific / Planning &amp; Management</td>
<td>• Department of Water Resources&lt;br&gt;• Department of Public Works&lt;br&gt;• Integrated Solid Waste Management Programme&lt;br&gt;• Department of Urban Planning</td>
</tr>
<tr>
<td>Sustained change</td>
<td>Concept / Cross-cutting / Policy (existing)</td>
<td>• Satellite offices (DRM Office, Resilience Office, Cooperation Agency, Communications)&lt;br&gt;• Department of Culture&lt;br&gt;• Department of Education</td>
</tr>
</tbody>
</table>
Chapter 6  **Emergence: disaster risk management as a ‘política de Estado’**

“To develop integrated disaster risk management as a State policy, incorporating this approach to all urban planning and promoting the construction of a culture of prevention” (Gobierno de la Ciudad de Santa Fe, 2008, p.11, my translation).

6.1 Introduction

The emergence phase of the institutionalisation process combines the policy dimension, with the conceptual side and cross-cutting nature of the new paradigm. This phase is mainly related to the arrival of the concept of *gestión de riesgo* in the policy arena and its incorporation in the agenda of the municipal government, at the time a new administration was delineating the strategic vision of the city during its first years. The municipal government of Santa Fe would define this issue as a *política de Estado*, that is, a state priority independent from the incumbent government, and would mostly talk about *transversalidad*\(^\text{162}\) in order to emphasise that this topic should be addressed by every department in the municipal organisation.

6.2 The first years

The city of Santa Fe was the first municipality to design and implement an urban disaster risk management policy in Argentina (Viand and Briones, 2015a). However, before entering the policy sphere, the issue of flooding would need to be problematised in the political arena. While floods had always been part of the history of the city, they never managed to permeate the arena of politicians and electoral debates:

“(…) the theme of the flood was not an important issue in Santa Fe before 2003. It was not so important. It was like things as they were, that's how they were… The bridge [Puente Colgante] fell [in 1983], it remained fallen, because the water knocked it down and it remained for years… And there was no questioning about that. After everything that happened, that people died, as the issue was put, as it was so important… (…) By people developing zero tolerance with that issue, it implied that the legislators and the executive, the people who started to run as candidates, they had to live up to the demand. And that caused a great

\(^{162}\) Spanish word to refer to the cross-cutting nature of something
specialisation in the subject and a sweep also of politicians who had not lived up to that. It produced a sort of cleaning…” (Interview with representative of City Council, 08/11/2017, my translation).

The lack of relevance of the issue in the policy sphere was not so much related to a lack of expertise and technical capacity, but mainly to the underestimated importance of the issue in political terms:

“It is paradoxical, because in ’99 Marcelo Álvarez takes office as mayor, who was Secretary of Public Works and knew the city very well and who was an architect as profession; therefore, he had some [professional] connection. And then Martin Balbarrey takes office [as mayor], who was his Secretary of Water Resources. That is, he had at least a professional view. But there is the good thing, the paradox to analyse. You were talking as if it was on the agenda... Evidently not, or at least not with the seriousness it had later. (...) The problems were always there, the professionals as well and those who alerted too. But I think it was not part of the harshness of the political agenda... (...) You ask me if it was on the agenda and I tell you that not with the necessary force... (Interview with city councillor, 14/11/2017, my translation).

Reflecting on the reasons why the issue of flooding was not part of the policy arena and government’s discourse, a representative from the Department of Communications emphasised:

“These are complex issues to put on the public agenda because they touch difficult issues, because uncertainty appears... And that is something very complex to work in terms of public opinion or in terms of mass communication, because it requires accepting that one cannot decide on everything. (...) And what has happened to the Santafesinos, or what I usually see, is that the cities and communities that take up these challenges is because they have suffered terrible catastrophes. (...) After 2003, it is a theme that is very installed in Santa Fe. But in many other cities, it is hard for it to be on the public agenda, it is difficult for it to be on the agenda of the politics, it is difficult for it to be on the community’s agenda. Because it is talking about problems that you do not know if they are going to happen or not, and you do not know if you can manage them or not. But it is essential that we install it on the agenda... (...) If it is not installed in the public discussion, it is very difficult that this can be addressed, because one does not work on what does not come up on the social stage” (Valsagna, in Café de las Ciencias, Alianza Francesa Santa Fe, 21/06/2017, my translation).
The previous quotes highlight a few elements that characterise the political arena, which encompasses not only the government but also opposition parties, other actors in the city and residents themselves. In the first place, when the issue became part of the political arena, it was debated and problematised among the main actors in the city. Secondly, under a democratic regime, the issue entering the political arena entailed possibly becoming part of the electoral game. That is, it could be ‘politically utilised’, for instance, to gain votes.

In this regard, Santa Fe was not an exception where changes were triggered by large disasters, but there was also the capacity of political leaders to ‘read the cracks’ (Levy, 2007, p.8). On the one hand, affected residents organised themselves around different collectives and mobilised to claim for justice and compensation after the disasters of 2003 and 2007 (Guala, 2009; Masi and Kessler, 2009; Hardoy, Pandiella and Velásquez Barrero, 2011). On the other hand, an alternative political coalition made the reduction and management of flooding a key issue of the upcoming electoral campaign in 2007. Thus, the combination of large floods, mobilised collectives and potential political rewards during an electoral year, created an opportunity for this issue to become part of the political arena, first, and the policy agenda, afterwards.

However, careful attention should be paid as to not consider disasters as a ‘desirable’ enabler. As very well noted by Arrillaga, Grand and Busso (2009), disasters usually activate a vicious cycle that not only reproduces, but also amplifies, the pre-existing conditions of vulnerability. This is often the case unless a conscious and purposive action is taken on behalf of relevant actors to reverse the situation and initiate a serious reconstruction process that has the reduction of risk factors, mostly vulnerability, at the centre (Arrillaga, Grand and Busso, 2009). Then, disasters might have the potential to break rooted political power structures, but afterwards an enormous level of commitment is required to build up a long-term alternative. As one of the leaders of the DRM process in the municipal government synthesises:

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163 Considering the historical exposure of the city to flood risk, it might not be a coincidence that Santa Fe has been among the first municipalities in the country to adopt an integrative and holistic approach to the management of flood risk. A history of floods, coupled with the two major disaster events in 2003 and 2007, cannot be disregarded among the reasons that promoted an urban disaster risk management policy in the city.
“The transformation towards disaster risk management as a public policy is a medium and long-term process, but the day-to-day requires decisions that should adjust to that policy. You make progress and move back, in a shared learning the results of which might not be visible today but in a few years” (Aguirre Madariaga, 2015b, p.87, my translation).

“But in a few years…” is an indication not only of the delay of deliverables, but also of the eventual lack of tangible deliverables of a DRM policy. Indeed, if well-managed, flood risk would not materialise in disasters. Residents, however, would usually not reward a government for the absence of floods. Thus, while a key policy issue that requires substantial effort on behalf of the municipal government, the ‘investment return’ in political terms (e.g. votes) is not so obvious. This is central to understand the level of commitment of key political leaders to adopt disaster risk management as part of their political priorities. Consequently, it seems that it is not so much about DRM giving votes or rewarding incumbents as disasters eroding their electoral support. Thus, beyond the endogenous factors, there was an exogenous stimulus for action that many respondents identified in the large-scale disasters. Indeed, many agreed that the two large floods of 2003 and 2007 were critical to disrupt the political hegemony of the Partido Justicialista (PJ) and to allow for the possibility of a change of paradigm within the municipal government. Although not desirable nor ideal, this has been the case in many other cities that have managed to incorporate the DRM approach as part of their everyday work.

After winning the municipal elections and taking office in December 2007, the new government of the Frente Progresista Cívico y Social (FPCyS) quickly adopted disaster risk management as a ‘política de Estado’ in the new urban development plan (Gobierno de la Ciudad de Santa Fe, 2008). Soon after, it would enact the first municipal DRM ordinance in the country (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a). Political commitment from top-level authorities kept alive by political continuity (the same coalition would rule the city for the following three four-year administrations) and the increasing support in mayoral elections from low-income electoral districts (historically, among the most exposed and vulnerable to urban flood risk). Underpinning all this was the intention of moving beyond a transient topic and sporadic surge of popularity around the issue associated with one specific government, to rather making it part of the business as usual and a core
priority of the municipal state. In other words, moving from a government policy to a state policy. Whereas it is hard to assess whether gestión de riesgo has truly become a state policy, as the same political coalition has remained in power since 2007, there are a series of elements that may have paved the way towards this objective.

The electorate kept rewarding the political party in power, which was not the one for which they had traditionally voted. This was particularly the case of low-income constituencies in low-lying areas of the city. Hence, though no direct correlation between the work of the government in flood risk management and votes can be asserted, those areas that traditionally used to become flooded started to vote for the new political alternative. This was something that opposition parties started to acknowledge, as there seemed to be a no-way-out for representing the electorate without having an opinion and proposals around the issues of floods and flood risk in the city. As very well noticed by one of the respondents, this situation played a significant role in ‘leveraging’ the level of the discussions among politicians, in general, and city councillors, in particular. Succinctly, “the baseline got raised a lot” (Interview with representative of City Council, 08/11/2017).

The incorporation of disaster risk management in the programme of the new government was ratified by its explicit incorporation in the urban development plan of 2008 (Gobierno de la Ciudad de Santa Fe, 2008). Urban development plans often enunciate the political will and priorities of the incumbent government and, thus, tend to be formulated by every new administration and are not legally binding. In this regard, while relevant to endorse the political commitment of high-ranking authorities at a time, they need to be accompanied by other instruments if political changes are anticipated. Among these instruments, a municipal ordinance was passed in 2008, creating a municipal disaster risk management system (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a).

The ordinance would be questioned by provincial authorities, mainly from the Provincial Civil Protection Department, as it somehow contradicted the existing provincial legislation on emergency management of 1977 (Interview with representative from Civil Protection, 18/08/2017). Similarly, it would be somehow
questioned by the original proponents of the normative, the advisory group to the municipal government from the university, as the enacted ordinance did not exactly reproduce their prototype (Interview with professor of UNL-FICH, 12/10/2017). As there was no precedent in the country, the new municipal ordinance had to somehow accommodate to the existing national and provincial normative. Although not perfect, it would still have a ‘symbolic’ value (Interview with city councillor, 14/11/2019). Referring to the value of urban planning regulations for DRM, another participant confirmed: “Sometimes there are gestures that are more from the normative side; it is not a gesture of doing works in a particular way, but these are moments that mark a turning point” (Interview with former representative from Department of Urban Planning, 25/09/2017, my translation). The ‘symbolic’ value of turning points relates to the framing or conceptual side of DRM that is addressed in the following pages.

As of December 2017, this was the first and only formalised experience in the country of an urban DRM system. It also represented the translation of the UNDRR Hyogo Framework for Action principles into the early stages of a new local government, at a time when the national authorities were still hesitating about how to introduce the new international normative (Interview with representative from National Ministry of Security, 14/09/2017). Passing this legislation, then, exemplifies the niches or ‘in between’ spaces that a federal system, combined with a touch of creativity, might offer to bring about fundamental change at the local scale. As Sozzo explained at a round-table discussion:

“That is why everyone who dedicates themselves to the issue of transition points to the small-scale transition. And in that, the local level is very important. Argentina has an incredible possibility; do you know which one it is? From my point of view, its federal system. In the world, out of 170 countries, there are only 37 which are federal; these are a minority. (…) We are federal, and we have a very interesting federalism, which has many problems in other dimensions such as fiscal, but which is very interesting in the level of possibility for local action and articulation with other sub-national levels like the provinces. Thus, there [at the local level], the transition at the local level and the micro revolution, is like a more acceptable and feasible trend. That is why experimentation at the local level is very useful; the small experiments at the local level that can start to get installed. (…) And then, another story,
is how you globalise those experiences…” (Sozzo, in Café de las Ciencias, Alianza Francesa Santa Fe, 21/06/2017, my translation).

Almost every one of my interlocutors from the municipal government referred to disaster risk management as a ‘política de Estado’, similar to a slogan or coined expression to be repeated. When asked about what that means, they mainly emphasised one aspect: it transcends the programme of the incumbent government, involving both the opposition as well as the subsequent administrations.

In terms of the main departments that contributed to introducing disaster risk management into the policy sphere and advocated for its continuity as a state priority, the role of the mayor has been central. Political leadership of the city mayor has been crucial by positing gestión de riesgo at the centre of the electoral campaign and of the municipal government’s agenda after taking office. Reiteration of the importance of the topic in his main public discourses during the first years confirmed this, such as his inaugural address (December 2007) or his opening of the City Council annual sessions (March 2008), among others.

Thus far, the emergence of DRM as a policy paradigm in the municipal government has been discussed. However, not much has been said regarding what that policy paradigm was about or entailed. This moves the analysis to the conceptual side of disaster risk management. When referring to the concept of gestión de riesgo within the municipal government, there are at least two important aspects to take into consideration. The first one relates to how the concept was constructed and brought into the organisation; that is, where it was coming from and how it was embedded (made it ‘everyday’) and by whom within the municipality. The second aspect considers the meaning or ways of framing gestión de riesgo by municipal authorities and bureaucrats and by official documents and communication materials of the municipal government.

A transdisciplinary advisory group from one of the public universities in the city (Universidad Nacional del Litoral, National University of the Littoral, UNL) played a central part in the conceptual crafting of the municipal DRM system. Local experts from hydrology, law, architecture and urban planning were brought together to
advise the municipal government on the alternatives for its organisational structure and regulatory framework. Preliminary and final reports represented the main contribution this group would make during a two-year consultancy agreement between the municipality of Santa Fe and the UNL (Universidad Nacional del Litoral, 2009, 2011). The transdisciplinary nature of the advisory team entailed that, from its embryonic stage, multiple perspectives were considered simultaneously in the design of the new system. Thus, a cross-cutting approach to disaster risk management would be, at least conceptually, advanced from the very beginning.

Asked about how the new paradigm emerged within the municipal government, one of the members of the interdisciplinary advisory team acknowledged that, without their intervention, the municipal DRM system would have probably never materialised:

“I don’t think so, because there was no precedent, none of the authorities, that made it think about that they were bringing an idea like that. Actually, the opportunity for the university to participate was because the mayor [Barletta] had been the provost of the university and he knew what had been going on since a few years ago, since 2000, and the work on installing the risk management approach through extension projects, which are projects that are made by interacting with social actors. Then, we started in 2000 with the topic of risk management, on the basis of a project where we had started focusing on the maintenance conditions of embankments in the coastal area. (...) And then, since we started to familiarise ourselves with the issue, it is as if we discovered all this movement around disaster risk management. (...) From the FICH [Faculty of Engineering and Water Sciences]. What I'm telling you about started at the FICH. Let's say, we found all the antecedents of the international strategy and so on, and it seemed to us that one way of being better able to have an influence on these people was to start working on the issue of the risks to which they were exposed” (Interview with professor of UNL-FICH, 12/10/2017, my translation).

The previous quote illustrates a few elements regarding those who introduced not only the concept but the entire disaster risk management approach, and their own identification with this concept and approach. Firstly, whereas the concepts of disaster risk and its management were coming from the university, they did not so much from an ‘academic’ work or purely theoretical perspective, but rather from an extension project very much grounded on the reality of people being affected by
flooding or exposed to flood risk. Furthermore, even when the concept appeared in the sphere of the UNL Facultad de Ingeniería y Ciencias Hídricas (Faculty of Engineering and Water Sciences, UNL-FICH), it did not have an exclusive (water resource) engineering but rather inter-disciplinary focus, mainly concerned in raising awareness among local residents with an emphasis on social communication. This was reflected by the incorporation of two experts in communication and a social worker as part of the extension project.

Secondly, the nature of extension projects usually calls for more pragmatic or action-based approaches, and in this case one that could move beyond the ‘social theories’ of risk to more tangible policies and actions. In this search for mechanisms to actionize a theoretical approach, the framework of international organisations such as UNDRR seems to have provided that:

“(…) within the theoretical framework that we were considering for action, it seemed to us that what we should do was to look at what the world was thinking about, more than what each of us could see from their own perspective. With Andrea, we both have a background in communication... If we looked for theoretical currents on the side of Giddens or..., they were still theoretical currents, theories of risk, and what we were missing was the incorporation of action frameworks that were also supported by other countries. And then, we also saw that Argentina had subscribed to these principles and the Hyogo Framework for Action, and it had signed all this making it its own, but we did not see it anywhere materialised, made it real…” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

The influence of the UNDRR discourse in the conceptual crafting within the government would be later expanded when the municipality of Santa Fe joined the UNDRR Making Cities Resilient campaign in 2010 (Aguirre Madariaga, 2015b). However, as one of the representatives of the Department of Communications emphasised, this would be adjusted to the context of the city of Santa Fe rather than taken as a blueprint. Thus, inspiration from the UNDRR framework came from both sides, indirectly, through the advisory team, and directly, from the subscription of the municipal government to its city campaign.
Finally, the reflections from the professor of UNL-FICH highlight the relevance that academia-policy interfaces had in introducing and embedding the concept within the municipal government organisation. This was not only incarnated in the figure of the mayor, a former alumnus himself from UNL-FICH and provost of the entire university, but also in the two communication experts from that innovative extension project of the UNL-FICH on flooding and social risk who then joined the new municipal administration. These two individuals, already ‘trained’ and familiarised with the new approach, theoretically and pragmatically, would later lead the two main areas of risk communication in the municipality.

All these elements trace back to the origins and context around which the concept of gestión de riesgo first emerged, to be then introduced in the vocabulary of the municipal government organisation by key figures in informed leadership. While the mayor played a central role in political leadership, informed leadership was performed by those in charge of transmitting and translating the new concept. In this regard, the role of the Department of Communications, together with the Risk Communication Programme, has been central. The Risk Communication Programme was a joint initiative between the DRM Office and the Department of Communications, that was created specifically to embed the new concept within the municipal government but also among residents and other relevant organisations in the city. Later, when the system was further consolidated, the programme was fully transferred to the DRM Office. However, the key role of the Communications department would be reconfirmed when the resilience concept was introduced by joining The Rockefeller Foundation 100 Resilient Cities (100RC) initiative at the end of 2015. In this opportunity, the head of the Department of Communications was appointed Chief Resilience Officer of the city.

Therefore, when new concepts and their broader interpretive frameworks are brought into the organisation, meanings and frames of reference are captured and reframed by a department that translates them into something more tangible and understandable – or at least, that it supports the necessary work as to achieve that. Sometimes, the more technical profile of other departments makes it hard for them to make a concept accessible to everyone or, what is even harder, to translate its
meaning according to the specific nature of different areas. Translation and interpretation seem to be central when understanding everyday concepts from an organisational perspective:

“In any case, it is a process. And it is a process that also... Braulio [100RC coordinator] was surprised, when he came to do the workshop, about how some problems were conceptualised in the city. That is, everyone talked about 'risk management', which is a very difficult concept... I remember that when we started in 2008, I would say: «Look for another word, Eduardo [former DRM Office director]. It's really very uncommunicable...» And today, it is installed; not in the neighbour, but in the scheme. Imagine 'resilience', even more complicated. (...) So, I think that you go as in layers, there are concepts that start to get like installed…” (Interview with representative of Department of Communications, 22/04/2016, my translation).

Similarly, one of the central figures in the conception of the new urban plan for the city of Santa Fe meticulously illustrates the appropriation process of new concepts in the municipal government, not in relation to disaster risk management per se, but regarding other closely related concepts such as ‘riverine areas’ and ‘green corridors’ as special areas to be incorporated by the new land-use planning regulation:

“First, it has to be assumed by the authorities, by the councillors, by the municipal bureaucrats; these concepts have to be assumed. They are passed into the articles of a norm, but basically they are concepts that have to be incarnated in everyone who... And well, they are concepts that have to surface every time that the municipality carries out a sectoral plan, every time that the municipality requests a loan or makes a presentation to a foundation or participates in a competition... And what I see, regarding this point, is that this agility is not there yet. (...) That is, things are written, they are said, at some point they were understood. (...) There was a time – year 2008, 2009, 2010 when the norm [land-use planning regulation] is approved – when an understanding of all these things existed, but from there it kind of reached a plateau and these concepts are not appropriated with the intensity, and therefore their potential does not unfold, the potential of these concepts…” (Interview with professor of UNL-FADU, 23/10/2017, my translation).

How has this appropriation process been achieved? What has aided this appropriation exercise? There are at least two main routes that have been identified throughout the interviews, which involved formal training combined with less formalised or ‘unnoticed’ spaces where the embracing of the concept was advanced.
The inauguration of the new administration was marked by a series of training activities on disaster risk management, designed and delivered by the local advisory team as part of the consultancy agreement that they had with the municipal government. This initial training – an exercise that would never be repeated again – was targeted at political authorities and first line managers of all municipal departments, regardless of their direct or indirect involvement in DRM. Held at the UNL campus, these talleres de sensibilización\textsuperscript{164} entailed awareness-raising around the topic (sensibilización) under the format of workshops that allowed for a more open discussion between representatives from different sectors (talleres). The stipulation of formal training at the very beginning represents both the newness of the concept within the organisation and the priority of the issue in the agenda of the new government\textsuperscript{165}.

Formal training was reinforced by less purposive instances where the concept was shared and discussed. These included regular cabinet meetings and working meetings between various departments. Whether formal or less formalised, something perhaps more interesting relates to the way of learning within the government, linked to the fact that many authorities were coming themselves from the university. One of the interviewees described this logic as ‘tallerista’, from the word ‘taller’\textsuperscript{166}, which infused the way of learning in the municipal government with some elements from the university – or at least from some faculties such as UNL-FADU (Interview with former representative of Department of Urban Planning, 03/10/2017). ‘Tallerista’ entails the capacity of grounding a conceptual understanding in concrete examples or practices, something that might be also useful to understand the distinction between initial training and ongoing learning.

Initial training seems to be linked to the emergence of a new concept. Thus, once a concept is truly embedded, there might be no further need of formal training instances to re-introduce that concept (unless that concept is modified or replaced by an alien concept like ‘resilience’). Even less when the rotation rate of authorities and

\textsuperscript{164} In English, awareness-raising workshops  
\textsuperscript{165} The new administration took office in December 2007 and training sessions were scheduled for January 2008.  
\textsuperscript{166} In English, workshop. The Spanish word taller comes from the French concept atelier.
high-ranking personnel is relatively low, which was one of the arguments given by some municipal government representatives. Quite different is the need for ongoing learning but in relation to practices, and the need to adapt them to the changing conditions of risk. Here, the frequent nature of hydro-meteorological events provided a regular hands-on practice on how to deal with the issue and enact disaster risk management. The latter has been central for the repetition of practices, which characterises the ‘embeddedness’ phase (see Chapter 7). The logic of ‘tallerista’ seems to have provided a middle-ground between concept and practice, between the conceptual and practical understanding, and the related initial training and ongoing learning. In short, a way of working created a continuous opportunity to bring back and re-introduce the disaster risk management concept while ‘doing’.

The origins of the concept in academia-policy interfaces (these interfaces are further elaborated in Section 9.2) and its embedding across the municipality through formalised and more spontaneous initiatives relates to the first aspect of the conceptual dimension of disaster risk management. The second aspect considers the meaning of gestión de riesgo for those who have been part of the organisation. In this regard, the analysis provides some pertinent insights. In the first place, the homogenising power in the understanding of people that a department of communications can have and the non-neutral exercise of translation. An illustrative example concerns the issue to be managed and the replacement of ‘inundación’ by ‘riesgo hídrico’, of flood by flood risk, which in Spanish are encapsulated in two words with different etymological roots. Remarked during several interviews but also while doing the placements, the observation that the word flood was not an accurate term in the jargon of the municipality came up reiteratedly. This is indicative of an effective communication strategy that, while mainly targeted at the public, it had to start from within the government itself. The main objective of this communication strategy was the eradication of the negative connotations that the

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167 During the interviews, research participants were asked about their conceptual and practical understanding of disaster risk management. Importantly, while this chapter covers the ‘emergence’ phase of the DRM policy paradigm, the ascribed meaning of participants presented here refers to the time of the field study (2017). A more accurate approximation would have investigated the (changes in the) meaning of the concept throughout the period under analysis. By 2017, the concept might have been either embedded in the organisation or, conversely, it might have been forgotten after the novelty of the concept had faded away.

168 In English, flood or flooding

169 In English, flood risk
word ‘inundación’ had in lay vocabulary and, therefore, to avoid generating panic among residents every time the word was used, by replacing it with a different term infused with a relatively ‘neutral’ meaning\textsuperscript{170}. However, the task of an area of communications to not only ‘colocar conceptos’ (introduce concepts), but also to ascribe them with meaning, denotes that translation is not a neutral exercise. That is, the selection of words and their related meaning by the Department of Communications has been a very well-thought-out and purposive exercise.

A second insight regarding the meaning of gestión de riesgo refers to the variations in the understanding among members of the municipal organisation despite that homogenising discourse. The sort of ‘recorded speech’ when reflecting about disaster risk management was particularly evident among long-standing and former political authorities, many of whom had joined the first administration of the FPCyS and were therefore part of the emergence phase of the concept of disaster risk management. Even more, within this group, those who had a direct involvement in the crafting of the DRM system (e.g. leaders of the DRM Office and of the Department of Communications) were among the ones who had a more comprehensive understanding of disaster risk management and more clarity of speech.

In general, there was a tendency across respondents from different departments to associate gestión de riesgo with the specific role of the DRM Office in the face of potentially hazardous events, that is, activating/deactivating protocols, coordinating preparation for response and responding to hydro-meteorological events. Therefore, they did not talk so much about the more preventive and long-term side of DRM, except for those who designed the system themselves. However, it was also possible to identify certain differences in the level of understanding based on the job position of research participants. Heads of departments, who attended weekly cabinet meetings and had a more fluent and informal interaction with heads of other departments, had a broader understanding and even referred to the cross-cutting nature of disaster risk management. Conversely, the lower in rank and the more

\textsuperscript{170} The raison d’être of these communication guidelines was related to the need for rebuilding the broken state-citizens relationship and reworking the trust in the municipal government after the disaster of 2003.
specific the job, the higher the chances that *gestión de riesgo* was associated with emergency response. Hence, differences in the understanding of the concept might be explained not only in terms of disciplinary background or sector, but also in relation to the position of individuals in the organisational hierarchy. The underlying assumption is that people tend to frame their perceptions and understandings based on their lived experiences. This might be an additional contribution of an organisational approach to DRM.

Finally, a third insight about the meaning of the new concept considers the dimensioning of *gestión de riesgo* as a cross-cutting policy issue. To refer to the cross-cuttingness of disaster risk management, the municipal government would turn to the concept of ‘*transversalización*’ or ‘*transversalidad*’: “I think it was very positive that the approach was thought about in a transversal manner from the beginning” (Interview with representative of Department of Communications, 22/04/2016, *my translation*). The advancement of the idea of ‘*transversalidad*’ from the beginning, that is, during the emergence phase, manifested in the first official documents of the municipal government as well as in the way the initial formal training to many of its members was conceived.

The new urban development plan, presented by the mayor in March 2008, explicitly stated that disaster risk management entailed a type of work that had to span across all municipal bureaus:

> “Risk management cannot be a responsibility of a single area of the government nor its planning a desk-based exercise to be implemented after its formulation. Risk management entails joint planning and coordination of actions, and implies a transversal work to all the municipal dependencies” (Gobierno de la Ciudad de Santa Fe, 2008, p.11).

Importantly, the urban development plan further emphasised that the cross-cuttingness of DRM referred not only to the specific involvement of each and all areas, but more broadly to its consideration in the envisioning and long-term planning of the entire city (Gobierno de la Ciudad de Santa Fe, 2008). In short, *gestión de riesgo* should not be something detached but rather part of the new
overarching government’s programme. The latter was later confirmed by the municipal ordinance that created the DRM system: “Disaster risk management constitutes an approach and practice which should be transversal to all processes and human activities” (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a, p.1, my translation).

The relevance of initial training for the cross-cutting approach centred both on the content as well as on the sectoral affiliation of those who were invited to participate in the workshops. The first and second lines of all departments, including authorities and municipal employees, attended the same series of training sessions to embrace the idea that their involvement was crucial and to jointly think about the best ways of incorporating gestión de riesgo in their work. Thus, content, participants and format of the initial training were meant to contribute to the cross-cutting understanding of DRM from the beginning:

“What we did first was to organise raising-awareness workshops with the municipal authorities and area managers of the administration that had just started, to share a little with them of this view of risk management and to propose the beginning of a transversal work, visualising among all the issue and how that issue touched each of the areas. And Eduardo [former director of DRM Office] also showing there his vision that he was not going to be the area that was responsible for reducing risks, that this would be a job that if we achieved would be achieved between all, each area incorporating risk management or the risk management approach to what they did every day and to their projects” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

Indeed, the former DRM Office director would later explain that the cross-cutting nature of disaster risk management depends on a delicate equilibrium for the incorporation of the new approach into the various sectoral areas of the municipal administration, with the aim of enhancing the DRM process from multiple fields and with more resources, while simultaneously avoiding the overlapping of functions and responsibilities between these various areas (Aguirre Madariaga, 2015b). This anticipates how the framing of transversalidad comes together with an understanding of potential ways of achieving this, including certain organisational structures and budget schemes which intend to orient and secure that distinctive feature of DRM
processes. These are formal arrangements that not only reflect a particular view of DRM, but which are also intended to reproduce that feature over time. Thus, organisational structure and municipal budget allocation are dealt with in more detail in the embeddedness phase (see Chapter 7). The main purpose here has been to unveil the original conception of gestión de riesgo as a cross-cutting policy paradigm, who were behind that idea and how it has been portrayed by municipal government members and documents.

6.3 Discussion - Emergence

What does the previous analysis contribute to the understanding of the emergence phase of institutionalisation? A tentative answer can be elaborated based on the combination of the salient elements of the lenses used to scan this phase, namely: policy, concept and cross-cutting.

To begin with, emergence is mainly associated with the introduction or entering of a new topic into the policy sphere or agenda of the incumbent government. However, this is not the only agenda where the topic of flood risk and its management has been important. There have been other agendas that also considered the issue, perhaps with different framings and priorities, which included that of the opposition and of other political parties in the city (with or without representation in the city council) as well as the agenda of organised citizens who managed to raise their claims collectively. After the disasters of 2003 and 2007, floods were ‘problematised’ in the streets by collectives, in the electoral campaign by political parties, in the city council by councillors, and in the media by representatives from different organisations. It became an issue debated among the main actors in the city. The multiplicity of agendas in which floods or flood risk have been differently addressed, vividly reflects the very political nature of the issue. Thus, it might be better to think about the broader political arena is which the topic emerges (Hall, 1993; Kingdon, 2003; Birkland, 2016).

The policy arena and, therefore, policy agenda refers specifically to the sphere of the municipal government. The main reason why the policy sphere has been given priority here is because the municipal government of Santa Fe identified itself as the
leading actor in urban disaster risk management (Aguirre Madariaga, 2015b). However, *gestión de riesgo* entering the policy arena and becoming a priority in the government’s agenda was a reflection of the public opinion and priorities of (the majority in) society (at least in a democratic regime) at a particular time. The concept of ‘policy window’ suggested by Kingdon (2003) can be interpreted as the conditions that allow for the transitioning from the political to the policy arena, that is, for a topic becoming a priority of the incumbent government. In the case of Santa Fe, the ‘policy window’ was the result of the combination of at least three elements: large floods, organised and mobilised collectives, and the potential political rewards of the issue in an electoral year.

Furthermore, the case of Santa Fe sheds light on an additional element. Once a topic enters the policy agenda, it has the potential to become a state policy, and certain mechanisms and instruments might be used to achieve this. The innovative step made by the new coalition was to define *gestión de riesgo* as an issue to be part of the agenda not only of the incumbent government but also of successive administrations. In other words, from a government policy to a state policy. This translated into the incorporation of disaster risk management in the new urban development plan (which usually changes with every new administration) as well as in a new municipal ordinance (which tends to be more difficult to amend with government changes). It also entailed the entering of disaster (flood) risk management into the logic of the electoral game. That is, as a topic that could reward incumbent administrations with votes or, at least, that it would not take votes away from them in future elections.

The idea of *política de Estado* intended to emphasise that disaster risk management should be a prerogative of the state, regardless and independently of the incumbent municipal government. This was further confirmed by the centrality given to the municipal state to address the flood issue in the homogenising discourse of the new government administration. Nevertheless, the influence of those other agendas on the policy agenda cannot be disregarded as they often constitute one of the policy windows to which Kingdon (2003) refers. It cannot be dismissed either as the incumbent government would have to think about how to influence those other
agendas in order to advance its understanding of the topic, something that has been eloquently evoked by the public communication campaigns towards that objective (Valsagna, 2011).

The newness of gestión de riesgo in the local policy arena does not preclude that the concept of disaster risk management did not exist or was completely unknown in other spheres (e.g. academia), but it was not part of the everyday jargon of the municipal government nor recognised in the public opinion. In exploring how the concept has been introduced in the municipality, detailed attention has been paid to the relevance of initial formal training. Institutional theory and organisational analysis usually identify training with the reproduction of existing norms and practices. Aylett (2013), instead, suggests the concept of ‘untraining incapacity’ to refer to those mechanisms to break with the inertia of municipal bureaucracies in ‘ways of doing’. It is argued here that the same idea might be transferable to ‘ways of thinking’. This was somehow illustrated by that paradox that “[t]he problems were always there, the professionals as well and those who alerted too...” (Interview with city councillor, 14/11/2017, my translation). Hence, the emergence of gestión de riesgo in the policy sphere was not so much about new problems or bringing in new professionals, but rather reframing an existing problem with and across in-house expertise.

Much has been said regarding gestión de riesgo as a concept, but not so much about the everydayness of that concept. Asked about the meaning of disaster risk management, one of the research participants replied with another question: “Disaster risk management is... With difficult or used-at-home words?” (Interview with representative from Department of Public Works, 27/09/2017, my translation). This quote reflects two distinct but interrelated features: firstly, everyday is a synonym of accessible and simple, close to the idea of lay language or vocabulary; secondly, everyday is a synonym of regularly used and reproduced, intrinsically linked to the most quotidian place which is home. These two characteristics are important to emphasise that gestión de riesgo was not an everyday concept from the beginning. Instead, it has been through its constant and repeated use that it has become part of the quotidian vocabulary. While this process unfolds alongside the
routinisation of practices in the embeddedness phase, the emergence of the concept does take place on a previous stage and this is why it has been considered here.

Returning to the initial literature review, the notion of institutionalisation makes the case for the room for agency, whether embedded or relational, within relatively mature fields and/or rigid organisations (Garud, Hardy and Maguire, 2007; Aylett, 2015b). Here, thinking about agency refers to those who have steered this phase – changemakers, influencers or, simply, leading bureaus. Suggested already throughout the analysis, it can be concluded that there are at least three entry points to agency in the emergence phase. The first one delves into the municipal government organisation and considers the mayor, the Department of Communications and the Risk Communication Programme. In other words, an individual leader, a department and a programme representing the change activators inside the municipal organisation in relation to gestión de riesgo.

Secondly, other organisations played a central role in the introduction of the approach into the local policy arena, the university being among the most important ones. Though this will be elaborated later (see Section 9.2), a brief remark should be made here that it has been a particular university and specific faculties which have taken up this role. International organisations such as UNDRR and its city campaign also played a key part, although this has been a rather supportive and complementary job to what local organisations were already doing. More and more, however, external consultants would start having an increasing influence on the conceptual dimension of risk-related issues. The latter would be particularly noticeable in the case of consultants from the 100RC initiative.

The third entry point to agency considers the interfaces between departments and/or between organisations. The case of the Risk Communication Programme, with a dual dependency from both the DRM Office and the Department of Communications, is an example of an interface between departments to aid the conceptual construction of gestión de riesgo. Cabinet meetings and the ‘tallerista’ logic of working, which were central during the first years for less formalised discussions around the concept, also provided interfaces between departments. As for the interfaces between
organisations, the academia-policy interface stood out. As mentioned elsewhere, the linkage between the university and the local government was facilitated in multiple ways. The election of the mayor, the former provost of the UNL, brought many ‘academics’ to the main political positions in the executive administration (many of whom retained their posts as lecturers or professors). Beyond individuals, there has been an encompassing political affinity between the incumbent government and the leadership of a specific university (UNL). This resulted in various consultancy agreements, including the creation of a local DRM system, commissioned to the experts from that university. These interfaces proved to be of key importance to advance the tranversality of disaster risk management.

The analysis of the emergence of disaster risk management in the municipal government of Santa Fe shows that it has been the combination of certain individuals, municipal departments and other key organisations with more diluted interfaces between and across them which has steered the phase. While the linking with other organisations is relevant, and it is the theme of Chapter 9, there is value in focusing on those who have advanced the introduction of new ideas and ways of thinking within the municipal government. In this regard, the salient elements of the lenses might be useful to identify the required type of leadership during the emergence phase. That is, changemakers might be linked to a certain type of leadership based on the most prominent element of each lens.

For instance, policy is connected to political leadership, which has to do with decision-making power and capacity to put certain topics at the top of the government agenda. In presidential systems, which tend to personalise political leadership, this is usually concentrated in the figure of the mayor at the local scale. A different type of leadership refers to the clarity of understanding about the new concept that frames the emergent policy paradigm, particularly regarding its holistic and integrative nature. This can be articulated as informed leadership, which is usually the realm of a dedicated DRM area. However, informed leadership needs to be complemented by the capacity for translating the new concept into the familiar vocabulary in the work of others (or the capacity to facilitate and guide others in the translation exercise themselves). This conceptual leadership often lies in the hands of
the Department of Communications. In the case of Santa Fe, informed and conceptual leadership were merged in the Risk Communication Programme with responsibility to report to both departments. In all cases, political, informed and conceptual types of leadership have been about ‘convincing’ others of the relevance of the new policy paradigm, and whether based on authority, expertise or discourse, persuasion power seemed to have been at the centre.

Regarding agency and the role of changemakers within bureaucracies, some have highlighted the relative marginality of these individuals or departments as something negative: “(…) the strategies used by change-makers in the municipal bureaucracy to bring about change despite their often marginal positions” (Aylett, 2015b, p.158). However, 'despite' might be actually something positive and even purposive. That is, changemakers might need that marginality as part of their distinctive ability to ‘think differently’; otherwise, when they stop being marginal and distinctive, they might lose that disruptive potential and become co-opted by existing or prevailing ideas. This is well exemplified by the self-characterisation of one of the three key individuals in the emergence of gestión de riesgo in the municipal government of Santa Fe as “the three little crazy ones” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

Combining the three lenses together with the leading bureaus in the municipal administration contributes to an in-depth understanding of the enabling mechanisms during the emergence phase of disaster risk management (see Table V.1). This approach differs from literature on barriers to DRM and climate change adaptation, which usually concentrates on the challenges at the local scale without taking the temporal dimension into consideration (Ekstrom, Moser and Torn, 2011; Runhaar et al., 2018). This body of literature tends to concentrate on barriers to (policy) implementation and often dismisses the embryonic envisioning stage when policies are brainstormed and designed.

171 The emphasis on convincing others was reiterated in several interviews. Specifically, respondents from the DRM Office and Department of Communications referred many times to the need of ‘convincing’ members of other areas about the relevance of the new approach.
To conclude, unpacking the emergence phase depicts where the concept of *gestión de riesgo* and its related understandings originated and how they took hold in the municipal government of Santa Fe. This is especially relevant in the face of a quite different experience with the later introduction of the concept of resilience, a process that has been mainly steered by international expert teams.
Chapter 7  

**Embeddedness: the everydayness of DRM in the municipal government**

### 7.1  Introduction

In the embeddedness phase, the focus moves to the practices related to DRM, though always bearing in mind that in the ‘doing’, in the regular exercise of things, underlying ideas and concepts become embedded as well, in a mutually reinforcing dialectic which constantly reproduces itself. Everyday practices turn the attention to who should be in charge of what, that is, the ‘not-so-easy’ division of specific responsibilities that a cross-cutting issue entails. This phase covers both the planning and management dimensions of the trifocal lens. Planning entails the definition of objectives and functions by sectoral area, together with the corresponding allocation of (human and financial) resources. Management entails the smooth running of the city and is further connected with the materiality of infrastructure.

Embeddedness is analysed from two perspectives. Embeddedness I (Section 7.2) is devoted to the work of the DRM Office and its ‘orchestrating’ role in the preparation for response and response, which involves multiple departments of the municipality. Embeddedness II (Section 7.3) addresses the sectoral specificities of DRM across managerial bureaus and the department of Urban Planning and Habitat Agency. In so doing, it brings to the fore the transition from preparedness for response to disaster risk reduction (DRR), that is, actions for hazard avoidance/reduction and vulnerability reduction.

### 7.2  The DRM Office: orchestrating centrifugal and centripetal forces for preparedness for response and response

“The topic of disaster risk management, to be true, does not have to be a separate unit. Even if it is called Civil Defence, it has to be incorporated at the heart of the administration/management” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

‘At the heart of the management’ or ‘at the heart of the (incumbent) administration’ mirrors two different but interwoven meanings of the word ‘gestión’ in Spanish. That is, the daily running of the city, close to the idea of urban management, on the one hand, and its subject, the Executive, on the other hand. Both senses share one feature:
they refer to the embedding of disaster risk management into practices. At the heart of the new municipal DRM system of Santa Fe there was the idea that a specific office should be created to orchestrate that embedding process.

Embeddedness I, which is the theme of this section, is about the role of the DRM Office in contingency and emergency planning, its most specific and acknowledged-by-others role. Embeddedness II moves to the sectoral specificities of technical bureaus in DRM. In this second part, the DRM Office also plays a central role, although more imperceptible and unnoticed-by-others. This reflects how the specific/cross-cutting dialectic has also permeated the nature of the DMR Office itself and, therefore, the not-so-easy task of finding the right balance while operating at two different but simultaneous levels: doing its specific work and overseeing that others are also doing their specific job. Perhaps more importantly, and equally challenging, has been to provide coherence among those seemingly separated practices.

The new municipal ordinance 11512 created the figure of a DRM Office directly reporting to the mayor (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a). This office should have the higher rank within the municipal organisational structure, similarly to secretarías172, but it should be smaller in size and budget. Direct subordination to the mayor and hierarchy in the organisational structure (see Figure 7.1) has allowed this office to have representation in weekly cabinet meetings, a key element when referring to the embedding of gestión de riesgo across other sectoral departments. Human and financial resources directly available to the DRM Office were also thought to not overlap the role of this office with the responsibilities of other areas. That is, rather than having engineers, architects and other specialists within the office, the DRM team should encourage those experts from other departments to embrace the DRM approach within their specific area of policy. Additionally, the close connection of the DRM Office with the Department of Communications can be observed in the organisational chart of 2007, which places both offices next to each other (perhaps to also represent their joint supervision over the Risk Communication Programme).

172 Secretariat is the higher organisational level in the hierarchical structure of the municipal government.
The mandate of the DRM Office can be appreciated from its own organisational structure (see Figure 7.2). As of November 2017, its specific responsibilities mainly related to preparedness for response and response, under the scope of the Monitoring and Operations programme. The DRM Office also had a central role in creating a ‘culture of prevention’ through the Programme of Communications and Institutional Relations for Risk Reduction (formerly, the Risk Communication Programme). Risk assessment did not exist as a specific executive programme (represented by a question mark next to its name), although there were some elements of it, including one hired (non-permanent) employee working on flood simulations and scenarios.

Figure 7.1: Executive Department of the municipal government of Santa Fe (Dec 2007)\textsuperscript{173}

Source: Gobierno de la Ciudad de Santa Fe (2007, p.170, my translation)

\textsuperscript{173} This was the official organisational chart of the Executive at the beginning of the period under analysis (December 2007). The organisational charts of each of the areas shown in the following pages were drawn by the researcher and only partially represent the structuring of these areas at the end of the period under analysis (November 2017).
The Monitoring and Operations Programme was the most important in terms of headcount and budget at the time of the fieldwork. Whereas monitoring was mostly associated with early warning, it could potentially feed back into risk analysis and evaluation, especially in terms of historical localised hazard data. Response was mostly operated via the Central de Operaciones Brigada de Emergencias Municipal (Municipal Operations Centre and Brigade for Emergencies, COBEM). Founded in 1981, COBEM was the equivalent to a Civil Defence unit at the urban scale and was exclusive to the city of Santa Fe. Importantly, this unit was only transferred to the DRM Office in 2015, which highlights that until then the response had been coordinated but not operated by the DRM Office. Even more, COBEM has not seemed to have had much involvement with flood risk, but rather with anthropogenic risk (e.g. traffic accidents, explosions, building collapses, gas leaks, among others).

The Programme of Communications and Institutional Relations for Risk Reduction was in charge of the relations with other organisations in the city and of awareness-raising activities for residents, including the Water Route activity for primary and secondary schools. It was also in charge of transmitting information to the local press, always in coordination with the Department of Communications with whom
they sustained a close relation even after the programme was fully transferred under the umbrella of the DRM Office.

The abovementioned refers to the organisational structure of the DRM Office (in terms of hierarchy, human resources and budget) and to the planning of the DRM Office itself (in terms of its main functions and related executive programmes). The latter corresponds to one of the key responsibilities of the DRM Office: “To elaborate the annual plan of the activities and the corresponding budget of the Risk Management [office]” (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a, p.12, my translation). In sum, this is about the sectoral planning the DRM Office should perform on an annual basis.

Sectoral planning is distinct from contingency and emergency planning, also comprised among the core functions of the DRM Office in the new municipal ordinance (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008a, p.11). At the very beginning, the raison d'être of the DRM Office was the organisation of the response, also known as preparedness for response, for potentially hazardous hydro-meteorological events. In this regard, ‘planning’ is linked here to the idea of planning the response, which has been framed by some research participants as contingency planning. The case of Santa Fe suggests that contingency planning can be analysed from three perspectives: (i) the contingency plan and related internal action protocols, (ii) the plan-making process, and (iii) the implementation of the plan.

A detailed and on-going work in the definition and revision of internal action protocols by area has been at the centre of the process of organising for and planning the response (see Figure 7.3). Following two manuals of procedures, one for heavy rains, another one for rising river levels, each area has defined and refined its responsibilities and resources according to different protocol levels. In a way, Figure 7.3 reflects the cross-cutting/specific dialectic of DRM in the internal organisation for response. The cross-cutting element is represented by the manual of procedures, while the specific component translates into individualised action protocols by department. This integration with standard operating procedures has been central for
embedding DRM in the routines and daily work of the municipal government organisation.

![Diagram](image)

**Figure 7.3: Preparedness for response for fluvial and pluvial flooding: internal and external organisation**

The contingency plan provides the overarching structure for the internal and external organisation\(^{174}\) to respond to potentially hazardous hydro-meteorological events. The first version was drafted by the DRM Office in 2009 and it was revised in 2012. Both were preliminary documents, defined in terms of ‘main guidelines’ and without any official approval, but they served as the basis for the elaboration of the manuals of procedures (Gobierno de la Ciudad de Santa Fe, 2009c, 2012c). At the internal level, the overarching contingency plan is then scaled down to the manuals of procedures

\(^{174}\) Due to the focus on the internal dynamics of the municipal government, not much space is devoted to the external or community organisation for responding to events. For clarification purposes, the external organisation, based on evacuation plans, was first developed by neighbourhood association and later by municipal district. Officially recognised by municipal ordinance in 1973, the vecinales (neighbourhood associations) are the smallest recognised unit of organisation in the city (Honorable Concejo Municipal de la Ciudad de Santa Fe, 1973). Municipal districts were created in 2008 in order to ease and decentralise the municipal administration of the jurisdiction (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2008b). This is currently the lowest level of disaggregation of municipal government administration.
for each type of hydro-meteorological event, namely, heavy rains or rising river levels. These manuals demarcate different alert levels (protocol levels) depending on the severity of the event and/or the number of evacuated people\textsuperscript{175}, and what is required to be done by different departments at each stage. Like the contingency plan, manuals of procedures are developed and written by the DRM Office in agreement with other departments, but they are also approved by Executive decree (Gobierno de la Ciudad de Santa Fe, 2012a, 2013a). Being subject to mayor’s approval, rather than being approved by municipal ordinance, might explain the revision and updating calendar of these documents according to changes in administration.

Internal action protocols are defined by department, detailing who should do what within each department according to protocol levels. In short, they define the responsibilities and resources for the members of each department at different alert levels. These internal protocols are not approved by Executive decree but require the approval of the DRM Office. In theory, internal action protocols should be revised every time the corresponding manual of procedures is updated. Whereas some areas have done so, others have seemed more reluctant to adapt. Furthermore, it was not possible to access the internal protocols of some departments even though they are assigned responsibilities in the manual of procedures\textsuperscript{176} (see in Figure 7.3 those departments without a year).

It is interesting to observe that the level of organisation for response has been more advanced and detailed in the case of heavy rains than in relation to rising river levels. For instance, manuals of procedures for heavy rains were defined and updated first, and there were more departments with internal action protocols for this type of hazard than for rising rivers. This might be indicative of something related to the nature of the hazards themselves. Either heavy rains are more frequent and/or intense and then have a greater impact in the city, or a greater level of organisation is required to respond to this event. A few respondents confirmed that priority was

\textsuperscript{175} Protocol or alert levels have been defined according to different criteria: severity of the event (mm/h or river level) or number of evacuated people.

\textsuperscript{176} This does not mean that they did not exist, but rather that it was not possible to access them even upon request.
given to heavy rains because “it was the most urgent issue and the most likely scenario of occurrence" (Skype conversation with former representative of DRM Office, 14/03/2016, *my translation*). Even more, it was one of the first problems municipal authorities had to face only a few months after taking office (Interview with former representative of Department of Urban Planning, 03/10/2017). However, there was also an additional element related to the room for manoeuvre that the municipal government could have over certain issues. Some in the DRM Office explained that it was easier to organise the response to heavy rains than to river flooding as jurisdiction over rivers (and any other water course) in the country lies on provincial states (Interview with representative of DRM Office, 03/10/2017).

Another striking element relates to the labelling of the manual of procedures, internal action protocols and other internal documents about preparedness for response. In general, these were framed in terms of the hazard (heavy rains and rising river levels) rather than in terms of disaster risk (pluvial and fluvial flood risk). This might be attuned with preparedness for response and the activation of protocols, but it might make it difficult to later advance a more anticipatory or preventive logic that goes beyond the event itself. In other words, it might be counter-productive for the embedding of the concept of *gestión de riesgo* in the vocabulary and understanding of municipal authorities and employees.

Some criticism has arisen around preparedness for response from outside the government. Representatives from certain NGOs and some members of the university pointed to the lack of transparency and the difficulties to access contingency plans. Furthermore, some argued that there was no such thing as a contingency plan (Interview with representative from NGO, 18/04/2016; Interview with professor from UNL-FICH, 12/10/2017). Much of this critique seems to be connected to the lack of awareness of these interlocutors about the details of the internal organisation of the municipal government for responding to hydro-meteorological events. Manuals of procedures were not open-access documents easily available to the general public, even though they were part of executive decrees. Decrees were uploaded in the municipal government’s website, but the annexes that contained the manuals were extracted. The response from members of
the Executive was that these were documents which concerned the internal organisation on the municipal government, hence did not add to the external preparation of residents to respond to potentially hazardous events (Interview with representative of DRM Office; Focus group).

An additional remark came from some city councillors who believed manuals of procedures should be approved by municipal ordinance rather than by the unilateral decision of the mayor, being the main argument that ordinances would make it harder to disregard these procedures in the event of a change of authorities and/or of political colour in office. Even more, it would imply that these documents could be further discussed and debated among different political parties in the City Council and, therefore, have a broader base of political support (Interview with city councillor, 14/11/2017).

Beyond the virtues and challenges of the contingency plan, it is necessary to move now to the second perspective of contingency planning, that is, the initial plan-making process as an exercise that involved many departments of the municipal organisation. This element was underscored several times by a former member of the DRM Office who differentiated the process from the end product: “The contingency plan served to us as a plan in itself, but also as an excuse to start introducing the different areas to the subject” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation). The same participant later reflected that this happened ‘sin querer’, unintentionally, without purposively thinking about it, which somehow denotes the emergent character or newness of the issue and the unintended consequences of a process that for the first time was taking place within the organisation. Thus, contingency planning eventually contributed to the involvement of sectoral areas beyond merely response, to their incorporation of disaster risk management into their everyday work.

Contingency plan guidelines and manuals of procedures provided an overarching framework to organise the response, but each area has had the autonomy to decide what to do and how to do it based on their own expertise. This is key to understand the difficult balance that the DRM office should manage, simultaneously providing
guidance but not intruding too much as to leave space to others to decide. By giving sectoral areas agency and participation from the beginning, their further embrace of gestión de riesgo in their daily work would later benefit and ease the job of the DRM Office itself.

“(…) to think about bringing all the people together, to do the process of sitting down to think about their internal protocol. (…) For example, you’re from the Transit [Transport] area. Well, I know that during the rains a problem, although not the most serious, is the transit, because when the bus passes by water gets into the house, because there are streets that may have more problems, because more accidents occur on the streets, bla bla bla… So, as a Transit [Transport] area, I do not tell you what you have to do, I do not tell you where you have to cut, neither how nor with what personnel. You solve it. But it is an internal protocol that you have to do to comply with and to give it to me, so that I can have it and then you are accountable to me. But as a coordinator, I will not say to you: «Well, put… Who's coming? Such-and-such. And who is not coming? Such-and-such». You will do it for me…” (Interview with former representative of DRM Office, 18/04/2016, my translation).

Thus, the contingency plan-making exercise for the internal organisation of the response tended towards a rather verticalist structure, but one which was designed between all the corresponding areas. In this regard, an important feature highlighted by some was the indirect and partial involvement of the Department of Urban Planning in this process and the consequent difficulties in truly embracing the new approach:

“(…) everyone was presenting its working scheme within the contingency plan. And that made them get involved a lot in the process and that they could understand how they participate in this. Urban Planning perhaps took a little longer, because it was not the first thing it had to do and present, but as the area of Transport depended from them, they had to get involved from Transport” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

This issue will be further expanded in Section 7.3.2, when the sectoral specificities of DRM in terms of spatial planning are addressed. However, it is interesting to spot the genesis of some later problems already back in the early elaboration of the contingency plan. Indeed, the Department of Urban Planning was identified as one of the toughest to incorporate the new approach, and this might be somehow connected
with the fact that it was not involved directly in the making of the contingency plan at an early stage. In other words, it did not have something tangible or practical to think about and to relate to the new concept of *gestión de riesgo*. This might be central to understand the notion of internalisation or appropriation of a new concept via the operativisation and, therefore routinisation, of practices related to that new concept.

Emergency response usually consists of a top-down and centralised exercise, precisely for the level of expedite coordination that is required. This is about the implementation of a contingency plan. However, as has been suggested before, there is an earlier step which comprises the process of thinking about that plan. That is, how to better organise being ready to respond and how everyone becomes involved in that response. The idea of a DRM Office orchestrating centripetal and centrifugal forces gains relevance, as tractioning different sectoral departments to respond while allowing them to decide how to do so. It is time now to turn to the implementation of the contingency plan or, more precisely, of the collection of internal action protocols by area.

As has been anticipated, coordination of response has been mainly under the scope of the Monitoring and Operations Executive Programme of the DRM Office. It is not the intention of this section to go into the details of the manual of procedures and of each and all associated internal protocols, but rather to synthesise the general dynamics between the multiple areas throughout the process of early warning and response. This is succinctly depicted by an engineer from the Department of Public Works:

"We, from all the areas, each have its specificity. The area of Risk Management is the one that coordinates our actions and makes us work in an orderly manner. (...) So, they are the ones who have the coordination of that system and start activating alerts or springs; who start releasing the springs so that we can work orderly. And it is going well, and I totally agree that there must be someone who is the head and who directs it [the system]. (...) They coordinate and we provide the

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177 Operativisation comes from the word ‘operative’. Here, it refers to the elaboration of standard operating procedures to organise the response to potentially hazardous hydro-meteorological events.
A high degree of this coordination work has depended on a complex synchronisation of information flows. The complexity relied not so much on the technologies used, but quite the opposite. Albeit this, the merit of the Monitoring and Operations Programme has been to attempt this job with what was at hand, and to improve over the years. Figure 7.4 synthesises the main flows of information that have underpinned the activation and deactivation of protocols, the alerts or springs to which the representative of Public Works referred. As of 2017, these information flows spanned from internal early warning, through response, to public reporting.

**Figure 7.4: Information flows before, during and after hydro-meteorological events**

For early warning purposes, the programme relied both on external sources of data (from national and provincial government entities) as well as on its own meteorological and telemetric stations (which raw data were monitored via a software called Pegasus). Three experts on meteorology and related fields monitored and interpreted these data, to then inform the head of the programme, who in turn
activated specific protocol levels according to the situation. Importantly, protocol activation or release of alerts was only for internal purposes, as the municipal government does not have competence to release forecasts nor early warnings to the population. The latter is an exclusive responsibility of the National Meteorological Service. Upon the activation of a protocol, all areas were informed via a WhatsApp group and e-mail, though only some of them intervened depending on the level of alert.

Response to the impacts of events covered the solving of geo-referenced claims reported by residents using multiple media. All claims were centralised by SAC, a system operated by the Department of Communications. Only at times when protocols for heavy rains or rising river levels were active, were these claims passed to the DRM Office for its intervention. In those situations, the Monitoring and Operations Programme was in charge of consolidating the reported claims and delegating them to the corresponding areas for resolution. However, it was up to each area to define priorities for action. Recently, the programme has developed an internal system to visualise the location of claims (a proxy of the spatial distribution of damages in the city) and their resolution status (a proxy of the performance of each sectoral area).

Finally, information on both hazard characteristics and impacts of the event fed into the reports of the Operations Centre. These also included data provided by municipal shelters in cases where people had to be temporarily evacuated. Reports were shared with the local press via a mailing list and were available online to residents in the DRM website. Beyond real-time monitoring, internal early warning and reporting of damages and losses per event, these data were not used for more comprehensive risk analyses and/or evaluations.

Thus, the coordination role of the DRM Office, in general, and of the Monitoring and Operations Programme, specifically, has been at the centre of preparedness for response and response:
“Logically, the DRM Office depends on the operative areas because it does not have either the personnel or the machinery, but a coordination has been achieved… Logically, there is always an error, some imponderable, but the coordination and the communication are almost immediate and the response is almost immediate. It is good to centralise the claims because otherwise it would be chaos, as no one would intervene or everyone would do so. And that, at the time of optimising resources… First, to avoid accidents and to protect the life of people. And secondly, to optimise resources. The DRM Office centralises everything and delegates, with very good criteria, to the corresponding areas. I am very much in favour. It works…” (Interview with representative from Department of Public Works, 27/09/2017, my translation).

Given the central role of the DRM Office in embedding disaster risk management through contingency planning, it is deemed relevant to reflect upon the type of leadership that has been required to accomplish this task – always bearing in mind that ‘planning’ involves both the design of the plan as well as its implementation. Various attributes have been suggested by respondents to characterise this leading role, including operational/operative, experiential/experience, ‘with the feet on the mud’, coordination and articulation.

Informed leadership was key for the DRM Office during the emergence phase, meaning expertise in the issue and capacity of translation into the work of other areas. The latter is further linked to a different kind of leadership that has characterised this office during the embeddedness phase: operational leadership and the capacity of grounding the new concept into specific practices. However, operational leadership (for preparedness for response and response) would not work in the absence of informed and conceptual leadership. Once again, this reiterates the concept/practice dialectic of the DRM approach in the very same type of leadership of those steering the process. In this regard, some described the leadership of the DRM Office director as a fusion between conceptual and experiential leadership: “we had a very strong person from the conceptual point of view and from the experience point of view” (Interview with representative of Cooperation Agency, 24/05/2017, my translation). Thus, the combination matters.

Similarly, one of the members of the advisory team who conceptually designed the whole system would be invited to take part in the DRM Office, but they did not
accept the post and preferred to stay in academia. This same person later referred to
the director of the DRM Office as someone ‘with the feet on the mud’ (Interview with
professor of UNL-FICH, 19/04/2016). A different way of thinking of this mixture
might be in terms of the various executives programmes within the DRM Office,
being the Programme of Communications and Institutional Relations further
connected to conceptual and informed leadership and the Monitoring and Operations
Programme closer to operational leadership.

Operational leadership, though, does not necessarily entail being in charge of
enacting the operations. As clearly illustrated by the quotes of respondents from the
Department of Public Works, the DRM Office has not been the one ‘doing’ the
operations but rather ‘conducting’ them, via coordination and articulation skills. In
this regard, operational leadership can be assimilated to the idea of an operational
‘driver’ or ‘captain’:

“(…) I was the visible face but, in practice, without a team this would not
have happened. Without all the people that work and support you in the
process, this is impossible… I was not the leader of the process either,
but I was simply helming it. (…) The leader of the process is always that
one who has the final ‘yes’ and ‘no’; that is, the mayor” (Interview with
former representative of DRM Office, 25/10/2017, my translation).

Consequently, while driving or helming the process, the DRM Office did not have
much ‘authority’ over those whose actions it was coordinating and articulating nor
the final decision-making power. This also speaks of the inherent difficulties of
coordinating others without authoritative leadership (as to secure room for agency to
other areas to decide what to do and how to do it) and political leadership (as the
final decisions relied on the mayor). In explaining the role of the DRM Office,
representatives from other departments and organisations usually turned to the type
of leadership that this area has provided and its distinctive features. Building on their
accounts, this section proposed the notion of operational leadership for preparedness
for response and response, that is, for developing a contingency plan and
implementing it.
7.2.1 Discussion – Embeddedness I

At first glance, referring to a ‘specific’ dimension of disaster risk management when it has been argued elsewhere of its cross-cutting nature, appears somehow contradictory. However, this is important to understand the creation of a specific DRM Office, the division of responsibilities between sectoral areas along the contingency planning process and their operativity as enacted practices every time a potentially hazardous event activates an alert.

In the emergence phase, the emphasis has been on making sure that everyone understands that gestión de riesgo (and dealing with flood risk) is something that concerns everyone within the municipal government. That is, it is a cross-cutting policy paradigm. As has been previously elaborated, this mainly unfolds at the conceptual level, led by the top-leadership of the organisation and a communications team with certain strategies. However, at some point, it is necessary to start moving from that concept into something actionable and/or operative. It is here where the role of planning gains relevance and the focus turns to specific practices (or the specific and practice salient components of the bifocal lenses). This is not to say that the policy is not cross-cutting any longer, but precisely because it is cross-cutting everyone has to do something about it, which does not necessarily entail that it has to be the exact same thing.

Throughout the analysis, a distinction has been made between sectoral and contingency planning in the context of the DRM Office. Whereas sectoral planning refers to the annual planning of this bureau, which defines its tasks over the year, including the related budget and personnel, contingency planning represents one of those tasks. In the case of the DRM Office this distinction might seem unnecessary, as the planning for response is intrinsic to the mandate of this office. However, the distinction is useful to understand how (and to what extent) the planning for response eventually becomes embedded in the sectoral planning of other departments as to become part of their everyday practices. ‘Eventually’ intends to depict that this was not obvious nor immediate from the beginning, but it rather started as a separate and purposive exercise focused on the response that, over time, would become regularised or embedded in the daily routines of those other departments.
To not be able to distinguish between sectoral and contingency planning across sectoral areas might be in fact something good, as the merging of the two might imply that DRM has been internalised in their daily work. Similarly, not having an annual earmarked budget nor specifically allocated personnel for DRM in each sectoral department might be indicative of that merging too. However, this might also run the risk of DRM being forgotten, especially in the absence of major events, for not being explicit in the organisational structures and budgets of other areas. This could explain why cities like Portland have opted for a specific allocation of human resources (and therefore budget) to each sectoral area, as to give the necessary visibility to the new climate change issue (Aylett, 2013). Differently, in the case of Santa Fe, the embedding of the new disaster risk management approach in the daily practices of sectoral areas has been facilitated by at least three mechanisms:

1. The organisational structure of the DRM Office, which covers its position in the organisational chart of the municipality, together with financial and human resources.
2. The definition of standard operating procedures by sectoral area to organise the response to potentially hazardous events.
3. The leadership characteristics of the members of the DRM Office.

The coding of interviews revealed several mentions to the words ‘specific’ or ‘specificity’, which research participants associated with two interrelated meanings. In the first place, ‘specific’ referred to the creation of a distinctive office to facilitate the contingency planning process and to centralise the response whenever necessary. In this regard, ‘specific’ was connected to the mandated responsibilities of the DRM Office. In the second place, ‘specificity’ was used to highlight the agency and autonomy of each area to decide, based on its expertise, the best course of action in the design and implementation of internal action protocols. Thus, specificity was related to the ‘technical’ know-how of each area. The link between the ascribed meanings to ‘specific’ and ‘specificity’ has been provided by the definition of standard operating procedures in the contingency planning process.
Many research participants described the process of organising the internal response of the municipal government using qualificatives such as ‘operativisation’, ‘operating’ and ‘operative’. This operativisation can be interpreted as the process of translating the concept of *gestión de riesgo* into specific *practices* or actions. Indeed, area protocols were labelled as internal ‘action’ protocols. Furthermore, these were standardised procedures intended to encourage certain practices to be repeated or routinised according to protocol level. Thus, standard operating procedures entailed the definition of practices in a contingency plan, manuals and internal protocols (planned practices) as well as their regular implementation (implemented practices). While the regular implementation or actionizing of internal protocols is covered in Section 7.3, a reminder is deemed relevant here. Organisational institutionalism usually identifies standard operating procedures as a way of structuring routines within organisations. However, as some emphasise, these procedures are actionized by people and, therefore, might be changed (Feldman, 2000). The refinement and update of manuals of procedures and internal action protocols (Figure 7.3) are a reminder that there is room for change in routinisation processes.

A particular type of leadership has underpinned the process of planning for response and response. Operational leadership has been suggested in this section to designate the key role of the DRM Office together with the idea of orchestrating centrifugal and centripetal forces. It is often the case that the role of a DRM Office is not well understood and thinking about the performance of a jazz ensemble director might provide some hints to this exercise. Jazz ensemble directors are usually part of the band and play themselves, in contrast to the external conducting role of directors of orchestra. It is hard to individualise them, but without their imperceptible leading role the ensemble would not coordinate. Centrifugal means that each member of the band plays a singular melody with its own instrument, but in harmony with others’ melodies. In other words, the director conducts various voices of a single composition. Centripetal entails that all members play the same melody, but with different instruments. That is, ‘in unison’.

Figure 7.5 graphically represents the conducting role of centrifugal and centripetal forces or ‘voices’ of the DRM Office in the municipality of Santa Fe, not only in
relation to preparedness for response and response but making it extensive to the entire DRM process. Based on the work of Wamsler (2014), it adapts it to the organisational context of a municipal government and the role of a DRM office. Even more, thinking about the work of the DRM Office in relation to other sectoral bureaus across the DRM process might be useful to understand the transition from preparedness for response to DRR, and from contingency planning to sectoral planning, which is described in Section 7.3.

Figure 7.5: Orchestrating role of DRM Office in the disaster risk management process

Source: Adapted from Wamsler (2014, p.50)

The same rationale that underpins preparedness for response (centrifugal) and response (centripetal) can be extrapolated to the processes of hazard and vulnerability reduction and preparedness for recovery (centrifugal), recovery (centrifugal) and risk assessment (centripetal). Hence, as highlighted by the arrows that surround it, the DRM Office is always working in conjunction with others. Regarding its mandated responsibilities, the DRM Office has a coordination role before (ex-ante) and during (in situ) potentially hazardous events by consolidating relevant information from different actors or by bringing them together for response, respectively. In this sense, it leads a centripetal directionality for multiple forces that coalesce together for a common purpose. Simultaneously, the DRM Office performs
a more subtle job that can be described as a ‘reminder’ role, both before (ex-ante) and after (ex-post) disasters. Here, the DRM Office conducts centrifugal forces towards each and every department, reminding them to consider risk reduction in their daily practices as well as when reconstructing the city after a flooding event. All in all, working with other departments within the organisation is necessary at all stages of the DRM process and not just for some one-off or intermittent steps. The difference relies on the level of responsibility and the room for manoeuvre that each area has at the various stages of the DRM process.

It is important to note that this is an ideal type to understand how a DRM office might work within a municipal government organisation, inspired by the experience of the case of Santa Fe. It is not meant to infer that there are clear cuts between the mandated and de facto functions of this office nor between the centrifugal and centripetal forces associated with each stage of the DRM process. It does not mean either that in the case of Santa Fe the DRM Office has performed all these functions in such a neat manner; indeed, several issues and shortcomings have been identified in relation to some of these activities. However, this is precisely the value of ideal types: to provide an analytical tool to ‘read’ or ‘filter’ the object of study in a more critical and thorough manner.

Figure 7.5 synthesises the main elements that have been touched upon in the section, including the core responsibilities of the DRM Office and its rather de facto functions, its articulation with other areas in the municipal organisation, and the associated type of leadership that has allowed those responsibilities and articulation to materialise. It has done so in the context of contingency planning, the prior responsibility of the DRM Office during the first years. This is only one part of the embeddedness phase; how this planning for response then translates into the planning for reducing (flood) risk is a different but related story. The next section continues with this embedding process but centring the attention on the specificities of various sectoral departments.
7.3 Making sense of DRM sectoral specificities: from preparedness for response to DRR

“Is it possible that we will ever be able to see the patient in the practice instead of seeing them in the ambulance permanently?” (Interview with former representative of Department of Urban Planning, 03/10/2017, my translation)

This section explores the cross-cutting nature of disaster risk management by digging into the specificities of different bureaus of the Executive that have a central role during the activation of protocols. This includes, mainly, the operational areas in charge of water resources management, public works and solid waste management, whose functions and responsibilities are described for every protocol level, especially the base one, which is the most regularly activated. The main argument is that because of their early involvement, both in the municipal DRM system as well as in the scale of protocol level, these areas have not only incorporated the preparedness for response logic but also started to plan their daily work considering the reduction of flood risk (in terms of hazard, exposure and/or vulnerability). In short, a transition from preparedness for response to disaster risk reduction can be identified, specially across the managerial areas of the municipal government.

In addition, the Department of Urban Planning and the Habitat Agency are also considered in this section. Comparing the embedding of the DRM approach in the operational work of managerial areas vis-à-vis the more strategic functions of these two other departments, might shed some light on the main difficulties for the incorporation of disaster risk management into urban planning. The latter relates to the challenges of planning in a relatively consolidated city, whose growth and expansion has been taking place towards low-lying areas over the last two decades, and where new urban land susceptible to be urbanised has been scarce (see Chapter 4).

The analysis of the different sectoral departments follows a similar structure to the one suggested in the analysis of the DRM Office in the Embeddedness I phase. Embeddedness II builds upon the embedding process initiated through contingency planning but moves to the embedding of DRM into the annual planning of each sectoral area. Planning can be interpreted in terms of ‘planned’ practices, whether
for responding to events (contingency planning) or for securing the daily functioning of the city (sectoral planning). However, this section also moves from planned to implemented practices, specially by emphasising that in the frequent exercise of internal action protocols, some areas have slowly incorporated these practices as a regular part of their everyday tasks. This transition from contingency to sectoral planning, and from planned to implemented practices, has been more evident in managerial or operational departments in charge of the smooth running of the city. Even more, urban management brings the materiality of DRM to the fore, represented in the regular operation and maintenance of (networked) infrastructure such as flood defences and embankments, storm drainage, reservoirs and pumping stations, (paved) roads and landfill for solid waste disposal. Last but not least, the specific nature of sectoral practices was highlighted in contingency planning, where each area has a different task to execute. However, in sectoral planning, these practices are not circumscribed to a particular moment (e.g. when there is a potentially hazardous event) but are rather connected to the quotidian functions that each department performs. Thus, in Embeddedness II, ‘specificity’ relates more to the everydayness of sectoral practices.

7.3.1 Operational bureaus: DRM in urban management

The Department of Water Resources, the Department of Public Works and the Executive Programme of Integrated Solid Waste Management (under the scope of the Department of Environment) have an operational role in the city. Thus, their function is mostly related to what is known as urban management. In charge of preserving the smooth functioning of the city, these areas have the largest and most detailed responsibilities in the manual of procedures and internal action protocols, and they have been connected to disaster risk management from the very beginning. Preparedness for response has slowly permeated each of these departments, to the point that they would also start thinking about how to be better prepared in the long run and not just in the alert of a hydro-meteorological event.

Therefore, it is possible to identify a trajectory from ‘preparedness for response’ and ‘response’ to the gradual embedding of disaster risk management in the everyday work of these three managerial areas. This has been facilitated by the extensive work
in defining their responsibilities in standard operating procedures for organising the response. Even more, periodic heavy rains and seasonal river flooding have represented an ongoing trial-and-error exercise for testing and refining what to do, something further encouraged by procedures which stipulate that an evaluation should be conducted by each department after every event. This learning process has broadened the understanding of each department about how to better perform their principal job considering the reduction of flood risk from the very beginning. This has not been a one-off attempt nor a smooth exercise; on the contrary, it has evolved as an intricate process which has moved back and forth. The reminder role of the DRM Office, both before and after an event, has been central in this transition. A different way of framing this transition might be in terms of planning, that is, from contingency planning to the sectoral planning of managerial areas.

At the very beginning, the DRM Office worked closely with the Department of Water Resources and Public Works. Importantly, Water Resources, on the one hand, and Public Works, on the other, had worked as two separate areas in the previous years to the period under analysis. When the new administration took office in December 2007, these two sectors were brought together to work as a single department. Among the reasons for merging them was the urgency to execute a vast amount of infrastructural projects for managing flood risk (e.g. floodwalls and embankments, piped drainage and open channels, reservoirs and pumping system). At the beginning of the third administration under analysis (2015-2019), a decision was made to split them back again. Research participants working in the Department of Water Resources emphasised that the geographical characteristics of the city of Santa Fe made that necessary. Contrary to what is often the case in other municipal governments, where a Department of Public Works usually takes over the construction, operation and maintenance of water-related infrastructure such as drainage, the location of the city and its surrounding ecosystem require that a specific area is responsible for this job. Amalgamating and dismounting, structuring and restructuring pieces of the organisational skeleton according to the priorities of the time, highlight the often-overlooked organic nature of state bureaucracies.
Since they are divided, the Department of Water Resources is mainly responsible for the urban drainage system (expansion, operation and maintenance) and flood defence system (operation and maintenance of pumping stations and water reservoirs, and monitoring of embankments), to deal with pluvial and fluvial flood risk, respectively. These two core responsibilities are plainly represented in the organisational structure of the area (see the two executive programmes under the Operative Sub-secretariat of Water Resources in Figure 7.6).178

![Organisational structure of Department of Water Resources](image)

**Figure 7.6: Organisational structure of Department of Water Resources (November 2017)**

The urban drainage system comprised 270 km of piped drainage and 60 km of open channels as of 2017 (Secretariat of Strategic Development and Communication, 2017). In terms of costs, the city government reported an annual spending of 50 million Argentine Pesos (USD 5.6 million, conversion rate as of 2015) in the cleaning and maintenance of the urban drainage by 2015 (Aguirre Madariaga, 2015b, p.84). Additionally, the city has 64 km of embankments and 53 points for the

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178 The Department of Water Resources is also in charge of expanding trunk infrastructure for water and sanitation, although this is not covered in this investigation.
operation of water pumps (Aguirre Madariaga, 2015b, p.75). Storm drainage and flood defence systems interact in a very complex manner, reproducing the complexities of the intertwined effects between heavy rains and river overflows:

“Beyond the extraordinary phenomena, due to its geographical and physical characteristics, Santa Fe depends on the proper functioning of the protection and drainage systems to reduce the possibility of urban flooding in the face of rising rivers or rains. Such systems are complex and very expensive, require regular maintenance and permanent care, so that their operation is appropriate and timely” (Aguirre Madariaga, 2015b, p.84, my translation).

In the case of the Department of Water Resources, the transition to disaster risk management translated into a comprehensive mapping and assessment of the existing pluvial drainage, complemented with annual plans for the maintenance and expansion of the urban drainage system. The expansion of the system has followed a Master Plan for Pluvial Drainage (Instituto Nacional del Agua, 2000). Developed in 2000\(^{179}\), this plan had severe implementation lags until the last few years. The merit of the department under the new administration was to start securing funding to complete those works, mainly by showcasing implementation capacity according to budgets and timeframes. Equally relevant has been the political support to invest in storm drainage, not only for new pipes or open channels, but also for its regular monitoring, cleaning and unblocking. This ‘regularity’ has entailed that all these had to take place not at the time of heavy rains but before:

“Sometimes people say: «You only work when it rains». No, actually, we work all year long. Moreover, we work more when it is not raining… Because those things that are not done when it is not raining, they cannot be done when it rains…” (Interview with representative of Department of Water Resources, 17/05/2017, my translation).

In addition to urban drainage, this department is also responsible for the flood protection system, including the operation and maintenance of pumping stations and water reservoirs, and the monitoring of embankments. The expansion and

\(^{179}\) A second part of the Pluvial Drainage Master Plan, which expanded over La Costa district and other neighbouring jurisdictions, was approved in 2011. Both, the original and extended versions of the master plan, were not developed by the Department of Water Resources but INA, an expert entity from the national government with representation in the city.
maintenance of embankments is a prerogative of the provincial state, although on several occasions the municipal government has taken on this role in an ad-hoc manner. The ad-hoc overlapping of responsibilities has created some tensions between the municipal and provincial levels (Interview with representative of Department of Water Resources, 13/07/2017).

A key element that contingency planning brought to the regular operativity of the drainage and flood protection systems was the functioning according to (real time) hydro-meteorological information. While this started in the context of internal action protocols, it would slowly nurture that anticipatory and preventive attitude of “we work more when it is not raining”:

“And the municipality starts to receive information of the meteorological contingencies with anticipation of days and hours, and the pumps start to be operated in advance only for the pre-vision of a forecast. That had never happened in the history of the city. And street-worker crews are put on alert to clean certain channels in certain points of the open drainage system. That had never happened in the city” (Interview with professor of UNL-FADU, 23/10/2017, my translation).

The Department of Water Resources has been probably the easiest or more obvious to make the connection between contingency planning for hydro-meteorological events and sectoral planning. Likewise, this department was also often identified as primarily responsible for the catastrophes, for not doing its job properly. Hence, there was a mutual incentive for the DRM Office and the Department of Water Resources to work closely together. In the first place, it was quite easy to draw a connection between flood risk management and the work of the department. Secondly, the department needed to rethink and rework its role as being blamed guilty for the tragedies. It is time now to turn to the second managerial area: public works.

The Department of Public Works mostly deals with street lighting and, mainly, with the expansion, maintenance and conversion of roads (see Figure 7.7).
The early involvement of this department in the definition of internal action protocols eventually influenced the prioritisation criteria at the time of planning its regular work. In terms of the road network, this prioritisation has encompassed at least two things. The first one relates to the priority of storm drainage over pavement, and the second one considers an accessibility criterion which prioritises schools, hospitals and public transport when paving new streets. Hence, a department whose core responsibility (e.g. paving roads) was traditionally understood as something different and non-related to flooding, starts planning its job considering the reduction of flood risk from the beginning:

“Public works… Let's talk about our part, which is the pavement... We always consult the water experts. To plan roads in Santa Fe is to depend on the opinion of the water expert, of the Secretariat of Water Resources and, in turn, of the master plans from the INA. That is why not a single block is built nor paved if the drains are not solved beforehand. Let's say, it's a line of work. Sometimes you might need to do some conjunctural patch until you give the final solution, but you always think of the water solution first. Although we are sometimes working on dirt roads, doing drains and all that, people perhaps are going to have some worries because they cannot leave [the house] the day it rains because there is mud. But first is the water solution, then we look at the road solution. Because even when you're going to get angry if your car gets stuck,
you'll get angrier if your house gets flooded. (...) The line is: drainage, gutter, pavement. That line is the Bible, it's the Bible…” (Interview with representative from Department of Public Works, 27/09/2017, my translation).

“[I]t’s a line of work” reflects how the management of flood risk is impregnated in the ‘ways of doing’ and ‘ways of working’ of the department. Even more, “[t]hat line is the Bible”, which depicts the embeddedness of disaster risk management as something rooted and sacred. Having being part of the same secretaría with the Department of Water Resources for two consecutive administrations, at the time the new DRM approach emerged, it probably contributed to establish that line of work. It also eased the coordination between the two managerial areas and modified technical considerations in the design of road projects such as a higher return period for heavy rains (Interview with representative from Department of Public Works, 26/07/2017).

The ‘first drainage, then pavement’ criterion, has been later on refined in the Accessibility Plan for Education Buildings and other Public Entities, a joint initiative between the national government and the municipality of the city of Santa Fe. The aim of the plan has been to secure access to schools and hospitals, especially in the event of heavy rains, by paving main access roads and those used by public transport. It has represented an investment of more than Argentine Pesos $137 million (USD 6.6 million, conversion rate as of 05/2018) for the pavement of fifty blocks across the city (Press Santa Fe mailing list, 30/05/2018 and 30/06/2018). Even when the financial investment and number of paved blocks might appear meagre, the impact can be significant:

“With this work we achieved something that for many years was problematic for the institutions: the access. To get to schools on rainy days, you had to get into the water. Now, with the storm drainage and the pavement, we will arrive with dry feet” (Director of municipal nursery, in Press Santa Fe mailing list, 30/06/2018).

Something as simple as not getting your feet wet when trying to get to school during rainy days represents a major improvement. This is the result of the combination of both storm drainage and pavement. Securing the continuity of school classes despite
flooding has always been a priority of the new administration, also emphasised by the decision of prohibiting the use of school buildings as temporary shelters in the event of floods (Gobierno de la Ciudad de Santa Fe, 2014c).

The example of paved roads in the accessibility plan not only illustrates the joint work between the two departments of Water Resources and Public Works, but also the differences in the visibility of their work and the subsequent recognition (e.g. votes) on behalf of citizens. It has often been the case that residents tended to value more the paving of roads than storm drainage, hence the priorities defined by local governments accordingly. This was something underscored several times by those working in the Department of Public Works who, despite the situation, insisted on the need to maintain the priority on the water-related issue: “(…) we do understand the neighbours in what concerns roads, but our axis is the water. Afterwards, comes the road” (Interview with representative from Department of Public Works, 27/09/2017, my translation).

Integrated Solid Waste Management, which falls within the Department of Environment, represents one of the sectors that poses more challenges to the city and the smooth functioning of the urban drainage. Furthermore, it also matters as there is not much urban land available to keep disposing of solid waste beyond a limited time frame. With an estimated lifespan of 5 to 7 years, the current landfill is located in the flood plains of the Salado river (Secretariat of Strategic Development and Communication, 2017, p.34). The site approval was quite disputed due to its environmental impact, but it was finally accepted contingent on required flood protection measures to reduce its exposure to rising river levels (Interview with representative of Integrated Solid Waste Management Programme, 25/08/2017). Paradoxically, the site has been designated as an ‘environmental complex’ to encompass not only the landfill, but also on-site leachate treatment and a classification plant run by a cooperative of former informal waste pickers.

Collection and disposal of solid waste is outsourced to private companies, being Cliba and Urbafe in charge of collecting residential and commercial solid waste and Milicic responsible for managing the landfill and treatment of waste. The Executive
Programme of Solid Waste Management oversees and certifies the work of these enterprises and also coordinates the incorporation of cooperatives and foundations into the process (see Figure 7.8). According to a representative of the area, solid waste management accounts for almost 30% of the total municipal government budget, which also highlights the importance of the issue in terms of municipal finances (Interview with representative of Integrated Solid Waste Management Programme, 29/06/2017).

The involvement of the area, and of the entire Department of Environment\textsuperscript{180}, in contingency planning has been mainly connected to the monitoring of critical points across the city and to secure that these are clean (see section 7.3.1.1). Specifically, these points should receive priority in terms of waste collection, especially if heavy rains are anticipated. However, as someone working in the DRM Office simply put

\textsuperscript{180} The Executive Programme of Public Space Management (see Figure 7.8) plays a key role for cleaning public spaces. It is also the programme that concentrates most of the cuadrillas or street-worker crews in the Department of Environment to deploy the territorial work during protocol activation.
it: “(…) they [those in charge of critical points] should not wait to clean up the city until I release an early warning. The city must be always clean…” (Interview with representative of DRM Office, 04/10/2017, my translation).

There is an interesting explanation given by a representative of the programme regarding the generation of waste in the city: “The generation of waste has a lot of variables. But the most important variable is a social variable. That is, it is generated by people” (Interview with representative of Integrated Solid Waste Management Programme, 29/06/2017, my translation). Thus, a parallelism can be drawn between solid waste generation (and mainly disposal) and disaster risk production, and therefore between solid waste management and disaster risk management. That is, solid waste generation and disposal as a factor in the production of flood risk, and solid waste management as a potential measure to reduce or manage it. This has been acknowledged not only within the specific programme of solid waste management, but also across the other managerial areas. It also explains the communication campaigns and educational initiatives targeted at raising awareness among residents about the connection between this issue and the smooth functioning of the drainage system (see Box 8.1).

7.3.1.1 Critical points: the link between contingency and sectoral planning

Internal action protocols to organise the response have been further refined through the identification and definition of critical points in the city. These points mark specific areas in the city that recurrently report problems at times of heavy rains. The main purpose of delineating these points has been prioritisation and clear division of responsibilities between the three managerial areas in order to ease coordination and optimise resources while responding to hydro-meteorological events.

Vaguely defined in the first manual of procedures and internal action protocols of managerial areas, critical points were associated with places where solid waste usually accumulated or where drains did not function properly. Around 2012, Sindicatura (Audit Office) pushed for the formalisation (e.g. exact location and labelling) of these critical points and their incorporation in the internal action protocols of those areas in charge of monitoring them. ‘Zones of influence’ were also
later added to complement ‘critical points’, in an effort to more clearly defined tasks and resources according to spatially circumscribed issues. The ‘protocolisation’ of critical points was criticised by some in the DRM Office on the basis that these were not fixed but rather fluctuating points over time (Interview with representative of DRM Office, 04/10/2017). However, representatives from managerial bureaus argued that this has contributed to the optimisation of scarce resources within the municipal government:

“These are the critical points and surrounding sectors. (...) Because, what happened? It was a waste of resources and time that I have a critical point in Centenario [neighbourhood] and a critical point behind the Wholesale Market. So, what did we do? We sectorise (...) The division took place only in 2012, after seeing that we needed to optimise times and resources” (Interview with representative of Department of Public Works, 27/09/2017, my translation).

The monitoring of critical points was divided between the three operative areas, as none of them had the individual capacity in terms of personnel and machinery to cover the entire city. Broadly speaking, the Department of Water Resources has been in charge of the ‘internal’ monitoring across the city – that is, everything that happens inside drains and piped drainage. The Environment and Public Works bureaus have dealt with the ‘external’ monitoring of critical points in the north and south of the city, respectively, as they do not have the expertise to monitor nor to repair any internal issue. This process has not only reinforced the DRM-related practices of each department, but it has also strengthened the relations between them, not without tensions when certain issues were not promptly resolved and responsibilities had to be weighted.

The path from ‘organising for response’ to ‘reducing flood risk in the everyday work’ can be somehow observed in the three main managerial departments of the municipal government. This process has been mediated by the definition of standard operating procedures, firstly, and their further finetuning through the identification of critical points and related influence zones in the city, secondly. The latter refers to the grounding of procedures to the geographic characteristics of the city and the
spatial distribution of risk\textsuperscript{181}. At first glance, an increasing ‘protocolisation’ can be observed, and some could argue against this trajectory as it might reduce flexibility in responding and adapting to new situations. However, in the case of Santa Fe, it seems to have facilitated the coordination and optimisation of scarce resources between managerial areas during response. Even more, this ‘protocolisation’ has contributed to the embedding of DRM in the sectoral planning and everyday work of managerial bureaus:

“I think there are 30 critical points in the city that, if there is an alert, they have to be cleaned because they tend to get dirty or cause problems. So, what is the logic? If you have so many protocols, if the technical area incorporates them into its habitual work plan, you do not have to wait until the emergency to go and clean them. Then, there, you stepped out of the emergency. Moreover, if they [critical points] are so identified, that area has to think about intervention works to solve that problem. In this way, it is clear where you have to intervene. Similarly, you meet with the technicians and this is very clear: «This one [critical point] has priority as it affects more people. This one…» And not because they studied that… Because we also went through all these rains and we saw all these problems. That role, even if you tell me that it is the most operative in an emergency, it helps to keep the topic present and to instigate that the other plans also incorporate this. Otherwise, sooner or later, they [problems] come back” (Interview with representative of Department of Communications, 22/04/2016, my translation and emphasis).

In sum, the transition from contingency to sectoral planning has been mediated by the standardisation, routinisation and refinement of internal procedures. The reminder role of the DRM Office, both before and after an event, has been central in this transition. However, this subtle and indirect job eventually needed to be complemented by some sort of enforcement and direct monitoring. Here, the Audit Office has made its contribution. Being formally responsible for the ‘monitoring of others’, its monitoring role cannot be questioned. This is quite different from the DRM Office which is not formally allowed to audit and denounce any department. Nevertheless, the Audit Office has not much expertise on DRM. Hence, in the name of ‘improving processes’, it has sometimes added unnecessary complexity (Interview with representative of DRM Office, 04/10/2017).

\textsuperscript{181} When asked about the criteria for defining critical points in the city, someone responded that multiple elements were taken into consideration, including the number of claims reported by residents, remaining time of rainwater on surface and issues with solid waste (Interview with representative of Department of Public Works, 27/09/2017).
Sectoral annual planning considers the budget and personnel required to comply with the tasks and timeframes defined for the year. In the case of the three managerial departments, budget and personnel for contingency planning and response have not been specifically earmarked, but rather the same personnel and money allocated for their ordinary activities is eventually affected for specific tasks at the time a protocol activates. The monitoring of critical points provides a clear example, as those who should be in charge of this task are characterised as follows:

“It is the operative staff personnel responsible for overseeing the critical points under the responsibility of this unit. The technical staff personnel, designated for the inspection of bids for the maintenance of open channels and the unblocking of piped drains, and their assistants, are appointed for this task, since the nature of their habitual functions makes them suitable for this” (Internal Action Protocol of Base Derqui, 2015, p.13, my translation and emphasis).

In other words, it is the same municipal personnel who perform the daily functions of the area that are responsible to monitor the critical points in the event of a potentially hazardous hydro-meteorological event. This is because the nature of their habitual functions has ‘trained’ them for this task.

The operational functioning of the three managerial departments is coordinated from specific plants where most street-worker bureaucrats and heavy machinery are concentrated. In regard to municipal personnel and machinery for the daily operation of these areas, there are a few additional elements that have steered the routinisation of contingency procedures and the incorporation of an anticipatory rationale in the everyday work. In the first place, many respondents referred to a revalorisation of municipal staff and street-level bureaucrats and a special recognition of their work after severe and/or highly frequent hydro-meteorological events. The mayor himself publicly acknowledged their role after these events (Press mailing list, 20/11/2018). The revalorisation of municipal employees came with a second element which pertains to these areas acquiring their own machinery and equipment rather than bidding and outsourcing a large part of their core work. Some examples include the cleaning of open channels, an in-house plant to produce asphalt to pave roads and special devices to recycle and reuse solid waste from fallen trees after wind storms (Press mailing list, 17/07/2017, 04/08/2017 and 29/10/2017). The third element,
which somehow links the revalorisation of employees and in-house machinery, refers to apprenticeship schools\textsuperscript{182}. Although not exclusively devoted to train street-worker bureaucrats or personnel for the municipality, they could potentially benefit the municipal organisation with skilled personnel.

"In fact, what was done in recent years was to give a lot of interest to the municipal employee and to carry out many works from us, by administration. (...) It lifted up a lot the work, to not delegate so much what the municipal [employee] can do... (...) What is outsourced is for what the municipality is not prepared, but not only because of the people, but the equipment" (Interview with representative of Water Resources Department, 01/09/2017, my translation).

The work of managerial departments accounts for most of the resource spending in the municipal budget. Taken together, the budget for the maintenance of the flood protection system (including pumping stations) with the budget for solid waste management, accounts for almost half of the municipal annual budget. Whereas not specifically earmarked for DRM, these budgets are tightly connected to the management and reduction of flood risk, something of which authorities leading these areas and who define sectoral budgets on an annual basis were particularly aware. Furthermore, the fact that the municipal government spends a large proportion of its budget on this, might be a sign that they were equally aware that the cost of financing a flood emergency could be even higher.

Paradoxically, among the main challenges for urban management, especially in relation to urban drainage and solid waste management, representatives of these two areas highlighted that these activities are often undervalued by residents in the city. Hence, they are not appropriately costed (or not even costed, as in the case of urban drainage) in municipal taxes. This was also emphasised by some involved in the development of the resilience strategy and it is one of the main arguments underpinning initiatives such as the Water Route, guided tours to under-construction piped drainage and site visits to the environmental complex (see Box 8.1). The latter

\textsuperscript{182} The Direction of Apprenticeship Schools, under the orbit of the Department of Social Development, was created in 2015. This initiative was not developed for the immediate intake of trainees by the public administration, but rather considered a mid-term investment to secure skilled personnel for the future.
relates to the role of two other non-managerial departments, Culture and Education, which is addressed in the third phase of institutionalisation (see Section 8.2).

7.3.2 Department of Urban Planning and Habitat Agency

“We look like actors searching for the play” synthesised the perception about the spatial planning of the city, in general, and in relation to flood risk, in particular, of one of the members of the university advisory team to the municipality at the beginning of the new administration in 2007 (Interview with professor of UNLFICH, 12/10/2017, my translation). The feeling of a lack of a guiding plan, or the persistence of outdated ones, gave the impression of constantly falling behind the pace of the city. In this context, a new urban plan was designed and later regulated, trying to incorporate the new DRM approach to the spatial planning and urban design normative. In order to better understand this, this section turns to the Department of Urban Planning and the Habitat Agency.

The Department of Urban Planning, with its more strategizing role, has not been part of the preparedness for response or contingency planning process, except for Transport, a small area within the department which has recently become known as Urban Mobility. This might partly explain why disaster risk management was not unquestionably nor easily adopted by this area from the very beginning. Consequently, it was the area that most members of the DRM Office pinpointed as the hardest and most difficult to work, especially during the first years. The latter was also acknowledged by some who integrated the Department of Urban Planning themselves during the first years of the new local political coalition.

An overview of the organisational structure of the Department of Urban Planning highlights relevant changes that might help later understand some particularities about the embeddedness of gestión de riesgo in the department. At the beginning of the period under analysis, the Sub-secretariat of Habitat and Housing reported to the Department of Urban Planning. Thus, during the first administration (2007-2011), there was a single area in charge of both urban planning and housing. The creation of the Habitat Agency in the second administration (2011-2015) implied that urban planning would be disentangled from housing, not only functionally but also
organisationally. Furthermore, at the turn of the third administration (2015-2019), Cadastre was moved to the Treasury Department. Hence, at the time of fieldwork, urban planning as an organisational unit was stripped of its housing and taxation prerogatives (see Figure 7.9).

Figure 7.9: Organisational structure of Department of Urban Planning (November 2017)

The main authorities of the department during the first two administrations defined themselves, and were also defined by others, as ‘planners’. Instead, those who were appointed during the third administration were mainly seen as ‘architects’, ‘urban designers’ and, above all, ‘project implementers’.\footnote{The creation of the Sub-secretariat of Urban Design at the turn of the third administration exemplifies the emphasis on project design and implementation (see Figure 7.9).} Despite the apparent critique from the first to the second ones\footnote{It is important to acknowledge that the group of ‘planners’ identified themselves with a strand of the political coalition (Socialists) that was different from the political affiliation of the ‘project implementers’ of the third administration (Radicals). Therefore, some of the comments of interviewees might be influenced by this context and should be considered carefully.}, there seems to be a rationale underpinning the sequence: the principal responsibility of the Department of Urban Planning during the first years was to conceive and design a new urban plan and related regulatory framework for the city, while those in the third administration have focused mainly...
on the implementation of projects to execute that urban plan, encouraged by the ready availability of funding from the national government since December 2015. However, the main remark to this second generation of ‘implementers’ was that they were seemingly losing the holistic vision of the city originally portrayed in that plan. This was emphasised by many in academia, including those same planners of the first administrations. As a former member of the Department of Urban Planning and later employee of the city council expressed:

“(…) the richness of that Planning Department that started with Barletta was that it had a group that never stopped thinking [conceptualising] the city. (...) And constantly, the only thing they did… They were not in contact with the citizen, with the everyday. They were always thinking the city. And that group was totally disarticulated; it was removed. So, they were always the axis, the guide…” (Interview with representative of City Council, 08/11/2017, my translation and emphasis).

The emphasis on the ‘thinking’ of the city relates to the mandate of the department during the first years, that is, the design of a new urban plan and its corresponding regulatory framework. That thinking is linked to the envisioning exercise of the emergence phase, though now expanded to materialise in two instruments, a political one and a technical one (see quote below). Furthermore, the ‘constantly thinking’ might also be related to the fact that many in this group were coming directly from academia and were for the very first time experiencing the life of the municipal public administration.

The pioneering role of the city in urban planning and urbanism of the 1920s, briefly described in Part IV, would contrast with a situation where much of the spatial and building normative was outdated when the new administration took office. By 2007, most of the urban planning regulations dated back to the 1970s185, similar to the provincial Civil Defence law of 1977 that the new municipal ordinance came to ‘replace’. Reflecting on the resulting urban plan (Gobierno de la Ciudad de Santa Fe, 2017). These included the building code of 1976, the urbanisations and subdivisions code of 1978 and the land use code of 1986. All this normative compendium, including multiple amendments and exemptions to these norms, were replaced by a single instrument with the approval of the Reglamento de Ordenamiento Urbano (ROU) in 2010. Similarly, the last master plan approved by law dated back to 1980, and it had never been derogated despite the subsequent urban plans of 2002, 2007 and 2009.
2009a) and urban planning regulation (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2010), a research participant made the following distinction:

“In reality, this [Urban Plan 2009] would be what defines the paradigm change in terms of urban planning and development. The urban plan is a political instrument. Political, which defines general strategies by virtue of the identification of areas, zones, diverse districts that have particular characteristics. And the ROU [Urban Planning Regulation 2010] is a technical, regulatory instrument that what it does is... What it does is to translate that paradigm into measurable things...” (Interview with representative of Habitat Agency, 24/08/2017, my translation).

According to one of the designers of the Urban Plan 2009, this paradigm change in urban planning and development entailed, for example, that this was one of the first plans to conceptually consider the entire municipal jurisdiction, including the 70% area covered by swamps, marshes, wetlands and islands. This could be appreciated in the official cartographic representation of the municipal jurisdiction which, traditionally, only considered the urbanised area. The translation of this conceptual change into the new regulatory framework (ROU) allocated this area a special land-use label and characterisation, namely, ‘distrito especial de islas’. In practice, however, this was never implemented, at least until the fieldwork was conducted in 2017 (Interview with UNL-FADU professor and former consultant to the Department of Urban Planning, 23/10/2017).

In addition to the new land use, the ROU incorporated other normative considerations that recognise the particular geographic conditions of the city and the need to plan according to them. FIS (soil impermeability factor), FOS (soil occupation factor) and FOT (total occupation factor) were combined to define the criteria new private housing constructions should respect in order to guarantee the permeability of the terrain or natural absorption capacity. Later, these criteria were complemented with rainwater retard devices, a new instrument to compensate for those private constructions that cannot comply with the minimum permeability

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186 The ‘special district of islands’ replaced what was previously considered as ‘rural area’, acknowledging the distinctive characteristics of the geography of the city (Interview with UNL-FADU professor and former consultant to the Department of Urban Planning, 23/10/2017).

187 There is a permanent multi-actor commission for the ROU in charge of updating and making modifications to this legal instrument.
requirements (Interview with representatives of Department of Urban Planning, 11/10/2017 and 16/11/2017). Rainwater retard devices generated a broad debate about their implementation, including whether they should be also or rather applied to public buildings and spaces and how their impact could be assessed (Interview with city councillor, 14/11/2017).

The above are just among the most mentioned normative instruments by research participants in regard to flood risk management in spatial planning, but are not representative of a comprehensive list of all building and spatial planning regulations intended to contribute to DRM in the city. The regulatory dimension of urban planning is also a reminder of the role of the city council in updating and amending the relevant urban normative, and in particular of the Commission of Urban Planning, Habitat, Public Works and Disaster Risk Management. Created in 2007, this has been the commission that most legislative projects presented in relation to flood risk management. Specifically, the most relevant projects have been presented by one city councillor from the FPCyS, many of which would be passed as municipal ordinances.

The ‘thinking’ work of the Department of Urban Planning and its counterpart commission in the city council, pertain to the more conceptual component of DRM: ideas or ways of thinking that materialised in a political instrument, the new urban plan, and a regulatory corpus, the ROU. How has the DRM Office tried to influence the mandate of the Department of Urban Planning at the ‘conceptual’ or ‘ideational’ level?

During the first years, there were some attempts by the DRM Office to create spaces for discussing the incorporation of gestión de riesgo into spatial planning more strategically. These covered, for instance, the multiple inter-sectoral and multi-actor meetings to deliberate about the incorporation of disaster risk management in the new urban plan (Gobierno de la Ciudad de Santa Fe, 2009a). It also included the creation of an inter-sectoral commission for land-use zoning in flood-prone areas in the city. DRM was considered in the Urban Plan of 2009, but not with the prominence some of its main advocates would have wanted (Interview with
representative of the Department of Communications, 30/10/2017). Regarding the inter-sectoral commission, formed by representatives of the DRM Office, Urban Planning and Water Resources, after a thorough technical assessment and report, it did not prosper (Informal conversation with representative of Urban Planning Department, 17/10/2017).

Some of the qualificatives used by members of the urban planning department to describe the attitude of some in the DRM Office in those spaces and more informal meetings included ‘despot’. These adjectives depict an extreme and intransigent position, and one with which it was very difficult to negotiate in order to reach consensuses. Importantly, they account for a confrontation at the level of ‘ideas’. In other words, the conceptual component of gestión de riesgo might be also vividly captured in the representations made by employees of some sectoral areas about some members of the DRM Office.

The contestation of ideas was related to the overarching criteria to guide the urban expansion and growth of the city. Furthermore, this tension was reproduced at two levels. On the one hand, the ‘existing city’; that is, the consolidated and de facto city. On the other hand, the ‘new city’; that is, the generation of safe urban land in the context of a scarce resource. Two examples illustrate each situation and the positions of the DRM Office vis-à-vis the Department of Urban Planning (see Box 7.1).
Interestingly, those ‘critical’ descriptors about members of the DRM Office only emerged during interviews with experts who integrated the urban planning department. Thinking about the reasons that might explain this situation, the relative lack of involvement of the Department of Urban Planning in contingency planning, both in the design and implementation of the plan, might offer a partial answer. Furthermore, this was even suggested by some in the DRM Office.
In contrast to managerial bureaus, only a small part (in terms of headcount and budget) of the department has been directly involved in preparedness for response and response (e.g. Transport). Furthermore, the participation of the department has only taken place at later stages of protocol activation (or during high-alert levels), which implied that they have not had regular contact with the impacts of more frequent events. This might also explain their main concern with fluvial flooding rather than heavy rains. Finally, the transfer of areas such as housing to other departments, has implied less contact with the impacts of hydro-meteorological events, specifically, and with the materiality of the city, more generally. Consequently, temporary evacuation and permanent relocation have been in the hands of areas such as Social Development and Habitat Agency. All these were synthesised by a former member of the department:

“We entered in the second phase of the protocol, which was the part of Transport, when you have evacuations... Then, the transport companies were all attentive, on the subject... Also, at that time, Habitat and Housing was a sub-secretariat of ours. Then, it became independent. But until the end of Barletta’s administration, at the end of 2011, it was a sub-secretariat of ours. So, it also had to do with that, Transport and Housing. Then, relocation of families, meeting points to take them elsewhere...”

(Interview with former representative of Department of Urban Planning, 03/10/2017, my translation).

In this context, the relation of the DRM Office with the Department of Urban Planning has not been mediated so much by ‘formalised’ and ‘standardised’ procedures but persuasion and reminding. Thus, the ‘reminder’ role of the DRM Office in its relationship with the Department of Urban Planning, both before and after events, differed from the more direct control it has had over managerial bureaus during the phases of preparedness for response and response. Therefore, to be forceful or even a despot might have been considered necessary characteristics for those leading a DRM Office that did not have its ‘reminder’ role backed up by a mandate with authority.

On the one hand, to rely on informal relations of persuasion and reminding is something not everyone is able to achieve and maintain in the long run. On the other hand, the reminder role of the DMR Office appeared not to be sufficient to fully
embed the new DRM approach within the Department of Urban Planning. Perhaps it has been here, in the realm of the Department of Urban Planning, where the close connection between embeddedness and practice has been portrayed more vividly.

7.3.3 Discussion – Embeddedness II

To fully capture the meaning of ‘embeddedness’, it might be useful to consider a flood-related metaphor suggested by a member of the DRM Office:

“It seems to me that this is where other governments do not do so well, because they have areas of civil protection or civil defence, but they do not manage to put the issue at the heart of the administration, and then they cannot get into it transversally because not everything is soaked with that... Worth the expression of 'being soaked'...” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

To be soaked or ‘empapado’ literally means to be fully covered by water; that is, to be immersed and submerged. Paradoxically, the same material and sensorial effect produced by floods can help to describe the more intangible and abstract effect of embedding a new concept and approach to deal with that issue. In this section, the ‘empapadness’ of DRM in specific areas of the municipal government has been analysed at two organisational levels: managerial or operational areas, on the one hand, and the department of urban planning and Habitat Agency, on the other hand. The distinction has been made on the basis of the differential nature of the mandate of these areas and the everyday work that they undertake.\(^{388}\)

The transition from preparedness for response to the reduction of flood risk has been more evident across managerial bureaus, including the Department of Water Resources, the Department of Public Works and the Executive Programme for Integrated Solid Waste Management. These departments were the ones with more functions and responsibilities allocated in the manual of procedures and internal action protocols, which means that they were involved with disaster risk management from the very beginning. More importantly, the process of developing

\(^{388}\) Noteworthy, this research has not extensively covered the more routine work of the Department of Urban Planning which pertains to the approval of permissions for construction, changes in land uses, and so forth.

240
those procedures and their regular implementation at the time of rains and/or river overflows, further imbedded gestión de riesgo into their everyday work. In other words, the ongoing exercise of developing and updating their internal procedures, has been reinforced by the trial-and-error process of regularly implementing them, which is something related to the extensive nature of urban flood risk. The frequency of urban flooding, triggered by periodic heavy rains and seasonal river flooding, has allowed for the possibility of periodic testing of standardised operating procedures.

Anguelovski and Carmin (2011) acknowledge the importance of embedding new policy issues such as climate change adaptation into standard operating procedures, as “integration with routines and standard operating procedures provides a basis for many cities to advance this agenda” (Anguelovski and Carmin, 2011, p.172). In the case of Santa Fe, originally, these operating procedures were not linked to the routines or mandate of the three managerial departments. Instead, they were specifically thought to organise their response to triggering events. However, the modification of their specific core work in order to reduce and manage flood risk in the everyday was facilitated by the process of designing, regularly implementing and in turn updating those internal action protocols. In this regard, the extensive nature of urban flood risk (vis-à-vis intensive disaster risk) might have played an important role in embedding DRM in the everyday work of municipal operational offices.

Therefore, the three managerial departments started thinking about how to be better prepared not just in the alert of an event, but also in the long run through sectoral planning. The Department of Water Resources updated and started implementing the urban drainage master plan, mainly through securing the necessary funding and complying with the agreed timeframes for the execution of works. The Department of Public Works delineated and implemented a pavement plan by priority areas to guarantee access to schools and hospitals in the event of heavy rains. The Solid Waste Management Programme identified critical points in the city in the event of heavy rains and made sure to keep those areas clean throughout the year. In addition to standard operating procedures, a few other elements allowed these areas to go through this transition from contingency to sectoral planning, which related more to the operational nature of their work: the revalorisation of municipal street-worker
force and the ownership of machinery and specialised workers who know how to operate it.

All in all, the embeddedness of gestión de riesgo in managerial bureaus has entailed a transition from contingency planning to sectoral planning in water resources management, public works and solid waste management. This planning was linked, first, to the division and definition of operative tasks between the three managerial departments. However, eventually, it translated in changes in their broader ‘ways of working’ and ‘ways of doing’ in the everyday. The latter was a constant iteration across interviews with participants from these areas, which denotes the practice-based component of DRM. Last but not least, these bureaus deal with the daily running of the city. Thus, their specific practices are mainly linked to the material reality of the city and the operation and maintenance of urban infrastructure. Crews of street-worker bureaucrats and the operation of heavy machinery have been at the front of this hands-on experience in the daily running of the city.

In this transition, the DRM Office has mainly exercised its ‘formal’ mandate. That is, to steer the delineation of actions for preparedness for response by these operative departments and to coordinate their response at any time when there has been an activation of protocol. Beyond this specific role, the ‘reminder’ and subtler role of the DRM Office has also been central, although this seemed to have been more prominent with the Department of Urban Planning. In the case of Urban Planning, the embeddedness of DRM in the everyday practices of the department has been less clear, perhaps as the involvement of the area in contingency planning was not so central and its linkages to the materiality of the city were progressively reduced through the organisational restructuring of the department.

In general, the everyday work of the Department of Urban Planning seemed to have been more related to the conceptual (political and normative) side of disaster risk management. The focus on the concept component of DRM was initially linked to the envisioning of the city in the urban development plan, where the department played a leading role (Gobierno de la Ciudad de Santa Fe, 2008). While this had been part of the emergence phase, it would be continued in the elaboration of the
urban plan which extended for almost two years (Gobierno de la Ciudad de Santa Fe, 2009a) and its related regulatory framework (Honorable Concejo Municipal de la Ciudad de Santa Fe, 2010). The design of all these instruments provided an opportunity for the embedding of gestión de riesgo but at the conceptual or symbolic level, somehow related to the ‘thinking’ role of that first generation of ‘planners’ which led the department and who were mostly coming from academia.

In this ‘thinking’ of the city, the main challenge for embedding gestión de riesgo in spatial planning has been the level of consolidation of the city, which many respondents referred to as ‘de facto situations’. Hence, it would not be planning from scratch or in a white sheet. This was emphasised by many from the department, both former and incumbent representatives, and it has been at the centre of the discussions with the DRM Office. Dealing with de facto situations and a built-up city has not been an exclusive challenge for the Department of Urban Planning though; managerial bureaus have had to face a similar issue. The ROU (and its subsequent approved modifications and exceptions) provided the technical instrument throughout which the department has been able to embed disaster risk management in spatial planning and urban design. Land-use changes, permeability requirements for the built-up area and rainwater retarders are just a few examples of normative devices incorporated by the new regulatory framework to manage flood risk in a consolidated city. These regulations, some of which might lie behind implementation or enforcement, or which results might not be fully appreciated in the short-run, have had a symbolic meaning and marked a transition in ‘ways of thinking’.

The transferring of Habitat and Housing, first, and Cadastre, afterwards, to other departments meant that the more tangible and material aspects of building and spatial planning were taken away from the department. A further implication of this was that Urban Planning did not have much involvement in the contingency planning process nor hands-on experience in the implementation of internal action protocols (response-related practices), except for the area of transport. This might have limited their awareness of the regular impacts of frequent hydro-meteorological events and their associated costs for the municipality. In this regard, making the link between spatial planning and reducing/managing flood risk in the everyday work of the
department might have been harder to conceive. This situation has been somehow reverted during the third administration, when the department started ‘implementing’ projects itself and considering the reduction and management of flood risk in the design and construction of public buildings and spaces. It has been through these material icons (municipal nurseries, Museum of the Constitution, rainwater retard devices in parks and boulevards) that the embeddedness of DRM in the material practices of the department appeared more clearly.

To conclude, the envisioning of the city in the new urban development plan and its continuation through the plan-making exercise of the urban plan of 2009, were both led by the Department of Urban Planning. The normative framework, synthesised in the ROU, had to be also approved by the City Council. A permanent multi-actor commission for revising the ROU was created, although its role has been far from meaningful. Indeed, most of the amendments to the ROU resulted from exceptions, prompted by the Department of Urban Planning and later approved by the City Council, rather than from a holistic approximation to the regulatory instrument.
Chapter 8  Sustained change: between a culture of prevention and innovation

“A reflection that can be drawn from the implementation of local risk management in the city of Santa Fe is that it is not a linear path that is proposed and, because it is agreed, it is set in motion uniformly. It is rather a sinuous and intricate road but, still, of progress towards the construction of a safer and more sustainable community. (...) risk management is a process that should never be considered finished; on the contrary, it consists of a permanent transformation that always finds pending goals or new challenges” (Aguirre Madariaga, 2015b, p.89, my translation).

8.1 Introduction

The analysis here moves to the third phase of institutionalisation, which is the ever-present openness to change and ongoing adjustment within municipalities, although always under the umbrella of the same overarching policy paradigm – once the paradigm changes, a new institutionalisation process begins. Embeddedness emphasised how gestión de riesgo has been sustained after the novelty of the concept has passed, through the ingraining of the new paradigm in the everyday practices of various sectoral bureaus. Sustained change focuses on the required (conceptual and practical) adaptations to that policy paradigm in order to keep it meaningful (‘ways of thinking’) and operative (‘ways of doing’) in the context of changing environmental, economic, social and political conditions. This might even encompass the realisation that the policy paradigm itself is not valid any longer, with the consequent shift of paradigm.

The notion of sustained change is permeated by the dialectical productive tension between culture, which is usually associated with permanence and stability, and innovation, which mainly refers to change. Culture denotes that gestión de riesgo as a policy paradigm is so embedded within the municipal organisation that it has become part of its organisational culture. While the municipal government of Santa Fe has mostly advocated for a ‘cultura de la prevención’\(^\text{189}\) in relation to the Santafesinos, it can be argued that a similar ‘culturisation’ process has taken place within the municipal government itself. In the organisational context of the municipality, a culture of prevention has meant sustaining disaster risk management as a policy that, while ongoing and never-ending, has to keep constantly open to

\(^\text{189}\) In English, culture of prevention

245
change. This openness to change links to the second element of the dialectic: innovation.

Innovation entails understanding and doing things differently, which is important for the notion of change that characterises this phase. Change might simply entail going back to a previous state; that is, a change of state without necessarily incorporating something new. Conversely, innovation is underpinned by the idea of change but with the incorporation of new ways of thinking and doing. In the following pages, it is argued that this could be triggered either by learning or experimentation, which have been steered by different departments within the municipal government.

The section begins with the work of the Departments of Culture and Education in building a culture of prevention (Section 8.2), to then address the two drivers of innovation. Section 8.3 focuses on learning from past experience, or self-reflection, through periodic self-assessment exercises in the municipality about the DRM process. This is followed by Section 8.4 which explores the linking work of what I describe here as ‘satellite offices’ and their potential for experimentation in the DRM field. Succinctly, sustained change is framed as a dialectical process in which innovation, through learning and experimentation, combines with the nurturing of a ‘culture of prevention’. As the introductory quote states, disaster risk management should be considered as a ‘permanent transformation’; that is, a permanent rationale for managing and reducing flood risk, although the pathways for achieving this might be diverse or even change over time.

Looked through the analytical lenses, the salient elements of the sustained change phase resemble those of the emergence phase. However, the main difference relies on the nature of the policy paradigm: emergence refers to a new policy paradigm, while sustained change addresses an existing one which adapts. Hence, sustained change is more about validating an established policy that, as taken for granted, might run the risk to be forgotten or become too rigid and averse to change. Gestión de riesgo has been established, but it might be necessary to keep it alive and to make the necessary modifications to keep it up-to-date to the changing conditions of disaster risk factors.
Sustained change, as the dialectic between culture and innovation, mainly evolves at the conceptual level. Indeed, the understanding of disaster risk management as an everyday concept depicts the idea that it has become part of the organisational culture. It is precisely at that very same level from where change needs to be introduced for adapting and keeping the policy in tune with a changing reality. This phase, then, is mainly connected to the policy sphere, as it entails an enduring policy paradigm that transcends political cycles. Bearing in mind that the policy is cross-cutting, the phase is steered by those areas that have a transversal role within (e.g. satellite offices) but also outside (e.g. Departments of Education and Culture) the municipal government. All in all, sustained change represents a continuous reminder that disaster risk management is ongoing and never-ending and that it requires the work of everyone.

8.2 Departments of Culture and Education: building a culture of prevention

Multiple references to the notion of ‘culture’ were made by research participants from the municipal government during interviews. Even more, in many cases, they were linked to another iterated idea: ‘estar instalado’ (that is, to be installed):

"I think that this is the main achievement in these years that (...) it [risk management] is very installed and I believe that the cultural battle is won. (...) The discourse was assumed by all; from the cultural point of view it is a battle... The achievement is... You changed the paradigm” (Interview with representative of Cooperation Agency, 24/05/2017, my translation).

And someone from the city council confirmed:

“Yes, it [risk management] has improved tremendously. But it has to be something on what you always have to keep working and nurturing; the topic has to be always installed” (Interview with representative of City Council, 08/11/2017, my translation).

Referring to disaster risk management as something that ‘is installed’ in the municipal government and policy agenda implies that it is ingrained and rooted in the culture of the organisation. While ingrained and rooted, though, it is something
‘you always have to keep working and nurturing’. The government aimed at echoing a similar rationale across the Santafesinos by building a ‘culture of prevention’.

“On the subject of risk management, precisely, having managed to install the issue throughout society... Raising awareness among all social actors of the most diverse and that everyone has a role to fulfil. (...) I also believe that it is a 'cultural victory', if you want to call it” (Interview with representative of Cooperation Agency, 24/05/2017, my translation).

The Department of Culture and the Department of Education played a key role in winning that ‘cultural victory’. With a subtler but nonetheless central role in the institutionalisation of disaster risk management, they have worked closely with the DRM Office. This has happened despite the fact that neither culture nor education were assigned a role in preparedness for response or contingency planning (that is, in the manuals of procedures). However, these two areas were key in steering the incorporation of gestión de riesgo in formal primary and secondary education as well as more subtly in the nurturing of a ‘culture of prevention’.

Culture has had a prominent role and the highest rank in the organisational structure of the Executive from the beginning of the new FPCyS administration, which emphasises the relevance that the local government has attributed to this dimension. Furthermore, in relation to disaster risk management, members of the DRM Office acknowledged it was one of the areas they had worked with the most and to which it was easier to relate. They shared a common language and level of understanding, which facilitated the reaching of agreements (Interview with representative of DRM Office, 06/04/2016). Although no interviews were conducted with members of this department, former and incumbent representatives from the DRM Office referred positively to the work of, and with, this area.

One of the most relevant initiatives of the Department of Culture has been the Classroom-City project, intended to familiarise students with relevant issues and topics in their city. Several guides for teachers have been developed since the project

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190 The idea of ‘cultura de la prevención’ can be traced back to the UNL-FICH extension project, where a group of scholars, including the incumbent Director of the Department of Communications, emphasised the need for raising awareness among residents that floods were possible in the city independently of the existence of structural measures (Wolansky et al., 2003). This idea was then taken forward in the communication materials produced by the Department of Communications.
started running, each of them focusing on a particular topic, urban flood risk being one of them (see Box 8.1). The classroom-city reproduces the concept-practice dialectic, by linking the ideas discussed in the classroom with exemplary itineraries across the urban area (Gobierno de la Ciudad de Santa Fe, 2019). Thus, building a culture of prevention has been intertwined with building narratives and itineraries about water and the rivers contouring the city.

Education was part of the Department of Social Development during the first administration under analysis (2007-2011), but it was then higher up to the level of ‘secretaría’\textsuperscript{191}. Like culture, the relevance of education has always been highlighted by the municipal government, and its relation to flood risk can be considered from at least two interrelated perspectives: how flooding can affect education and how education can help to prevent floods. Regarding the first point, it was highlighted in previous sections how the municipal government has been trying to secure the continuity of classes in the event of flooding\textsuperscript{192} by a series of measures, which spanned from avoiding the use of education centres for shelter purposes to securing safe access to nurseries and schools in neighbourhoods which are exposed to flood risk.

In regard to the ‘preventive’ role of education, it is important to emphasise that education, including curricula development and training of school teachers, is a prerogative of the Ministry of Education at provincial government level\textsuperscript{193}. Hence, the room for manoeuvre of the municipal government to advance changes in this area is relatively small. Nevertheless, the Department of Education together with the DRM Office have been able to find ‘intervention niches’ for embedding disaster risk management in primary and secondary school education (see Box 8.1). The most

\textsuperscript{191} The change reflected the relevance of a new municipal nursery system, under the scope of this department.
\textsuperscript{192} Loss of school days (similarly to loss of working days) is among the indirect (usually non-costed) negative impacts of floods. The design and implementation of measures to counteract this impact reflect the acknowledgement of the municipal government of the high cost that this represents.
\textsuperscript{193} This applies to the following levels: kindergarten (4-5 years old), primary school (6-11) and secondary school (12-17). Early-childhood education (0-3) is under municipal jurisdiction, while higher education falls within the realm of the national government.
popular of these initiatives, La Ruta del Agua\textsuperscript{194}, has had a dedicated budget and personnel within the DRM Office.

**Box 8.1: DRM in primary and secondary education in the city of Santa Fe**

*The water route: linking flood risk management and solid waste management*

The classroom-city initiative, developed by the Department of Culture, aims at connecting what students learn at school with their experience of the city. Several proposals were developed, including: The city and the river (2009), which introduces DRM and its related structural measures; Living with the river (2013), a historical overview of the growth and expansion of the city; and Green city (2013), which focuses on solid waste management and recycling. The initiatives suggest guided tours such as the water route and a visit to the environmental complex. These city journeys were originally performed independently from each other, but the DRM Office came up with a proposal for merging them. This simple exercise of cross-cutting thinking was relevant for a few reasons: 1) it broadened the exclusive focus on fluvial to pluvial flood risk; 2) it replicated what different operational departments were doing on an everyday basis in a narrative and itinerary for schools. Since its launch in 2008, the delivery of the water route has been led by the DRM Office and supported by the Department of Culture and, more recently, the Department of Education. Between 2011-2017, it covered 87 schools and 3,414 students.

*NIC Climate change: pushing for a mandatory DRM component in school curricula*

Recognising the limited scope of the water route activity, in terms of available resources for delivery and its voluntary character, the DRM Office and the Department of Education presented a proposal to the Provincial Ministry of Education to include the topic in the official curricula of schools. They found an alternative via the núcleos interdisciplinarios de contenidos (inter-disciplinary content modules, NICs). Each module is organised around a specific topic (e.g. climate change), which is addressed from a range of subject areas (e.g. chemistry, geography, maths). Since the climate change module already existed, the two municipal departments suggested an extended version to specifically incorporate the issue of flood risk and disaster risk management based on the experience of the city of Santa Fe. This amendment was presented at the beginning of 2017 and, by the time the fieldwork was concluded, was still pending approval.

*DRM training for school teachers*

Not only the inclusion of DRM in school curricula, but also the training of those in charge of content delivery were thought to be important. Thus, a series of training sessions for school teachers was organised jointly by the municipal government and the UNL. However, attendance was voluntary as training hours were not recognised (neither paid) by the provincial Ministry of Education. Thus, not many incentives were provided for school teachers to participate except for their own interest to learn.

\textsuperscript{194} In English, the water route
Intervention niches depict the preventive role that education could have in DRM and portray the school as the space for socialising those topics which are at the top of the municipal government agenda. ‘Socialising’ and ‘socialisation’ were repeated several times during an interview with a member of the Department of Education, mainly as synonymous of embeddedness but across residents. That is, ‘socialisation’ as the process throughout which something is shared among the community to eventually become part of it (Interview with representative of Department of Education, 12/06/2017). That was the underpinning rationale of the ‘cultura de la prevención’: to make ‘prevention’ (e.g. the reduction and management of flood risk) part of the everyday life of Santafesinos.

This section has focused on the ‘sustained’ element of the phase, that is, how to ensure that gestión de riesgo is ever-present, permanent and on-going. The notion of ‘culture’, mainly used by the local government to refer to the rooting of the approach among residents, has been also suggested here for the ingraining of the concept within the government. The following sections centre on the possibility of change in relation to the concept and practice of gestión de riesgo. Framed in terms of innovation, it explores the spaces within the government that have facilitated learning from past experience and experimentation. Those spaces might even open the possibility of challenging the disaster risk management approach, and in so doing (and if successful) to initiate a new institutionalisation process. The ‘cultural battle’ might have been won by gestión de riesgo, but the victory might not last forever.

8.3  **Self-assessing the DRM process: self-reflection for ongoing learning**

Central to any idea of change is the capacity for self-reflection and learning from past experience. This has been something internally designed by the DRM Office, as a requirement to be carried out by every area involved in the preparedness for response, after the deactivation of an alert triggered by a hydro-meteorological event. Although not always performed, especially for minor and frequent events, the fact that it was formally stipulated in standard procedures exhibits the preoccupation for ongoing improvement (Gobierno de la Ciudad de Santa Fe, 2012a, 2013a).
A second formal space for self-reflection has been provided by the UNDRR *Making Cities Resilient* campaign, of which the municipal government of Santa Fe is part since 2010, via their self-assessment report exercises. The city government completed the report for the first cycle in 2013\(^{195}\) and repeated the exercise while the researcher was conducting her field study in 2017. In this second opportunity, the self-assessment exercise formed part of a UNDRR pilot project to test a specific tool, the Scorecard (UNDRR, 2019b). The main objective was to self-assess the overall performance of the local government in relation to DRM through an inter-departmental workshop that the researcher facilitated herself. The overall results of the workshop are summarised in Figure 8.1.

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\(^{195}\) This was conducted using the local government self-assessment tool (LG-SAT) for the first cycle 2011-2013 of the UNDRR *Making Cities Resilient* campaign (Gobierno de la Ciudad de Santa Fe, 2013c, 2013d).
The Scorecard tool has been designed based on the Ten Essentials of the UNDRR *Making Cities Resilient* campaign (UNDRR, 2019g). Highlighted in green are those areas where, according to the eight participants of the workshop, the municipal government was doing better. There were two dimensions where the local government stood out, namely: organising for DRM (Essential 1) and ensuring effective disaster response (Essential 9). The areas where the government had to work more are those circled in red. In this regard, knowing about disaster risk (Essential 2), strengthening financial capacity for disaster resilience (Essential 3) and reconstruction (Essential 10) were pointed out.

Regarding areas of improvement, some lines of work were suggested by workshop participants. As for Essential 2, it would be important to move from real time monitoring for early warning and the exclusive focus on hazards to risk analysis and evaluation (including disaster risk maps, current and future risk scenarios and vulnerability analysis). In relation to financial resources, participants underscored the need for more creative mechanisms to finance both disaster risk reduction (e.g. incentives for the private sector and home owners) as well as response and recovery (e.g. emergency fund and insurance). Finally, regarding the last stage of the DRM cycle, participants recognised the need of planning (ex-ante) for recovery and reconstruction rather than ex-post design of the reconstruction process.

The Scorecard provided a photo at a certain moment in time. Yet, it might be also possible to synthesise the discussion during the focus group (and the overall results of the Scorecard) in a temporal manner by adapting the graph used in Figure 7.5.
The Roman numbers in Figure 8.2 indicate the chronology of prioritised actions which, simultaneously, appears to coincide with the level of progress across each of the stages of the DRM cycle, the latter being represented by a simple traffic-light coding. The traffic-light colours could also work as an indicator of those dimensions that were dedicated more attention and resources. As the graph shows, one of the first steps of the new municipal DRM system was the organisation of the response, also known as preparedness for response. This can explain that ‘response’ was one of the most advanced dimensions and hence coloured in green. However, as explained in the previous sections, the process of organising the response itself, helped embedding DRM across the sectoral work of different areas beyond just mere response. This is represented by the yellow circle under ‘measures to reduce risk’. The yellow colour, meaning a medium level of progress, results from the level of advancement in the various items covered under this category: preparedness for response (green), hazard reduction and avoidance (green), vulnerability reduction (yellow) and preparedness for recovery (red). Risk assessment and recovery were
pending tasks for the municipal DRM system of Santa Fe. Whereas colours and Roman numbers mirror the personal perception of the researcher after an almost-one-year fieldwork, they also reflect the opinions of participants during the Scorecard focus group that she facilitated.

Both sectoral evaluation after events and UNDRR self-assessment exercises represent formalised instances for self-reflection. However, there have also existed less formalised spaces to self-reflect and learn from past experience within and across the municipal government, including the elaboration of publications and presentations, cabinet meetings and more informal exchanges between heads of departments outside the sphere of the municipality. Finally, self-reflection refers to a specific type of learning, which is learning from experience or experiential learning: “And we have a huge knowledge of having lived the experience” (Interview with representative from Department of Communications, 22/04/2016, my translation).

8.4 Satellite offices: linking departments and paradigms for experimentation in managing flood risk

Some bureaus of the municipal government, which are defined here as ‘satellite’ offices, play a central role in the possibilities of experimentation within the organisation, in general, and in relation to disaster risk management, in particular. Conceived as satellites because of their location (peripheral) and function (orbiting around others), they oversee the work of core municipal departments, although not as a formal prerogative. They are simply orbiting around them to inform about their headlines (Department of Communications), to apply for international funding and awards for their main projects (Cooperation Agency), to strategically define priorities for action in the long-term (Resilience Office) or to ensure their programmes and projects do not create new or increase existing disaster risks (DRM Office). Furthermore, their satellite location in the municipal government constellation places them in a unique position for thinking, especially as they do not have to rush behind the daily management of the city. In one way or another, they are conceived as ‘sui generis’ offices (Interview with representative of Cooperation Agency, 24/05/2017).
Because of the ‘satellite’ nature of their location and function, satellites (can) perform two types of linking work. In the first place, they (can) link core traditional departments with their own field expertise (see Figure 8.3).

**Figure 8.3: Satellite offices: linking core departments in municipal government of Santa Fe**

In the second place, they (can) link policy paradigms, some of which are cross-cutting themselves (see Figure 8.4). The combination of both linking mechanisms might explain the central role that satellites have not only for addressing individual cross-cutting issues holistically (e.g. flood risk), but also for linking multiple transversal policy paradigms between themselves (e.g. disaster risk management, climate change adaptation and sustainable urban development).
The linking work of satellite offices unfolds, simultaneously, at both levels of departments and policy paradigms. This linking exercise denotes the transversal nature of the work that satellite offices perform themselves, which positions them in a privileged situation to deal with cross-cutting policy issues (including flood risk):

“I have been working on risk communication since 2000. Also, I have a very close intervention with Eduardo [representative of DRM Office], because we both work transversally. Communications work with the other areas. And sometimes, those of us who work transversally, see things that each area alone does not see” (Interview with representative of Department of Communications, 22/04/2016, *my translation*).

In their interaction with other departments, satellites help them ‘verbalising’ their own daily practices – most of the time in a relative unconscious manner, sometimes more consciously as in the case of specific workshops. In so doing, satellites integrate and consolidate information from different departments and about various domains, which allows them to develop a cross-cutting and holistic understanding of the entire municipal administration. The ‘big brother’ metaphor used by someone in
the municipal government to describe the role of the DRM Office is quite exemplary of the orbital monitoring of that bureau, and might help to better understand how some of the most innovative projects during the period under analysis came out from its linking work.

The DRM Office drafted an application for international funding to support the creation of the West Urban Nature Reserve, a multi-dimensional initiative that linked urban flood risk management with climate change mitigation, ecological restoration, conversion of informal waste pickers and generation of new and safe urban land (Interview with representative from DRM Office, 06/04/2016). Similarly, the same office sketched the application to the 100RC initiative, highlighting the linkages between exposure to flood risk, urban poverty and violence (Gobierno de la Ciudad de Santa Fe, 2014a). Both applications were successful and would result in the later allocation of resources and deployment of activities to materialise the proposals. However, beyond their actual implementation, what is relevant here is the origin of the pioneering ideas.

It is important to understand that the potential for experimentation surges from the linking exercise, which might be steered by an individual satellite or the cadence of various satellites orbiting together, but which is not the merit of an exclusive department. In other words, the locus of experimentation does not lie within a single department or within a single policy paradigm, but rather in the linking of departments and paradigms. Therefore, cross-cutting policy issues might further encourage experimentation, as they push for this kind of transversal approximations\textsuperscript{196}.

The steering capacity of satellites for experimentation within the local government can be explained by a few reasons. First, having no managerial or operational responsibilities, satellites can create a safe space for conceptual experimentation, as there is room for failure. That is, the linking work mostly occurs at the conceptual level, as satellite offices rarely actionize policies or implement projects which result

\textsuperscript{196} Whether experimentation allows for addressing cross-cutting issues, or whether crosscutting issues encourage experimentation, is not clear. Thus, no causality is confirmed by this research between experimentation and cross-cutting issues, but an association between the two is simply ventured.
from that linking work on their own. It is through the verbalising of ideas with others, in the collective imagining and brainstorming, that the discursive sphere opens up as a safe space for experimenting. Until then, no material practices are involved. Thus, the linking work of satellites might be interpreted as an incubator of new ideas. Second, having no mandate for monitoring others, the linking work of satellites is mostly based on facilitation and persuasion, as they are not seen as a threat or controller by others. This is quite different, for example, from the ‘policing’ of an Audit Office whose work is also intended to improve the internal functioning of the government. Facilitation and persuasion might encourage more transgressive ways of thinking and a more creative envisioning of alternatives. Finally, the linking exercise only happens from time to time, when there is an opportunity of so doing. Hence, the work of satellites is more connected to the idea of experimentation.

8.5 Discussion – Sustained change

Sustained change can be understood as a hybrid phase, between emergence (and the emphasis on ‘change’) and embeddedness (and the emphasis on ‘sustained’). In terms of the resemblance with the emergence phase, both phases referred to instances of change. However, the moments of change are different. Emergence refers to the very first time an issue (e.g. floods) is problematised and becomes part of the agenda of the local government – and of the whole city, its different organisations and residents themselves – in the form of a new policy paradigm (e.g. disaster risk management). Sustained change, in turn, refers to how the existing policy paradigm to address that particular issue is able to regenerate itself in order to stay attuned to contextual changes, in general, and changes in the conditions of disaster risk, in particular. In addition, the unfolding of both phases in the policy sphere further emphasises the relevance of concepts and their related understandings, and how these are subsumed in a policy paradigm that cuts across the entire organisation.

197 ‘Incubator’ and ‘factory’ of ideas were terms that impregnated the discussions of the resilience strategy in 2017.
198 The Audit Office (Sindicatura, in Spanish) has a formal mandate to supervise what other departments in the municipal government do and to report about it. Some research participants, mainly from managerial bureaus, referred to Sindicatura as ‘the police’.
199 These offices also have their specific mandate. Their orbiting as satellites happens alongside their specific mandate.
Regarding the similarities with the embeddedness phase, sustained change is not so much about embedding a new concept and its related practices, but rather a rationale that assumes that the policy issue (flood risk) is constantly in flux and hence requires a certain flexibility on behalf of the organisation and its members to change accordingly. Once an organisation, its departments and leaders have embraced the novel concept of gestión de riesgo and have managed to embed it into their everyday work (not perfectly nor without difficulties), they should keep sufficiently flexible as to be capable of continually adapting not only their regular practices but also the very same way of understanding the management of flood risk.

There is an additional remark regarding the labelling of this phase as sustained change instead of responsiveness to change, the latter being closer to the emphasis on ‘response’ that has traditionally characterised disaster studies and more recently mentioned in the literature on urban resilience and climate change (Moench, Tyler and Lage, 2011; da Silva, Kernaghan and Luque, 2012). To be responsive or ‘responsiveness’ entails a more reactive approach that, whether there is any change, then you should respond. Sustained change already starts with the premise that change will happen (or, better to say, it is constantly happening) and hence an organisation needs to incorporate that rationale into its way of working. Thinking of disaster risk as constantly in flux, entails the organisation dealing with the management of disaster risk needs to incorporate that logic as well. In short, it has to be permeable to change and, therefore, be able to change itself accordingly.

Sometimes, when a concept and its related practices are so ingrained in an organisation, that is, they have become part of the everyday, that situation might erode the predisposition of that organisation to change. In sociological institutionalism, this has been often associated with the rigidity of organisational culture, especially in large bureaucratic organisations (March and Olsen, 1989). However, later readings of organisational culture have advanced more dynamic and flexible understandings, framed under ideas such as ‘institutionalising innovation’ (Aylett, 2013) and ‘institutional entrepreneurship’ (Greenwood and Suddaby, 2006). Across this literature, organisational culture can also mean a culture that rewards
innovation and risk-taking and that encourages employees to think critically and creatively (Aylett, 2013).

Furthermore, an understanding of the mechanisms that might enable the development of this type of culture has more recently brought network theory to the fore (Greenwood, Suddaby and Hinings, 2002; Greenwood and Suddaby, 2006; Rutland and Aylett, 2008). Ideas such as ‘decentralised innovation’ or ‘decentralised collaborative experimentation’ in urban climate change (Aylett, 2013) echo with those of ‘boundary bridging’ and ‘boundary misalignment’ in organisational studies (Greenwood and Suddaby, 2006). The main arguments underpinning this literature link back to the role of the departments that have steered the sustained change phase in the municipal government of Santa Fe.

The building of a ‘culture of prevention’ in the hands of the departments of culture and education working in concert with the DRM Office and the department of communications has been based, for example, on ‘boundary misalignment’ – not across policy fields but jurisdictional borders\footnote{200 Trespassing or boundary misalignment was also present in the other two phases of institutionalisation. During the emergence phase, it characterised the legal contradictions between the new municipal ordinance that created the municipal DRM system and the provincial civil defence law of 1976. In the embeddedness phase, the maintenance of embankments and flood defences, a provincial prerogative, has been de facto undertaken by the Department of Water Resources.}. Indeed, the municipal government trespassed its normative mandate to take on some of the provincial government responsibilities regarding the incorporation of DRM in school curricula and training of school teachers. This also exemplifies the transgressive spirit underpinning change, even when it was subtle and not loud. In short, in relation to the ‘sustained’ component, ideas from network location theory might be useful to explain changes within culture and education, which, by definition, intend to generate and socialise endure patterns and norms within society.

Innovation, based on linking or bridging, has been steered by the so-called satellite offices. The satellite location seems to accommodate better to the idea of ‘decentralised innovation’ (Aylett, 2013), which somehow contradicts the argument of Greenwood and Suddaby (2006) that those who do the bridging and misalignment usually have a central position in the network. However, they all seem to recognise
that it is the multiplicity of institutional entrepreneurs that fuels innovation, either embodied across various large organisations or across multiple departments from the same bureaucracy (Greenwood and Suddaby, 2006; Aylett, 2013). This section has further emphasised that it is in the linking between departments and policy paradigms where innovation flourishes. Satellite offices do this linking work following different trajectories, and it is the simultaneous steering of these linkages that seems to activate change. Rather than a single institutional entrepreneur, it is the symbiotic cadence of multiple satellite linkages that promotes innovation.

A distinction has been made between the underlying drivers of innovation. In the case of self-reflection, change has been based on learning from past experience. This has been usually carried out by the DRM Office in concert with the feedback from the different departments involved in the municipal DRM system. In the case of satellite offices, their linking work seems to have created spaces for experimentation which tend to be rather forward-looking and creative. In addition to the DRM Office, satellites also encompass the Department of Communications, the Cooperation Agency and the Resilience Office. Noteworthy, self-reflection and experimentation do not happen at all times, but at certain moments that allow for the possibility to innovate.

The emphasis on linking and discursive spaces, rather than individualised areas or people, resonates with the ‘shadow spaces’ that characterise creative and adaptive organisations (Shaw, 1997; Pelling et al., 2008; Gupta et al., 2010). It also somehow contradicts the notion of leadership. During the emergence phase, a special recognition was given to the transgressive role of the ‘loquitos’ for introducing the new policy paradigm. To what extent these ‘loquitos’ are also central to steer those linkages and spaces in the sustained change phase is not very clear. This might relate to the not-so-easy balance between ‘centralised leadership’ and ‘decentralised innovation’ to which Aylett refers (Aylett, 2013, p.1391). Perhaps, this tension can be somehow reconciled by proposing ‘linking leadership’ as a conceptual assemblage.

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201 In English, little crazy ones
One final consideration pertains to the question of what might happen when change is not sustained anymore, that is, when the dynamism cannot be guaranteed any longer. More importantly, perhaps, it might be to think about what could erode the ongoing predisposition to change. The reflection of one of the research participants might provide some hints:

“This government [second administration of Corral] is losing its relevance of the change, which was from 2007 to date... That [former Peronist administrations] was the anarchy, corruption, lack of authority, lack of control and so on. Barletta [mayor] made a very important change; José [Corral] incorporated many things to that… But I believe that there are things that are getting lost. Perhaps for being so long in power, let's say, I do not know…” (Interview with city councillor, 14/11/2017, my translation).
8.6 Conclusion: refining the lenses

Chapters 6-8 have x-rayed disaster risk management through three lenses, two bifocal and one trifocal. Therefore, *gestión de riesgo* has been simultaneously framed in terms of (i) ‘ways of thinking’ (concept) and ‘ways of doing’ (practice), (ii) which are both cross-cutting and specific, and (iii) which unfold across the policy, planning and management spheres. Thus, these chapters have intended to emphasise that, depending on the institutionalisation phase one or another element of the lenses tractions the institutionalisation process further.

These lenses emerged, originally, from the reiteration of concepts used by research participants themselves during interviews and informal conversations, including: ‘*política de Estado*’\(^{202}\), ‘*transversalidad*’\(^{203}\), ‘*gestión*’\(^{204}\), ‘*operatividad*’\(^{205}\), ‘*cultura de la prevención*’\(^{206}\), ‘*instalado*’\(^{207}\), ‘*batalla cultural*’\(^{208}\) and ‘*cambio de paradigma*’\(^{209}\), among others. Furthermore, it has been suggested throughout the analysis that these terms characterised different phases of the institutionalisation process. Whereas participants might not have corresponded these terms with specific phases, they have used them to account for different moments over the period under analysis. The lenses also resulted from the narratives of those who originally conceived the municipal DRM system and who laid down the basis upon which the system was built. Finally, these lenses also helped the researcher filtering her own experience in the field, while trying to make sense of it both for herself and for others.

At the same time, the analysis of the institutionalisation process of disaster risk management through the proposed lenses calls for a refinement of the lenses themselves. In other words, while useful for a thorough analysis, their application raises some further questions, including a critical rethinking of the meaning of those lenses. The realisation that the three lenses are better understood intertwined with one another, rather than in isolation, is perhaps among the most important findings.

\(^{202}\) In English, state policy
\(^{203}\) Cross-cuttingness
\(^{204}\) Management or Executive administration
\(^{205}\) Operativity
\(^{206}\) Culture of prevention
\(^{207}\) Installed
\(^{208}\) Cultural battle
\(^{209}\) Paradigm change
The trifocal policy/planning/management, while building upon the traditional design/implementation policy cycle, transcends it – on its own, but mainly through its relation with the other two bifocal lenses. To start with, **policy** entails a particular issue or aspect becoming relatively independent from the logic and timeframes of political cycles. That is, the issue or aspect remains relevant regardless of the incumbent administration and its political party. Instead, it becomes a matter of state, and therefore the reiterated expression of defining disaster risk management as a *política de Estado*. Policy usually evolves at the level of discourses and ideas, which are aimed at framing an envisioned urban future. Thus, it mainly unfolds at the enunciation or aspirational level. In this regard, **concept**, broadly defined as understandings and ways of thinking, is at the core of the policy component. Noteworthy, while there might be multiple understandings or ways of thinking around a particular issue, policy intends to depict a ‘unified’ vision, that might not necessarily be able to advocate for everyone’s vision. In reviewing and going through the multiple accounts of various research participants from the municipal government, it is quite clear that a similar discourse has been embedded within the organisation and has become part of the **everyday vocabulary** – including the very same concept of *gestión de riesgo*, whose difficulty and complexity were identified as the main challenges during the emergence phase. Considering disaster risk management as a policy is a reminder of the relevance of concepts and their meanings as well as of the processes throughout which they are constructed and socialised (in this case, by the municipal state).

**Planning** translates those discourses, ideas and aspirations into an actionable and operationalised issue. Often an overlooked component in the conventional policy cycle, it involves the division and definition of responsibilities – who does what –, alongside a particular organisational structure with its corresponding headcount and budgetary resources. Internal procedures usually synthesise all these aspects. Importantly, some make a distinction between sectoral and long-range planning, which deems it relevant to understand the dialectics of the specific/cross-cutting lens (Aylett, 2015b).
The **cross-cutting** nature of disaster risk management entails the joint and simultaneous work of all and each department within the municipal government. Defined as such early on by the new government coalition, everyone has to ascribe to the new urban **policy** and assume a role, in order for that policy to achieve its objectives. In other words, the policy cuts across the entire municipal government organisation and slowly starts permeating its organisational culture. Research participants from the municipality iterative referred to *transversalidad* to account for this feature of the municipal DRM policy. Likewise, a similar vocabulary impregnated many policy documents developed during this period. Recently, the elaboration of a (resilience) local action plan\footnote{The final version of the plan was presented in 2019 and therefore is not considered in this research. However, the discussion for its elaboration started in 2017, while the fieldwork was conducted.} for the city has confirmed the need of this cross-cutting work as part of the **long-range planning**.

**Specific** refers to those officially defined and mandated responsibilities that entail action (or inaction) on behalf of sectoral departments and for which individuals working in those areas are accountable. Thus, the specific component of DRM is tightly connected to **sectoral planning**. While the policy (and arguably long-range planning) is cross-cutting, its operationalisation requires a specific type of work by each department. However, it is important to remark that this specific work must be intrinsically connected to what each area regularly does. That is, the specificity relates to the subject-matter of the area, not to the way DRM practices should be considered within that area (e.g. separately or differentiated from its quotidian job). Thus, the notion of **everyday practice** is central to understand what ‘specific’ means for DRM. When referring to certain practices of DRM being specific to certain areas, this is not to say that these practices are distinctive or different from their everyday work, but the opposite. They are specific precisely because they form part of the everydayness of each municipal bureau. In short, embedding disaster risk management into the daily work of sectoral bureaus is about doing the same but differently.

Thinking of the **planning** component of DRM might be useful as to offer an interface between aspirational policy discourses and political commitments, on the one hand, and actual implementation (or, more frequently, lags in implementation or
policy failure), on the other hand. It suggests that certain mechanisms should be in place to advance the not-so-easy task of assigning responsibilities in a cross-cutting field. In the case of Santa Fe, the overarching or long-range plan for DRM would not be defined until quite recently, suggesting that there might be other ways for achieving this. It was the combination of **contingency planning** (the process of defining standardised operating procedures to organise the response) with the actual implementation, ongoing testing and revision of internal action protocols that slowly permeated into the daily functions of sectoral departments. The relevant aspect seems to have been the triggering of a planning process that created a space to start connecting different areas with the DRM Office and between themselves, a concerted work that was then replicated in the actual implementation of the contingency plan. This was a rather side or residual effect, that passed quite unnoticed at the beginning, but that has had important consequences for the embeddedness of **gestión de riesgo** across the municipal government as a whole.

Whereas policy mainly unfolds at the conceptual level, **management** is linked to the material reality or materiality of the city. This is mainly connected to networked technology and infrastructure that, in the specific case of disaster risk management in the city of Santa Fe, have been usually associated with the urban drainage system and flood defence system. Less attention has been paid to the more intangible and complex flows of (hazard) data and the related technology for high-scale resolution at city level, especially in relation to real-time monitoring for early warning. Similarly, the required objects (machinery) and people (street-worker bureaucrats) who are behind the repair and maintenance of those techno-infrastructural systems have been also overlooked (Luque-Ayala, Marvin and Bulkeley, 2018). As someone in the municipality explained, your entire monitoring system can be “screwed” by a small beetle (Interview with representative of DRM Office, 26/04/2017). It is the daily operation and maintenance of those infrastructures and technologies, through machinery and street bureaucrats, that account for the smooth management of the city, in general, and of flood risk management, in particular.\(^\text{211}\)

\(^\text{211}\) The socio-technical nature of networked infrastructure and technology has been recognised early on in the process of the disaster risk management in Santa Fe. Furthermore, it has been the acknowledgement of that socio-technical nature that has further contributed to the understanding of
The emphasis on the mutual co-constituting nature between the elements of each lens might contribute to counteract the apparent schematic separation between the phases. As clarified in the depiction of the analytical framework (Section 3.3.3), the distinction between the phases as well as between the elements of each lens is analytical. In real (municipal government) life, institutionalisation processes are more organic and complex, and the distinction between phases and elements might not be that obvious. That said, the fact that each phase has been analysed using the same lenses provides certain continuity or linking between the phases. Moreover, the dialectic relation between the elements of the lenses further tractions that linking. One or another element of the lens is more salient in one or another phase, but they are all necessary and mutually constituting each other. To sum up, the relations between the elements might contribute to understanding not only the linking between the phases, but also the engine underpinning the institutionalisation process itself.

In the discussion of Chapter 8 (Section 8.5), two instances of change have been identified: emergence and sustained change. However, less attention has been paid to the possibility of introducing change through the everyday and routinised work of individuals in organisations (Feldman, 2000). In the embeddedness phase, the very same routinisation exercise is what allows for the possibility of new approaches to become a reality. Bearing in mind that embeddedness is a process, rather than a static or specific moment in time, might contribute to this understanding.

To conclude, there are a few remarks concerning the lenses. In the first place, the lenses might be informed by different traditions of thought and relate to various disciplines. For example, referring to disaster risk management as a policy (therefore, connected to literature in public policy and administration) might be quite different from considering disaster risk management as a concept (therefore, connected to literature in hermeneutics and discourse). To what extent is it accurate to think of the social production of flood risk. An example covers the more ‘social’ perspective of embankments and flood defences, both in terms of their influence on residents’ perceptions (e.g. the generation of a false sense of security) as well as regarding the impact that human interaction with these infrastructures has on their functioning (e.g. due to vandalism and erosion by people) (Wolansky et al., 2003). A similar argument has justified the location of monitoring stations for hydro-meteorological events, to be placed in areas not reachable by people who could steal or destroy them, or the fencing of pumping stations to avoid vandalism. In other words, infrastructures and technologies would not be able to do the work on their own, because they need to be operated (and mainly maintained by people) and because they interact with people.
DRM simultaneously as a policy and as a discourse? Whereas not necessarily contradictory or exclusive from each other, being aware of the theoretical approximations underpinning each lens might contribute to clarifying their complementarity.

A second issue relates to the dialectic productive tension that characterises the lenses. Cross-cutting/specific and concept/practice exemplify that type of relation. However, this does not seem to be the case of the third lens: policy/planning/management. It is important to consider how to frame the relation between the elements of this trifocal lens and whether this might contradict and/or affect the coherence of the framework and the logic of the analysis.

Chapters 6-8 depicted the institutionalisation process of DRM within the municipal government of Santa Fe. That is, the process that has steered the emergence of disaster risk management, its embeddedness and ongoing adaptation within the organisational realm of the municipality. The next chapter places the institutionalisation of the new DRM policy paradigm in the landscape of the multiple linkages that were woven between the municipal government with local organisations and other local governments throughout the process. In so doing, it further suggests that the institutionalisation of DRM has not only activated change within the municipal government of Santa Fe but also in others, and vice versa, in a reinforcing manner. Thus, Chapter 9 proposes a relational dimension of the institutionalisation process.
Chapter 9  The relational side of institutionalisation: other organisations, other local governments

9.1 Introduction

Chapter 9 continues with the institutionalisation of DRM initiated within the government, but it extrapolates it to the relations of the municipal government of Santa Fe with other local organisations and with other cities. In so doing, it focuses on how the linkages with other organisations and city governments have stimulated ongoing change not only in these others but also within the municipal government itself. Thus, the relational dimension of the institutionalisation of DRM is explored from two perspectives: the first one considers the municipal government in its relations with local organisations; the second one focuses on the relations between the municipal government of Santa Fe and other local governments. Importantly, the entry and reference point is, in both cases, the municipal government of Santa Fe. This is not to ratify that the city government has always had the initiative in all actions, as in many cases it has not. However, given the protagonist role of the municipal government in leading this process in the city of Santa Fe, this is an analytical choice that orients the research.

The three sections that comprise the chapter suggest that a co-evolving process of institutionalisation unfolds within the municipal government organisation and across its relations with others. Thus, the three phases of institutionalisation and salient elements of the lenses are also useful for making sense of those relations and resulting networked spaces across which the institutionalisation of DRM unfolds. Section 9.2 introduces the academia-policy interfaces as the locus of abrupt change in the early adoption of a new policy paradigm, at a time when provincial and national approaches were not responding to the needs of the city and inspiration needed to come from elsewhere. From the early adoption of gestión de riesgo, Section 9.3 moves to the joint work between the municipal government with auxiliaries and civil society organisations for grounding risk management practices in the territory. This initially covered the design and implementation of a participatory process to organise the response to hydro-meteorological events at neighbourhood level, which granted the municipal government the first international
recognition and the label of ‘role model’ city. More recently, the linking with other local organisations has evolved towards reducing flood risk and working on the reduction of exposure and vulnerability conditions.

Over the last few years, the institutionalisation wave has been echoing further across city-to-city networks or, more accurately, networks of local governments. These platforms bring together organisations of a similar nature; that is, *sus pares*. Section 9.4 explores the role of the municipal government of Santa Fe in various networks of cities, from the metropolitan configuration to regional and international platforms, towards the institutionalisation of disaster risk management. The categories of ‘early adoption’, ‘role modelling’ and ‘pedagogy for change’ are suggested to characterise the diffusion of the DRM policy paradigm across the relations of the municipal government with its peers.

Table 9.1 synthesises the main networked spaces that have contributed to the institutionalisation of DRM in the municipal government of Santa Fe and the broader organisational landscape. Their relevance can be better understood in terms of the salient elements of the analytical lenses. Thus, academia-policy interfaces were important to make sense of the concept of *gestión de riesgo* in a context where the adoption of this approach in other medium-sized cities in the country and elsewhere was rare or very incipient. Participatory spaces with auxiliary and civil society organisations acquired relevance for the enactment of DRM-related practices in the territory. Finally, city-to-city networks have proven the key for the continuous experimentation with, adaptation to and advancement of the state-of-the-art ideas in disaster risk management and related fields, at a time when an increasing number of local governments were becoming interested in the incorporation of this approach in their cities.

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212 In English, *its peers*
Table 9.1: Institutionalisation of DRM in the municipal government of Santa Fe: phases, lenses and networked spaces

<table>
<thead>
<tr>
<th>Phases</th>
<th>Combined lenses</th>
<th>Main networked space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergence</td>
<td>Concept / Cross-cutting / Policy (new)</td>
<td>Academia-policy interfaces</td>
</tr>
<tr>
<td>Embeddedness I</td>
<td>Practice / Specific / Planning</td>
<td>Participatory spaces with auxiliaries and civil society organisations</td>
</tr>
<tr>
<td>Embeddedness II</td>
<td>Practice / Specific / Planning &amp; Management</td>
<td>Participatory spaces with auxiliaries and civil society organisations</td>
</tr>
<tr>
<td>Sustained change</td>
<td>Concept / Cross-cutting / Policy (existing)</td>
<td>City-to-city networks (metropolitan and transnational)</td>
</tr>
</tbody>
</table>

9.2 Academia-policy interfaces in early adoption

At the time the municipal government of Santa Fe adopted the new disaster risk management approach as a state policy, there were not many similar examples to draw on from other cities in the country. Hence, inspiration had had to come from elsewhere. In the absence of similar experiences, academia-policy interfaces provided a space for crafting a new policy paradigm for managing flood risk in the city and the municipal government of Santa Fe constituted itself as an early adopter vis-à-vis other municipalities in the country.

The intersection between the university and the municipal government has resulted from different trajectories and, therefore, the recognition of interfaces rather than a single juncture. As already anticipated in Section 6.2, these interfaces were incarnated in those with a dual organisational affiliation to both the academia and the municipality. Specifically, in relation to DRM, this was more patent in those whose trajectories could be traced back to certain projects in the university that already addressed flooding in a different manner, and who then entered the first lines of the municipal administration (Wolansky et al., 2003; ProCIFE, 2005). As explained by a professor and former advisor to the new municipal government:

272
“(…) when certain people from the university go to the public administration, they bring with themselves their academic experience, don’t they? That is what we did. (...) although there had always been three universities in the city and a municipal government, and there had been signed agreements of mutual collaboration, etc., etc., the time that it was made effective in a more evident way was with Barletta” (Interview with professor of UNL-FADU, 23/10/2017, *my translation*).

And the participant continues:

“(…) the university is always present in the figure of its graduates, isn’t it? A lawyer, a doctor, an engineer, an architect, is a university student in society and the university is present through its graduated citizens. Now, something so specific to call people from the area of economics, the area of medicine, the area of the environment, the area of architecture and urban planning, that was made by Barletta. There had been architects, there had been engineers, yes, of course, of course there had been, both in permanent plant as well as integrating the technical cabinets of the different previous periods. (...) But they were political party members. The most open call was made by Barletta” (Interview with professor of UNL-FADU, 23/10/2017, *my translation*).

Despite the reference to an ‘open call’, there was a greater affinity between the new administration and the *Universidad Nacional del Litoral* (UNL), from where most high-rank authorities were coming (Interview with professor from UNL-FICH, 25/10/2017; Interview with professor from UNL-FADU, 05/10/2017). In this regard, the ‘open call’ seems to refer more to those who had never engaged before in the political life of the university or, more generally, in politics.

In addition to authorities and employees, the interfaces have also materialised in specific collaboration agreements and joint initiatives about disaster risk management. The advisory work of the university interdisciplinary group was discussed with (and sometimes even contested by) municipal government representatives in various meetings over the two-year consultancy agreement. Similarly, the initial training of municipal authorities and employees, while led and delivered by experts from the academia, had the format of a workshop to allow for the input from both parts (*Universidad Nacional del Litoral*, 2009, 2011).
The implications of the academia-policy interfaces have been multiple and transcended the field of disaster risk management. In the first place, the arena created by these interfaces for the early adoption of ideas reflects the productive tension between concept and practice. ‘Adoption’ depicts that the so-called ‘new’ ideas or concepts might have already existed, as in the case of *gestión de riesgo*, but they were not adopted or embraced by those with the capacity and scope for translating them into practices. As a dialectic, it also works the other way around: practices could inform emergent ideas and approaches and reframe (or even challenge) them. In this regard, a former member of the DRM Office suggested that those who have worked in DRM in real practice should be among the staff teaching courses at the university (Interview with former representative of DRM Office, 06/04/2016).

Secondly, the interfaces overlapped ways of learning at the university with ways of working in the municipal administration, eventually resulting in a new trans-sectoral working methodology exemplified in the idea of ‘*tallerista*’ (workshop). Referring to the mayor of the new FPCyS administration, a former municipal authority and professor synthesised: “Mario [mayor] had that capacity very... Very ‘*workshopist*’. Mario was, he is a very workshop guy, isn’t he?” (Interview with former representative of Department of Urban Planning, 03/10/2017, *my translation*). Even more, the same research participant almost unconsciously referred, several times, to these overlapping of skills and ways of doing:

"And it was there, in my office, that I had a big table with a glass and below the plan of the city, so I drew... We all drew, but it was a habit of mine from here [the university], to draw with a marker and delete... The discussion of the topics was that, as if to say: at eleven o'clock in the morning we had to go to the mayor to get him an answer on a specific topic. That is, we had that... What we also managed to have at that time was an inter-, the inter-stratum within the municipality, which, according to what the employees told us, did not work in previous administrations, they were all fighting, one secretariat with the other..." (Interview with former representative of Department of Urban Planning, 03/10/2017, *my translation*).

Indirectly, this proved useful to address cross-cutting issues such as the management of flood risk.
Finally, the academia-policy interfaces provided a space to make scientific production more accessible to the public. That is, they created arenas to bring scientific production closer to residents. Here, the municipal government mainly acted as a nexus between the university and residents. In the field of disaster risk management, examples included an initiative for an open theses database in the DRM website and the sponsorship of the municipal DRM Office of university extension programmes about floods and disaster risk management in the city (Interview with professor from UNL-FICH, 22/08/2017).

In Santa Fe, academia-policy interfaces seemed to have played a central role during the emergence of the new DRM paradigm, but not so much in the sustained change phase. This is not to say that universities and research centres would stop working with the municipal government, but their relevance in the innovative capacity of the municipality would progressively vanish – at least in what concerned disaster risk related issues. The fuel for innovation would flourish more and more in city-to-city networks sponsored by international organisations. This is not a critique but rather an observation about the locus of innovation, which would be still based on linkages and interfaces but of a different nature. The internationalisation of the city would entail that its municipal government would start looking outwards for (new) ideas rather than across localised knowledge production.

As an early adopter, the municipal government of Santa Fe has had relative freedom for thinking differently, although at the expense of paying the potential costs of failure while experimenting with new ideas. Moreover, early adoption has also entailed a sort of responsibility for the city, as it could eventually become a role model based on those emergent ideas and related practices.

9.3 Best practices of a role model: working with others for an organised response

Traditionally, there have been some organisations in the city working in the field of emergency response and/or providing first aid to those most in need in acute situations. Among these organisations, Red Cross Santa Fe and Caritas Santa Fe stood out. In addition, Canoa has also been working in flood-related issues,
especially after the disaster of 2003, although with a more holistic approximation to the urban space.

The municipal government turned to these organisations to plan the ‘external’ response to hydro-meteorological events. That is, contingency and emergency planning at neighbourhood level. This level of organisation was introduced in Section 7.2, to differentiate it from the internal organisation of the municipal government, but was not further elaborated. The planning of practices, that is, the definition of what residents should do in the event of potentially hazardous heavy rains or river overflows was a collective exercise (led jointly with local organisations) and participatory (residents themselves participated in the demarcation of meeting points and evacuation routes). The outcome of this collective and participatory planning exercise were forty evacuation plans at neighbourhood association level and various bilateral collaboration agreements with NGOs, clubs and associations to work as potential temporary evacuation centres across the city. Thus, the ‘protocolisation’ that characterised the internal organisation of the municipal administration was somehow mirrored at community level.

Relying on auxiliaries and civil society organisations for mediating the relations with residents, especially during the first years, might have been a strategy of the municipal government, bearing in mind the eroded trust of citizens over the state, in general, and the municipal government, in particular. Some of these local organisations had a solid territorial base in some of the most deprived neighbourhoods (Caritas Santa Fe) or worked in the most affected areas in the West part of the city after the disasters of 2003 and 2007 (Canoa). In this way, they could provide the municipal government not only with reliability but also proximity to the most critical realities. However, the relations with these organisations fluctuated over time and were mainly based on ‘collaboration’ and ‘mutual agreements’ rather than formalised procedures. Thus, while recognised as part of the municipal disaster risk management system created by ordinance in 2008, their participation in that system was not formally defined beyond voluntary agreements. This might explain why those relatively fruitful relations of the first years have slowly lost impetus and faded away. As for the territorial work, the decentralisation of the municipal administration
into municipal districts was aimed at getting the state closer to residents – perhaps, also avoiding the need for relying on others.

The relation with auxiliaries and civil society organisations (including NGOs, faith-based organisations and associations) has been one of the weakest points in the consolidation of the municipal disaster risk management system. This was manifested, for instance, in the impossibility to materialise the originally envisioned design of a system organised around commissions of multiple actors according to the stages of the DRM cycle:

“(…) what was from manual, in reality was not from manual, and what we dreamed - or at least I dreamed - as a system with commissions functioning as a legislative power, with the working commissions that legislators have, in the end it was rather an enabling working space. And everything that was generated with the participation of the Red Cross or with the participation of the School of Social Service had its framework in the system, that is, it had a favourable legal framework but it was not a commission that met periodically with day and time. (…) We dreamed of it as a working space where the different areas and the different social actors of the city and of the province and of the nation converged to work on specific issues of risk management. (…) That, which at some point we dreamed for the commissions, that each commission took its topics, (…) it did not happen with those working compartments so organised. Things were happening within the framework of the system... We were able to work – I think that work still continues – with the Red Cross on the generation of emergency plans within schools... With the School of Social Service, with the girls who were doing their final-year internships, and they worked on topics that we were working on... With [the] university too... As I said, with the Red Cross as well, with Caritas we also work a lot... With Canoa we also work a lot…” (Skype conversation with former representative of DRM Office, 14/03/2016, my translation).

This is not to say that there has been no involvement of other local organisations in disaster risk management alongside the core work of the municipal government, but rather that this has fluctuated over time and was less formalised than the internal organisation for response within the municipal government. Multiple and scattered initiatives resulted from these collaborations, mainly during the first years, but their ‘embeddedness’ as to be replicated regularly or scaled up, only materialised in a few
cases. One example was the design of a manual of procedures for the elaboration of evacuation plans at schools and the training of school representatives for their elaboration. This was a joint initiative between the municipal government and Red Cross Santa Fe, mediated by the formalised elaboration of procedures (Cruz Roja Santa Fe and Gobierno de la Ciudad de Santa Fe, 2010). Whether the embeddedness of regularised practices, including those practices that result from the joint work with other organisations, requires standardised procedures is not fully clear, but it seems to have provided a certain regularity.

Even when the relations with local organisations might not have been consistent over time, it is still relevant to think about the influence that the joint work with the municipal government might have had on those organisations. It is interesting to observe that some of these organisations have been transitioning, at least conceptually, towards the DRM approach by creating new departments or incorporating specific programmes. For instance, Red Cross Santa Fe created a specific DRM division and Caritas Santa Fe inaugurated the Environment, disaster risk management and emergency programme. If the conceptual transition from disaster response towards DRM was fully encouraged by the municipal government cannot be confirmed, and these organisations were also influenced by changes at higher levels (Red Cross Argentina and Caritas Argentina and Caritas Latin America) which were accommodating to the new international frameworks and sources of financing (Interview with representative of Red Cross Santa Fe, 09/08/2017; Interview with representative of Caritas Santa Fe, 18/10/2017). However, the institutionalisation of DRM within these two organisations started at a later stage than the municipal government. Thus, the latter had probably had some influence on the ways of thinking of other actors in the city.

“I say [that] much progress was made in society and today the issue is installed, in the communiqués... Today, more than anything, you go to talk to any social leader of an NGO of trade union-business, of an NGO of employees, environmental NGO, social, whatever, and they know about risk management, resilience… These are not strange terms to them...” (Interview with representative of Cooperation Agency, 24/05/2017, my translation).

213 In Spanish, *Medio Ambiente, Gestión de Riesgo y Emergencia* (MAGRE)
Whether formalised or less formalised, consistent or scattered, regular or intermittent, the municipal government has been internationally recognised on the basis of its work with other local organisations. Specifically, it was designated role model city of the UNDRR Making Cities Resilient campaign for participatory flood protection. The recognition broadly encompassed the development of “local partnerships with institutions and organisations for the prevention and preparation of the community” (Gobierno de la Ciudad de Santa Fe, 2010a). In 2011, the municipal government received the UNDRR Sasakawa award, among other things, for the “agreements with institutions and organisations related to risk management and development” (Gobierno de la Ciudad de Santa Fe, 2010b).

Importantly, the ‘role model’ recognition has often tended to centre on ‘best practices’ and not so much on the conceptual dimension or framing of ideas. Paradoxically, in the case of Santa Fe, it seems that one of the most significant aspects were the changes in the ways of thinking across organisations in the city, in part resulting from the joint work with the local government, rather than the practices per se. Whereas this might not have been noticed in the first years when awards and recognitions were made, it calls for a more critical stance about transposing practices or ‘ways of doing’ without the necessary conceptual exercise of embedding concepts or ‘ways of thinking’ at the same time.

Over the last few years, the work of the municipal government with local organisations has begun to centre on reducing the conditions of exposure and vulnerability, arguably alongside the transition to DRR within the government itself. The most cited example by research participants from the municipal government was the work with the Movimiento Los Sin Techo (MLST) in neighbourhood upgrading and relocation projects targeted at households frequently affected by floods (Interviews with representatives from Habitat Agency, 24/08/2017 and 17/11/2017). The relations between this NGO and the municipality have also transcended the implementation of projects, to the incorporation of this organisation into the definition of priorities and provision of advice. The MLST has had representation in multi-actor spaces, including the advisory boards of two projects that deal with flood risk: the West Urban Nature Reserve and the Resilience strategy (Interviews with
representatives of MLST, 21/04/2016 and 25/04/2016). To what extent members of this NGO have truly had decision-making power might be debatable. However, some of their members recognise the value of jointly working with the municipality and they were present and participated in several of the activities that I observed during the fieldwork.

All in all, the municipal government of Santa Fe has stimulated a logic of change in the city, specifically in relation to the issue of flood risk, but it has always been aware that this could not be realised without the rest of the organisations and residents themselves. Never an easy exercise, this has nevertheless evolved in a synergetic amalgamation of encounters and dis-encounters.

9.4 Networks of cities: towards a pedagogy for change

In this section, the institutionalisation of DRM across the relations of the municipal government of Santa Fe with other local governments is analysed at two levels: 1) within the country, especially in regard to neighbouring municipalities; 2) outside the country, mainly in terms of the participation of the city in regional and international platforms. As suggested in the introduction to the chapter, ‘early adoption’, ‘role modelling’ and ‘pedagogy for change’ are used to characterise the diffusion of DRM across the relations of the municipal government with other local governments, increasingly formalised in specific city-to-city networks.

Early/late adoption, imitation and learning are some of the mechanisms of intergovernmental policy diffusion proposed in organisational institutionalism and policy process research (Tolbert and Zucker, 1983; Berry and Berry, 2017). Here, the notions of role modelling (instead of imitation) and pedagogy for change (instead of learning) are suggested, as were inspired by the narratives of municipal government representatives when referring to the increasing ‘internationalisation’ of the city of Santa Fe through its membership in multiple transnational city-to-city platforms. ‘Role model’ is a terminology borrowed from the UNDRR Making Cities Resilient campaign, where it is used to refer to cities whose best practices can be exemplifying to other local governments. ‘Pedagogy for change’ has resulted from the multiple references made by research participants to the ‘pedagogic’, ‘didactic’ or ‘schooling’
role of the municipal government of Santa Fe in disaster risk management – mainly, in relation to other local governments\textsuperscript{214}.

9.4.1 Neighbouring municipalities and the promises of a metropolitan area

Santa Fe was the first city in the area, and arguably in the country, to formally adopt an urban DRM approach. Among the main reasons that prompted the \textit{early adoption}, the two large-scale disasters of 2003 and 2007 stood out. Indeed, compared to neighbouring municipalities, Santa Fe was the most affected in terms of damages and losses. The latter highlights a differential feature that pertains to the size of the city (and therefore concentration of people and assets) combined with its geographical location (and therefore exposure of people and assets to flood risk). Neighbouring municipalities have been historically smaller and less exposed to (intensive) flood risk. However, this has also started changing as a result of the expansion and growth of those neighbouring urban areas over the last 25 years (see Section 4.2).

As an \textit{early adopter}, Santa Fe realised that it could not deal with flood risk on its own but that required coordinating actions with its neighbours. However, coordination with neighbouring cities and urban areas has always proved challenging, not only for managing urban flood risk but also for other issues such as solid waste management (Interview with representative of Integrated Solid waste Management Programme, 25/08/2017). This is probably the price that early adopters have to pay: being an early adopter means that others are late adopters and, therefore, their embracing of a new policy paradigm is delayed. Despite the increasing attention that the city of Santa Fe started receiving in international circles, by becoming a ‘role model’ and a renowned example in the DRM field, this has not diffused automatically to local governments around. A few reasons might explain this, ranging from the scale of surrounding urban areas and related access to resources to the absence of disastrous consequences associated with infrequent and intense hydro-meteorological hazards.

\textsuperscript{214} It might be speculated that the multiple references to ‘pedagogy’ from research participants in the municipality might have been related with their original background in the university or academia.
In this context, role modelling in relation to neighbours was mainly initiated by necessity (rather than proactively) in other municipalities. As one participant from the municipal government of Santa Fe explained:

“In all the cities happened that and that is why it is an issue [DRM] that today they consult us a lot, of course, after having had a crisis. Before, nobody talks about it. Then, when they have a critical raining event, they ask what to do... (Interview with representative of Department of Communications, 22/04/2016, my translation).

However, necessity also arose from the municipal government of Santa Fe and the repeated mantra that flood risk does not recognise jurisdictional borders. A few examples included the design and implementation of the second part of the Pluvial Drainage Master Plan to incorporate not only La Costa district (within the jurisdiction of the municipality of Santa Fe) but also the municipality of San José del Rincón; the joint work with the commune of Monte Vera over Las Mandarinas canal; and the agreement with the municipality of Recreo for the maintenance of embankments (Interview with representative from Department of Water Resources, 17/05/2017). The initiative over most of these projects had come from the municipal government of Santa Fe and the others followed. As the municipality of the provincial capital city, Santa Fe has had resources and expertise to so doing. However, it has also had an overarching approach to deal with the issue.

The aforementioned are just a few examples of concrete projects in which the municipal government of Santa Fe has been working together with neighbouring municipalities to manage flood risk. In this regard, role modelling seems to be mainly connected to practices (e.g. ‘best practices’). Taking advantage of the existence of a role model, late adopters can take shortcuts (e.g. not paying the cost of failure in experimentation) and go straight to the designing and implementation of measures. However, there might be some issues associated with those short-cuts, such as the lack of a truly conceptual emergence within those late adopters. This is tightly connected to the critical perspective on role modelling and the exporting of ‘best practices’ introduced in Section 9.3.
At the time of the fieldwork, it did not seem that pedagogy for change had unfolded yet across the relations with neighbours. The municipal government of Santa Fe, though, was becoming more aware that it would need to start taking a more proactive approach on this:

“Santa Fe... The city is a spearhead of that [DRM]. We had meetings with Paraná, with Santo Tomé, Rincón, and they are really disoriented. They do not know what we were talking about. When we have a vision where we are going, they do not know. (...) A very fine work and a school work have to be done. I believe that Santa Fe is prepared, it has that vision and has to start doing school in the other municipalities so that they understand where we are going…” (Interview with representative from Department of Public Works, 26/07/2017, my translation).

Reflecting upon the metropolitan scale and the work in tandem with neighbouring municipalities, a representative from the municipal government expressed a dilemma between the impossibility of isolation and the voluntary will for assuming a ‘pedagogic’ role: “What should I devote my time for? To teach others or to solve my own issues?” (Interview with representative of the Department of Communications, 30/10/2017, my translation). While teaching others is not within the mandate of the city government, it could result in future benefits. Hence, resolving ‘your’ issue might entail looking beyond your borders and ‘teaching’ others. An opportunity to steer this pedagogic role emerged with the creation of the Ente Coordinador Área Metropolitana (Metropolitan Coordination Bureau, ECAM), the formal entity for leading and implementing a metropolitan approach in Greater Santa Fe. Being the provincial capital and largest city in the area, Santa Fe has headed the ECAM since 2017. From this position, the municipal government has been trying to advance a collective discussion over shared policy issues such as the management of flood risk.

215 Since 2016, there had been a commission working on the development of a metropolitan structure for Greater Santa Fe, within the framework of a recently approved provincial law (Legislatura de la Provincia de Santa Fe, 2016). The constitution of the Metropolitan Coordination Bureau Santa Fe took place in April 2017, integrated by representatives from 23 municipalities and communes, namely: Santa Fe, Santo Tomé, Recreo, Esperanza, Laguna Paiva and San José del Rincón (municipalities); Monte Vera, Franck, Arroyo Aguiar, Arroyo Leyes, Cabal, Campo Andino, Candioti, Emilia, Llambi Campbell, Nelson, San Agustín, Sauce Viejo, Cayastacito, Santa Rosa de Calchines, Colonia San José, Pujato Norte and Empalme San Carlos (communes). ECAM mainly serves for strategic planning and coordination purposes (ECAM, 2019).
Whereas the metropolitan debate is not addressed in this research, interviews with some representatives from the municipal government of the second largest city in the area (Santo Tomé) were conducted. This was intended to understand the reality of a local government in a considerably smaller, but still exposed to flood risk, city. These interviews were complemented with participatory observations at two workshops with municipal authorities organised by a separate research project on climate change adaptation in medium-sized cities in Latin America (CRCLATAM, 2018b). The most striking feature to observe was that, being located just on the other side of the Salado river, authorities from this municipality were not very aware of the work of the municipal government of Santa Fe on DRM nor of the existence of the UNDRR Making cities resilient campaign. *Gestión de riesgo* was an unknown approach within the municipality that for the first time was introduced in the context of an international action research project (Interview with representative from municipal government of Santo Tomé, 04/07/2017). This was also confirmed in one of the reports of the workshop (Wolansky, 2018).

Differential access to resources and the absence of negative disaster impacts were highlighted as factors hindering policy diffusion among neighbouring cities (Interview with representative from municipal government of Santo Tomé, 23/06/2017 and 28/06/2017). However, there is a further aspect to consider which relates to party politics. That is, leaders of different jurisdictions who advocate for different (sometimes opposing) political views and represent various interests. In this context, it might become quite difficult for leaders in one city to acknowledge the success of their counterparts in another city when they represent a different (or opposition) political party, as emulating their policies might be a sign of submission to their political ideology. A metropolitan approach might be a starting point for transcending those political divisions on the basis of a formal organisation, although strong political commitment would still be necessary.

Beyond neighbouring cities, the DRM Office proposed the creation of a regional network of cities for the Paraná river basin already in 2010. The initiative intended to bring together thirteen cities and four provinces in the Litoral region, which were exposed to similar hydro-meteorological risks and could then share their experiences
(Gobierno de la Ciudad de Santa Fe, 2014c). However, after the first series of meetings, it failed due to the lack of engagement of targeted cities (Valsagna and Filippi, 2019). This was an early antecedent to the city-to-city network approach that the municipal government would later engage more successfully at regional and international levels.

9.4.2 Looking outwards: regional and international platforms for DRM

The municipal government of Santa Fe has had membership in various international city networks which focus on disaster risk management and resilience at the urban scale and has also encouraged the creation and functioning of similar networks in the region. This has followed a relatively smooth path since the city started working in the DRM field at the turn of 2008. As an early adopter in the DRM field, the municipality of Santa Fe joined the first group of cities in signing to the UNDRR Making Cities Resilient campaign in 2010, the very same year the initiative was launched. It was the first city in Argentina to subscribe to the campaign and among the pioneers in the region to advance the implementation of the Hyogo Framework principles at the local level. Soon after, Santa Fe was designated a role model city of the campaign for its participatory flood protection approach and it was granted the UN Sasakawa award for DRR in 2011. The ‘role model’ character was later epitomised in the figure of the city mayor, when Corral was nominated and became champion of the campaign in 2014. UNDRR and its cities campaign proved to be a useful platform for the municipal government to be reassured about its early adoption of a new policy paradigm and to

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216 UNDRR register only has record of the signatory year of cities to the campaign from December 2011 (e-mail correspondence with UNDRR representative, 08/08/2018). As of December 2011, there were 246 signatory cities, 24 in Latin America, being Santa Fe one of them and the only one in Argentina. By June 2018, the total number of cities which signed to the campaign reached to 3,883 (1,899 in Latin America and 37 in Argentina).

217 As of May 2019, there were 48 role model cities out of 4,270 signatories to the campaign (UNDRR, 2019d).

218 In total, there are 12 champions of the UNDRR Making Cities Resilient campaign (UNDRR, 2019d).
showcase its initial practices to others. In this regard, the international recognition of awards and special designations contributed to improve the ‘self-esteem’ of a city which had been shattered by two large disasters, especially when this recognition did not come from other levels of government nor citizens:

“Barletta [mayor] had a strategic vision of the points that the city had to touch on and also to raise the self-esteem of the city. Because this is a city of very low self-esteem” (Interview with representative of City Council, 08/11/2017, my translation).

However, the greater stimulus to continue navigating the experimental path has been the space provided by the campaign to connect the municipal government of Santa Fe with the reality of other local governments. In this context, labels such as ‘role model’ or ‘champion’ have entailed, on the one hand, a responsibility of sharing and working with others and, on the other hand, an opportunity to learn from early adopters elsewhere who were on the same wavelength. In short, the relational aspect of this city-to-city network constituted the added-value to the institutionalisation of DRM.

At the end of 2014, Santa Fe was selected to join the Rockefeller Foundation 100 Resilient Cities (100RC)219. Whereas part of the second global intake, Santa Fe was the first city in Argentina to become part of this network220. This confirmed, once again, the city as an early adopter of the DRM and (disaster) resilience paradigms in the country. At the same time, it also showed that the city was already quite advanced in the institutionalisation of DRM at home and in tune with what other pioneering cities were doing abroad. Indeed, one of the main criteria for the selection of Santa Fe to the 100RC was the level of consolidation of the disaster risk management process to address flood risk. In June 2017, at the time of the field

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219 While ‘resilience’ implies the adoption of a new concept, and arguably the beginning of a new institutionalisation process, it is important to remark that the application and selection of the city to the 100RC programme was made on the basis of its experience with the DRM approach and the capacity of its municipal government to link it to other areas such as violence (Gobierno de la Ciudad de Santa Fe, 2014a).

220 By the time Santa Fe join the 100RC, there were only four other cities from South America in the platform (Medellín, Quito, Rio de Janeiro and Porto Alegre). Cali and Santiago de Chile escorted Santa Fe in the second wave from the South America region.
research, Santa Fe launched its resilience strategy (Secretariat of Strategic Development and Communication, 2017).

Almost contemporary to the 100RC membership, in 2014, the city won an international funding granted by the French Facility for Global Environment (FFEM) to implement the West Urban Nature Reserve project (FFEM, 2014). Not specifically a network of cities, the FFEM and the urban nature reserve project have nonetheless linked the city of Santa Fe with its counterpart in France, the city of Rennes. In one of the last visits of the French delegation to the city of Santa Fe, the mayor acknowledged:

“(…) we are very grateful to France in particular that makes this donation to carry out these works and to our colleagues from the city of Rennes who are visiting us. We are learning together: them, with their geography and with their urban problems; us, with the characteristics of the city of Santa Fe that also, in this way and with this project, is connected to the world” (Press mailing list, 12/02/2019, my translation).

In addition to the UNDRR Making Cities Resilient campaign and 100RC, Mercociudades has provided a regional platform for the municipal government of Santa Fe to advance DRM at the urban scale221 (Gobierno de la Ciudad de Santa Fe, 2014c). Santa Fe has been promoting the incorporation of disaster risk management as one of the working areas of the network, a role that was further catalysed when the city assumed the presidency for the period 2016-2017. Even more, as the incumbent president of the Mercociudades network, the city had the opportunity to participate in the 5th UNDRR Global Platform in May 2017 (UNISDR, 2017). Usually a space for representatives of national governments, the relevance of city governments in these global platforms is increasingly manifested in their collective agency to advance their own agendas around policy issues such as urban disaster risk.

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221 Mercociudades is the network of cities of the Mercado Común del Sur (Southern Common Market, MERCOSUR), a regional integration process originally founded by Argentina, Uruguay, Paraguay and Brazil, and later joined by Venezuela (suspended since 2017) and Bolivia (currently in the process of accession). In addition to state parties, associated states include Chile, Colombia, Ecuador, Guyana, Peru and Surinam (MERCOSUR, 2019). Founded in 1995, the network of cities of MERCOSUR reached 349 member cities from ten of the countries of the regional bloc (all except for Guyana and Surinam) in 2019 (Mercociudades, 2019).
The move towards a **pedagogy for change** has become more apparent in recent years. It has mainly manifested in the purposive effort of the municipal government to start ‘teaching’ and investing resources in training and coaching in DRM, alongside its capacity to come up with alternatives for linking existing networks and reframing their potential. For example, the municipality of Santa Fe made a proposal for a co-sponsored initiative between 100 Resilient Cities and Mercociudades to provide training on disaster risk management to high-rank representatives from local governments that had membership in the Mercociudades network. Under the banner of ‘resilience school’, the first round of training sessions took place in Santa Fe in October 2017 (Gobierno de la Ciudad de Santa Fe, 2017).

The corollary of the ‘internationalisation’ of the city in the DRM field would be its designation to host the National Coordination Office of ICLEI-Local Governments for Sustainability in November 2018\(^\text{222}\). Although not exclusively focused on DRM, ICLEI constitutes a well-known and long-established network of cities for sustainability, which involves the management of disaster risk and climate change risk. The actual opening of the office is still pending, but it is interesting to observe some comments made by relevant authorities at the time of the selection of the city. The Executive Secretary of ICLEI South America expressed:

> “To promote from here [city of Santa Fe], and from the leadership of this municipality, these lines of action [urban mobility, energy efficiency, waste management, urban nature] throughout Argentina, from the local governments” (Press mailing list, 08/11/2018, *my translation*).

And the mayor of Santa Fe ratified:

> “We are convinced that cities have to look not only at their surroundings and the metropolitan area, but also to the world. Santa Fe is on the map of the world, with different projects and the effort of participation in networks, which allows us not only to connect with and learn from other cities, but also to obtain specific things such as financing, technical support and participation in projects, which generate an exchange from which we are always benefited” (Press mailing list, 08/11/2018, *my translation*).

\(^{222}\) Formerly, the International Coalition for Local Environmental Initiatives (ICLEI), it is a global network of more than 1,750 local and regional governments working towards sustainable urban development (ICLEI, 2019).
The ‘internationalisation’ of the city has been more broadly represented in a dedicated office for international cooperation (the *Agencia de Cooperación*) since 2011, something that not many cities of the size of Santa Fe have. However, much of the international ‘flavour’ started around disaster risk management and urban resilience: perhaps, as there were not many others nearby to get inspired; perhaps, as this is what the world was discussing at that time. The DRM approach was not autochthonous nor originally crafted at the city level; it was part of an international trend sealed in the Hyogo Framework in 2005 and ratified by the Sendai Framework ten years after. Yet, rather than looking at the influence of the international context on the urban realm, this section has flipped the lens and explored the role that the city has played in that global transition. Furthermore, it has done so by proposing a relational approach, that is, how cities in their relations to each other have been influencing international policy domains with their localised actions.

The ‘internationalisation’ of the city reflects the degree of institutionalisation of DRM in the municipal government of Santa Fe vis-à-vis other local governments, both in the surroundings and abroad. Thus, the process of institutionalisation has unfolded simultaneously within the municipal organisation and in its relations with other local governments, and there seems to be a connection in the level of institutionalisation at one level vis-à-vis the other one. Even more, the multiplicity and simultaneity of linkages with other local governments, briefly described in this section for the case of Santa Fe, seems to suggest a reinforcing mechanism for continuous innovation within an organisation propelled by progress in its relations with others. The ‘driving change together’ slogan of a special event at ICLEI Cities Resilient Congress in 2019, where the mayor of Santa Fe participated, synthesises that idea (see Photo 9.1).
9.5 Discussion – The relational side of institutionalisation

Relational (and process-based) approaches to the incorporation of new concepts and revised practices in the everyday work of urban organisations have been suggested in the fields of disaster risk reduction, specifically, and urban low-carbon transitions and sustainable urban development, more broadly (Mieg and Topfer, 2013; Wamsler, 2014; Luque-Ayala, Marvin and Bulkeley, 2018).

Wamsler's (2014) mainstreaming strategies at the inter-organisational and educational/professional levels anticipate a relational approximation to urban disaster risk reduction. Indeed, these layers of mainstreaming provided a useful starting point in the conceptualisation of this research (ibid., pp.55-69). However, as was synthesised in the review of the literature, mainstreaming approaches have tended to emphasise the unidirectionality of processes of change rather than their relational dimension. That is, the integration of a new policy approach into relevant sector work or its integration in relevant professions and education. In this regard, Wamsler’s (2014) mainstreaming strategies framework depicts the progressive
integration of DRR into more comprehensive layers (from programmatic, through organisational, to inter-organisational to educational mainstreaming), but not so much the overlaps between these layers nor the resulting outcomes of these overlaps. Thinking of networked spaces across the institutionalisation of new policy paradigms suggested an alternative perspective to better encompass the relationality of the process in the case of Santa Fe. Moreover, it further contributed to understanding the co-evolution of the institutionalisation of DRM within the municipal government organisation and across the organisational landscape in which it is embedded.

The notion of ‘interfaces’ has recently appeared in the literature on low-carbon transitions and innovation towards sustainable urban futures, usually associated with the academia-policy interface. Mieg and Topfer (2013) devote an exclusive part of their book to the (new) role of science for innovation in sustainable urban development, where Remig and Wiese-von Ofen (2013) have a specific chapter on The institutionalization of interfaces as a prerequisite in transformations towards sustainability. Similarly, reflecting on the underlying drivers of low-carbon transitions, the analytical framework of Luque-Ayala, Marvin and Bulkeley (2018) refers to the academia-policy interface. The conceptualisation of ‘interfaces' by these scholars is relevant for at least three reasons. Firstly, it considers the relations between governmental organisations and organisations of a different nature at the city scale. Secondly, it acknowledges that these relations are relevant for certain purposes and/or at particular times (e.g. for the emergence of new ideas or for ongoing experimentation). Finally, it explains innovation on the basis of a similar bridging mechanism as the linking work of satellite offices in the institutionalisation at the organisational level. Interfaces, like satellites within the government, allow for the possibility of bridging not only policy domains but also realms (e.g. academia and policy).

In addition, Luque-Ayala, Marvin and Bulkeley (2018) introduce the role of transnational municipal networks in steering transitions towards low-carbon cities. This chapter has exemplified how these city-to city networks have been central for the municipal government of Santa Fe to not only consolidate the institutionalisation process of disaster risk management at home but also to influence the work of others
in the field. Alongside transnational networks, this research has also identified some potential in new metropolitan configurations (or growing metropolitanisation trends) to steer a similar logic of pedagogy for change. However, the latter is often hindered by challenges such as party politics and different degrees of openness and capacity to change. Transnational networks are usually formed between those with a common interest, whether disaster risk reduction, climate change adaptation, urban low-carbon, urban resilience or sustainability. In metropolitan configurations or other national networks, not all local governments might have the same interest or resources to adopt and embed a new policy paradigm.

Academia-policy interfaces and transnational city-to-city networks tend to be relevant conceptually, either for the early adoption of new ideas and ways of thinking within local governments or for continuous innovation around them. Turning to practices and the territorial grounding of new policy paradigms, other local organisations become relevant. The engagement of these organisations varies from case to case, but in the case of Santa Fe it has been perhaps the least developed aspect (or, at least, it has faded away after the impetus of the first years). There are at least two ways of accounting for this. On the one hand, the municipal government did take much of the lead in the local process and, thus, did not leave much room for the engagement of others. On the other hand, the joint work with auxiliaries and civil society organisations for DRM followed a different rationale than the more organic and sustained relations with the university or other local governments in city-to-city networks. Joint initiatives with organisations such as Red Cross Santa Fe, Caritas Santa Fe, Canoa and MLST have been rather scattered, patchy and intermittent, based on the needs or opportunities at certain times. The more recent configuration of multi-actor spaces such as advisory boards for specific urban projects might provide a certain regularity to those linkages and encourage their consolidation (at least, during the lifespan of projects).

The relational side of the institutionalisation of DRM brings to the fore two additional elements to the discussion on practices. The first element underscores the role of neighbouring municipalities in managing disaster risk. While this might be rather specific to flood risk, the case of Santa Fe highlighted that regardless of the
exemplifying work of a municipal government, it could not just rely on its own and had to start working with others. Interestingly, the case also depicted that horizontal relations with ‘its peers’ became more relevant than the work with higher levels of government (e.g. provincial government). This is not to say that vertical relations with other levels of government did not exist, but rather that in the case of urban disaster risk management these relations have not played a central role. It has been the ability of the municipal government to forge other types of relations and to create other kind of spaces what have contributed to advance an urban DRM process as an early adopter.

The second element relates to the notion of ‘role-modelling’ and the impact of ‘best practices’, both within and outside the country, and the frequently forgotten but equally relevant embedding of concepts or ways of thinking which are intertwined with those practices. Thinking about the difference between trend-setting and pedagogy might provide a step forward. A trend-setter or role model solely performs and shows, whereas pedagogy entails purposively investing time and resources to work with others with the aim of inducing change, including changes in the ways of thinking. In this regard, ‘pedagogy for change’ entails stimulating change in others, but where change needs to come from within these others to be everlasting.

All in all, the relational side of institutionalisation underscores two factors. On the one hand, it is the multiplicity of linkages what seems to have driven the process; that is, it has been in the multiple relations (and the spaces across where these relations unfolded) from where change has emanated. This is represented in Table 9.1 by the ‘main networked space’ column, which resonates with the ‘new agents’ in sustainability transformations to which Mieg (2013) refers. On the other hand, there has been one organisation that has had particular relevance in steering those linkages and therefore the institutionalisation of DRM. In a way, this reflects the tension of simultaneously referring to a ‘relational’ dimension of institutionalisation while defining an entry point to those relations through an specific organisation, that is, the municipal government.
9.6 Conclusion: Conceptual clarifications

Chapter 9 has proved useful for a conceptual clarification. It was unclear at the beginning whether to characterise this dimension of the institutionalisation process as ‘exogenous’ (as opposed to endogenous), ‘inter-organisational’ (as opposed to organisational) or relational (as opposed to the focus on a single organisation).

Carmin, Anguelovski and Roberts (2012) refer to endogenous and exogenous factors that catalyse institutional change in nascent policy domains such as urban climate adaptation. Wamsler (2014) introduces the concept of mainstreaming strategies which unfold at different layers, organisational and inter-organisational being two of them. She further suggests that inter-organisational mainstreaming is linked to risk governance. This research advances the notion of a relational dimension of institutionalisation, understood as the institutionalisation of DRM throughout the relations of a municipal government with others, ‘others’ being either local organisations in the city, neighbouring municipalities or local governments abroad. Differently from disaster risk governance, rather than thinking about one or another actor, a relational approach proposes to centre on the productive linkages (networked spaces) between these actors.

The relational dimension matters in order to understand from where change and stability are emanating. Chapters 6-8 argue that the municipal government of Santa Fe has been leading the institutionalisation of disaster risk management, and specific departments, programmes and individuals were identified as steering this process. Chapter 9 complements that understanding with the relationality of academia-policy interfaces, participatory spaces with auxiliaries and civil society organisations, and city-to-city networks as the enabling organisational landscape throughout which this process has been further advanced. It might be argued that this chapter has focused on entry points to change, echoing literature on adaptive systems and adaptive organisations that identify networked spaces as the locus of change (Shaw, 1997; Pelling et al., 2008). However, an institutionalisation reading is a reminder that in the multiplicity and simultaneity of linkages not only change but also stability are advanced. That is, as being diffused, enacted and modified across the linkages between organisations, gestión de riesgo has become at the same time widespread
and omnipresent. This is central as to bear in mind that policy paradigms become as relatively stable as being institutionalised.

The analysis confirmed that the institutionalisation of the DRM policy paradigm is underpinned by some of the mechanisms of policy diffusion described in the literature (Berry and Berry, 2017). However, it further adds to this literature in at least three ways. In the first place, intergovernmental diffusion across municipal governments mainly unfolds across a specific type of networked space, that is, city-to-city networks, whether metropolitan or transnational (including regional and global). Secondly, diffusion can be strategically steered by those city governments with a leading role in these networks, reflected in the categories of early adoption, role modelling and pedagogy for change. Thirdly, diffusion of ‘ways of thinking’, ‘ways of doing’ and ‘ways of adapting’ also happens across organisations of a different nature. Moreover, not only diffusion but also new ideas and practices emanate from policy-academia interfaces and participatory spaces with local organisations, positing the locus of change also in this type of networked spaces.

Pedagogy for change has been suggested to characterise the diffusion of the DRM policy paradigm across the relations of the municipal government of Santa Fe with other city governments, but it might be used more broadly to understand the influence of a municipal government in activating change in others, both within and outside the city. While this makes the case for a state-centred perspective in DRM, there are at least two interpretations. The first one, of a municipal government telling others what to do, is relatively paternalistic, patronising and passive. The second interpretation, instead, considers pedagogy as encouraging others to change, experiment and innovate themselves. That is, a pedagogy for change, upon which this chapter has been built.
Conclusion: towards an institutionalisation framing of urban disaster risk management
Chapter 10 Conclusions

10.1 Key findings and contribution to knowledge

As the title of this thesis anticipates, I began my research interested in the ‘everyday’ of disaster risk management in cities and the role that municipal governments (could) play in that process. That is, how municipal governments frame and implement disaster risk management on a regular basis and deal with a quite common issue such as urban flood risk. An initial definition of institutionalisation as “the process whereby social practices become sufficiently regular and continuous to be described as institutions”, intuitively echoed with that exploration and set the basis for starting to build an understanding (Abercrombie, Hill and Turner, 2000, p.180). A ‘good practice’ case study with growing recognition in international circles, but narrowly investigated in the scholarly literature, and my familiarity with the city of Santa Fe delineated the structure of the research design. A main research question, broken down into four sub-questions, underpinned my research and I will intend here to provide some answers.

MQ: How do municipal governments institutionalise disaster risk management into urban policy, planning and management?

RQ1: How has disaster risk management emerged as a new policy paradigm in the municipal government of Santa Fe?

RQ2: How has disaster risk management been embedded in the everyday practices of authorities, planners and managers in the municipal government of Santa Fe?

RQ3: How has disaster risk management been sustained while accommodating to the changing conditions that define disaster risk and underlying disaster risk drivers?

RQ4: How have networked spaces enabled the institutionalisation of disaster risk management within the municipal government and across its relations with other organisations?
10.1.1 Phases and temporality of DRM processes

MQ: Process-oriented approximations to DRM require paying attention to time. The findings confirm that DRM processes take time and are never finalised, but different temporal stages can be identified in that process that are useful to delineate priorities and define responsibilities across different areas in a municipal government. The temporal dimension also pertains to the linkages of the municipal government with other organisations and the resulting networked spaces woven during the process.

Traditionally, the disaster cycle has been defined in terms of the before, during and after of an event, the hazard being the defining criterion of the cycle. This rationale has informed conventional operational models of emergency management and still permeates much of the interpretations of disaster risk management (Lavell, 2012; Oliver-Smith et al., 2016). Conceiving DRM as a policy paradigm suggests a different temporal rationale which allows thinking about the sustenance of the approach even in the absence of hazardous events. Succinctly, the process is signalled by the temporality suggested in the phases of institutionalisation. Thus, rather than considering the hazardous event as the defining criterion, the phases of institutionalisation are defined by the degree to which the DRM policy paradigm is ingrained in the everyday concepts and practices of municipal governments. Empirically, this entails moving beyond the short-term focus on single disaster events and isolated projects/programmes to longer periods of analysis that account for the various phases. This rationale has been suggested by scholars examining the institutionalisation of other policy paradigms such as environmental policy integration, who recognise the need for considering historical or longer-term perspectives (a decade or more) to analyse the emergence and sustenance of these policies across various political administrations, even under different political ideologies (Persson, Eckerberg and Nilsson, 2016).

While different temporal stages can be defined, they usually overlap in reality and it is difficult to assign a specific unit of time (e.g. number of years) to each of them. However, the findings confirm that the emergence of a new policy paradigm tends to be a rather short phase where strategic opportunities must be capitalised.
**Embeddedness**, based on routinisation and repetition of practices, is a rather incremental process that reinforces the importance of the everyday. As for **sustained change**, based on learning and experimentation, it is usually steered by more spontaneous and less defined social dynamics that from time to time tend to overlap with everyday departmental routines (informing and modifying them). In other words, the DRM process is not linear, but phases with distinctive temporal dynamics can be identified (see Section 10.1.3).

The process-oriented approach of these phases also contributes to temporally organising the distinctive features of each stage. This complements existing mainstreaming and institutionalisation frameworks that identify factors (Runhaar *et al.*, 2018), features (Göpfert, Wamsler and Lang, 2019) or elements (Levy, 1996) that characterise these processes but in a rather static manner. That is, factors, features or elements are often considered altogether and at one moment in time for assessment purposes. This research, through the phases of institutionalisation, gives temporality to the main features and allows seeing them as part of a process. The main features were identified individually across the analysis, though they were not grouped under specific labels. Taken altogether, phases, lenses and main features of the institutionalisation of DRM might provide a more comprehensive understanding of how this process unfolds in municipal governments (see Figure 10.1).
In responding to each of the four research sub-questions in the following pages, more details are provided about the main features and their temporality.

RQ1: The findings confirm the centrality of concepts, imaginaries and ways of framing that the concept of policy paradigm brings to the fore in the emergence phase.

Changes of policy paradigm entail a radical shift and departure from the status quo, not only in practices but mainly in ways of thinking, imagining and framing. As some scholars recognise, this is something that technocratic mainstreaming approaches and policy guidelines, with a focus on implementation, have tended to disregard (Kishore, 2011; Wamsler, 2015b). This has also been somehow neglected by those who emphasise the need to move from policy aspirations to policy implementation (Uittenbroek, 2016). While the need for action is real and necessary, it is important to bear in mind that without a change of framing no transformative change will follow (Pelling, 2011; Lavell and Maskrey, 2014; Fraser, Pelling and Solecki, 2016). Conceiving disaster risk management as a policy paradigm is a
reminder of the relevance that concepts, ideas and ways of thinking have in steering that transformative process.

Nevertheless, while the emergence and adoption of a new policy paradigm entails a breaking point with previous ‘ways of thinking’, this will not diffuse automatically to the entire municipal government organisation (even less to the rest of organisations in the city). The experience of Santa Fe clearly shows that it is necessary to build a shared understanding around the concept of disaster risk management from the early beginning, and that certain ‘markers’ (e.g. municipal ordinance, initial training) alongside the work of specific departments (e.g. Communications) are important to so doing. Therefore, while the change of policy paradigm mainly entails a radical change in the interpretive framework, the embedding of related concepts as to become ‘everyday’ within the organisation requires a longer-term perspective. This might depend on multiple factors, including the size of the municipal government organisation and the type and density of linkages across its departments. The latter has been suggested by some regarding social learning within municipalities in medium-sized cities (Ziervogel, Archer Van Garderen and Price, 2016; Paterson et al., 2017) or referring to more porous and networked configurations of municipal bureaucracies (Aylett, 2011, 2013).

Drawing on the example of the municipal government of Santa Fe, it might be worth reflecting on the main features that contributed to the emergence of DRM as a policy paradigm. **Focusing events** were a key factor, especially in relation to the two disastrous flooding events of 2003 and 2007 which opened up a window of opportunity for the introduction of new ideas that could prompt a change of policy paradigm (Kingdon, 2003; Twigg, 2004; Archer and Boonyabancha, 2011). However, as explained in Chapter 6, focusing events was not the only, nor most important, element in opening a **policy window**. These were combined with **political factors**, mainly the **mobilisation of organised social collectives** representing the most affected residents from both events and the timing of the **electoral calendar**. The **alternative political coalition** that ran for municipal and provincial elections in 2007 and which finally won, brought to office a new mayor and city councillors with strong **political commitment** to the adoption of the new DRM approach. Thus, as
the case of Santa Fe confirms, a policy window might open, but someone needs to build on that opportunity. Here, policy entrepreneurs became central, being perhaps the most patent illustration of the figure of ‘the three little crazy ones’ who advocated for DRM as the appropriate policy paradigm to address flooding in the city. Scholars in climate change adaptation usually refer to the role of champions in municipal governments (Carmin, Anguelovski and Roberts, 2012; Uittenbroek et al., 2014; Pasquini et al., 2015). The findings and discussion in Chapter 6 have tried to illustrate their role in more detail, specially elaborating on the origin of the new ideas, how they managed to bring them into the government sphere and the type of disruptive leadership that they incarnated.

The definition of policy paradigm encompasses the very nature of the problem or issue it is meant to be addressing (see Section 1.4). This is something that mainstreaming approaches also acknowledge in terms of the characterisation of the problem at hand (Runhaar et al., 2018). Yet, more than the characteristics of the problem per se what appeared more important for the emergence of the new DRM paradigm in the municipality of Santa Fe was the problematisation of floods in the first place. As elaborated in Chapter 5, floods had always been part of the city. It was the problematisation of existing (and previous) conditions and the reframing of the issue in multiple agendas and voices across organisations and collectives in the city that triggered the development of policy alternatives to deal with an old situation, including a new policy paradigm.

Following the same reasoning, some mainstreaming approaches conceive the framing of the issue and related paradigm alongside its linking to sectoral objectives (Runhaar et al., 2018). Conversely, the case of Santa Fe shows that in the emergence phase the more relevant aspect of framing was the linking of DRM to the new urban development planning strategy of the city as a reflection of its cross-cutting nature. The linking to sectoral objectives would follow (as explained in Chapter 7), but it was important to make it clear from the beginning that gestión de riesgo should permeate the entire organisation of the incumbent and following administrations (e.g. política de Estado). Besides the urban development plan, this rationale was also reflected in the new DRM municipal ordinance. Lavell and Maskrey (2014)
advocate for this organic and holistic understanding of DRM, integrated into other sectors but avoiding a siloed approximation that narrowly mainstreams into specific departments without considering the relations between each other. The link between DRM and development is at the core of this understanding, which has also permeated the framing of gestión de riesgo in the case of Santa Fe (Aguirre Madariaga, 2015b).

The cross-cutting/specific debate is usually addressed when turning to policy implementation, and therefore in terms of mainstreaming. Conceiving DRM as a policy paradigm takes us a step back as to consider its transversal nature and link to development from its very conceptual definition or interpretative framing. That is, the system of ideas underpinning a new approximation to a recurrent and well-known problem in cities such as urban floods.

**RQ2:** *The findings confirm the need to secure a delicate balance between the cross-cutting/specific nature of DMR when embedding the new paradigm in the core work of sectoral bureaus. Organisational elements such as organisational structure, budget allocation, standard operating procedures and training are key for DRM to become part of everyday departmental routines.*

The findings of the thesis make the case for the simultaneity of a dedicated and cross-cutting approach towards DRM in municipal governments, illustrating alternatives of organisational design, budget options, norms and regulations, standard operating procedures and training as to how to address this tension. Moreover, they highlight that this tension should not be perceived as a barrier, but rather as a process of exploration, experimentation and innovation towards more flexibility within municipalities for dealing with the increasing complexity of urban problems. In this regard, the findings align with institutionalisation frameworks in other fields such as gender and climate change adaptation/mitigation that acknowledge the relevance of these organisational elements in framing and reframing everyday practices for the incorporation of a new policy paradigm (Levy, 1996; Göpfert, Wamsler and Lang, 2019).

In the city government of Santa Fe, the transition from preparedness for response to the management of flood risk in the everyday work of multiple departments has been
a rather incremental process, compared to the radical punctuation that defined the emergence of the new paradigm. In this process, certain organisational elements proved key towards making DRM an “approved social practice” (Lavell, 2003, p.31). These encompassed changes in organisational structures, including the creation of a dedicated DRM Office, merging and splitting departments, changes in the hierarchy of existing organisational units according to priorities and the appearance of new ‘satellite offices’ such as the Resilience Office and the Cooperation Agency. Directly or indirectly, these changes have had an impact on the institutionalisation of DRM within the municipality, which explains the drawing of multiple organisational charts in Chapters 6-8. In addition to the Executive, organisational changes were also introduced in the City Council, which resulted in the incorporation of the new approach under the scope of the Commission of Urban Planning, Habitat, Public Works and Disaster Risk Management.

Alongside organisational structures, the definition of standard operating procedures to organise the response to hydro-meteorological events contributed to the modification of mandates and the clarification of responsibilities across departments for the management of flood risk. The manual of procedures and internal action protocols, including the definition of critical points in the city, encouraged the routinisation of practices: first, in the event of an activation of protocol or alert; later, in the sectoral work of those bureaus involved in the contingency planning process. The extensive nature of urban flood risk, signed by the periodicity of heavy rains and rising river levels and their impacts on the city, further contributed to the reproduction of practices and consideration of flood risk and its management on an everyday basis.

Beyond formalised structures and procedures, more intangible and subtle dynamics have eased coordination between departments for managing flood risk. The ‘tallerista’ logic of working imported from the university, the joint elaboration and revision of internal procedures between the DRM Office and sectoral departments, and the linking work of ‘satellites’ were just a few examples of a rather spontaneous coordination that is seldom reflected in conventional organisational charts, but which greatly contributed to the transition to gestión de riesgo within the municipal
government. One of the key mechanisms for the concerted but specialised work that a cross-cutting policy paradigm entails has been a particular type of leadership, able to centralise coordination while allowing for sectoral innovation, in the figure of a dedicated DRM Office.

The metaphor of the municipal government as a jazz ensemble under the conduction of the DRM Office, ‘conducting’ centripetal and centrifugal forces, illustrates that more organic and flexible organisational spaces can coexist with formalised, hierarchical organisational structures. They are both needed, but for different reasons and at different times. This echoes the argument of Aylett (2011) of the simultaneous need for ‘centralised leadership’ and ‘decentralised innovation’ in mitigation policy. Similarly, Pelling et al. (2008) identify both canonical and shadow spaces for social learning within organisations. This suggests a more nuanced understanding of the organisational ‘structures’ that are required in municipal governments for DRM that might be more fruitful than the distinction between dedicated and mainstreaming approaches for embedding cross-cutting policy paradigms (Uittenbroek et al., 2014).

Budget allocation proved also central in the embeddedness phase of DRM in Santa Fe. Financial resources associated with the work of managerial bureaus accounted for much of the financing of gestión de riesgo, although they were not specifically earmarked for this purpose but rather integrated into the annual sectoral budgets of the water resources, public works and solid waste management departments. These resources financed the expansion, but mainly operation and maintenance, of key infrastructure and related skilled personnel in charge of these tasks (including street-worker bureaucrats). The only dedicated budget allocation corresponded to the designated DRM Office, which was sparse compared to the budget of core sectoral bureaus. In the case of the DRM Office and other satellites, the availability of, and access to, knowledge and expertise were perhaps more relevant, facilitated not only by experienced staff but mainly by their linkages within (as satellites) and outside (as part of networked spaces) the municipal government organisation.

Last but not least, if something has contributed to the embeddedness of the DRM paradigm in the municipal government of Santa Fe, it has been the political
continuity of three consecutive municipal administrations of the same political coalition. This has translated into a sort of ‘political stability’ in ways of doing but also ways of thinking, especially given that many high-ranking political authorities have remained in their posts for more than one political cycle. This has somehow contributed to counter the short-termism that often characterises the rhythm of political cycles and fostered a rather incremental change towards the incorporation of flood risk management in the core work of municipal departments. Political continuity is important in countries that lack an organised and professionalised civil service such as Argentina (Ardanaz, Leiras and Tommasi, 2012). As Hall (1993) emphasises, “policy paradigms are likely to have the greatest impact in institutionalised settings where policy is superintended by experts or by administrators with long tenures in office”, the British civil service being an exemplar of such settings (ibid., p.291). When the locus of expertise tends to be concentrated in politically appointed personnel, this is problematic as these individuals change with electoral cycles.

**RQ3:** ‘Satellite offices’ perform a linking work across departments and policy paradigms that sharpens awareness of alternatives for ongoing innovation.

As anticipated in the temporality of the phases, it was suggested that sustained change might happen simultaneously with embeddedness. However, it seems that moments of self-reflection and experimentation usually take place once a municipal government feels ‘confident’ with the policy paradigm under which is working. That is, reaching this point requires a certain level of maturity of truly understanding what DRM is about. ‘Learning to live in an ever-changing environment’ is not something that can be streamlined quickly or immediately, but rather needs to be developed and nurtured (Wamsler et al., 2017). The latter includes forging the type of relations and internal networks between departments that certain offices or individuals can undertake. Succinctly, more creative and spontaneous processes of change require that certain spaces and links have been developed. Likewise, Pelling et al. (2008) recognise that shadow spaces for innovation require a certain time for these more organic relations to be built up.
In the case of Santa Fe, learning and experimentation has been mainly steered by so-called ‘satellite offices’ whose linking work across departments and policy paradigms has sharpened awareness of alternatives for ongoing innovation. This is an interesting finding that converges with network theory and the ‘generative power of networks’ (Owen-Smith and Powell, 2008). This dynamic and subtle understanding of how innovation takes place across internal networks confirms the literature on shadow spaces in complex organisations (Shaw, 1997) and within municipal governments (Pelling et al., 2008; Leck and Roberts, 2015). It adds, though, in signposting the mechanisms that might explain innovation (not only by linking departments but also policy paradigms) and by identifying the characteristics of the departments (satellites) that can steer this kind of processes.

Awareness-raising has also been important in the experience of Santa Fe with managing flood risk, mainly led by the departments of Culture and Education which were fundamental in the creation of a ‘culture of prevention’. The culture of prevention has entailed, above all, the acceptance that floods could happen and might not be able to be fully controlled. The communication of that message to the population has been perhaps among the hardest tasks for the Department of Communications and the Risk Communication programme (see quote by Valsagna on page 177).

Last but not least, when reflecting about innovation in the municipal government of Santa Fe, the autonomy of city governments under a federal system of government such as the one in Argentina cannot be disregarded. As Sozzo (2017) concludes, one of the key opportunities of federalism lies in the ‘micro-revolution’ and ‘local transition’ at the urban scale.

10.1.2 Unpacking municipal government organisations

MQ: It is necessary to unpack municipal governments as a unit of analysis to understand the centrality of their role in steering urban DRM processes. This entails considering intra- and inter-departmental dynamics as well as inter-organisational linkages and resulting networked spaces that leverage the institutionalisation of DRM over time.
The findings confirm the relevance of every and multiple departments within municipal governments, at different moments and for different purposes, contrary to more sectoral approximations to DRM that choose to focus on one or another sector exclusively. Furthermore, the findings corroborate that the temporal dimension of DRM has to be understood in tandem with a relational dimension, which delineates specific types of intra- and inter-departmental as well as inter-organisational dynamics depending on the stage of the process. Thus, when analysing DRM processes, this thesis suggests that it is possible to unpack the municipal government in at least two ways. This first one considers the main leaders, departments and programmes in the different phases (see Table V.1). The second alternative centres on the linkages and resulting networked spaces across which the municipal government (or some of its departments or leaders) diffuses the DRM policy paradigm (see Table 9.1).

The bulk of this research has focused on a single organisation in the process of managing urban disaster risk: the municipal government of Santa Fe. Thus, it makes the case for the centrality of municipal governments in DRM processes at the urban scale. In so doing, it aligns with existing scholarly literature and policy guidelines that account for this role (Lavell, 2003; Satterthwaite, 2013; Wamsler, 2014; Gencer, 2017b; Amaratunga et al., 2018). However, as a broad generalisation, it should be taken with caution. As Satterthwaite (2011) indicates, the role of local governments greatly varies according to their defined mandates and availability of financial resources under specific national government systems. It also greatly varies according to their level of functionality. That is, making the case for the role of city governments in DRM entails the recognition of a functioning state – while in many medium-sized cities in low- and middle-income countries dysfunctional and corrupt governments prevail. Satterthwaite (2011) refers to ‘ineffective’ or ‘unrepresentative’ local governments, but the author still acknowledges the potential of these actors to adapt to climate change in cities and urban areas in the global South (and, arguably, the tightly connected task to manage urban disaster risks).

Interestingly, much of the local scholarly work from the social sciences after the two large disasters in Santa Fe has emphasised a rather absent and negative role of the
(municipal and provincial) state, where blame predominated and criticism was the rule. The level of responsibility attributed to the municipal and provincial governments in the disasters further confirms the centrality of the municipal government in managing flood risk. This was acknowledged in the imaginary of the Santafesinos (represented in many of the social movements that emerged after the disaster in 2003) and the local research production that documented the catastrophes. The findings of this research do not intend to make an ‘apology’ or ‘propaganda’ of the administrations that have taken office since December 2007, but rather to delineate potential trajectories where the municipal government might have a quite different role to play. In short, they present an alternative reading of what the involvement of a municipal government in managing disaster risk might resemble.

In this regard, an important element to consider refers to the type of government leading this kind of processes. In the case of Santa Fe, it has been a rather progressive and socialist government which led the DRM process under a democratic regime. A progressive government is usually open to new ideas, learning and linking with other cities and, in this case, the world (vividly represented in the repeated notion of the ‘internationalisation of the city’ by leaders of the municipal government). The socialist government has kept in its hands the provision of basic services, specifically water and sanitation and electricity, which have a broad coverage across the Santafesinos (access to electricity and safe drinking water reaches almost the total population). This has been complemented with free public education and healthcare, under the mandate of the province but increasingly decentralised to municipal governments for delivery (Chapter 5). This baseline represented an opportunity to link DRM with development, but this had to be enacted.

Drawing on the experience of Santa Fe, it might be worth reflecting on the reasons that justify the leading role of a municipal government in DRM on the basis of an institutionalisation framing. An institutionalisation lens further confirms the relevance of city governments in disaster risk management processes, both from an organisational and relational point of view.
The institutionalisation of DRM in the municipal government of Santa Fe demonstrated that, as an organisation, a municipal government has the potential to address DRM holistically and in a sustained manner. That is, it can address DRM as a concept and practice, which is specific and cross-cutting, and which cuts across the policy, planning and management spheres. Except for municipal governments, it is difficult to think about other organisations which have this broad-based scope and related potential at the city scale. Table V.1 and the multiple departments synthesise the organisational scope that municipal administrations, especially in highly decentralised or federal countries, usually have for leading DRM processes.

The holistic approximation to DRM should be understood on the basis of a few additional organisational elements which are distinctive of municipal governments (vis-à-vis other organisations at the local scale): their relative stability for addressing an ever-present issue, the scale of resources (human and financial) to which they have access, their enforcement capacity of regulatory frameworks over their territories and their legitimacy based on the degree of representativeness (which, in democratic regimes, derives from the majority of citizens) (Lavell, 2003). In Santa Fe, long-established humanitarian organisations such as Red Cross Santa Fe and Caritas Santa Fe as well as local civil society organisations such as MLST and Canoa were relatively small in terms of human and economic resources. The universities were key organisations but not for the delivery of urban infrastructure and services, while social movements were contingent and spontaneous and without a consolidated structure.

Nevertheless, Chapter 9 highlighted that emergence, embeddedness and sustained change of the DRM policy paradigm in the municipal government of Santa Fe have evolved in tandem across its relations with those organisations and other city governments. Thus, the relational dimension also adds to the temporality of the framework, by considering the networked spaces that matter at specific moments in time. In this context, relationality might be interpreted as an enabling landscape for the institutionalisation of DRM. Moreover, the centrality of municipal governments might be further justified in their ability to forge linkages with others to advance the adoption and diffusion of DRM beyond their organisational boundaries. Whereas this
is not distinctive nor exclusive of municipal governments, certain types of linkages seem to fall within their orbit, namely: academia-policy interfaces and transnational city-to-city networks. In the literature, these linkages and resulting networked spaces are identified as central in processes of innovation, transition and transformation in urban sustainability, climate change and urban disaster risk management (Mieg and Topfer, 2013; Johnson and Blackburn, 2014; Luque-Ayala, Marvin and Bulkeley, 2018). The findings of this research support this argument by further adding metropolitan configurations and regional networks across cities of the global South (e.g. Mercociudades) in advancing the institutionalisation of DRM. Perhaps more importantly, this thesis has emphasised the temporality of networked spaces that can leverage the work of a municipal government in DRM at particular times. This is not usually considered when analysing the potential of networks in addressing complex urban issues. Table 9.1 synthesised the main linkages and resulting networked spaces that steered the institutionalisation of DRM within the municipal government of Santa Fe and across its relations with other organisations.

The relational dimension of institutionalisation emphasises that the linkages of municipal governments with other organisations should not be underestimated, even when the leading organisation is a local government. This is important since there are multiple aspects across DRM processes that municipal governments cannot cover on their own. They might need higher levels of government in responding to and recovering from emergencies and in having access to resources for large-scale infrastructure; they might depend on their neighbours to address risks which transcend their jurisdictional boundaries; they might rely on local organisations to gain legitimacy as well as for learning and innovating; and they might not do any of the above if they were not constantly ‘monitored’ by, and accountable to, grass-root movements and residents who remind them of those whose lives and assets are disproportionally affected by disasters and development deficits.

In the analysis, the relational perspective has been explored through the lens of networked spaces that characterise adaptive organisations. This approximation focuses on the productive linkages between agentic organisations and, in so doing, might override the more conflictive side of those relations and issues of power.
However, it can be equally argued that, by making a selective choice of focusing on a municipal government as the entry point and leading organisation in DRM, this research has indirectly recognised the differential power of this organisation over others in the city and surrounding areas.

All in all, and going back to the main research question of how municipal governments institutionalise DRM into urban policy, planning and management, it is the combination of the temporality of phases with the relevance of certain departments, people, programmes and networked spaces (within and across organisations) which contributes to a better understanding of how DRM processes are conceived, planned and implemented by municipal governments in cities.

10.1.3 The institutionalisation of change

MQ: The institutionalisation of the DRM policy paradigm entails different types of change, ranging from a fundamental change in ‘ways of thinking’ to incremental changes in departmental routines or ‘ways of doing’ to more spontaneous adaptive changes through learning and experimentation for ongoing adjustments.

The findings confirm that the institutionalisation of the DRM policy paradigm is underpinned by multiple processes of change and, therefore, argue for the notion of the ‘institutionalisation of change’. This is in line with the understanding of disaster risk management as ‘a permanent transformation’, that the quote of the former DRM Office Director in Santa Fe very well depicted (see introductory quote to Chapter 8). Scholars who conceive DRM as a new paradigm recognise, in turn, the underpinning idea of a fundamental change, including organisational change (Fraser, Pelling and Solecki, 2016; Wamsler and Pauleit, 2016). Yet, they do not often acknowledge that a new policy paradigm might entail different types of change for those organisations adopting it. Here, literature on policy process research proved useful to characterise multiple types of change linked to new policy paradigms (Hall, 1993; Kingdon, 2003; Herweg, Zahariadis and Zohlnhöfer, 2017).

Among the key findings in this direction there are at least three which are worth mentioning. In the first place, the institutionalisation of DRM in Santa Fe suggests a sort of correspondence between types of change and phases. That is, certain patterns
of change seem to characterise better certain parts of the process: 1) punctuations via paradigm change in the emergence phase; 2) incrementalism via routinisation in the embeddedness phase; and 3) adaptability via learning and experimentation in the sustained change phase (see Table 10.1). Instead of one type or another, institutionalisation considers the possibility of these various types of change within a single framework. This approach has been somehow proposed in policy process research to investigate policy change under different models (Hall, 1993; Kingdon, 2003; Weible and Sabatier, 2017). Hence, institutionalisation might provide an alternative reading of policy change, in general, and of change across the lifespan of policy paradigms, in particular. It further suggests an alternative vocabulary to the existing notions of resilience, transition and transformation in the DRM and climate change literature (Pelling, 2011, 2012).

Table 10.1: Phases of institutionalisation, type of change and mechanisms

<table>
<thead>
<tr>
<th>Phase of institutionalisation</th>
<th>Type of change</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergence</td>
<td>Punctuation</td>
<td>Paradigm change</td>
</tr>
<tr>
<td>Embeddedness</td>
<td>Incrementalism</td>
<td>Routinisation</td>
</tr>
<tr>
<td>Sustained change</td>
<td>Adaptability</td>
<td>Learning and experimentation</td>
</tr>
</tbody>
</table>

Secondly, whether this pattern is exclusive or characteristic of cross-cutting policy paradigms cannot be confirmed by this research. However, what seems clear is that cross-cutting policy paradigms such as DRM tend to reinforce multiple trajectories of change. Specifically, they seem to so doing on the basis of two simultaneous dynamics within an organisation: 1) cross-cutting approaches impel change in the everyday work of multiple individual areas; 2) they propel change by bridging the work of various individual areas together. Consequently, organisational change might not necessarily be a pre-condition for the adoption of a new policy paradigm, as the empirical findings show that municipal governments (can) change themselves while addressing cross-cutting issues. This view proposes thinking about problem-solving as an opportunity, rather than focusing on the overwhelming burden complex issues might put on municipal governments.

Finally, it is important to bear in mind that institutionalisation is important to understand how change is introduced in city governments, but also how ideas and
practices that seem to work are grounded and stabilised. In short, while change is important, organisations also need to stabilise concepts and practices as long as they are useful for addressing a particular societal issue. This is a dialectic tension that underpins the concept of institutionalisation (Tolbert and Zucker, 1983; Levy, 1996).

### 10.2 Future lines of research

Not much empirical research has concentrated on a thorough understanding of disaster risk management from the perspective of municipal governments in medium-sized cities in low- and middle-income countries. Fewer empirical studies have done so while documenting the trajectories that (might) pave the way towards the sustenance of urban DRM processes (Hardoy, Pandiella and Velásquez Barrero, 2011; Velásquez Barrero, 2011; Aguirre Madariaga, 2015b). The temporal scale of a decade of analysis, which is suggested in the literature as an appropriate interval to understanding processes of policy change, has not been very common either in studies of urban disaster risk management (Sabatier, 1993; Persson, Eckerberg and Nilsson, 2016).

These empirical gaps might be explained by at least two reasons, which were both acknowledged in the research design (Part III): 1) the rather exceptional nature of empirical cases that serve these criteria, and 2) the research limitations for exploring this kind of processes. That is, there are not many city governments which have adopted and implemented DRM for a relatively long period of time (a decade or more) in medium-sized cities in low- or middle-income nations. With the exception of those city governments documenting their experiences themselves (or in collaboration with local researchers), the synthesis of these experiences has not been readily accessible to researchers in these contexts. Undertaking (participatory) research about municipal governments might be challenging and many times not even possible for investigators. There are not many city governments willing to open their doors, especially in contexts where things might not work so well or when issues are quite sensitive. However, rather than discouraging the continuity of this line of research, the findings in this thesis suggest the need to address critical knowledge gaps, further exploring the analytical potential of the institutionalisation framework and encouraging participatory research in the realm of municipalities.
Three knowledge gaps for future research to address can be identified. The first one relates to the internal social dynamics (intra- and inter-departmental) that the size of a municipality in a medium-sized city might encourage and the influence on learning and experimentation. The second research gap pertains to the effects of political stability/instability from changes of municipal administrations on the institutionalisation of policy paradigms. The third knowledge gap refers to the possibilities of federalism versus more centralised government systems for the management of disaster risk in cities.

Regarding the replication of the institutionalisation framework, there are at least three interesting pathways to explore further. The first one consists of replicating the framework for the same policy paradigm (DRM) and type of organisation (municipal government), but in different cities. The second option involves extending the same type of analysis to local organisations of a different nature that might be changing themselves alongside the municipal government (or even stimulating the municipal government to change). Further investigations might explore the simultaneity of institutionalisation processes, understood as the unfolding of the three phases, happening across different organisations. The third alternative for replication moves beyond DRM to consider other cross-cutting policy paradigms such as gender or urban mobility. Thus, the analytical framework might also work to analyse the institutionalisation of other emergent cross-cutting approaches within local governments. Moreover, this might contribute to identify any specificities of disaster risk management in comparison to other cross-cutting policy paradigms.

Importantly, replication of the analytical framework can be conducted both for conceptual (research) and operational (to activate change) purposes. Hence, the framework could be refined through its active use by researchers and policymakers alike or by the joint work of academics and policymakers. This moves to the exploration of, and experimentation with, new methodological approaches to research municipalities in processes of disaster risk management. The latter is aimed at further encouraging academia-policy interfaces via participatory research in municipalities or taking a step further by exploring the potential of action research with municipal governments.
10.3 Closing remarks

I would like to close my thesis with a reflection from a research participant:

“I say to my thesis students: «Imagine that what you are doing is later in a library. And on the ladder of the evolution of our culture, others will take your material and will continue climbing other steps ». (...) That is the contribution to the science, which is a development that unfolds and to which the particularisation of the study is a contribution... Because the pamphlet is already written” (Interview with former representative of Department of Urban Planning and professor at UNL, 03/10/2017, my translation).

This thesis has built up on the work of many others, including the research of (local) scholars and the experience of practitioners. In documenting and building theory from the experience of the city of Santa Fe with gestión de riesgo, this research has also played its part in the broader institutionalisation process of the new policy paradigm. This is my small contribution which I hope others might find useful and inspiring.
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320


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