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A role for municipal governments in leveraging transformative change for urban disaster risk management: The experience of Santa Fe, Argentina, with urban flood risk

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A R T I C L E   I N F O

A B S T R A C T

The increasing and disproportionate impacts associated with disaster risk and climate change risk in cities and the urgency for action have sparked academic and policy debates about transformation in the context of urban disaster risk management and climate change adaptation. Yet, the vague, ambiguous and diverse understandings of the concept of transformation, combined with a lack of empirical grounding, deter the possibilities of its application in policy and practice, including a constructive engagement with municipal governments in leveraging fundamental change. Building upon the amalgamation of insights from sociological institutionalism, policy process research and complexity theories in organisation studies, the paper proposes an institutionalisation framework as a heuristic device to make sense of transformation. The framework unpacks types, mechanisms and agents of change across three phases – emergence, embeddedness and sustained change – and is applied to analyse the experience of the municipal government of Santa Fe, Argentina, with disaster risk management over a decade. The findings confirm the two productive tensions that traction transformation, namely, change/stability and leadership/networked spaces, and that the loci of fundamental change are distributed across time, space and agentic actors. The framework and case study jointly illustrate intervention points for municipal governments to catalyse transformative change when advancing urban disaster risk management.

1. Introduction

Critical scholars in disaster and disaster risk studies have challenged misleading framings of disasters as natural and extraordinary since the 1970s, focusing on the root causes and underlying drivers that unveil the historical, social and political processes that produce and reproduce the conditions of disaster risk (O'Keefe et al., 1976; Blaikie et al., 1994; Wisner et al., 2004). In the same vein, a more radical approximation towards managing disaster risk (and increasingly climate change risk) has been gaining traction, spearheaded by the notion of transformation and the imperative of fundamental change (Pelling, 2011; Tschakert et al., 2013; Lavell and Maskrey, 2014). Fuelled by the same problem – the escalating and disproportionate impacts in lives and economic losses derived from disasters –, and a process-oriented type of analysis, the first ones denounce the 'drivers of risk' (Fraser et al., 2016a; Oliver-Smith et al., 2016), while the second ones advocate for 'pathways of change' as counter trajectories (Wise et al., 2014; Gibson et al., 2016). A normative approach orients both types of analysis towards the identification of critical points of intervention, whether framed as

'tipping points' (including 'points of no return') or 'points of leverage', respectively[1] (Pelling and Dill, 2010; Wamsler et al., 2014).

In the light of this context, and echoing a broader localisation turn, the urban and municipal governments[2] have become key components of the problem-solving equation (Lavell et al., 2003; Wamsler, 2014; Bartlett and Satterthwaite, 2016). Yet, transformation in response to disaster risk, climate change risk and, more broadly, environmental problems in a rapidly urbanising world, is not fully understood in terms of what it should look like empirically nor how it can be catalysed and sustained (Fraser et al., 2016b; Koch et al., 2017). The latter is even more relevant for medium-sized cities in low- and middle-income countries, hosting the majority of the world urban population and where most of the impacts of disasters are experienced[3] (Birkmann et al., 2016; Paterson et al., 2017), and whose city governments are traditionally associated with corruption, lack of resources and inefficiencies (Satterthwaite, 2011). In short, cities portrayed as 'spaces of impossibilities'.

Transformation, defined as "a change in the basic features of a socio-ecological system in terms of altered approaches, goals and values" (Oliver-Smith et al., 2016, p.47), has a disruptive potential for unlocking new possibilities in cities. Driving the agenda of transformation in the context of disaster risk reduction, climate change adaptation and sustainability in cities, there are at least three overarching arguments justifying why fundamental change is necessary and/or desired: 1) urban policies and interventions are not working or delivering the expected results; 2) some social groups are not equally benefiting from existing conditions and/or are disproportionally bearing the burden of existing policies and interventions; 3) the dynamic and complex nature of urban problems (and their underlying conditions) require different policy approaches. In a nutshell, the efficiency argument, the socio-environmental justice argument, and the urban resilience argument, respectively (Hordijk et al., 2014; Allen et al., 2017). The intentionality of change, that is, the normative goal of transformation, informs the core values and assumptions of the altered approach or paradigm. Importantly, a normative approach to transformation builds on the premise of 'deliberate' rather than 'spontaneous' transformation (O'Brien, 2012; Manuel-Navarrete and Pelling, 2015).

At the same time, transformation as utopia might be perceived as something distant or unachievable, raising expectations of an ideal urban future. The imperative of finding (path)ways to move from utopia to reality, envisioning 'real utopias' (Biel, 2014), is mirrored in the two waves in urban climate change research, from 'urban optimism' to 'urban pragmatism', over the last decade (Castán Broto and Westman, 2020). Research and policy in urban disaster risk delineates a similar trajectory, from aspirational discourses to 'words into action' (Hardoy and Filippi, 2019). The turning point in this transition coincides with various international frameworks ratified in 2015, including the Sendai Framework for Disaster Risk Reduction 2015–2030 (UNISDR, 2015) and the Paris Agreement (UNFCCC, 2015), which acknowledge a relevant role for the sub-national (usually framed as 'local') level, including city governments. However, despite the acknowledged importance of their role, there is still a limited understanding of municipal governments in disaster risk and climate change research and policy, which extends to an underestimation of the discursive dimension of envisioning and imagination at a time signed by an urgency for action.

Building on the contradiction of 'real utopias', and counter to the intuitive perception of circumscribing the locus of transformation to the 'extraordinary' and 'unusual', this paper responds to the call of Castán Broto and Westman (2020) for 'a sober assessment of the mundane' (ibid., p.11). That is, to turn our attention to the everyday realities of municipal governments in managing urban disaster risk to understand how fundamental change can be fostered on the ground. In so doing, the paper argues that a critical reading of transformation invites us to rethink the conditions under which the urban can delineate an enabling environment for disaster risk management (Wesely et al., 2021) and to better understanding the role that municipalities can play in leveraging this potential. Furthermore, it proposes institutionalisation as a heuristic device to unpack the complexity of municipal governments in terms of types and mechanisms of change and the relations in which they engage in the course of urban disaster risk management processes. Revisited by the possibilities of the new institutionalism in sustainability and climate change research (Allen and You, 2002; Fazey et al., 2018), institutionalisation provides a novel framework for undertaking pathways of change type of analysis as well as for delineating practical trajectories to foreground transformation. These are crucial conceptual and policy contributions to the ongoing debate on transformation in the context of disaster risk reduction and climate change adaptation and towards the materialisation of real 'urban' utopias.

The flooding events of April 2003 and March 2007 shattered the physical, socio-economic and political architecture of the city of Santa Fe, Argentina, precipitating the concomitant fragmentation of the urbs, civitas and polis and lowering the self-esteem of a medium-sized city (Herzer and Arrillaga, 2009a; Calvo and Viand, 2015). Ten years later, the same city was recognised as a good practice case study in international policy circles and a pioneering example in the country and region for its ground-breaking work in disaster risk management (Gobierno de la Ciudad de Santa Fe, 2014; Viand and Briones, 2015). In between, three consecutive municipal administrations altered the approach to urban flood risk in the development and planning of the city and sustained it over a decade, positioning Santa Fe in the international agenda of urban resilience and transnational city-to-city networks for urban sustainability (Aguirre Madariaga, 2015). The narrative of transformation was not consciously elicited in the quotidian policy discourse of this period; yet, multiple changes at various levels and across multiple organisations and policy domains that started 'because of' urban flood risk, contribute a relevant case to explore the dynamics of transformation in the context of disaster risk management in a city of the global South.

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[1] The extent to which 'tipping points' might become 'points of leverage' deserves a separate discussion.

[2] This paper focuses on the lower-tier level of government in cities which, in Argentina, corresponds to municipal governments. A generic term often used in the literature is 'city government'.

[3] Cities and towns with fewer than 1 million inhabitants accommodate and are expected to accommodate most of the world's urban dwellers (UNDESA, 2019).

The paper is organised in seven sections. The following section begins by making the case for the agency of municipal governments in disaster risk management, specifically, and transformation, more broadly, showing how these two processes can be linked. Section 3 then proposes an institutionalisation lens to analytically operationalise transformation according to three phases which are characterised by distinctive types and mechanisms of change and grounds the framework in the realm of municipal government organisations. Section 4 continues with the research design, emphasising the pertinence of participatory approaches when researching transformative change in municipalities, and introduces the single case-study that informs the main findings. Drawing on the experience of the municipal government of Santa Fe, Argentina, with *gestión de riesgo*[4], Section 5 elaborates on the 'mundane' aspects of trajectories of change by answering two research questions in the three phases of institutionalisation: (1) how is transformation driven? and (2) who drives transformation? Section 6 synthesises the discussion around the productive tensions that traction transformation, namely, change/stability and leadership/networked spaces, and the acknowledgement of the associated trade-offs that a normative engagement with the concept brings to the fore. Finally, Section 7 consolidates the conceptual, empirical and policy contributions of the paper, suggests future lines of research and concludes with an open call for municipal governments to embark on a pedagogy for change.

2. City governments as agents of transformative change

Alongside the discussion around agents of transformative change, there remain fundamental questions about "what drives transformation and when, where and how it occurs" (Fraser et al., 2016b, p.28). The current use of the term transformation is often vague or ambiguous, but more concerning is that there has been limited critical analysis of the concept. In this context, some are beginning to advocate for a critical research agenda about transformation which denotes not only the novel nature of a concept still 'in the making' but also its promising contributions flourishing across the social sciences, humanities and the arts (Gillard et al., 2016; Fazey et al., 2018). To further add to, and refine, this agenda it is worth considering three guiding questions to orient our understanding of transformation: 1) *what is transformation responding to?*, that is, the issue of concern; 2) *how does transformation occur?*, that is, the mechanisms throughout which fundamental change can be achieved; and 3) *who drives transformation?*, that is, the agents of fundamental change. The first question delineates the policy domain within which transformation is conceptualised and realised in practice, while the other two questions refer to the pathways and drivers of change that are aimed at orienting the analysis of, and interventions for, transformation, respectively.

The issue of concern is of relevance not only to identify similarities in the nature of contemporary global challenges, but also to embrace coherent approaches to address them in an integrated and systemic manner. Common ground in the literature about transformation can be identified in the realm to which the concept is applied (e.g., cities) as well as in the issues it is meant to resolve (e.g., disasters, climate change, and environmental degradation). Conceptual elaborations of transformation in relation to climate change mitigation and sustainability, increasingly in the context of cities, are central to framing responses to urban disaster risk and climate change risk. Specifically, urban low carbon transitions (Bulkeley et al., 2011; Luque-Ayala et al., 2018) and urban sustainability transformations (Patterson et al., 2015; Koch et al., 2017) are among the core theorisations from where to draw insights when critically rethinking fundamental change to address the root causes and underlying drivers of urban risk. On the basis of this cross-fertilisation, scholars driving the agenda on transformation in disaster risk reduction and climate change adaptation should aim for further complementarities across problem domains, academic disciplines and societal actors (Feola, 2015). Arguably, this bridging work can also contribute to advance an actionable conceptualisation of transformation in policy and practice (Few et al., 2017; Deubelli and Mechler, 2021).

Linked to the issue of concern is the question of how transformation occurs, mainly in terms of the type of change. When characterising transformation, some scholars start from the core attributes of change and combine depth, breadth and speed of change (Termeer et al., 2017; Fazey et al., 2018). Moving from the 'descriptors' of change to the 'how', others concentrate on the distinction between spontaneous and deliberate transformation (O'Brien, 2012), which resonates with inventions and interventions "for achieving the transformation of urban conditions or of wider political relations" (Robinson, 2006, p.251). On the basis of the magnitude of change on fundamental value systems and power relations, some go a step further an differentiate between resilience, transition and transformation (Pelling, 2011). Regardless of definitional distinctions, a shared feature across various conceptualisations of transformation is their dynamic approximation in terms of pathways of change, which concedes the possibility of multiple types of change unfolding asynchronously and synchronically in time and space (Westley et al., 2011; Wise et al., 2014). Interestingly, the relevance of the sustenance of change is almost absent from discussions on transformation, except from a few exceptions that either refer to 'consolidation' as a separate and distinct process (Paton and Buergelt, 2019) or that consider transformation from a 'continuous change' perspective (Termeer et al., 2017).

Analysis of pathways of change is consistent with more dynamic and relational conceptualisations of disaster risk, such as Forensic Investigations of Disasters (FORIN), which are aimed at unveiling major policy choices and everyday incremental decision-making (Integrated Research on Disaster Risk, 2011; Oliver-Smith et al., 2016). In the same vein, the management and reduction of urban disaster risk should not be conceived as a one-off technical exercise which happens in a void; instead, it is an ongoing and never-ending process that impels individuals and organisations to change themselves while envisioning and steering these trajectories (Wamsler, 2019). This paper argues that thinking about fundamental change from within, as inner pathways of transformation, might serve not

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[4] In English, disaster risk management.

only as a more tangible but also necessary starting point for transformative change. This turns the focus to the third guiding question about agents of change but conceiving them as subjects that change themselves.

Agents of transformative change are increasingly recognised across the urban as the arena from where change can (and needs to) be initiated. Against the backdrop of the negative impacts of rapid urbanisation, especially in low- and middle-income countries[5], the endorsement of cities as spaces of possibilities is highlighted on the basis of economies of scale for basic service provision, hubs of knowledge co-production, democratisation and prosperity in thriving spaces (Hardoy et al., 2001; Parnell and Oldfield, 2014). In this context, the notion of local disaster risk management gains relevance, alongside the recognition that municipal governments should be at the forefront this process (Lavell et al., 2003; Wamsler, 2014). The realignment of responsibilities and decentralisation of action shifts attention from the top-down, centralised management of emergencies by national governments to the critical anticipatory work of subnational (specially city) governments in addressing disaster risk factors linked to development priorities. In linking disaster risk management to the development debate, new paradigms of development can not only be imagined but even transcended through radical approaches claiming alternatives *to* development (Esteva et al., 2013). Placing disaster risk management in the context of (urban) development can untap the potential for transformation by challenging dominant development pathways and practices that have proven unjust, unsustainable and ill-adapted (Lavell and Maskrey, 2014; Bartlett and Satterthwaite, 2016).

The agentic role of city governments in disaster risk management towards the broader achievement of transformation is justified on a number of reasons. City governments have a key role to play in the provision of basic services and critical infrastructure that contribute to the smooth running of their cities and the everyday lives of all, specially the most marginalised (Satterthwaite, 2011; Palmer et al., 2017). 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, and the reduction of existing, disaster risk (Johnson, 2011). Thirdly, municipal government organisations have a city-wide scope for action and 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 transversal and holistically (Lavell et al., 2003; Wamsler, 2014). 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, 2013). Finally, municipalities have the capacity to articulate with higher levels of government, particularly for decisions that involve large investments or transcend their mandates (Hardoy et al., 2011). These inherent functions and characteristics (can) contribute to improving urban management efficiency, strengthening democracy and broadening the room for manoeuvre of city governments for the micro-revolution or transformation at the urban scale.

Yet, there is still a critical knowledge gap in the understanding of municipal governments in disaster risk and climate change academic thinking and policy development. 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 (Wesely et al., 2021). Corruption, lack of financial resources, limited technical capacities, among others, have often depicted an overtly pessimistic image of municipal government organisations. The focus on barriers has combined, and arguably reinforced, a conception of municipal governments as monolithic and static organisations (Biesbroek et al., 2015). Thus, municipal bureaucracies have usually been depicted as averse to change and political administrations often blamed for erratically changing according to electoral cycles, and very little is known about the social and political dynamics within and across a municipality and how these impact on stability and change (Aylett, 2013; Pasquini et al., 2015). Overall, this has prevented an exploration of the conditions under which a municipality might be able to initiate and sustain urban disaster risk management processes 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.

Being aware of issues of power and injustices, some scholars have nonetheless begun to advance a more constructive approach to engage with municipalities as agents of transformative change in cities of the global South (Carmin et al., 2012; Pasquini et al., 2015; Ziervogel et al., 2016). This forward-looking approach, which recognises a meaningful role for municipal governments in responding to the challenges posed by disaster risk and climate change risk, calls for a better understanding of municipal government organisations themselves and how they (can) change. Conceiving disaster risk management as a nascent policy paradigm offers a fruitful arena to explore trajectories of change and stability which can be steered and leveraged by city governments towards transformation.

3. An institutionalisation lens for making sense of transformation

In placing the discussion of disaster risk within the broader framework of transformation in urban development, Fraser et al. (2016b) acknowledge that there are not many known examples of 'complete' and deliberate transformations at the city scale. Similarly, there is a visible gap between the theoretical concept and the empirical cases of urban transformations across the sustainability literature (Koch et al., 2017). Thus, we still seem far to know what transformation in cities might look like. To address this gap, the new institutionalism is identified as one of the relevant theories of change in the social sciences for better understanding transformation in relation to climate and other global change, although not yet fully explored in its potential (Fazey et al., 2018). Following on this argument, this article proposes institutionalisation as a useful lens to analytically operationalise transformation in response to the production and reproduction of urban disaster risk. In so doing, institutionalisation contributes a heuristic devise for 'making sense' of transformation in relation to new policy paradigms aimed at advancing development-based interpretations and interventions to manage disaster risk in cities (Lavell, 2012).

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[5] 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 (Hallegatte et al., 2017).

Institutionalisation has gained prominence in understanding processes of change, particularly in relation to emergent and cross-cutting policy paradigms such as gender, urban sustainability, and urban climate adaptation and mitigation (Levy, 1996; Allen and You, 2002; Anguelovski and Carmin, 2011). Moreover, it has lately received particular attention in accounting for the pivotal role of municipal governments in steering processes of change catalysed by those nascent policy paradigms (Aylett, 2013; Göpfert et al., 2019). This understanding of institutionalisation mainly draws from what is known as organisational or sociological institutionalism. That is, the application of institutional theory to the study of organisations, including how they change and stabilise over time, according to what parameters and throughout what mechanisms (Powell and DiMaggio, 1991; Greenwood et al., 2008).

Institutionalisation as a social theory of change has proven attractive for at least three main reasons. In the first place, institutionalisation contributes to understanding not only the incorporation of new ideas within organisations, but also the translation of these ideas into practices. This is tightly connected to the centrality of the concept of policy paradigm, defined as an interpretative framework or system of ideas that specifies the overarching goals of policy and the instruments to attain them but, more importantly, the very nature of the problems they are meant to be addressing (Hall, 1993). Secondly, while institutionalisation allows to unveil how change is introduced in organisations, it is simultaneously useful to understanding how ideas and practices that seem to work are grounded and stabilised. This is a dialectic productive tension that underpins the concept of institutionalisation (Tolbert and Zucker, 1983; Garud et al., 2007) and which Levy (1996) synthesises into the concept of 'sustained change'. Finally, institutionalisation provides a lens to scrutinise various types of change in tandem. Traditionally, disaster scholarly has tended to almost exclusively focus on punctuations or critical junctures when theorising about processes of fundamental socio-political change linked to the instability that large-scale, rapid-onset disasters generate (Pelling and Dill, 2010; Kelman, 2011). Yet, the possibility of deliberately advancing transformation through the combination of multiple types of change has been less explored in disaster studies.

In line with the abovementioned premises, institutionalisation is defined here 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 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.

This definition builds upon a broad-based theoretical foundation, which combines insights from sociological institutionalism (Powell and DiMaggio, 1991; Greenwood et al., 2008), policy process research (Kingdon, 2003; Weible and Sabatier, 2017) and complexity theories in organisation studies (Shaw, 1997; Burnes, 2005). Policy process research contributes to the understanding of punctuations as short-live policy windows that might be capitalised as an opportunity for shifting ingrained policy paradigms (Carmin et al., 2012). Sociological institutionalism enriches theorisations on the possibilities of in-depth change via incremental modifications in everyday (work) routines (Termeer et al., 2017; Göpfert et al., 2019). Complexity theories are relevant to elucidate the non-linearity of change in adaptability, which emanates from rather spontaneous processes of learning and experimentation across the multiple and simultaneous relations within and between organisations (Pelling et al., 2008; Aylett, 2013).

In operationalising the definition according to these strands of literature, three phases of institutionalisation are analytically delineated: (1) emergence, (2) embeddedness and (3) sustained changed. Each of these phases, in turn, are underpinned by a prevailing type of change which is steered by a specific mechanism (see Table 1). Importantly, while all three phases are relevant for the institutionalisation of a new policy paradigm, they are not necessarily linear but asynchronous and sometimes overlapping. Thus, incremental and adaptive change unfold alongside, cutting across and blending with punctuations, which justifies the meta concept of the 'institutionalisation of change' to describe transformation.

Fig. 1 grounds the three phases of institutionalisation – emergence, embeddedness and sustained change – into the realm of a municipal government organisation. Thus, it illustrates how the type and mechanism of change that characterise each of the phases translate into modifications in 'ways of thinking', 'ways of doing' and 'ways of innovating', respectively. Ways of thinking are synthesised in a new policy paradigm (e.g., disaster risk management), which is often associated with novel concepts and related framings that, over time, become part of the everyday vocabulary of an organisation. Ways of doing inform departmental work routines that are reiterated on an everyday basis. Ways on innovating define a culture of innovation, that is, the ongoing predisposition to adjust to an ever-changing environment. Networked spaces place the institutionalisation process in the landscape of the multiple linkages that are woven within a municipal government but also across its relations with other local organisations and city governments. In so doing, it further suggests that the institutionalisation of a new policy paradigm is a co-evolving process that not only activates change within the municipal government but also in others, and vice versa, in a reinforcing manner.

Fig. 1 does not represent a predefined roadmap to institutionalise a new policy paradigm, but rather highlights various mechanisms that can be enacted at different moments and following distinctive dynamics of change. Even more, the framework can also work for other cross-cutting societal issues and related policy paradigms, as it has been suggested by researchers in relation to gender,

Table 1
Phases of institutionalisation, type of change and mechanisms.

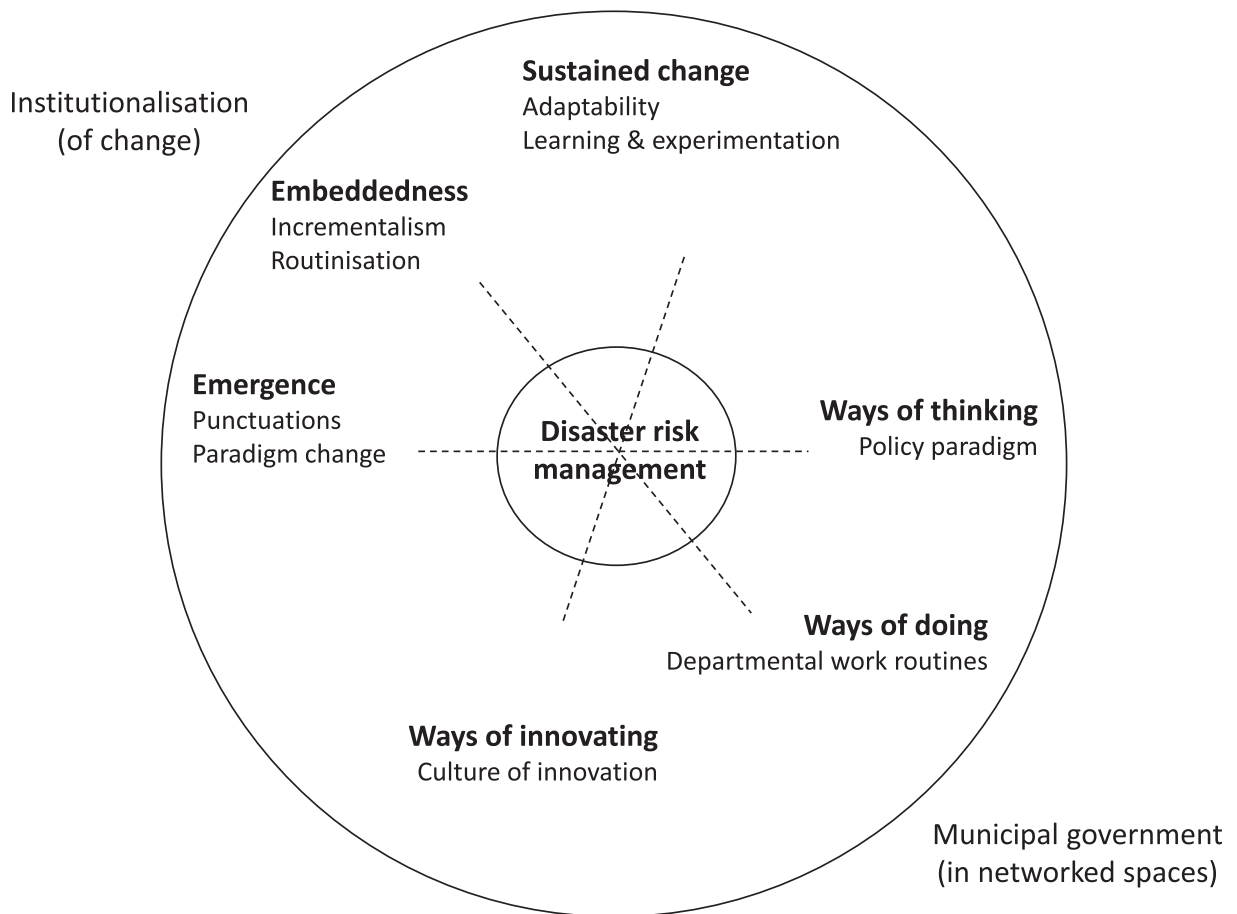| Phase of institutionalisation	Type of change	Mechanism of change
Emergence	Punctuation	Paradigm change
Embeddedness	Incrementalism	Routinisation
Sustained change	Adaptability	Learning and experimentation

Fig. 1. The institutionalisation framework.

environmental policy and urban sustainability. Using the lens of institutionalisation, this article responds to the overarching question of how municipal governments can incorporate disaster risk management permanently and organically into their everyday work and, in so doing, leverage transformation in their cities. Unveiling the 'mundane' aspects of the everyday, as to not only trace but also encourage trajectories of change, calls for more transgressive methodologies with a strong participatory (and increasingly action-research) design and a process-oriented type of analysis.

4. Participatory approaches for researching transformative change in municipalities

Methodologically, understanding processes of transformative change within and across municipal governments entails engaging with novel research methods. It requires researchers embracing a longer term perspective, e.g., a decade or more, which some identify as a relevant timescale for examining processes of policy change (Sabatier, 1993) and immersing themselves in the everyday work of these organisations, given that many of the changes often happen in less formalised spaces and throughout more intangible mechanisms (Pelling et al., 2008; Leck and Roberts, 2015). In this regard, participatory approaches to researching municipalities are useful, even though they have been less explored in the context of municipalities in medium-sized cities of the global South. At the same time, though, action research initiatives to leverage the opportunities of adaptation policy and planning in medium-sized cities are becoming a fertile arena for experimentation (Ziervogel et al., 2016; Hardoy et al., 2019).

The empirical findings synthesised in this paper are the result of an 11-month immersion experience in the everyday work of the municipality of Santa Fe in Argentina. The author of the paper, originally from the city of Santa Fe, conducted the fieldwork for her doctoral research between January and November in 2017. Primary data were generated using qualitative research methods with a participatory approach, including: 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 organisations; facilitation of a focus group with 9 high-ranking municipal government members; 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, including relevant policy documents and local research production systematised in master's and doctoral dissertations.

Participatory observations were held as part of a placement scheme at the Disaster Risk Management (DRM) Office (three days a week, February-October) and Resilience Office (two days a week, April-June) and were recorded in a field diary; semi-structured interviews were conducted following sampling for range and snowballing techniques, lasting between 1.5 and 2 h, and were audio-recorded and transcribed; the 5-hour focus group was audio-recorded and transcribed while notes were taken in a field diary to keep track of discussions at workshops and meetings organised by third parties. Data generation was stopped when saturation was reached and no further insights were emanating from the accounts of participants nor secondary sources (Saunders et al., 2018). Other studies exploring the inner socio-institutional dynamics of municipal governments and bureaucracies in climate change adaptation and mitigation have adopted a similar methodological approach and sample size (Aylett et al., 2011; Aylett, 2013).

The selection of a single-case study was justified on the basis of the contextual characteristics of the city and the particularities of its municipal government during a specific period of time. Santa Fe city[6], the first Argentinian municipality to adopt disaster risk management as a policy paradigm, was analysed over a ten-year period of time. The temporality of the case covered both historical as well as contemporary processes spanning over three consecutive political administrations that extended from December 2007 to December 2017[7]. This was also a relevant timeframe to circumscribe the case in the international context, given the configuration of a new policy paradigm globally since the approval of the Hyogo Framework for Action in 2005. Fig. 2 synthesises the three combined criteria that were considered for 'bounding' the case (Yin, 2014), and which made it distinctive for theorising about trajectories of change that were catalysed by the management of urban disaster risk.

The rationale for selecting the case study considers the combination of three criteria, namely:

1. *Changes in political cycles at municipal, provincial and national government levels, according to elections for executive positions, which are significantly stronger in Argentina due to its presidential system.* 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). The *Frente Progresista, Cívico y Social* (FPCyS) governed the city for three consecutive municipal administrations, with increasing political support in mayoral elections from low-income electoral districts, traditionally the constituency of the Peronist party.
2. *Materialisation of large-scale disasters, which includes the two most disastrous flooding events in the history of the city in April 2003 and March 2007.* 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 (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.
3. *Paradigm shifts to approach urban flooding, specifically, or disruptive events, in general.* Santa Fe was the first formalised experience in the country in initiating and sustaining an urban disaster risk management process over a relatively long period of time, in a context where provincial and national governments were still driven by the Civil Defence emergency management approach (Viand and Briones, 2015). This granted the city the recognition of a 'good practice' case study in international circles, including the UNDRR *Making Cities Resilient* campaign and The Rockefeller Foundation 100 Resilient Cities (100RC) initiative.

5. The institutionalisation of disaster risk management in the municipal government of Santa Fe

This section grounds the institutionalisation framework in the everyday experiences of the municipal government of Santa Fe with *gestión de riesgo* during the 2007–2017 decade. In so doing, it contributes to identify how transformation might empirically look like and, more importantly, how this process can be analysed by paying attention to who steers each of the phases and through which mechanisms. In regard to the agents of change, the analysis unfolds at two levels: within the municipality and across the relations of the municipal government with other organisations. In terms of the mechanisms of change, 'ways of thinking', 'ways of doing', and 'ways of innovating' are unpacked to analyse paradigm change, routinisation, and learning and experimentation, respectively. Noteworthy, this section provides a synthesis of all the elements in the framework; that is, the 'big picture'. The genealogy of the concept of *gestión de riesgo* leading to its emergence in the municipality and the embeddedness of the new approach in municipal planning and management routines are further elaborated in separate papers.

Table 2 disaggregates the phases of the institutionalisation of *gestión de riesgo* in the municipal government of Santa Fe by focusing on the mechanisms of change (*How is transformation driven?*) and the agents of change (*Who drives transformation?*). The rest of the section expands on each phase by responding to these two questions.

5.1. Emergence: gestión de riesgo as a nascent policy paradigm

Emergence describes the phase during which a new policy paradigm is adopted by an organisation. Thus, it represents a punctuation as a result of higher-level decision-making to shift the prevailing paradigm in a specified policy domain (Hall, 1993; Baumgartner et al., 2017). At the same time, emergence marks the beginning of a process whereby the new policy paradigm diffuses across, and permeates, the 'ways of thinking' in an organisation by becoming an everyday concept. Therefore, the change/stability dialectic

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[6] Located between the flood plains of the Paraná and Salado rivers, and with an annual average rainfall of 1,086 mm, Santa Fe is a medium-sized city in Argentina of circa 400,000 inhabitants (INDEC, 2010).

[7] The third political administration is only covered for the first two years; the cutting point was defined by the end date of the researcher's fieldwork.
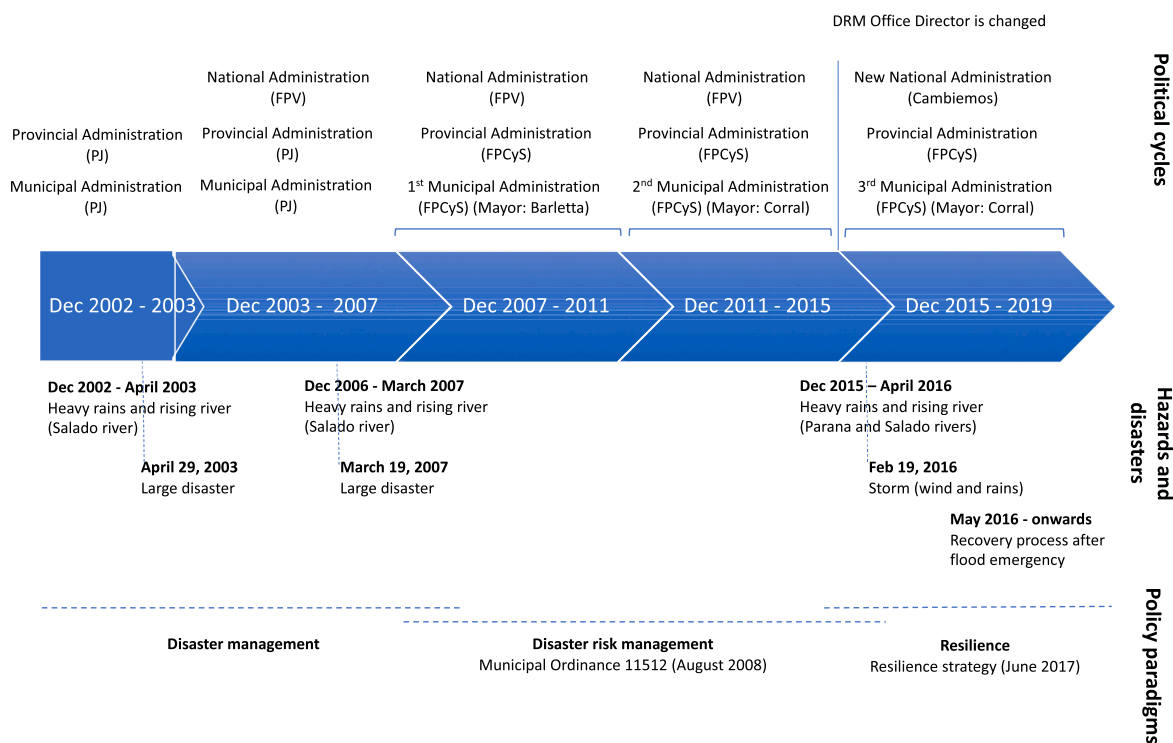
Fig. 2. Rationale of case study selection: political cycles, disasters and policy paradigms.

Table 2
Institutionalisation of *gestión de riesgo* in the municipal government of Santa Fe: phases, mechanisms and agents of change.

Phase	How? Mechanism of change	Who? Main department in municipal government	Main networked space
Emergence	Paradigm change	• Mayor • Department of Communications • Risk Communication Programme	**Inner:** interface between departments by dual dependency of Risk Communication Programme **Outer:** academia-policy interfaces
Embeddedness I	Routinisation	• DRM Office	**Inner:** orchestration (centripetal voices) **Outer:** participatory spaces with auxiliaries and civil society organisations
Embeddedness II	Routinisation	• Department of Water Resources • Department of Public Works • Integrated Solid Waste Management Programme • Department of Urban Planning	**Inner:** orchestration (centrifugal voices) **Outer:** participatory spaces with auxiliaries and civil society organisations
Sustained change	Learning and experimentation	• Satellite offices (DRM Office, Resilience Office, Cooperation Agency, Communications) • Department of Culture • Department of Education	**Inner:** boundary bridging and misalignment by satellite offices **Outer:** city-to-city networks (metropolitan and transnational)

underpins this phase. The emergence of *gestión de riesgo* in the policy arena and its incorporation in the agenda of the municipal government of Santa Fe represented a top-priority decision of leading authorities to adopt a new policy paradigm to address urban floods, at a time when provincial and national approaches were not responding to the needs of the city and a new municipal administration was delineating the strategic vision of the future city (Aguirre Madariaga, 2015). In this context, academia-policy interfaces accelerated momentum for 'an idea whose time has come' (Kingdon, 2003, p.1), as disaster risk management was already being discussed in local academic circles but was not yet impregnated in the policy discourse of municipal authorities.

Academia-policy interfaces contributed to the early adoption of a new policy paradigm after a window of opportunity was opened up by two large disasters and the electoral calendar (see Fig. 2). In the early morning of 29 April 2003, Santa Fe witnessed the impacts of 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 inhabitants and causing over a thousand millions of dollars in damages. 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 (Herzer and Arrillaga, 2009b; Calvo and Viand, 2015). The devastating disaster of April 2003 was not sufficient to push forward a paradigm shift, but it helped to build up momentum for social groups to mobilise and for an alternative political coalition to start organising (del Guala, 2009; Ramírez, 2009). In other words, it contributed to recalibrating rooted power structures. Yet, recalibration of power was not immediate nor reflected in the elections that followed after the disaster of 2003; it would take four more years, the cumulative negative impacts of another flood in March 2007 and a new electoral contest for *gestión de riesgo* to emerge and be adopted in the policy agenda of the municipal government.

Looking at the main departments that steered this phase in Table 2, key individuals working in each of them – the mayor, the head of the Department of Communications and the leader of the Risk Communication Programme – were all academics from the main public university in the city (*Universidad Nacional del Litoral*, National University of the Littoral, UNL). Thus, they wove themselves the academia-policy interfaces that encouraged the emergence of the new interpretative framework and its related concepts. Mario Domingo Barletta, who assumed as city mayor in December 2007, was the former provost of the UNL and water resource engineer himself, while the two communication experts had been deeply involved with extension programmes related to flood risk in the past. The election of the mayor brought many academics to the main political positions in the executive administration, many of whom retained their posts as lecturers or professors. In addition, the new municipal administration signed a two-year consultancy agreement with an interdisciplinary advisory team from the same university to guide the crafting of the normative corpus and the organisational architecture to enact the new policy paradigm. Therefore, the linkages between the academia and the municipal government were facilitated in multiple ways.

Political leadership of the city mayor was 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 new approach 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). While the mayor played a central role in political leadership, informed leadership was the realm of a new dedicated DRM Office and pertained to the clarity of understanding about the emergent policy paradigm, particularly regarding its holistic and integrated nature. However, informed leadership had to be complemented by the capacity for translating the new approach into the familiar vocabulary in the work of others (or by the capacity to facilitate and guide others in the translation exercise themselves). This conceptual leadership lied in the hands of the Department of Communications, together with the Risk Communication Programme. A joint initiative between the DRM Office and the Department of Communications, the Risk Communication Programme merged informed and conceptual leadership towards embedding *gestión de riesgo* not only within the municipal government but also among residents and other organisations in the city.

The key role of the Communications department was later confirmed when the resilience concept was introduced by joining the 100 Resilient Cities initiative in 2014. At that time, 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 municipal government, 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.

> "Malena[8] [100RC representative] was surprised, when she came to do the workshop, about how some problems were con-
> ceptualised in the city. That is, everyone talked about 'disaster risk management', which is a very difficult concept… I
> remember that when we started in 2008, I would say: «Look for another word, Ana [DRM Office representative]. 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*).

Considering disaster risk management as a policy paradigm is a reminder of the centrality of concepts, imaginaries and ways of framing as well as of the processes throughout which they are constructed and socialised as to become part of the everyday vocabulary of an organisation:

> "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 funding body or participates in a competition…" (Interview
> with professor of UNL and former advisor to the municipal government, 23/10/2017, *my translation*).

In this appropriation process, the self-characterisation as the 'three little crazy ones' epitomised the transgressive attitude of those who constantly persuaded and reminded others of the relevance of the new approach. These changemakers were coming from the DRM Office, the Communications Department and the Risk Communication Programme in the first years under analysis.

5.2. Embeddedness: gestión de riesgo as everyday work routines

Differently from punctuations in the emergence phase, less attention has been paid to the possibility of introducing change through the work routines of individuals in organisations (Feldman, 2000). In the embeddedness phase, it is routinisation of 'ways of doing'

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[8] All names have been replaced by a pseudonym for anonymisation purposes.

what simultaneously allows for an emergent policy paradigm to become part of the core work of an organisation while leaving room for incremental change in the reiteration of everyday practices. Again, the tension change/stability propels this phase.

In Santa Fe, embeddedness depicts how *gestión de riesgo* became part of the everyday practices that accounted for the core work of various departments in the municipal government. This process began with the central role of the newly constituted DRM Office in 'orchestrating' the preparation for response, to then progressively imbuing the sectoral specificities of managerial bureaus and the Department of Urban Planning with the new approach. This also illustrates the temporality in trying to find the right balance between a dedicated and an integrated approach to disaster risk management (Runhaar et al., 2018). At the beginning, the dedicated approach that led the 'orchestration' of preparedness for response seemed the natural place from where to start. Not only because those working in the DRM Office were familiarised with *gestión de riesgo*, but also because other areas in the municipality recognised the legitimacy of this department in undertaking this mandate.

The transition from organising the response to the reduction of urban flood risk in the everyday, and from a dedicated to an integrated approach, was a rather imperceptible process mediated by the joint elaboration of standardised operating procedures between the DRM Office and each of the sectoral departments directly implicated in responding to heavy rains and rising river levels (Gobierno de la Ciudad de Santa Fe, 2012, 2013):

> "(…) to think about bringing all the people together, to do the process of sitting down to think about their internal protocol. (…) 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" (Interview with former representative of DRM Office, 14/03/2016, *my translation*).

The joint elaboration and adjustment of manual of procedures and internal action protocols for contingency planning was reinforced by their regular application due to the extensive nature of urban flood risk[9]. The latter is important since the process might be quite different when referring to intensive disaster risk. The relevance of these internal procedures relied on clearly assigning responsibilities to different departments and sections within those departments. They were also important to define shared responsibilities between traditionally siloed sectoral departments, which impelled coordination between managerial bureaus such as water resources management, public works and solid waste management. Lastly, their regular application made these actions eventually inherent to the core work of these departments, rather than extraordinary or to be addressed with additional resources (unless the level of alert was high). Thus, the contingency planning process created a space to start connecting different sectoral departments with the DRM Office and between themselves, a concerted work that was then replicated in the actual implementation of the contingency plan.

> "We, from all the areas, each have its specificity. The area of Disaster 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 technical part" (Interview with representative from Department of Public Works, 26/07/2017, *my translation*).

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 muddle through centralised coordination (for response) and sectoral autonomy (for reducing disaster risk in the everyday), in the figure of a dedicated DRM Office. The metaphor of the municipal government as a jazz ensemble, under the conduction of a DRM Office 'orchestrating' centripetal and centrifugal 'voices', is illustrative of these dynamics. Jazz ensemble directors are 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. Centripetal means that all members of the band play the same melody, but with different instruments. That is, 'in unison'. Centrifugal entails that each member improvises a singular melody with their own instrument, but 'in harmony' with others. Thus, the director conducts various voices of a single composition. The analogy further brings to the fore that constrained and hierarchical structures coexist with more flexible and organic spaces in municipal DRM processes. They are both needed, but for different reasons and at different times of the 'jam'.

Contingency planning also expanded outside the internal realm of the municipality to the external organisation of the response at neighbourhood level, first, and municipal district, afterwards. Grounding the response in the territory was facilitated by networked spaces with Red Cross Santa Fe and civil society organisations such as Caritas Santa Fe and Canoa. These linkages were mainly steered by the DRM Office and were instrumental in rebuilding the trust of citizens in a delegitimised municipal government. Over time, these relationships turned into more sustainable practices to reduce exposure and vulnerability of people to hazardous events via upgrading and resettlement programmes alongside the work of organisations such as the *Movimiento Los Sin Techo* (Movement of the Roofless, MLST). Interestingly, the rationale underpinning these networked spaces also mutated over time, from rather ad-hoc and scattered voluntary agreements to the incorporation of representatives of these organisations in relatively stable advisory boards where they could have a voice. The latter included, for instance, representation of the MLST in the Resilience Advisory Board and the West Urban Nature Reserve Advisory Board, both coordinated by the municipal government.

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[9] Between 2012 and 2016, the basic alert level for heavy rains was activated 48 times a year on average (Internal records from the Monitoring and Operations Programme, DRM Office, 09/2017).

5.3. Sustained change: gestión de riesgo as a culture of innovation

Whereas the idea of 'sustained change' is intrinsic to the overarching notion of institutionalisation (Levy, 1996), it is used here to specifically characterise this phase in terms of the predisposition of an organisation to be continuously open to adapt to an ever-changing environment. Adaptability relates to rather spontaneous and creative 'ways of innovating' through learning and experimentation, which are often catalysed once a certain level of maturity and self-confidence around a policy paradigm has been reached by an organisation and after certain dynamics have been woven within an organisation and across its relations with others. While punctuations are usually catalysed by exogenous factors, adaptability tends to surface from endogenous dynamics that contribute to the spontaneity and creativity of processes of change (Pelling et al., 2008; Leck and Roberts, 2015). The change/stability dialectic can be reinterpreted in this phase around the notion of a 'culture of innovation', in the sense that permeability to change becomes part of the organisational culture.

When reflecting about *gestión de riesgo* at the time of fieldwork in Santa Fe, multiple references were made by research participants from the municipality to the notion of 'culture', often linked to the idea of a 'culture of prevention':

> "I think this is the main achievement during all these years, that (…) disaster 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*).

Yet, less attention has been paid to the dynamic nature that a culture of prevention should have as to accommodate to the changing conditions that define urban disaster risk and its potential as an engine for innovation. This has further prompted an exploration of the mechanisms that have enabled an organisational culture that rewards innovation and encourages employees to think creatively by bridging and misaligning their organisational boundaries (Greenwood and Suddaby, 2006). In this context, the analogy of 'satellites' resonated to capture the linking work performed by some bureaus in the municipal government of Santa Fe which sharpened awareness of alternatives in the 'in-between' while nurturing a 'culture of innovation'.

Conceived as satellites because of their location (peripheral) and function (orbiting around others), these bureaus 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). In so doing, satellites have steered two types of linkages: (1) they linked core traditional departments with their own field expertise; (2) they linked policy paradigms, some of which were crosscutting themselves. The combination of both linking mechanisms explains the central role that satellites have played not only for addressing individual cross-cutting issues holistically, but also for linking multiple transversal policy paradigms between themselves (e.g., disaster risk management, climate change adaptation and sustainable urban development):

> "I have been working on risk communication since 2000. Also, I have a very close intervention with Ana [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*).

A few reasons can explain the steering capacity for innovation that so-called 'satellite offices' have had within the municipal government of Santa Fe. First, having no operational or urban management responsibilities on the ground, satellites can create a safe space for discursive experimentation, as there is room for failure. That is, the linking work mostly occurs at the discourse level, as satellite offices rarely actionize policies or implement projects which result 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 experimentation. Thus, the linking work of satellites might be interpreted as an incubator of ideas. Second, having no mandate for monitoring others, the linking work of satellites is mostly based on facilitation and persuasion. Facilitation and persuasion might encourage a more creative envisioning of alternatives, given that these offices are not seen as a threat or controller by others. Finally, the linking exercise only happens from time to time, when there is an opportunity of so doing, such as applying for a new funding, submitting a proposal to join an initiative, or discussing the possibilities of a new technology.

The sui generis nature of satellite offices was also echoed in their outward linking capacity to connect the municipal government with transnational city-to-city networks[10], which have further encouraged the advancement of the state-of-the-art ideas in disaster risk management and related fields. The municipal government of Santa Fe has had membership in various international city-to-city networks which focus on disaster risk management and resilience at the urban scale and has also encouraged the creation of similar networks in the region. As an early adopter, the municipality of Santa Fe joined the first group of cities in signing to the UNDRR *Making Cities Resilient* campaign in 2010, the same year the initiative was launched. Soon after, Santa Fe was designated a role model city of the campaign 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 he became champion of the campaign in 2014. At the end of 2014, Santa Fe was selected to join the Rockefeller Foundation 100 Resilient Cities and won an international fund by the French Facility for Global Environment to implement the West Urban Nature Reserve project. The international recognition of awards contributed to improve the 'self-esteem' of a city

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[10] More accurately, networks of city governments.

which had been shattered by two large disasters, especially when this recognition did not come from other levels of government:

> "Barletta [former 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*).

The experience of Santa Fe with *gestión de riesgo* indicates that spontaneous and creative processes of change mainly started once the self-esteem of the city and of its municipal government was improved, as to have confidence to start 'trying out' new things. It is also illustrative of those who have catalysed these processes and through which mechanisms. So-called 'satellite offices' within the municipality and city-to-city networks have been central in encouraging learning and experimentation around, but also beyond, *gestión de riesgo*. Furthermore, these agents of change bring to the fore the key role that linkages across departments, organisations and cities, on the one hand, and across policy paradigms, on the other hand, play for learning and experimentation when addressing complex urban issues.

The potential for innovation 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 innovation 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 innovation, as they push for this kind of transversal approximations. Similarly, the relational approach to innovation also expands outwards across city-to-city networks, further illustrating how city governments in their relations to each other have been influencing international policy domains with their localised actions. Even more, the multiplicity and simultaneity of linkages with other city governments suggests a reinforcing mechanism for continuous innovation within an organisation propelled by progress in its relations with others.

6. Discussion: productive tensions as engines of transformation

Two main questions oriented the analysis of the empirical case and bring to the fore the two productive tensions that traction transformation in terms of processes and agency.

6.1. HOW is transformation driven? productive tension 1: change + stability

The institutionalisation of *gestión de riesgo* in the municipal government of Santa Fe suggests a correspondence between phases, on the one hand, and types and mechanisms of change, on the other hand. Thus, certain patterns of change 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. This translates, in turn, into 1) a fundamental change in 'ways of thinking', 2) incremental changes in departmental work routines or 'ways of doing' and 3) more spontaneous adaptive changes that foster a culture of innovation. At the same time, while change is important, municipal government organisations also need to stabilise concepts and practices as long as they are useful for addressing a particular societal issue. An institutionalisation reading of transformation is a reminder that understanding how change is leveraged by city governments should go hand-in-hand with how new framings and modified practices become part of the everyday.

Different phases can be analytically defined in the institutionalisation of new policy paradigms; yet, it is difficult to assign them a specific unit of time. However, the emergence of a nascent policy paradigm tends to be a rather short phase where strategic opportunities must be capitalised. Embeddedness, based on the routinisation of practices, is a rather incremental process in the making of the everydayness. As for sustained change, it is usually steered by more spontaneous and less defined social dynamics that from time to time tend to overlap with departmental work routines, informing and modifying them. In short, the institutionalisation of a new policy paradigm is not a linear process, but phases with distinctive dynamics of change/stability can be identified.

Conceptualisations of transformation in the context of disaster risk reduction and climate change adaptation have tended to overlook the sustenance of change(s) as a critical part of the process. This is tightly connected to understandings of transformation that are confined to a single type of change – that is, fundamental, rapid and large-scale change which is often placed in a dichotomic relationship with incremental, slow and small-scale change. Systematic reviews of the literature on transformation confirm the prevalence of the incremental-transformational change dichotomy, where the continuity/change ratio becomes the differentiation criterion between the two ends of the spectrum (Deubelli and Mechler, 2021). Similarly to scholars who challenge this dichotomic understanding and reconceptualise the divide (Termeer et al., 2017), this paper proposes a conceptualisation of transformation that spans multiple types of change, being incremental change one of them. Moreover, instead of a ratio, it argues for a productive tension between change and stability as the traction force of transformative change. While some acknowledge the importance of 'consolidating' change (Paton and Buergelt, 2019), they often separate transformation from consolidation as distinct processes. The notion of the 'institutionalisation of change' that this paper suggests is paramount to depict the productive tension between change and stability as the engine of transformation.

As highlighted by various reviews of the literature, transformation has been mainly conceptualised in terms of attributes or descriptors of change (Tanner and Bahadur, 2013; Feola, 2015; Deubelli and Mechler, 2021), without necessarily paying sufficient attention to the mechanisms that facilitate these various attributes to be enacted across multiple temporal and spatial trajectories. Rather than isolated episodes of change, this paper invites us to think about transformation in terms of phases that correspond with different types of change unfolding synchronically and asynchronously across time and space in a productive tension with the substance of those changes. This is a more constructive understanding of transformation to engage with and orient city governments in processes of fundamental change. Some scholars argue about the impossibility of simultaneously achieving in-depth, quick and system-

wide change (Termeer et al., 2017), which echoes the question of when transformation is a viable policy option (Nalau and Handmer, 2015). The consideration of different types of change in tandem provides a more flexible approach to city governments to delineate the right balance between change/stability in order to envision feasible, but at the same time transformative, options to manage disaster and climate change risk as well as to address any other complex and dynamic urban societal issue. This can also contribute to refine and redefine the assessment and evaluation of the inherent trade-offs of transformation by expanding our critical judgement of outcomes according to different temporal and spatial scales (Few et al., 2017).

6.2. WHO drives transformation? productive tension 2: leadership + networked spaces

The analysis of the institutionalisation of *gestión de riesgo* in the municipal government of Santa Fe shows that it has been the combination of the leading role of certain individuals, municipal departments and other key organisations with more diluted interfaces across and between them what has steered each of the phases. This productive tension between leadership and networked spaces has operated both *within the municipality* (highlighted by the main departments but in inner networked spaces) and *in the relations of the municipality with other organisations* (highlighted by the leading role of a municipal government but in outer networked spaces). An institutionalisation reading of transformation is a reminder that in the multiplicity and simultaneity of linkages not only change but also stability are advanced. As being diffused, enacted and modified across the linkages within and between organisations, disaster risk management becomes at the same time ubiquitous and omnipresent.

Within the realm of the municipality, various analogies were proposed to illustrate the tension between leadership and networked spaces in each of the phases. The 'three little crazy ones' who pioneered *gestión de riesgo* in the municipality were brought together under the Risk Communication Programme, a key interface in the emergence phase. During the embeddedness phase, the 'conducting role' of the DRM Office orchestrated the linking between different sectoral bureaus under the metaphor of 'centripetal' and 'centrifugal' voices. In the sustained change phase, the centrality of 'satellite offices' in catalysing innovation from the 'in-between' was highlighted. '*Loquitos*'[11], conductors and satellites expand our imagination to capture the everyday work of municipalities but building on their possibilities towards an optimistic real future. Across the relations of the municipal government of Santa Fe with other organisations, three main networked spaces were identified: academia-policy interfaces in the emergence phase; participatory spaces with auxiliaries and civil society organisations during the embeddedness phase; and city-to-city networks in the sustained change phase. Satellite offices have been key in weaving these 'outer' networked spaces. Thus, the phases of institutionalisation need 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 each phase.

The lack of empirical grounding of transformation, compounded with its system-oriented approach to change, has left various open questions about the agency of transformation, including the role of power and politics (Manuel-Navarrete and Pelling, 2015; Gillard et al., 2016). The emphasis on system-wide type of change (e.g., change *of* the system) has prevented the realisation that fundamental change can start from *within* the system, including changes in the organisations driving transformative change. In addition, agency for change across the literature on transformation in disaster risk, climate change and sustainability has been mainly debated at the crossroads of individuals and socio-ecological systems (Moore et al., 2014; O'Brien, 2015), with middle ground approaches with a focus on organisations being less explored. Building upon the contributions of other scholars, this paper argues that organisational theories, in general, and organisational institutionalism, in particular, provide fruitful insights to think through the attributes of transformation and connect them to the organisations that steer these processes and change alongside, and as a result of, them (Pelling et al., 2008; Gupta et al., 2010; Termeer et al., 2017). Furthermore, this provides fertile ground for exploring the agentic potential of municipal government organisations in processes of fundamental change.

The leading role of city governments in disaster risk management and climate change adaptation has been widely acknowledged in research and policy (Satterthwaite, 2011; Wamsler, 2014), but often without explicitly recognising transformation as a latent possibility that might result from the adoption of new policy paradigms when these organisations attempt to respond to disaster risk, climate change or broader sustainability challenges. This paper argues that this short sight mainly responds to a lack of understanding of municipal government organisations themselves and the socio-institutional dynamics that operate within and across them. Expanding on the work of a few exemptions (Carmin et al., 2012; Aylett, 2013), we propose to unpack municipal governments according to phases of institutionalisation, that is, by identifying the main departments and inner and outer networked spaces that steer different mechanisms of change (see Table 2). Others have suggested a similar approach to explore transformative agency on the basis of phases of change and distinctive characteristics of change agents (Westley et al., 2013). This paper enriches this line of argumentation not only by contextualising the analysis in the realm of a specific type of organisation, but mainly by conceptualising transformative agency as the result of the productive tension between leadership and networked spaces.

A discussion on the agency of transformation brings us back to the notion of deliberative transformation and, with it, the reconsideration of trade-offs in terms of winners and losers in processes of fundamental change. While the 'how' interrogation underscores the existence of trade-offs in transformation that may operate through time and space, the 'who' intersects these with the challenge of trade-offs across social difference (Tschakert et al., 2013; Few et al., 2017). Critical scholarship assimilates transformation with challenging existing power structures and reconfiguring the constellation of power relations (Bahadur and Tanner, 2014; Manuel-Navarrete and Pelling, 2015). In a way, this has shifted the gaze away from city governments as agents of transformation. This

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[11] In English, little crazy ones.

paper illustrates how an in-depth understanding of municipal governments can contribute to a more constructive engagement with these organisations as agents of transformative change. Arguably, a better understanding of the inner and outer dynamics of municipalities can also counterbalance power relations by allowing other organisations to better influence them (Mitlin, 2008).

7. Conclusion: Towards a pedagogy for change to manage urban disaster risk

This paper conceives transformation as the institutionalisation of new policy paradigms, being disaster risk management an example of them. Drawing on the experience of Santa Fe with *gestión de riesgo* it further contributes to understanding transformation as multiple trajectories of change/stability unfolding asynchronously and synchronically across time and space and which are 'conducted' by multiple agents of change. In the light of this context, the notion of a 'pedagogy for change' becomes central as to understand the leveraging role of municipal governments towards the management of urban disaster risk. Pedagogy for change entails encouraging others to change but by themselves – otherwise change will be spurious and superfluous. Municipal governments can leverage this process by forging inner and outer linkages, spanning and permeating their boundaries. These linkages, which are materialised in networked spaces, constitute the new agents in urban transformations.

Conceptually, this paper proposes institutionalisation as a heuristic lens to make sense of transformation and delineates a related framework to undertake a process-oriented type of analysis based on phases and transformative agency. In so doing, it makes a substantive contribution to one possible theoretical approximation that advocates for a critical research agenda of transformation are calling for. The elaboration of new, and refinement of existing, social theories of change to nurture our understanding and critical perspectives about transformation is a fundamental and necessary step to move from descriptions to unveiling the conditions and social mechanisms that enable change(s) to materialise.

Empirically, the case of the municipal government of Santa Fe, Argentina, contributes an example of what transformation might look like in a medium-sized city of the global South and over a decade. Complete transformation examples are rare, difficult to trace and usually span over longer periods of time; nevertheless, this paper argues that the experience of Santa Fe with disaster risk management conveys characteristics of transformation. Given the dearth of examples that can illustrate what transformation is about in practice, this represents an important contribution not only to knowledge but also policy and practice and sheds light on drivers and agents of change that can steer transformative processes in other cities in the face of current and future disaster and climate change risk.

The findings of the paper have crucial policy implications for municipal disaster risk management. Transformation can more explicitly draw the link between disaster risk management and development and, subsequently, increase buy-in from policymakers and practitioners. Instead of deterring action by simply emphasising the need of fundamental change, it can encourage deep-rooted changes by drawing the connections with other (in many cases existing) concomitant processes that can be activated (if not leveraged) when addressing the root causes of disaster and climate change risk, specially by capitalising on the work of others within and outside municipalities. This paper makes explicit that the loci of transformative change are distributed across time, space and agents; while acknowledging the complexities attached to this, it provides entry points for municipal governments to have an active role as levers of change. These entry points suggest possibilities of intervention, rather than a roadmap, being aware of the highly subjective and context-specific nature of any need for and scale of change.

Moving forward, there are at least two promising avenues to advance the research agenda of transformation. In the first place, transformation has an inherently positive connotation that has tended to deflect attention from the intrinsic trade-offs that come along with fundamental processes of change. Future research needs to critically explore what these trade-offs might look like, moving beyond an 'evaluation' of transformation towards transformation as a political project per se. The interpretation of trade-offs is not only subjective but also dependent on the normative approach of transformation, that is, the overarching objective of what needs to be changed and why. Secondly, the research agenda on transformation in response to disaster risk, climate change and more broadly unsustainability has largely been inspired by empirical examples from the global North and in many cases outside the urban realm. A future agenda on transformation needs to make room for the possibilities of cities in the global South to drive transformative change in response to these but also other more pressing challenges of the dominant development paradigm. Diversity of empirical cases can also shed light on the context specificity of possibilities, including elements such as the size of the city, differences between centralised and federal forms of government, and density of organisational linkages.

In a rather imperceptible manner, this paper elucidates a third productive tension that responds to the first interrogation posed in the literature debate: what is transformation responding to? Transformation responds to an ebullient social consciousness demanding alternatives for an aspired, but possible, urban future. The power of transformation derives, precisely, from this dialectic between evoking elusive imaginaries and materialising trajectories of change in the mundane. A critical reflection on the leveraging potential that political commitment and grounded action to manage disaster and climate change risk can have towards transformation in cities might raise the incentives for the very much needed political buy-in from municipal governments. It is up to city governments to embark on a pedagogy for change.

Declaration of Competing Interest

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

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