6 Multi-level climate change planning

Scale, capacity and the ability for local action

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Introduction

Cities and city regions across the world are emerging as critical actors in the struggle to deal with the challenges of a changing climate (Revi et al. 2014; Stone Jr. 2012; Bulkeley 2010; The International Bank for Reconstruction and Development/The World Bank 2010). Although climate change continues to be imagined as a global problem requiring solutions at international and national scales, there has been a growing involvement of municipal governments and other actors at the local (city) scale in dealing with challenges posed by a changing climate (Bulkeley 2010). This has emerged partly as a response to increasing frustration with international negotiation processes as well as the growing realisation that the impacts of climate change are going to be increasingly localised, and possibly amplified in urban regions (Stone Jr. 2012). There is also considerable investment that is being directed towards building capacity within cities not only by their own national and regional governments but also by international donor agencies, networks and institutions to help deal with these challenges.

This chapter examines local climate change action in Indian cities. Here, I understand 'local' as being at the settlement scale, focusing explicitly on urban settlements and their ability to respond to climate-related challenges. This focus is especially important given the scale of India's urban transition – by 2050, more than half the country will be urban (United Nations, 2014). As India continues

its urban transition, urban populations in India are increasingly vulnerable to a range of environmental and socio-economic risks that will likely be exacerbated by climate change (Stone Jr. 2012; Mukhopadhyay and Revi 2009; Revi 2008). Planning and policy decisions taken now will have lock-in implications. In this chapter, I argue that there is a need for localised climate action at the city-scale in India, which engages with specific concerns that cities and urban residents are facing and can be operationalised within the existing governance framework. India's growing urban footprint also has global implications for climate change adaptation and mitigation with the proportion of vulnerable populations in Indian cities increasing and as a growing Indian middle class aspire to more Western standards of consumption.

Focusing on environmental governance in India, and especially on two states, Karnataka and Tamil Nadu, and their capital cities, Bangalore and Chennai, this chapter will examine how, if at all, planning for climate change (either adaptation or mitigation, or both) is being localised, and what challenges and opportunities exist. The emphasis here is particularly on government efforts to plan for climate change challenges. While the aim of this chapter is to begin to identify how Indian cities can plan for climate change, I also engage in some detail with larger state-level planning processes. This is important because city governments and their officials in the Indian context rarely have the power to make their own plans (Weinstein et al. 2013) or make choices about particular development pathways. For the most part, decision-making power rests with state government departments, with city governments being largely implementing agencies. Therefore, to know how urban governments can address the climate change challenge, it is necessary to first understand how the state government departments are engaging with the issue.

This research is part of a larger project (Adaptation at Scale in Semi-Arid Regions or ASSAR) funded by Canada's International Development Research Centre (IDRC) and the UK's Department for International Development (DFID) through the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA).[1] Working in seven countries in semi-arid regions, this project seeks to understand the factors that have prevented climate change adaptation from being more widespread and successful, and the processes – particularly in governance – that can facilitate a shift from ad-hoc adaptation to large-scale adaptation. The study sites in India under the ASSAR project are based in the states of Maharashtra, Karnataka, and Tamil Nadu. This chapter is focused on two of these three states: Karnataka and Tamil Nadu.

Drawing on interviews with local government officials, academics, experts and other knowledgeable observers, academic writing as well as reviews of policy papers, plans, reports and news articles, this chapter explores questions of scale, engaging with regional and local level actors; capacity; and the ability to act and implement solutions.[2] I find that, in most cases, there is no specific institutional architecture, either within government or outside it, to deal with challenges of climate change beyond the level of the state governments.

As this chapter will show, the lowest scale at which climate change planning takes place in India is that of the state. Using the national plan as a blueprint,

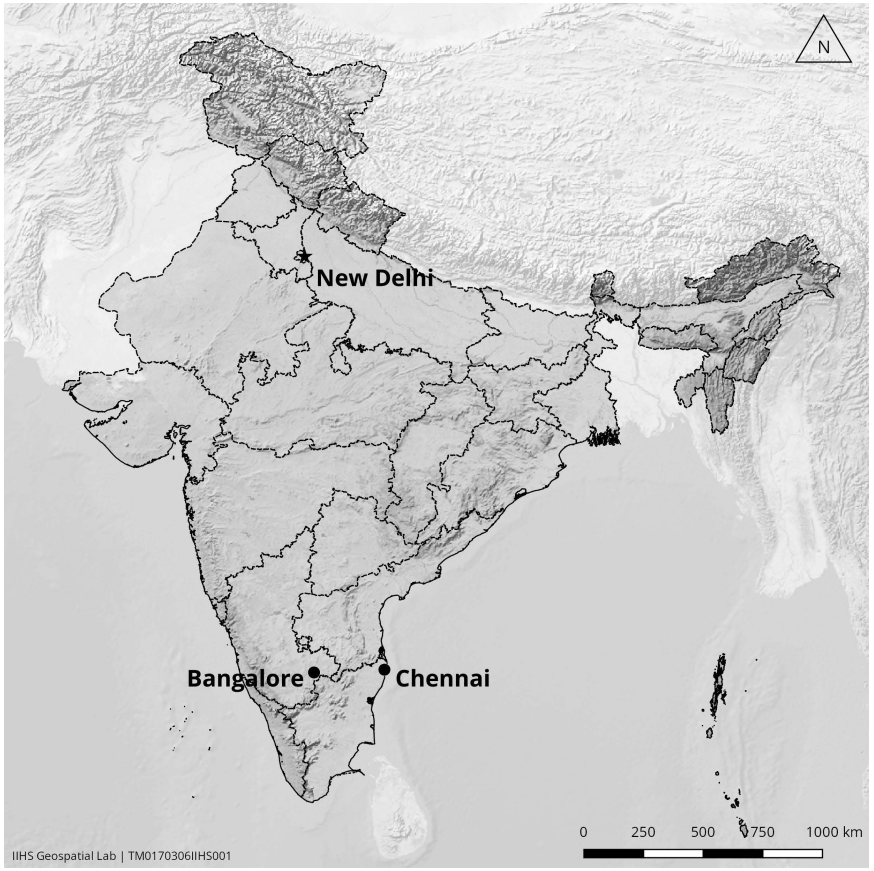

Figure 6.1 Case site locations

Source: IIHS Geospatial Lab 2017; Administrative Atlas of India 2011; Natural Earth 2017

state plans aim to integrate national priorities with the respective state's development goals. Government officials from urban local bodies are typically absent from this plan-making process. Moreover, since these are state plans, the focus is much wider. Plans tend to focus on an extensive range of issues from agricultural productivity and livestock management to regional-level initiatives such as a state-wide shift to cleaner energy, as in Karnataka. Plans mention urbanisation and cities to varying extents, depending on local and regional context. In Karnataka and Tamil Nadu, the state action plans mention urban issues, highlighting how climate change will exacerbate many existing problems and concerns. However, there doesn't seem to be much engagement in either of the two plans with local agencies, nor is there a clear set of actions at the city scale that would enable

implementation or a clear plan for building capacity in urban governments to deal with climate change challenges.

The next section gives a brief overview of the environmental governance framework as well as the institutional structure in India. The rest of the chapter focuses on the two states and cities. The chapter concludes with a section on challenges and opportunities, especially at the local scale.

Environmental governance in India

In the Indian context, environmental governance has largely been underpinned by concerns around reconciling developmental priorities and economic growth with sustainable development pathways (Dubash and Joseph 2015; Nair 2015). Since the 1970s, India has maintained a relatively consistent stance internationally emphasising that developing countries need to focus on developmental priorities such as poverty alleviation while simultaneously addressing national and global environmental challenges (Dubash and Joseph 2015; Revi and Sami 2013; Revi 2008). There have been several national-level policies, legislations and programmes that the Indian government has put in place to deal with environmental concerns, including the creation of a series of 'end of pipe' regulatory agencies, pollution control legislation and the passage of several landmark court judgments. Various citizen-led initiatives have also been instrumental in the formation, implementation and enforcement of environmental policies. For example, in May 2016, the National Green Tribunal fined a real estate developer for encroaching on and attempting to develop in and around wetlands in Bangalore (Bangalore Mirror Bureau 2016). This decision emerged from a review of a Public Interest Litigation (PIL) that several Bangalore-based citizen groups had filed to demand protection of lakes and water bodies in the city.

The integration of environmental and development concerns can be traced back to the 1960s and '70s, when the Five Year Plans clearly spelt out the need for assessing and addressing environmental problems to enable national development goals. In 1985, an independent nodal national-level ministry was set up – the Ministry of Environment and Forests, now renamed the Ministry of Environment, Forests, and Climate Change (MoEFCC), has adopted an overarching environmental policy (the National Environmental Policy 2006), which sets mandates for concerned departments, both at the apex and at the sub-national (state and provincial) levels for implementation of environmental quality standards within their defined areas of jurisdiction.

Most states also mirror this structure – there are typically state departments of environment that carry out the mandate from the national government, although the specifics of the institutional structures, governance mechanisms, and functions differ from state to state. However, there is very little understanding of urban environmental issues within the state departments, and the approach to dealing with these remains largely reactive. In addition, there is no designated agency at the city level that has been given the responsibility of dealing with environmental issues. There are of course several aspects of environmental management that are distributed among various local agencies – for example, water

and sanitation as well as solid waste management – but there is little coordination between the different agencies in charge.

Urban development and environmental issues (including climate change) are handled by two different ministries at the national level. There is very little coordination between both ministries and their departments whether at the state or city scale. Moreover, the institutional structure at the state level itself is usually not very robust. There is also no specific agency that has the mandate to deal with climate change issues at the local level. Awareness, and the capacity to deal with the challenges are also issues. There is little integration of environmental sustainability issues more broadly and climate change specifically in the urban planning process in most Indian cities. Non-state actors also have different levels of engagement with planning and decision-making processes, whether to do with environmental issues or urban development more broadly (Sami forthcoming; Sami 2013; Ghertner 2011; Kundu 2011).

In addition to these, there are two further challenges as far as localising climate action at the city-scale goes. The first is the lack of power at the city-scale: while the Indian national government has passed legislation that requires decentralisation, the implementation of this has been piecemeal and patchy – most city governments do not have control over urban planning processes or over municipal finance. To be able to proactively plan to tackle climate change at the urban scale, cities will need the ability to raise finances and decide how the money is spent. Cities and their governments also need to be able to draw on and incorporate expertise and knowledge from a range of non-state actors, including academics, civil society groups and the private sector. The second is the lack of capacity to act: city-level (and often even state-level) officials are often handicapped by the lack of capacity and technical knowledge to be able to understand the problem and begin formulating responses to it.

Climate change in Indian cities is rarely seen as a challenge that can and must be tackled at the urban scale by city and state governments (Sharma and Tomar 2010). This is exacerbated by the governance framework in India, where local governments have very little power and decision-making authority (Weinstein et al. 2013; Pinto 2000). Urban governance is also very fragmented, and responsibilities for urban planning are divided among a very wide range of agencies, often leading to a lack of ownership over larger issues that demand an integrated approach. In the case of the Bangalore metro region, for example, there are at least five different agencies managing different aspects of water resource management, from water supply and sanitation to managing and protecting the city's lakes, but coordination between the different agencies remains an issue.

There is also a huge challenge within government in terms of the awareness of climate change itself, its impacts in urban areas and the capacity to engage and deal with it. That said, there are examples and instances of what Pasquini et al. (2015) call 'environmental champions' in a few Indian cities (Surat and Shimla are two examples): political leaders who have explicitly engaged with climate change as an issue at the urban scale and attempted to develop strategies to tackle emerging concerns (Pasquini et al. 2015). These remain a minority, although

there is a growing awareness and a slow rise in local officials willing to engage with the issue. For the most part, however, local governments and government officials do not acknowledge climate change as an issue that can be dealt with at the local scale.

However, there is a gradual change emerging in this perception, helped by significant domestic and international non-state actors, ranging from donor agencies and foundations to civil society groups that have been working closely with city as well as state governments to build awareness and capacity within government agencies. Several interview respondents involved in training government officials indicated that requests for training on specific adaptation-related issues had increased from state governments over time. Those who had been involved with state governments in an advisory capacity also indicated that while there had been early resistance to engaging with environmental issues, this has changed as international and domestic policy has evolved. In Surat, for example, the Surat Climate Change Trust has emerged from the second phase of the Asian Cities Climate Change Resilience Network (ACCCRN) funded by the Rockefeller Foundation. The trust, which is one of the first city-level multi-stakeholder trusts in India, includes members from state agencies, the private sector and various academic institutions. It has taken the lead to implement several ACCCRN projects as well as a range of interventions outlined in the City Resilience Strategy (Surat Climate Change Trust 2015).[3] However, interview respondents emphasised that while these efforts are important, they need to be backed by strong political will and consistency in order to be effectively implemented.

Climate change policy and decentralisation

Climate change policies in India are firmly anchored within a co-benefits framework, focusing on leveraging the synergies between development and climate outcomes (Dubash 2012; Revi 2008). These were first articulated in the National Action Plan on Climate Change (NAPCC) 2008 and were also explicitly stated in the 12th Five Year Plan, introducing measures that promote economic development while yielding secondary climate benefits. Prior to 2007, the domestic institutional structure was skeletal at best – the overriding concern was a developmental one, with climate policy being "synonymous with foreign policy on climate change" (Dubash and Joseph 2015, p. 11), which was reflected in domestic policy approaches. Since 2007, however, there was a gradual shift internationally around climate change debates, starting with the Bali Conference of Parties (COP) in December 2007 and the Kyoto protocol, leading to the COP in Copenhagen in 2009, and most recently the 2015 Paris Agreement. As pressure for climate action grew globally, it also led to growing domestic attention on the issue, and the creation of a domestic climate change policy.

The NAPCC, released in 2008, aimed to create a directional shift in India's development trajectory by integrating climate concerns with larger developmental ones (Dubash and Joseph 2015; Byravan and Rajan 2012) through sustainable development pathways that advance both economic and environmental

objectives. The plan itself was organised around eight Missions or sectors, which map out long-term, integrated strategies towards national goals around climate change, ranging from solar power development to agriculture and water as well as a separate Mission on the Himalayan ecosystem (Byravan and Rajan 2012; Prime Minister's Council on Climate Change 2010).[4]

Following the development of the NAPCC, the Indian national government asked state governments to mirror this process at the regional level, focusing on developing policies and plans that align with the eight NAPCC Missions as well as the development priorities of the specific state. The aim was to decentralise the implementation of the eight NAPCC Missions beyond the national scale (Dubash and Jogesh 2014). As of October 2016, 32 out of 37 states and union territories in India have State Action Plans on Climate Change that have been endorsed by the National Steering Committee on Climate Change (Ministry of Environment and Forests 2016). A review of five State Action plans (including Karnataka but not Tamil Nadu) by Dubash and Jogesh (2014, p. 87) finds that while the process of developing these plans has opened up the conversation around issues of climate change and environmental sustainability, there has not yet been any opening for transformational change or the 'directional shift' in India's development pathway that the NAPCC was aiming to create.

Urban climate change and urban developmental challenges are reflected to varying degrees in the different SAPCCs. The state plans for Karnataka and Tamil Nadu, for example, do discuss urban issues and challenges, given the importance of urban regions to both states. However, they do not go much further beyond identifying issues and proposing broad interventions. Similarly, the SAPCCs address issues of vulnerability or risk mitigation in urban areas to different degrees. It is rare though for urban local bodies – like the city corporation or the planning agency of the city – to be involved in the formulation of these plans, or be part of the implementation process.

The mandate for urban planning and governance in India is fractured – the responsibility for these functions is typically distributed across a range of city, parastatal and state-level agencies. Municipal corporations in Indian cities are often financially constrained and understaffed and lack the technical capacity to undertake planning and development, responsibility for which often lies largely with state government-appointed parastatal bodies like the development authorities.[5] Moreover, there is little clarity at the state and local level on the larger environmental governance agenda and urban local bodies are unsure of where the responsibility for environmental issues lies and the extent to which they are responsible.

It is within this larger context that I examine the climate change action plans and the process by which they were put together in Karnataka and Tamil Nadu.

Planning for climate change: Karnataka and Tamil Nadu

About half of Tamil Nadu and 40 percent of Karnataka is urban (Census of India 2011), although both states have very different patterns of urbanisation.

Karnataka's urban population is dominated by Bangalore, its capital city. Tamil Nadu, on the other hand, has a more dispersed urban population with several smaller urban centres as well as the large Chennai urban region. As the urban population in both states increases, its vulnerability to a range of environmental issues has also grown – Karnataka is struggling with drought and water scarcity for industry and agriculture as well as rising temperatures and urban heat islands in its cities. While Tamil Nadu also faces similar issues, its cities are additionally at threat from sea level rise and flooding. There is also a growing proportion of their urban population that is marginalised and increasingly vulnerable to social, economic, and environmental risks, which climate change will exacerbate.

Like most other Indian cities, Bangalore and Chennai do not have individual climate action plans but rather form part of the overall state strategy for dealing with climate change. This section focuses on how each of these states is dealing with climate change. I review the climate change action plans that both states have developed and the National Steering Committee on Climate Change has endorsed, the process by which these were developed, and how, if at all, they are being implemented.

Planning for climate change: Karnataka

Located in south-western India, Karnataka is among the most urbanised states in the country, with about half of its GDP coming from the service sector, located largely in its capital, Bangalore. The economic profile of Karnataka, and Bangalore in particular, has changed over the last two decades, transitioning from manufacturing (especially textiles) to service sectors, largely information technology and related services. Possibly the most critical environmental issue in the state is that of water security in both urban and rural areas. In fact, a major flashpoint between Karnataka and Tamil Nadu is the sharing of water resources from the Cauvery River that flows through both states and has been the centre of many violent confrontations in both states – the most recent of which was in September to October 2016 (Janakarajan 2016). This is compounded by the dramatic decline in lakes and water bodies over the last two decades in Karnataka, especially in Bangalore, as a result of rapid economic and urban growth.

Although the state possibly has "the strongest independent scientific and research capacity on climate change" among other Indian states (Dubash and Jogesh 2014, p. 1), and there is an acknowledgement within higher levels of the state government of the seriousness of climate change, it has yet to feature prominently in Karnataka's development agenda. The official State Action Plan for Climate Change (SAPCC) draws on three collaborations that resulted in three separate plan documents for the state. Only one was officially recognised and approved. As part of the research for this project, we reached out to members from all three groups with interview requests. However, we were only successful in meeting with the Environment Management and Policy Research Institute (EMPRI) – the official nodal agency, and officials at the local planning agency – the Bangalore Development Authority (BDA).

The three plans

As part of the SAPCC process, three different plans were prepared for Karnataka. Two of these were undertaken by independent research agencies or think tanks, and only one (prepared by EMPRI) was the officially endorsed plan. The plans were prepared sequentially with the Bangalore Climate Change Initiative's plan being the first, followed by the official EMPRI plan, and the third was made by the Centre for Sustainable Development (CSD).

The plan prepared by the Bangalore Climate Change Initiative–Karnataka (BCCI-K), was one of the earliest efforts in the climate planning process. The BCCI-K was a coalition of the various leading scientific and research institutes in the state. Their plan was focused more on the scientific assessment of the possible climate change impacts for Karnataka because the coalition did not believe that EMPRI had the capacity to do this (Jogesh and Dubash 2014). The BCCI-K plan also had international technical support from Lord Stern and the India Observatory at the London School of Economics (LSE) and financial support from the World Bank (Jogesh and Dubash 2014, and personal interviews). However, their interaction with government agencies and other stakeholders beyond the academic community seems to have been limited. The plan that BCCI-K proposed therefore functioned largely as a resource for the plans that followed. The subsequent two plans, including the official plan, drew heavily on the BCCI-K's scientific assessments (ibid.).

The official Karnataka State Action Plan on Climate Change (SAPCC) was prepared by EMPRI, the nodal agency at the state level to prepare and subsequently to facilitate implementation of identified projects. EMPRI comes under Karnataka's department of Forest, Ecology, and Environment, and was appointed by the State Committee on Climate Change to prepare the SAPCC for Karnataka (Jogesh and Dubash 2014). This was different from other states in the country. Rather than appoint an external consultant (like GIZ for Tamil Nadu), the state government of Karnataka preferred to appoint a government agency like EMPRI to prepare the plan. This was mainly because it was felt that EMPRI would find it easier to convene meetings and gather information across different government agencies than a private consultant (Jogesh and Dubash 2014; personal interviews). This plan drew heavily on the earlier BCCI-K plan for scientific and technical data as well as several other secondary sources. However, as they told us in interviews, EMPRI officials also conducted a series of meetings with various stakeholders in different government agencies, including some representatives from local city agencies in Bangalore like the Bangalore Development Authority (BDA – the city's chief planning agency), and the Bangalore Electricity Supply Company (BESCOM).[6]

In addition, EMPRI conducted structured interviews with various government departments to understand perceptions around climate change, threats from climate change and activities undertaken to mitigate these threats (Jogesh and Dubash 2014). Officials at EMPRI explained that conducting stakeholder meetings had been challenging, particularly because there was a lack of understanding about climate change and its impacts, especially in urban local bodies. EMPRI

then drew on The Energy Research Institute (TERI) for assistance in synthesising findings from different sources and compiling it as one document. The Karnataka plan covers a wide range of sectors from agriculture and water to health and biodiversity and also identifies synergies with eight NAPCC Missions across each of these sectors.

There are references to urban development and growth through the entire plan, identifying these as future challenges (both in terms of risks and opportunities) to sustainability in the state, especially from a rural development perspective (in the case of agriculture and water resources, for example). There is also a chapter dedicated to Urbanisation in the Karnataka SAPCC, which identifies four target sectors as part of the action plan: Urban Planning and Land Use, Transport, Waste Management and Housing. It lays out the current state of each sector and identifies various on-going activities in each of these sectors that are part of state-level initiatives (rainwater harvesting and solar water heaters in buildings, switching to greener fuels for public buses and improved waste management practices, for example). These are aimed at urban regions more broadly, not aimed particularly at Bangalore.

The Karnataka SAPCC also identifies activities under the NAPCC that may be relevant for these sectors, but these are unfortunately much too broad and lack specific targets or actions associated with them. The focus of this plan was mainly on aligning Karnataka's state plan with the overall NAPCC goals, but there was no attempt to take this forward, or build linkages between various activities or plans at the state level and the goals of the NAPCC Missions (Jogesh and Dubash 2014). There was also little done to foster broader engagement around the issues that the state was facing. The EMPRI SAPCC process aimed to be exhaustive in reaching out to government departments and agencies, but made little attempt to engage non-governmental stakeholders, including activists, academic institutions (apart from their use of the BCCI-K report) or the private sector.

The third plan was prepared by an independent think tank based in Bangalore called the Centre for Sustainable Development (CSD). As of October 2016, the plan has not been made public, and repeated requests for meetings or the plan document have received no response. The reason why a third plan was deemed necessary or what CSD's mandate was in the preparation of the plan seems unclear (Jogesh and Dubash 2014).

Implementation

The Karnataka SAPCC identified a broad set of activities by sector in order to implement the plan's recommendations. However, almost none of these have actually been operationalised almost three years after the plan was submitted for approval. There are five pilot projects that EMPRI is currently running in test sites around the state with a small amount of funding from the government of India. These focus on agriculture, livestock management, health impacts of climate change, biodiversity and forestry, none of which are in urban areas. EMPRI officials explained that they planned to test solutions in smaller sites before expanding coverage to other parts of the state.

When asked about urban areas, officials indicated that some efforts were being made in Bangalore, such as mandatory rainwater harvesting, incentivising solar water heaters, a plastic bag ban and the opening of the first phase of the Bangalore Metro. They also emphasised that there may be other activities that could have co-benefits but weren't being identified as such. None of these is targeted particularly towards climate change, but they are good sustainable development practices. EMPRI also had very little engagement with any local Bangalore agencies, which seems to point to a lack of coordination between the state and local levels. During our interviews, there also did not seem to be a sense of urgency around the issue, but rather that activities needed to be thought through carefully before implementing. It was also incumbent upon individual agencies to incorporate climate action in their agendas. EMPRI's main focus at this time was on conducting training workshops on a range of environmental issues for government officials in Karnataka.

EMPRI officials pointed out that one of the biggest bottlenecks they faced in implementation was the lack of funding. While the national government had mandated the creation of the SAPCCs and aimed to decentralise the implementation of the NAPCC missions, there was little by way of financing that was made available to state governments or their agencies. They have been encouraged to look for other sources of funding that can enable the implementation of activities recommended in the SAPCCs. Potential sources include international agencies and donor organisations as well as private sector institutions. This has made it even more challenging for agencies like EMPRI, which is a research organisation and lacks the autonomy to raise and allocate funds. Without dedicated financing, it is also difficult to incentivise local government agencies such as the Bangalore Development Authority, the city's chief planning body that are not as invested in these questions as agencies like EMPRI.

This is compounded by the fact that government officials across multiple departments lack the technical capacity to tackle environmental issues in general, and climate change in particular. EMPRI's current activities focus more on developing training programmes for state government officials from a range of departments and ministries. These programmes are targeted largely at creating awareness and building capacity within state government. Participation in these is often mandatory and not always demand-based. As a result, the impact and efficacy of these programmes is somewhat lessened since participants are not always invested in the issue and are not often clear on how to take this forward.

Planning for climate change: Tamil Nadu

Tamil Nadu is one of the most urbanised states in the country, with almost half its population living in urban areas. Since the mid-1990s, Tamil Nadu has been one of the fastest-growing states in India as well as one of the most industrialised (Vijayabaskar 2010). Urban regions are very important to Tamil Nadu's economic and spatial growth. Several of these are located along the coast and are increasingly vulnerable to a range of climate-induced risks, such as sea-level rise, increased cyclonic activity and flooding. These risks are exacerbated by poor

urban planning and unsustainable land use management practices. It is therefore not surprising that urbanisation features as both a risk and an opportunity in Tamil Nadu's State Action Plan on Climate Change (SAPCC).

The Tamil Nadu planning process followed a very different route than Karnataka's. Unlike in Karnataka, only one plan was prepared. Tamil Nadu also drew on external consultants for planning support and expertise: GIZ, the German Development Agency, worked with various government stakeholders to produce the SAPCC. In addition, it drew on and aimed to integrate with Vision 2023, the strategic infrastructure development plan that had been produced in 2012 (Government of Tamil Nadu 2014).[7] The SAPCC therefore aligns itself with these aims, while simultaneously laying out a plan to tackle climate change. The plan also explicitly states its intention to reduce vulnerability and exposure to risk, focusing largely on adaptation strategies and leveraging mitigation co-benefits wherever possible. These will not be implemented in isolation but "integrated into the regular developmental planning process, keeping in tune with the convergence principles articulated in the State's Twelfth Five Year Plan" (Government of Tamil Nadu 2014, p. 15).

The State Climate Change Steering Committee appointed GIZ to assist with the plan preparation process. Following an inception workshop in 2010, seven focal areas that mapped onto the NAPCC missions were identified.[8] Working groups were created for each of these, which were tasked with preparing sectoral papers with the assistance of GIZ. These were reviewed and integrated to form the SAPCC for Tamil Nadu. The plan lays out the key risks that the state faces, mainly from rising temperatures and increased cyclonic activity, and recognises a set of challenges within the seven sectors identified earlier. For each of these sectors, a set of activities has been proposed to help tackle the challenges identified and mitigate some of the risks together with budgets needed for implementing these activities for each sector. It also lays out a clear implementation and governance mechanism: the nodal agency for implementing the SAPCC will be the Tamil Nadu State Climate Change Cell (TNSCCC) under the Department of Environment within the Government of Tamil Nadu. A Steering Committee will also be constituted with representatives from all relevant line departments within the state, headed by the chief secretary. All sectoral line departments within the state as well as any other relevant agencies were also tasked with setting up climate cells that would then coordinate with the State Climate Change Cell to operationalise and implement the SAPCC.

In terms of urban issues, the SAPCC has a section on Sustainable Habitat that mirrors the NAPCC mission. There are also references to challenges posed by rapid urbanisation throughout the plan, particularly as almost half of the state's population lives in urban areas, and this is only likely to increase. Within the section on Sustainable Habitat, nine sub-sectors have been identified, including housing, drinking water, health and sanitation, urban development, waste management, transport, energy, pollution and greening of urban spaces. In each of these sectors, particular challenges and existing as well as proposed activities have been identified together with specific line departments within the state government that deal directly with these issues. The plan identifies both adaptation

and mitigation measures as part of the implementation strategy. As with Karnataka though, urban local bodies are largely absent from both the planning and implementation processes as laid out in the plan. This is somewhat surprising in the case of Tamil Nadu because Chennai is one of the few cities in India that had (until recently) a directly elected mayor and the state government had actually made an attempt to decentralise urban governance across cities and towns in the state in keeping with the 74th Constitutional Amendment Act (National Institute of Urban Affairs (N.I.U.A.) 2005).

Despite creating an elaborate structure and governance mechanisms, as well as a list of activities outlined in the SAPCC, very little has actually been operationalised. The plan activities themselves seem to be a repackaging of already existing activities rather than using the plan development process to come up with innovative strategies to tackle the challenges and impacts of climate change. While the State Climate Change Cell seems to have been created, there is little information available on its activities, and its website is no longer functional. According to the Department of Environment's website, they are currently undertaking a climate change adaptation programme in collaboration with the German government and GIZ, but only in rural areas.[9] In the aftermath of the 2015 Chennai floods, there were renewed calls to focus on urban areas and develop strategies that would help urban regions in the state to deal with climate change issues, but it is unclear if the SAPCC has been revised to reflect this. Participation in the implementation process seems to be limited largely to state government agencies and their officials, although the plan does identify civil society, various private sector entities, as well as academic and research institutions as valuable resources. However, the plan has no clear strategy that indicates how they propose to engage these stakeholders.

Risks and opportunities

Although Karnataka and Tamil Nadu differed in their approaches to formulating and developing the plans, there are nonetheless several similarities between the two plans. The SAPCCs for Karnataka and Tamil Nadu do pay attention to some of the climate-induced challenges and concerns that urban regions are beginning to face. However, their focus remains somewhat limited to already existing activities, rather than using these plans as opportunities for innovation. In both plans, city governments and other urban local bodies are largely absent. Local agencies and officials rarely participated in the planning process, or in the identification and prioritisation of activities in the SAPCCs. Moreover, since the focus of the plans was at the state level, specific cities and their issues did not get reflected.

States are increasingly turning to consultants to help with planning processes. Karnataka decided to develop the plan in-house since it was assumed that other government agencies would be more willing to engage with a process that a state institution was leading, rather than an external consultant. Interview respondents repeatedly emphasised the importance of credible local long-term partners to help with developing plans as well as implementation. While there is no

evidence from the State Climate Action planning process that plans made by external consultants (domestic or international) were more inclusive or effective, interview data indicates that there was more credibility if partners or consultants were local and embedded within the state or city context.

As cities across the world begin to demonstrate their leadership in climate action, Indian cities need to work out a mechanism to participate in this larger global movement. However, there are several challenges to enable this participation. The first, and perhaps the biggest, is the fragmentation of urban governance in India. This makes coordination across different agencies and scales difficult. Although state governments may devolve power over urban development and planning to local governments, most have chosen not to (Weinstein 2009; Pinto 2000). The responsibility for planning and governance functions is typically distributed across a range of city, parastatal and state-level agencies in both Chennai and Bangalore.

The power to control urban planning in Bangalore is dispersed widely among several municipal and state-run agencies, often leading to contentious decision-making as jurisdictions and functions of various agencies tend to overlap. While the state of Karnataka has a Disaster Management Authority with a policy for disaster management and a State Climate Action plan in place as well as district level disaster management authorities for the Bangalore metro region, they have not begun to operate effectively (IIHS et al. 2013). While there is agreement and buy-in at the higher levels of government, there is little understanding of these issues at the local institutional (operational) level (IIHS et al. 2013). For example, planners from the Bangalore Development Authority, the city's chief planning agency, indicated that this was not part of their mandate, nor did they perceive these as critical issues. Although the new draft master plan does incorporate an integrated planning approach and mentions the need to integrate with environmental plans being developed for Bangalore (Sami, forthcoming), this does not translate into capacity or understanding at the operational level.

Tamil Nadu, on the other hand, has been among the most successful states at decentralising urban governance (National Institute of Urban Affairs (N.I.U.A.) 2005).[10] Despite this, local agencies have been notably absent from the climate planning process in Chennai. Environmental management responsibilities have been moved to departments that are no longer within the city corporation, as a move to improve efficiency, reducing the corporation's capacity to deal with these issues (Tanner et al. 2009). In addition to the fragmentation of governance, there is a constant tussle between the two dominant political parties in the state for control of both the city and state government (Institute of Development Studies (IDS) 2007). As several interview respondents also explained, when the same political party is in control of both governments, there is little obstruction to planning and implementing development projects. However, when there are two different parties in the city and state government, the functioning of the city corporation slows down.

Climate and urban policy making and planning, including resilience planning, is concentrated within state governments. The role of urban local bodies, civil

society and communities tends to be that of implementation. This leaves little room for innovation, and the potential for cities to foster inclusive and sustainable development will remain unrealised. India's current urban regulatory and governance structures are inadequate to address climate challenges. Although an appropriate urban-level platform is needed to engage with different stakeholders on various aspects of climate action, there are opportunities that exist within the existing structure that can and should be leveraged. One example of this is the formation of the Surat Climate Change Trust that brings together different stakeholders to help address environmental risk. This compact also emerged after a decade-long intervention through an internationally funded programme.[11] Surat also has a long history of environmental and public health risks that has made the local government as well as other city stakeholders aware of the importance of working collaboratively to address these issues.

From their experiences of working with Surat and other Indian cities, interview respondents indicated that it was important to identify a credible long-term local partner who could coordinate with government agencies and take leadership in knowledge management and implementation. In Gorakhpur, one of the other ACCCRN cities, there was very little engagement with the government, and a local non-profit led most of the ward-level resilience planning. The plans that were developed through this process, however, have been implemented only in a piecemeal manner, focusing on small projects that could be undertaken at the neighbourhood level. Interview respondents emphasised that the lack of engagement from government agencies is the biggest challenge in climate action in India. One respondent especially stated that it was preferable to have lower capacity but greater engagement, since that often enabled projects to get off the ground.

There are also several government of India schemes and related interventions that may be leveraged as part of a climate-action oriented agenda. For example, under the Atal Mission for Rejuvenation and Urban Transformation or AMRUT, close to 500 cities, including Bangalore and Chennai, will be funded with an investment of INR 50,000 crores targeted over five years. Some of the key thrust areas under AMRUT that every selected city has to engage with include the development of an integrated master plan, developing public transportation infrastructure focusing on non-motorised forms of mobility, sustainable water management and increasing green spaces within the city.

However, as this chapter has shown, three key issues need to be addressed to make localised city-based action possible. The first is the capacity to act: officials in local (city) agencies lack the knowledge and skills to tackle problems of this nature. Interview respondents within local agencies also said that it was one of the reasons governments were turning increasingly to consultants, since it was difficult to both build internal capacity as well as hire new staff. The second issue is the political authority to implement change at the city scale. As discussed earlier, although the 74th Constitutional Amendment decentralised power to local governments, its implementation has been piecemeal. As a result, few local governments have the power and authority to make decisions. Given this, as well as the fragmentation of powers across different local agencies, it becomes very

difficult for city officials to implement policy or take decisions on spending, for example. Even in states like Tamil Nadu, where the 74th Amendment has been relatively better implemented, local agencies have been absent from environmental and climate governance processes. The third concern is the lack of willingness to act or engage. According to interview respondents, this was the biggest obstacle to successful policy implementation. There are few local officials who have engaged with environmental or climate-related issues – for the most part, city officials do not consider these to be part of their responsibility, and therefore choose to not engage. Civil society actors and international organisations like the Rockefeller Foundation who have worked with Indian city governments over the last decade or so have emphasised the need to build greater awareness among local city officials in order to increase engagement and consequently their willingness to act.

This cannot happen in isolation, however, or only at the city-scale: there needs to be a commitment from national and state governments to prioritise climate action (for both adaptation and mitigation) through financing, improved governance and coordination across scales and sectors and with the participation of multiple stakeholders.

Notes

1 For more information on the ASSAR project, please see: www.assar.uct.ac.za/, and for more on the CARIAA program, please see: www.idrc.ca/en/initiative/collaborative-adaptation-research-initiative-africa-and-asia
2 In this instance, I use 'capacity' to mean the knowledge and skills to be able to address environmental challenges. I use 'ability' to mean both the authority as well as the willingness to act.
3 For more on the Surat Climate Change Trust, see: http://scct-surat.in/Default.aspx
4 For a more detailed discussion of the NAPCC, please see (Byravan and Rajan, 2012). For an in-depth discussion of the institutionalisation of climate policy, especially at the national level, see (Dubash and Joseph, 2015)
5 'Municipal Corporations' in Indian cities are elected local governments that administer urban areas with populations over 1 million. Municipal corporations are responsible for urban planning, regulation of land use and buildings, public health and solid waste management, water supply, slum improvement and upgradation, among other issues. The specific services provided differ from city to city. However, there are typically a range of other urban local bodies (like the Water Supply Board, or the city Development Authority) that also undertake a range of functions that overlap with those of Municipal Corporations, often leading to conflict and contestations between the various urban local bodies.
6 The jurisdiction of BDA is limited to the city of Bangalore. However, that of BESCOM extends beyond the Bangalore urban region.
7 The Vision 2023 document is meant to function as a blueprint for revitalising the state's economy: its aims include increasing the per capita income of the state's residents to match that of Upper Middle Income countries, achieving a higher Human Development Index (HDI) to match those of developed countries, and providing high-quality infrastructure across the state (Government of Tamil Nadu et al., 2012).
8 The seven focal areas included: sustainable agriculture, water resources, forests and biodiversity, coastal area management, energy efficiency (including renewable energy and the solar mission), sustainable habitat and knowledge management.

9 This programme has been funded by the German Federal Ministry for Economic Cooperation and Development.
10 Until June 2016, Chennai had a directly elected mayor. In June 2016, the Tamil Nadu state government introduced a bill that would empower councilors to elect the mayor rather than having the mayor be directly elected by city residents. (B. Kolappan, 2016)
11 Surat was one of three Indian cities chosen to be part of the Asian Cities Climate Change Resilience Network (ACCCRN) funded by the Rockefeller Foundation. The other two cities were Gorakhpur and Indore.

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