Something Borrowed, Everything New: Innovation and Institutionalization in Urban Climate Governance

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Something borrowed, everything new: innovation and institutionalization in urban climate governance

Isabelle Anguelovski and JoAnn Carmin

The traditional view of climate governance is that local action is shaped by international agreements and national policies, the priorities of funders, and ideas advanced by nongovernmental organizations and transnational networks. Some cities take action in response to these actors and the pressures they exert. However, most are motivated by internal goals and are taking independent action to advance their climate agendas. While mitigation planning is a relatively more institutionalized field of action than adaptation, cities in both the global North and South are testing new institutional arrangements and experimenting with adaptation and mitigation policies, plans, and processes as they seek to develop and advance their climate agendas. The lack of resources, capacity, and institutions to support local climate action appears to be fostering urban entrepreneurship, but these constraints also may be limiting the speed of program development and sustained gains that cities can achieve.

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Governance is a crucial component in the achievement of effective climate planning and action. While successful mitigation and adaptation require that measures be taken by international and national actors, many initiatives are designed and implemented at the local level [1]. Cities are sites where significant advances in mitigating greenhouse gas (GHG) emissions can be achieved, and where substantial efforts to protect residents, infrastructure, and natural systems from climate impacts can be made. However, as a nascent policy field, local actors must advance their climate agendas with few rules, norms, and best practices to guide them in their efforts. While this is true for mitigation, cities pursuing adaptation face even greater challenges owing to its relative newness.

In this paper, we examine the role of urban governance and the development of institutions for climate mitigation and adaptation. Urban climate governance refers to the ways in which public, private, and civil society actors and institutions articulate climate goals, exercise influence and authority, and manage urban climate planning and implementation processes [2,3,4•]. It is through these processes that climate institutions, in the form of rules and norms, are established and maintained [5]. While it is important to acknowledge the ways in which cities are influenced by their international, national, and subnational contexts, in this paper we adopt an urban perspective to understand how mitigation and adaptation practices take root and develop over time. In particular, we examine factors shaping urban responses to climate change and the approaches that cities in the global North and South are taking to mitigate greenhouse gas emissions and prepare for climate impacts. In the course of reviewing climate governance, we look at how cities are drawing on practices from different domains as well as innovating in order to strengthen their climate actions.

Motivations and approaches to climate action planning

Cities often are viewed as sites where exogenous forces are the source of motivation for climate action planning and implementation [4•,6••,7]. However, those at the forefront of mitigation not only engaged in action in the midst of scientific uncertainty and heated climate debates [8••], but did so with few policies, professional norms, and examples to guide their efforts. Early leaders such as Sydney, New York, Barcelona, Venice, Munich, Växjö, Mexico City, Bogota, and Curitiba took innovative approaches to issues such as waste reduction, public transit, renewable energy, and urban greening to reduce GHG emissions in the absence of external pressures and incentives [8••,9••].

Over time, formal institutions were established and gave rise to exogenous forces serving to both motivate and shape local mitigation programs. In particular, the emergence of national regulations [10,11•,12] and the availability of funding from international sources led some cities to pursue mitigation agendas [13,14]. International networks and professional associations also heightened awareness and fostered action by disseminating technical knowledge, resources, and process-oriented information [4•,15•,16]. As the field of mitigation matured, planning and implementation for mitigation projects came to be associated with a number of international programs,

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particularly the Cities and Climate Protection Program (CCP) developed by ICLEI – Local Governments for Sustainability. While cities vary in the approach they follow [7,8••,17••], those that participating in the ICLEI milestone process generally initiate their efforts by establishing targets for carbon emission reductions and then developing GHG emissions inventories and mitigation strategies, including provisions for monitoring and evaluation.

Although exogenous forces are influential, many cities form and sustain mitigation programs as a result of internal goals and priorities [9••]. For instance, cities participating in CCP often take action because they see a connection between mitigation and environmental quality or sustainable development. This is evidenced by the number of environmental organizations and robust programs around issues such as traffic congestion, air quality, and energy diversification in CCP participant cities [18,19]. In addition to cities participating in the CCP program, many others either initiate or maintain mitigation initiatives because they provide opportunities for reducing costs [6••,20] or because local environmental organizations pressure or present them with opportunities that can advance important local development goals [21•,22]. In Boston, for instance, nonprofit organizations, such as ACE and the Dudley Street Neighborhood Initiative, work closely with the City to ensure that green jobs, training, and weatherizing projects reach low-income neighborhoods and communities of color in Roxbury and Dorchester while promoting reductions in GHG emissions.[1]

At the present time, climate adaptation is a new policy domain with few exogenous drivers of action. As a result, cities from New York to Quito and from London to Durban that are pursuing adaptation tend to initiate programs based on internal motivations rather than external pressures [23•]. In some cities, adaptation planning is sparked by the perception or experience of a threat, such as those that stem from natural disasters or changing temperatures, and the goal of reducing potential risks and vulnerability. Others are motivated by the desire to achieve departmental and city agendas, demonstrate leadership, and build the image of the city in national, regional, or international arenas [6••,23•,24,25]. International organizations and networks, including ICLEI, UN Habitat through its Cities and Climate Change Initiative, the World Bank, and the Asian Cities Climate Change Resilience Network (ACCCRN), are beginning to advance and test adaptation protocols. While these programs target cities in the global south and serve as a form of exogenous pressure, they are still in the early stages of development and involve a limited number of cities. These and other programs ultimately may become driving forces in adaptation planning being initiated in cities around the world as well as in shaping the approaches that cities take in their planning and implementation activities.

Despite the presence of programs, no standards or norms for planning and adaptation action have yet emerged. A number of cities have thus mimicked the sequential and inventory-based approach taken to mitigation by initiating their adaptation processes with risk and vulnerability assessments [2,26]. Many also are developing scenarios and preparing adaptation strategies by focusing on specific sectors (i.e. health or coastal management) or on specific threats (i.e. loss of biodiversity, natural disasters). Much of this work includes the development of regulatory frameworks to ensure that land use planning accounts for climate risks, buildings and infrastructure are prepared for climate impacts, and public-sector investment decisions take climate change into consideration [27•,28••]. As the wide variation in planning initiatives suggests, the lack of vetted best practices and norms has led cities and intermediary bodies to adopt a wide variety of approaches to sequencing the planning process, designing assessments, and developing implementation protocols [25,28••].

Institutions for climate governance

As local governments devise climate policies, they tend to formalize and institutionalize their work in order to facilitate implementation and strengthen the legitimacy, coordination, and support for such policies across sectors and departments [24,29•]. One aspect of formalization is the establishment of dedicated climate units, either within a relevant department or as separate and cross-cutting office. The former tends to be located in the environmental department while the latter usually is situated in the Mayor or City Manager's office, and is responsible for mainstreaming climate initiatives [8••]. In Paris, for instance, a Climate Protection Unit was created to help define climate policies, set up initiatives, manage and coordinate all stakeholders, measure the impact of policies, and assess the outcomes of climate initiatives. The unit works closely with the newly created Paris Climate Agency, which is designated as the central point of reference, expertise, and technical support for the city [30]. Not all climate offices or activities are however situated under the banner of climate change. In New York City, climate mitigation and adaptation are anchored in the Mayor's Long-term Planning and Sustainability Office.

Central to the institutionalization of urban climate action is the development of regulations, policies, codes, and support programs. Such institutions provide formal guidelines and informal behavioral norms that enhance predictability, establish order and, at times, promote

[1] In-person interview with environmental representatives from ACE (9 September 2009) and from DSNI (8 October 2009), Boston USA.

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cooperation [31,32]. Building retrofitting, for instance, is a domain where mitigation institutions are emerging. Cities are shaping energy efficiency by developing building codes, offering financial incentives to developers and builders, and developing training programs to help contractors learn about new construction techniques and energy-efficient materials [30]. In other domains such as transportation policy, some cities have worked to develop mitigation programs in a systematic and standardized fashion. In Bogota, the sophisticated Bus Rapid Transit system (TransMilenio) plays a prominent role in climate mitigation. Its development has been supported by the establishment of air pollution control measures including mandatory inspection and maintenance of buses, air pollution monitoring stations, and allocation of exclusive property rights over routes to private operators to eliminate excess bus supply. Bogota's climate mitigation success is also due to policies restricting vehicle access to the city in morning and evening peak periods [33–35].

Although institutionalization is often associated with inertia and routine behavior, cities where mitigation programs have been in place for a number of years often continue to experiment with different modes of climate governance. In Melbourne, for example, local authorities working on mitigation have combined traditional government functions of command and control with the creation of a nonprofit organization – the Moreland Energy Foundation – to help reduce waste, support household energy efficiency, and provide technical advice and advocacy services [17••]. Similarly, the Climate Protection Plan in Paris draws on a suite of tools and programs to promote more efficient and rapid implementation of building retrofits. This includes experimental labs to develop new technologies and materials, financial support to innovative and eco-friendly companies, and contractual provisions with builders to promote hiring of low-income workers [30].

In contrast to mitigation planning and implementation, the absence of models to follow has led local governments pursuing adaptation to test new ideas and approaches at every step in the planning process. Experimentation and innovation are reflected in the ways cities are approaching the types of plans they create. London and Toronto developed strategies that provided them with a starting point for developing assessments and plans and for engaging the public. By contrast, Cape Town started with a summary document that provided an overview of vulnerabilities and offered a plan for subsequent steps the city could take [36]. Although there was a lag of several years in the process, that document ultimately provided a basic foundation for a more detailed plan of action.[2] New York City is developing a strategic plan, but from the start has focused on linking adaptation directly to its broader sustainability initiatives [26]. As with many other cities, Durban and Quito have hybrid models. The former initiated the process with a strategic plan and now is following with detailed and dedicated sector plans. By contrast, the later incorporated adaptation as a chapter in its climate action plan, but now is using its disaster, environmental, and infrastructure plans as foundations for more specific approaches to adaptation [24,37].

Stakeholder engagement in urban climate action

Participation at the urban scale tends to be regarded as an essential tool for climate governance [1,21•], but local governments often find that they are unable to gain widespread interest and engagement in climate-related issues [38,39]. A case in point is the ICLEI program where local governments participating in the milestone process typically convene meetings to share information with the general public and obtain input on plans. Even though stakeholder involvement is integral to the ICLEI approach to climate action planning, more often than not, very few members of the public choose to participate [38]. The lack of public engagement in ICLEI programs, and in climate decision making more generally, has been attributed to the lack of personal relevance many people associate with the issue as well as the scientific complexity and uncertainty of climate change [38,39].

An alternative approach being tested by many cities is to target specific stakeholder groups through the formation of climate action committees and task forces. Those that have formed climate action committees for their mitigation activities, such as the City of Boston, have been relatively successful at gaining strong commitments from a small group of local residents to volunteer their time and assist in the planning process [40]. Task forces, on the contrary, tend to be populated by experts from universities, research centers, and organizations who work closely with municipalities. In Cape Town, for example, the municipality partnered with the University of Cape Town's Energy Research Center so that they could conduct studies to help them reduce peak demand [4•] while for adaptation planning they formed a think-tank called the Climate Change Research Reference Group as a means to draw on the expertise of the academic and research communities.[3] Integral to New York City's adaptation processes are the Panel on Climate Change (NPCC), comprised of academics and representatives from private industry, and the Climate Change Adaptation Task Force consisting of representatives from business and local, regional, state, and federal governments [26].

[2] In-person interview with Gregg Oelofse (12 January 2010), Cape Town, South Africa.

[3] Cape Town. 2009. "City's new Climate Change Think-Tank to lead local interventions." Press release.

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Dedicated forms of engagement that specifically target poor and vulnerable populations also are being tested by some local governments. Climate impacts are expected to intensify patterns of vulnerability and injustice and amplify existing development challenges in low and middle-income countries [41,42,43,44•]. Some cities are exploring ways to protect residents from climate impacts through policy initiatives. Durban, for instance, has placed a priority on addressing the needs of vulnerable populations by making efforts to link adaptation to its integrated development plan [24]. An alternative approach adopted by some local governments is to develop programs that address adaptation issues while directly engaging vulnerable populations. One example is Quito where the Environmental Office has provided funding to local NGOs to train indigenous farmers to improve the management of water resources in their urban agriculture practices and diversify as well as privilege native crops [24].

Community-based adaptation (CBA), often targeted to poor communities, is emerging as a means for promoting engagement in assessments, fostering community self-reliance, and raising awareness of vulnerability vis-à-vis climate impacts in areas such as disaster planning and public health [45–47]. For instance, in the Philippines, community-based disaster preparedness is taking place as a way to better cope with typhoons and flooding events through awareness raising, early warning systems, and the creation of local institutions that provide residents with a safety net to cope with stresses stemming from natural hazards. CBA is thus acting as a new model of civil society-government partnership [45]. While still not widespread, these trends suggest that some cities are making efforts to integrate socio-economic development goals with improved resilience, coping, and capacity measures for vulnerable communities.

Challenges and achievements in climate governance

Many cities encounter governance challenges as they seek to initiate and sustain climate action programs. Whether they are in the global North or South, or in developed or developing countries, cities often lack political support, financial and human resources, and other forms of capacity as they seek to pursue both mitigation and adaptation [29•,48••,49,50,51]. Even though national governments may state that they believe in the importance of climate action and express appreciation for the role that cities play in this process, their rhetoric frequently is not matched with resources [50,52].

Challenges also arise when climate action extends beyond the boundaries in which the city can exercise its authority and when officials are constrained by geographical scales and tiers of governance [13,29•]. This often is the case with transport and coastal policies that require coordination with metropolitan and regional bodies, particularly in countries and cities that are unable to find ways to work across governmental units and scales [29•]. In addition to facing questions about scientific uncertainty that continue to plague mitigation initiatives, local governments seeking to advance an adaptation agenda also find they are questioned about the nature of natural hazards and the ways in which socio-economic processes shape and are shaped by vulnerabilities [53]. Further, some cities seeking to have robust climate action programs have found that mitigation and adaptation initiatives can contradict or undermine each other [27•].

Despite these challenges and the relative newness of the field, some patterns associated with successful climate governance are emerging. As evidenced in Durban, Bogota, Cape Town, Melbourne, London, and Quito, the presence of local champions is central to a program being initiated and maintained over time [4•,17••,23•,54]. Equally important here is leadership exhibited by elected officials who are able to promote climate action within the city government and individuals within departments who can maintain the agenda across political administrations, address substantive and technical issues, and stimulate a culture of innovation and cooperation [4•,48••,55]. Successful planning and implementation also is linked to a willingness to take action in the absence of national policy. In the case of Melbourne, for instance, local political officials took action to reduce GHG emissions even though the national government was not moving forward on this issue in international climate negotiations [54]. While action may be rooted in separate local policies, integration with routines and standard operating procedures provides a basis for many cities to advance this agenda [48••,49].

Conclusion: innovation and institutionalization in climate governance

Scholarship on climate governance typically focuses on the ways in which vertical and horizontal relationships constrain and guide the behavior of local actors [3,4•,13,56]. In many policy domains, municipal decision-makers and planners are influenced by national policies, international agreements, and transnational networks. Mitigation has a longer history than adaptation and shows signs of moving toward institutionalization, particularly at the international and national levels. Even at the local level, cities have more experience with mitigation than adaptation. This has contributed to some cities adopting processes akin to mitigation or looking to international funders and organizations for guidance as a means to move forward with adaptation.

Despite its relative maturity, the patterns present in urban climate governance more generally suggest that mitigation and adaptation are both arenas of innovation. Although formal programs exist, the lack of accepted

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norms and the varying needs and capacities of individual cities has led many to find creative ways to embed mitigation and adaptation into existing plans, channel resources to support multiple agendas, and engage a variety of civil society actors to achieve or further their goals. As these patterns suggest, in the absence of institutions, cities are borrowing what they can from other policy domains such as sustainability and comprehensive planning [9••] and drawing on new technologies. However, more often than not they are experimenting and innovating with different approaches to planning, implementation, and mainstreaming in order to identify the most appropriate and effective approach to climate governance.

The patterns of institutionalization and innovation emerging in climate governance in cities around the world are a double-edged sword. Institutionalization typically is associated with rule-bound behavior rather than entrepreneurship. Accordingly, the lack of resources, capacity, and best practices available to support climate action may be promoting innovation, attention to the most crucial needs and subpopulations, and the advancement of policies and initiatives that are grounded in local cultures and realities. However, in this context, innovation appears to come at a cost since institutions are the building blocks of legitimacy, stability, and support for agendas. Although rules and norms may constrain some forms of action, greater legitimacy and capacity to reduce greenhouse gas emissions and prepare for climate impacts holds the potential for cities to contribute to national and global agendas while advancing their sustainability and economic development goals.

References and recommended reading

Papers of particular interest, published within the period of review, have been highlighted as:

- • of special interest
- •• of outstanding interest

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3. Betsill MM, Bulkeley H: **Cities and the multilevel governance of global climate change**. *Global Governance: A Review of Multilateralism and International Organizations* 2006, **12**:141-159.

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This paper focuses on two South African cities – Johannesburg and Cape Town – and identifies the structures and factors governing climate change policy and mitigation in South Africa. Cape Town has been highly successful in implementing its GHG emission reduction policies thanks to the successful cooperation of the city with external institutions, including ICLEI, NGOs, Eskom and academic institutions, as well as thanks to an unexpected energy crisis. Johannesburg is affected by similar socio-economic and institutional challenges as Cape Town, although it is much more constrained by a lack of institutional capacity and a fragmented structure.

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Based on an extensive review of the existing literature in both industrialized and developing nations, this paper analyzes the specific internal and external motivations and challenges that support or constrain cities in developing appropriate local climate action plans. For many cities, cost savings and financial incentives are a primary motivation for mitigation, while perceived vulnerability and a commitment to development is the primary motivator for adaptation. The collective action problem of climate protection, as well as existing inappropriate legal frameworks, are key obstacles to mitigation. Challenges for adaptation include financial constraints, and a lack of expertise, cooperation, leadership, and political support.

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This paper focuses on two issues related to urban climate governance: the local and the multi-level dimensions. The authors argue that various forms of horizontal collaboration (such as climate governance within metro-regions and city networking at national and transnational level) and vertical collaboration (through the enabling role of national governments, the support of funding schemes, and the existence of authoritative modes of governing) are relevant to the success of urban climate governance beyond the local scale.

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In this rigorous paper, the authors analyze municipal Climate Action Plans (CAPs) in the United States to understand both their processes and their products, including the extent to which they represent innovation in planning. Based on 20 CAPs and 16 interviews with individuals closely associated to the plans, they argue that a great diversity exists in what constitutes a CAP. Some plans are motivational documents, while others are detailed implementation plans with concrete goals, clear objectives, and well-reasoned methods. The decision to prepare a CAP stems from the existence of local political will and leadership, which also influences the planning processes each city followed, the form of the final plan, and the actions it identifies. CAPs rely heavily on well-known land use and transportation solutions to the climate challenge such as enhanced transit, compact community design, and green building codes, to be implemented both by local government and the broader community. Last, CAPs seem to favor actions highly visible action (e.g. tree planting) or actions that produced immediate results (e.g. energy or cost savings from weatherization).

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Drawing on a case study of the UK and looking at the agriculture, nature conservation, and water sectors, this paper adopts both a top-down approach of policies guiding action and implementation and a bottom-up perspective of on-the-ground actors shaping policy implementation. It explores how different subelements of policies support or undermine potential climate adaptation initiatives. The authors argue that neither approach offers a complete picture of the potentially enabling or constraining effects of different policies on future adaptive planning. However, together they offer new perspectives on climate policy integration. These findings contribute to a broader discussion on how to implement climate policy integration, including auditing existing policies and 'climate proofing' new ones, so they are able to support rather than slow down adaptive planning.

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This paper analyzes local climate mitigation in two Swedish cities and their networking initiatives in favor of climate change mitigation. Their action, mostly influenced by different business structures and local conditions, illustrates a case of multi-level network governance as well as the increasing role of cities as arenas of globalization.

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17. •• Bulkeley H, Schroeder H: **Governing climate change post-2012: the role of global cities – Melbourne**. *Tyndall Center for Climate Change Research* 2008.
This paper is part of a broader series of papers published by the Tyndall Center on global cities (London, Melbourne, Los Angeles, and Mexico City) and their role in climate governance. The authors chart the emergence and evolution of London's climate change policy in the period 2000 – 2008 and argue that it has been marked by three core types of initiatives addressing climate change: leadership through which officials and politicians in London have been able to justify and extend their actions; infrastructural change in regards to energy provision; and changing practice in energy use amongst domestic and commercial actors. These three approaches have depended on a mixture of governing approaches, including traditional government functions of control and compliance, provision of new forms of service, and partnership building.

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This paper is focused on the South Durban Basin – home of a large petrochemical industry – as an opportunity to push existing boundaries between participation and the design and implementation of responses to a changing climate. The author analyzes the protests of local active community residents in balancing the influence of the private sector on the state, and offers a view of participatory urban governance in which urban populations are able to respond collectively, effectively and rapidly respond to climate change challenges.

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23. • Carmin J, Roberts D, Anguelovski I: **Government institutions and innovations in governance for achieving climate adaptation in cities**. *Paper presented at the Urban Research Symposium ''Cities and Climate Change: Responding to an Urgent Agenda''*, June 28–30, 2009, Marseille.
Based on two in-depth case studies of early adapters – Quito and Durban – this paper analyses the drivers behind urban climate adaptation. Drawing on theories of diffusion and capacity, the authors find that early adapters were motivated by internal incentives, particularly the need to protect infrastructure and residents from disasters, the desire to enhance their reputation by demonstrating climate leadership, and the commitment to local development goals and service provision priorities. Ideas and knowledge generated through local demonstration projects and networks were influential in both cities. Continuous leadership as well as the capacity to be resourceful also were crucial to advancing adaptation. Those cases offer a refined insight into the challenges and accomplishments of early adapters and provide signposts that can be used by other cities as they navigate adaptation planning and implementation.

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27. • Hamin EM, Gurran N: **Urban form and climate change: balancing adaptation and mitigation in the US and Australia**. *Habitat International* 2009, **33**:238-245.
The authors examine leading case examples of land-use plans and policies designed to address climate change in the United States and Australia, and analyze whether the practices put mitigation and adaptation in potential conflict with each other. They find that mitigation and adaptation policies can be complementary to each other, but that, in approximately half of their cases, such policy goals might conflict or undermine each other.

28. •• Satterthwaite D, Huq S, Reid H, Pelling M, Romero-Lankao P: *Adapting to Climate Change in Urban Areas: The Possibilities and Constraints in Low-and Middle-Income Nations* London: International Institute for Environment and Development; 2007.
This excellent and in-depth paper analyzes the possibilities, innovations, and constraints coming from adaptation to climate change in urban areas in low-income and middle-income nations. The authors present a complex and rich set of cities to argue that prosperous, well-governed cities can generally adapt, but that most of the world's population lives in cities or smaller urban areas ill-equipped for adaptation – with weak and ineffective local governments and with very inadequate provision for the infrastructure (such as all-weather roads, piped water supplies, or drains), housing away from floodplains or slopes, and services needed to reduce climate-change-related risks and vulnerabilities. An added difficulty is that most international development agencies have long prioritized rural areas over cities, especially those agencies that are able to address urban adaptation challenges and international financing structures are not yet in place to support cities on the ground. For the authors, a reassuring note stems from local innovations in adaptation planning, especially in regards to disaster planning and risk reduction.

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