# Transnational support for urban climate adaptation
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**Transnational Support for Urban Climate Adaptation:**

**Emerging Forms of Agency and Dependency**

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## Abstract

Transnational actors are critical for financing programs and generating awareness around climate change adaptation in cities. However, scholars have yet to assess whether transnational forms of support actually enable more authority over designing and implementing adaptation actions, as well as whether outcomes address wide-ranging urban development needs. In this paper, I examine experiences from three cities in India – Surat, Indore, and Bhubaneswar – to analyze the multilevel politics that link local political agency over adaptation with their supporting transnational networks and funders. Drawing on a comparative case methodology, I find that the governance of climate adaptation involves *powers of agency* over directing bureaucratic practices, public finance, spatial strategies, and institutional culture. A city's ability to exert these *powers of agency* then yields different patterns of climate adaptation. This finding reasserts the role of urban actors operating within the multilevel climate governance regime. However, political agency is often circumscribed by a combination of historical political economic constraints and emerging transnational resource flows that promote specific forms of political meaning and institutional procedures. The presence of external support for climate adaptation therefore paradoxically constrains the overall governance autonomy of cities. In the context of growing neoliberal trends in climate services and infrastructure provision, this opens up new opportunities for development dependency – i.e., ones that mirror historic critiques of aid and foreign investment – within the global marketplace for climate finance.

## Keywords

Cities; climate change adaptation; climate finance; India; multilevel governance; political agency; transnational networks; urban politics

Emerging climate change adaptation policies in many cities around the world are strongly driven by external actors (Ayers 2009). Global organizations such as the Rockefeller Foundation, C40, and ICLEI often provide policy guidelines, seed money, and capacity and decision support (Kernaghan and da Silva 2014; Lee 2013; Gordon 2016; Okereke et al. 2009). These external resources are important catalysts for initiating action, generating awareness, and legitimizing the agenda from within (Carmin et al. 2013). Despite these insights, researchers have yet to critically evaluate whether external support actually enables cities to have more power over designing and implementing context-specific adaptation actions, as well as whether these interventions are effective in the context of wide-ranging urban development mandates.

This paper draws on theories of multilevel governance and urban political economy to evaluate how climate adaptation actions are implemented across three cities in India, namely Bhubaneswar, Indore, and Surat. I illustrate and inductively assess the pathways through which cities are pursuing adaptation actions under a backdrop of transnational support, internal governance deficits, high socioeconomic inequality, and increasing public awareness of climate impacts. Building on the idea that cities are active *agents* in the multilevel governance of climate change (cf. Bulkeley and Betsill 2013) and borrowing language from Campbell (2009), I argue that cities are able to exert *powers of agency* over climate adaptation via four pathways: agency over bureaucratic practices, public finances, spatial strategies, and internal institutional cultures. The ability of cities to exert such *powers of agency* over any or all of these four aspects then explains the patterns of adaptation outcomes in policy and across space. However, these *powers of agency* are variable and inequitably divided within cities, and are often dictated by a combination of political economic constraints and emerging transnational resource flows that promote specific (and often path dependent) forms of political meaning and institutional procedures. The presence of external incentives thus paradoxically constrains the overall autonomy of cities.

Ultimately, the multilevel nature of climate change governance results in contradictory experiences for cities. It articulates specific *powers of agency* over translating climate adaptation priorities into strategies and actions; however, it simultaneously constrains a city's *agentic power* – i.e., the ability to conceive of strategies and act independently – due to an increasing dependence on external resources that is, in fact, a legacy of the neoliberal (and maybe also neocolonial) transformation of cities in the global South. This argument reasserts the role of urban actors operating as agents – especially ones with specific *powers of agency* – within the multilevel climate governance regime. However, it also points to new sources of dependency experienced by cities, especially since climate adaptation priorities are increasingly embedded within larger discourses of economic growth, urban competitiveness, and capital investment and accumulation (see Brenner and Theodore 2005; Harvey 1989; Savitch and Kantor 2002). This paradox leads to pressing critiques on the potential of transnational support for enabling adaptation in cities: the lack of *agentic power* not only dampens the

prospects for cities to offer truly transformative climate resilient solutions, it also questions whether prioritizing certain forms of agency may actually entrench historic patterns of development injustice.

**Situating Urban Adaptation in the Global Climate Marketplace**

Scholarship on the multilevel governance of climate change notes that cities are assuming more responsibilities over designing and implementing actions (Bulkeley 2010; Hughes, Chu, and Mason 2018). However, cities often face different structural constraints to their ability to plan for risks or to translate climate science. Researchers have also noted that the emerging role of urban actors facilitates new decision-making pathways and participatory forums (Archer et al. 2014). In this section, I reflect on how theories of multilevel governance can help to systematically trace the agency of urban actors, as well as assess the unique politics associated with operationalizing adaptation priorities within cities in the global South. I recognize that other theories – including policy mobilities (cf. Clarke 2012; McCann 2011; Peck and Theodore 2010) – can also be applied here; however, I selected multilevel governance as the analytic foundation because it allows for a bottom-up interrogation of urban agents and actions in the context of multilevel arrangements.

The rise of climate change as a global policy issue over the past several decades corresponded to a resurgence of cities as a unit of analysis across many disciplines. In the global South, trends in democratization meant that many cities were increasingly beneficiaries of devolved budgetary and legislative powers (Bardhan 2002), but they were hamstrung by governance deficits as well as entrenched socio-political inequities (Watson 2009; McFarlane 2012). Scholars of multilevel governance have argued that the stretching of authority can improve overall effectiveness and accountability, which can happen horizontally – i.e., across jurisdictional boundaries in space – *and* vertically between local, regional, national, and global levels (Hooghe and Marks 2003). In this context, cities are increasingly active agents in the global order, with climate change having become a prime policy arena (Toly 2008; Bulkeley and Betsill 2005). However, some are beginning to critique how climate resilience has become a new facilitator of capital accumulation, social subjugation, and political exclusion (Gillard 2016; Shi et al. 2016; Ziervogel et al. 2017). For example, cities are increasingly pursuing adaptation actions that are coupled with capital investment opportunties and land speculation practices (Anguelovski et al. 2016).

The growing policy emphasis on climate adaptation has enabled new systems of transnational cooperation (Fünfgeld 2015), NGOs (Gough and Shackley 2001; Rohrschneider and Dalton 2002), knowledge sharing networks (Andonova et al. 2009), and public-private partnerships (Harman et al. 2015). Many of these networks are supported by private and non-state institutions that fill human resources and financial needs (Ayers 2009). For example, programs such as the Rockefeller Foundation's Asian Cities Climate Change Resilience Network (ACCCRN) and 100 Resilient Cities program seek to integrate climate priorities into existing urban development. The emergence of global climate finance is providing further incentives for these approaches (Pickering et al. 2015; Barrett

2015). To increase the local uptake of these external resources, many cities have combined them with existing intergovernmental grants, local tax sources, and private investments to help fund larger-scale adaptation interventions (Cook and Chu 2018).

Despite these advancements, adaptation actions in the global South continue to face concentrated power amongst small numbers of urban elites, biases towards decentralized network governance approaches, and a persistent unraveling of public sector authorities (Himley 2008; Chu et al. 2017). Such constraints have prompted cities to question the applicability of multilevel governance approaches in Southern contexts, and so have called for cross-sectoral tools and experimental approaches (Bulkeley, Castán Broto, and Edwards 2015; Hughes et al. 2018). However, there are vast uncertainties over whether these new governance arenas can promote more equitable outcomes or improving overall resilience, especially since many of these projects are led by global aid or investment capital (Shi et al. 2016; Sovacool et al. 2015). Equity and inclusiveness are important parameters for assessing outcomes due to the presence of urban regime interests, the uneven distribution of power (Paavola 2008; Schlosberg 2012; Harris et al. 2017), and the fact that poor communities tend to be the most vulnerable (Ayers and Dodman 2010). Recent sources of adaptation assistance have thus prioritized the needs of the most vulnerable and advocated for more inclusive approaches (Ciplet et al. 2015; Adger et al. 2006).

The challenge for many cities in the global South emanate from an inability to integrate adaptation into different urban agendas, bridge deficits in finance, staffing capacity, information, leadership, and cope with uncertain impacts (Carmin et al. 2013). In this paper, I focus on an operational conundrum found when applying the theory of multilevel governance to a development context – how and through what pathways do resource-constrained cities enact forms of agency, and does being an active agent in the multilevel climate governance process actually lead to more effective and equitable adaptation outcomes? To answer these questions, I draw on the terminology proposed by Campbell (2009), where "*power of agency*… refers to an actor's ability to initiate and maintain a program of action while… [*agentic power*] refers to an actor's ability to act independently of the constraining power of social structure" (Campbell 2009, 407). I apply this more nuanced definition of agency to assess what it means for cities to be agents in multilevel arrangements – i.e., whether it only facilitates different *powers of agency* or also transformative *agentic powers* – as well as to evaluate whether transnational resources can enable more equitable adaptation interventions.

**Methodology**

This paper compares the experiences of the Indian cities of Bhubaneswar, Indore, and Surat to inductively evaluate the role of transnational actors in facilitating policy change. I selected these cities because they have long histories of engaging with emblematic transnational programs such as the Rockefeller Foundation's ACCCRN and the UNDP's Climate Risk Management project. The three cities are also interesting from a governance perspective because they represent three different

institutional forms – Bhubaneswar is a state capital and is governed via a combination of state and municipal level institutions; Indore is a secondary city that has experienced long-term governance deficits; and Surat is a regional economic powerhouse with high economic and political exposure. These different institutional forms therefore speak to the varying experiences with local autonomy – and thus the sources and pathways of political agency – since the *74th Constitutional Amendment Act* devolved governing functions to municipal governments across India in 1992.

The analysis is based on fieldwork conducted in Bhubaneswar, Indore, and Surat between January 2011 and June 2014. The data draws on 30 semi-structured interviews with actors involved in each city's adaptation planning process, including officials in the three municipal corporations, urban development authorities, funders such as the Rockefeller Foundation and USAID, state-level agencies including the Odisha State Disaster Management Authority (OSDMA), and national policy organs in Delhi such as the National Institute for Urban Affairs (NIUA). Interviews were recorded, transcribed, and inductively coded using NVivo to assess how cities have promoted adaptation through using external resources, implementing pilot projects, and enabling institutional change. I supplemented the interview data with a content analysis of municipal development plans, resilience strategies, and annual budgets from 2005 and 2016. A summary analysis is shown in Table 1.

**Table 1**
Summary of Adaptation Interventions

|  | *Bhubaneswar* | *Indore* | *Surat* |
|---|---|---|---|
| State | Odisha | Madhya Pradesh | Gujarat |
| Population (Census 2011) | 880,000 | 2,400,000 | 4,500,000 |
| External Funder |  |  |  |
| Source of Support | USAID, UNDP, ICLEI | ACCCRN, DFID | ACCCRN |
| Duration | 2012 - 2015 | 2008 - 2015 | 2008-2015 |
| Governance Implications |  |  |  |
| Strategy | Integrate adaptation into disaster risk and management plans. | Integrate adaptation into development policies and promote water management and conservation. | Institutionalize adaptation into decision-making, e.g. the Surat Climate Change Trust. |
| Key Interventions | Promote water harvesting and community awareness; protect infrastructure; subsidize greenroofs; preserve urban ecosystems. | Develop water management programs; strengthen early warning; protect infrastructure; local awareness. | Install early warning systems; develop disaster management plans; improve public health; train citizen groups; build community awareness. |

| Institutional Arrangement | Integrate adaptation and disaster management into planning; secure financing; link with poverty and community development priorities. | Integrate adaptation into slum redevelopment and upgrading; provide adaptation incentives; focus on community infrastructure and public services. | Establish a public-private institution responsible for securing funds; integrate adaptation with infrastructure and public services. |
|---|---|---|---|

The narratives are divided into two sections and are supported by a series of emblematic quotes. First, I present short vignettes of Bhubaneswar, Indore, and Surat's experiences to highlight how different actors exercised agency over climate adaptation on the ground. Second, through an inductive assessment of experiences from Bhubaneswar, Indore, and Surat, I illustrate four distinct approaches to exerting authority over adaptation governance, i.e., *powers of agency* (see Table 2). The results from this inductive analysis then inform several hypotheses on urban equity and justice that could be assessed in a more deductive manner in future work. Finally, in the conclusion, I revisit my initial question and offer some observations on the trade-offs between *powers of agency* and *agentic power* over urban climate adaptation.

**Vignettes of Climate Adaptation in Indian Cities**

*Bhubaneswar*
Approximately 30 percent of the population of Bhubaneswar lives in the city's 377 slums. The city has experienced many major impacts in the past, such as in 1999, when Bhubaneswar was hit by a super cyclone with winds of nearly three hundred kilometers an hour (Chittibabu et al. 2004; Thomalla and Schmuck 2004). Many buildings were damaged and basic services like water supply, sewage drainage, food supply, and communication came to a halt. The cyclone cause more than 10,000 deaths across Odisha, damaged more than 2 million hectares of agricultural land, and resulted in more than US$5 billion in damages (Chhotray and Few 2012; Mishra and Mishra 2010). This experience prompted the creation of the Odisha State Disaster Management Authority in 1999, the publishing of the *Environmental Management Plan of Bhubaneswar* in 2003, and the *Odisha Climate Change Action Plan* in 2010.

Between 2005 and 2012, Bhubaneswar was part of the UNDP's Urban Risk Reduction project, which worked to reduce vulnerabilities across city institutions. In 2012, in partnership with ICLEI, the city initiated their vulnerability and risk assessment and adaptation planning process. It highlighted issues of precipitation, temperature change, and extreme events as key climate risks (Interview 2013). Starting in 2013, Bhubaneswar participated in the Climate Risk Management project, which – supported by UNDP and the USAID – focused on building community awareness. Through engaging with different external actors, Bhubaneswar's focus has always been on disaster risk reduction, community engagement, and infrastructure protection. One important project is the

ward level disaster management plans, which included school safety programs, disaster response workshops, and risk and vulnerability assessments (Interview 2014). As one municipal official stressed,

> "For climate change, if people are not facing any problems, they will not recognize it as
> a problem. So you have to push them, to provide some support where they will get
> benefit for their projects. Only then will they take note that climate adaptation is
> something we have to do" (Interview 2014).

In addition to building awareness through collectively envisioning the future, these workshops also helped to educate about search and rescue procedures, debris management, and other risk training programs. Relatedly, the city oversaw a civil defense corps trained in risk management and response techniques. The corps is made up of volunteers and their basic duties include community protection, disaster response training programs, and assisting emergency services during disaster events (Interview 2013). Training programs include educating volunteers on search and rescue techniques that employ locally available resources (Interview 2014).

Overall, these actions show that, for Bhubaneswar, adaptation is framed in terms of immediate capacities for and agency over responding to and managing the impacts of extreme events. For example, when Cyclone Phailin struck in October 2013, public authorities were able to quickly evacuate more than 10,000 people from across the city. Moreover, due to extensive training programs, there were no causalities in Bhubaneswar, compared to the thousands who perished during the 1999 cyclone. From the 198 disaster response centers, the city was able to coordinate water supply through temporary tankers and restore electricity to critical services within three days (Interview 2014). For Bhubaneswar, external resource support provided by UNDP helped improve clarity of municipal directives over preparing for and restoring public services immediately after impacts.

*Indore*

Many of Indore's 540 slum settlements are located along rivers and are prone to flood, waterlogging, and vector-borne diseases (Indore City Resilience Strategy 2012). Water accessibility and distribution are Indore's most critical climate stressors (Dipak and Arti 2011). Under the Narmada Water Supply Scheme, water is only supplied to Indore for several hours every other day (Indore Municipal Corporation 2006). Furthermore, 90 percent of water connections are unmetered and are assessed only flat charges according to the number of connections rather than the quantity of water consumed (Gupta et al. 2006). The growing industries in Indore also contribute to overall urban water stress.

With support from the Rockefeller Foundation's ACCCRN program, adaptation planning in Indore began in 2009, which culminated in the release of the *Indore City Resilience Strategy* in 2012. It identified issues of water, public health, and human settlements as most vulnerable. In response, pilot projects focused on water harvesting and conservation technologies as well as decentralized wastewater management and treatment models (Chu 2017). For example, in the community of Rahul

Gandhinagar, a reverse osmosis plant was built with direct financial support from ACCCRN and indirect support – through permits and subsidies – from the Indore Municipal Corporation. The plant was inaugurated in March 2013 and can treat 7,000 liters of water per day (Interview 2013). Since then, profits from selling treated water have been funneled back for cleaning and maintaining the plant. Similarly, a community water harvesting program was launched in Ganeshnagar, which involved a system of collecting and storing rainwater, as well as distributing water through common access outflow taps (Interview 2014).

A second project in Indore is the urban lake rehabilitation program, which began in 2013. Since Indore relies on water sourced from the Narmada River nearly seventy kilometers away, water scarcity and supply consistency problems attributed to aging infrastructure have been perennial issues (Interview 2013). In Indore, twenty five urban lakes serve as complementary sources to the Narmada River, but sewage pollution and general public neglect have resulted in their severe degradation. This particular project identified four lakes for rehabilitation, which began with biodiversity and household socioeconomic surveys in the area. This then resulted in water quality protection plans and suitability studies for constructing community sewage treatment plants in the future (Interview 2014).

With support from the Rockefeller Foundation, adaptation actions in Indore have facilitated a renewed focus on water conservation and protection as critical development priorities, especially in the context of water scarcity. These actions have catalyzed some policy change in the local government, where it has banned new bore wells within the city limits. The city has also mandated water harvesting be integrated into new master plans, and has offered a 6 percent annual property tax rebate on new buildings that use such technologies.


*Surat*

Surat is vulnerable to sea level rise, river flooding, and urban heat. In 1994, Surat experienced a plague epidemic, which led to one of India's first large-scale urban sanitation and public health programs. In 2006, unusually high rainfall produced high discharges from Ukai Dam, which is situated upstream from Surat. During this episode, 75 percent of the urban area was flooded, leading to a disease epidemic. As a result of these major disasters, Surat's adaptation initiative is heavily focused on public health, flooding, water supply, and economic development (ACCCRN 2011; Bhat et al. 2013; Karanth and Archer 2014).

Surat, like Indore, has been a part of ACCCRN since 2008. The city placed particular attention on stakeholder engagement and vulnerability assessment processes. These workshops relied on scenario planning exercises to identify potential adaptation interventions (Kernaghan and da Silva 2014). Between 2010 and 2011, the city piloted an Urban Services Monitoring System that established a robust electronic platform upon which to improve the city's health monitoring system. It included a mobile application for health data collection, an online mapping and data visualization

tool, and a server application to store and manage data (Interview 2013), which has further assisted different city departments with predicting disease outbreak and enabling swift response.

Surat's *City Resilience Strategy* was published in 2010, and served as the final deliverable for ACCCRN's engagement in the city. The Surat Climate Change Trust was further formed in 2013 as a platform upon which different actors can contribute to prioritizing options, soliciting external financial support, and defining the city's overall adaptation agenda. One of the initial projects of the Surat Climate Change Trust is the Urban Health and Climate Resilience Center, which – like the Urban Services Monitoring System – targeted the nexus of public health and climate adaptation. The Center builds on the knowledge of Surat's existing health facilities as well as provides auxiliary support to state and national health institutions (Interview 2014). Since its launch, the Center has also facilitated an improved vector-borne disease surveillance system, hired an interdisciplinary research team, and inaugurated a public outreach program (Interview 2014).

These projects in Surat show that urban actors are recognizing the importance of adaptation as a key component of the city's overall socioeconomic wellbeing. As one member of the Surat Climate Change Trust noted,

> "Our objective is to understand the economic impacts of climate risks. We need to make a business case for motivating greater investment in adaptation… Building urban competitiveness and urban resilience involves mitigating climate risks and integrating adaptation concerns within the city's development priorities" (Interview 2013).

In this vein, in early 2013, the city government adopted the issue of climate change as one of the line items included in their annual budget. The line item earmarked 20 million rupees (approximately US$300,000) per year to build upon existing infrastructure upgrading and service enhancement efforts. These include slum relocation and rehabilitation, transportation and infrastructure improvement, flood and storm water control, and wastewater management.


**Unpacking the *Powers of Agency* in Urban Adaptation Governance**

The short vignettes show that despite the presence of transnational networks providing support, cities actually have some power over defining climate adaptation needs and framing suitable policy response and implementation approaches. In this section, I present the results from an inductive analysis of the interviews and documents to highlight how city officials exert particular combinations of *powers of agency* in the governance process (see Table 2), which then yield different patterns of adaptation action.

Through assessing the four *powers of agency*, I show that when faced with the global marketplace for climate change finance, cities are not mere recipients of aid and capacity support or who have no say in the overall direction and objectives of these programs. Rather, as scholarship on multilevel level governance suggests, cities are active participants through constantly interacting with external actors, monitoring and evaluating the progress of programs, and advocating locally

appropriate approaches to project implementation. However, as I illustrate in the next section, the presence of strong external support paradoxically constrains the overall governance autonomy of cities, as this reinforces neoliberal transformations of urban governments over time. This critique is particularly pertinent since climate adaptation priorities are increasingly embedded within larger discourses of capital investment and accumulation – which are championed by transnational actors – and thus maybe mimicking historic patterns of development dependency (see So 1990, for example).

**Table 2**
The four powers of agency in urban adaptation governance

| Source of Agency | Definition |
| --- | --- |
| Bureaucratic practices | Administrative and managerial aspects of urban governance, including the role of local policies, laws, and strategies. |
| Public finance | Fiscal aspects of urban governance, including the role of grants, transfers, taxes, and service charges. |
| Spatial strategies | Physical and spatial aspects of urban governance, including the role of design, engineering, and distribution of projects in space. |
| Institutional cultures | Behavioral aspects of urban governance, including the role of policy diffusion, communication, advocacy, compliance, and reproduction. |

*Bureaucratic Practices*

A primary objective of external interventions in Surat, Indore, and Bhubaneswar was to generate internal political agency over adaptation. Adaptation priorities in the three cities were taken up by different sectors of society – such as businesses and NGOs together with local government – leading to broad awareness and support for incorporating adaptation needs into development objectives. However this also required sustained leadership and rulemaking in order to institutionalize efforts (Anguelovski and Carmin 2011). As a result, processes of gaining commitment were accompanied by simultaneous processes of "officializing" adaptation programs, which included drafting policies, coordinating department activities, and embedding adaptation into bureaucratic procedures. These processes then facilitated increased knowledge about the connections between issues and led to policy specialization, technological development, and demands for competence and participation.

In Indore and Surat, ACCCRN projects since 2008 involved such intensive processes of engagement and collective visioning. These processes were originally designed to build understanding of climate impacts, socioeconomic vulnerabilities, as well as help politicians envision their work in light of climate change. As one local government official noted,

"Some city partners conducted training programs. For example, ICLEI and [ACCCRN] conducted programs to help people understand what they were talking about. This was something very new for the cities and there were gaps in their understanding, so these initial workshops focused on telling officials about how these

strategies for climate change would align with their development priorities"

(Interview 2013).

The search for policy alignment reached beyond evaluating programmatic co-benefits but also included identifying tools, procedures, and staffing capacities to bridge different urban agendas (Interview 2014). In the case of Surat, the establishment of the Surat Climate Change Trust further enabled civil society and private representation in structured adaptation planning processes. This implementation strategy coincided with overall governance reform promoted by all levels of governments in India.

The bureaucratization of adaptation therefore entails the setting and management of priorities through interactions between urban actors and institutions that produce co-beneficial outcomes, which is then further directed by particular agents who have specific scientific expertise, institutional knowledge, and operational know-how. Processes of embedding adaptation into plans, policies, and strategies rely on the ability of select actors to communicate regularly and to put pressure on officials. The constant communication allows for problem definition and issue translation in relation to existing development priorities. This produces a local epistemic community framed by personal histories and individual skills (see Lewis and Mosse 2006, for example). It is within these communities that external support, local technologies, and climate knowledge are negotiated between external institutions and local governments.

*Public Finance*

The governments of Bhubaneswar, Indore, and Surat are key intermediary agents between external agencies and local beneficiaries. However, Indian cities are in fact prohibited from directly accessing external funds. As one politician noted,

> "[C]ities cannot directly take money from external agents or funding agencies.
> [Funds] have to come to the central government, then to the state government, then to
> the cities. [T]here is a Department of Institutional Finance, which is responsible for
> getting all this external funding and then dispersing it to the Planning Commission or
> the Ministry. So if [cities] get in touch with other organizations who want to fund, it
> is difficult for them to channel this into implementable and fully financed projects"
> (Interview 2013).

As a result, even though some cities are making use of these emerging opportunities, such external interventions are often limited to technical guidance (Anguelovski and Carmin 2011; Chu 2016a). At the same time, many cities are discovering legal barriers that prevent them from accessing external funds in the first place. Since cities often also lack capacities to fulfill complex monitoring, reporting, and evaluation requirements set forth by funders, many are identifying alternative options that can be financed in conjunction with their locally sourced revenue income or with domestic intergovernmental transfers. As one municipal officer noted,

"[Cities] have to seek resources to implement those projects, which includes preparing detailed project reports. There are very few avenues for this right now… Currently cities are attaching a lot of adaptation projects to infrastructure and services programs because there are no other channels through which these adaptation projects can be implemented" (Interview 2013).

In other words, the financing of infrastructure and public services that support development objectives – such as in the form of sewage treatment plants and early warning systems – becomes an important entry point. Adaptation outcomes rely on existing intergovernmental grants and national schemes to facilitate incremental gains on the ground. This particular *power of agency* is therefore necessitated by the historic reliance on these transfers and grant subsidies to bridge revenue deficits exacerbated by constraining municipal taxation powers and weak revenue administration systems (Cook and Chu 2018).

Embedding climate adaptation actions into municipal budgets – such as in the case of Surat and Indore – is a practical requirement (Interview 2014). In this sense, city governments are gradually exerting agency over how adaptation options are financed by reasserting their internal funding mandates against those offered by transnational actors. Through conceiving projects that both further adaptation and address general development needs, adaptation has been reframed as a *public good* and thus has established a budgetary basis that makes use of external funding streams and effectively ties into existing intergovernmental funds. However, such sources of finance also come with directives for governance reform – such as in terms of transparency and accountability (see Kundu 2014) – and an explicit mechanism for fostering investment and entrepreneurship. As a result, even though cities have managed to wrestle some autonomy over articulating adaptation needs, larger political and economic ideologies that permeate the governance context actually limit the degree to which cities can think outside of the box. Here we begin to see the limitations of the *powers of agency*.

*Spatial Strategies*

The growing awareness of climate adaptation in Bhubaneswar, Indore, and Surat is resulting in a focus on implementing infrastructural or land use interventions (Shi et al. 2016; Anguelovski et al. 2016). However, since many infrastructures are large, expensive, and permanent, they require data-intensive designs and engineering expertise (Flyvbjerg 2014). Much of this expertise is sourced from global engineering, architecture, and design firms, scientists from foreign research institutions, and funded by philanthropic or multilateral donors. Despite growing uncertainty over how to navigate such forms of external support, we are starting to see cities experiment with how particular development projects are sited and built across space (Chu 2016b).

Infrastructure projects implemented under ACCCRN in Surat and Indore targeted areas vulnerable to flood and disease risks, especially within slum communities (ACCCRN 2011). Surat, for example, designed an online vulnerable people's database and an urban services monitoring

system to evaluate the performance of the city's infrastructure systems. Indore initiated a series of lake rehabilitation programs that made use of national funds while also relying local strategies such as rainwater harvesting or reverse osmosis treatment technologies (ACCCRN 2013). From these examples, we see that the siting of infrastructure across the urban landscape depended on an ability to find complementarities and incremental policy gains between public institutions and local contexts.

In the case of Bhubaneswar, despite the emphasis on physical infrastructure for risk management purposes – such as in the form of cyclone shelters and early warning systems (Government of Odisha 2013; 2010) – the city continues to stress the importance of supporting softer services, including education and networking activities, to further the effectiveness of adaptation programs. In particular, one municipal official noted,

> "These softer activities can help communities prepare and face disasters, such as in the form of community-based disaster management or preparedness. Without social structures, people will not understand the use of the cyclone shelter, the equipment, or the role of search and rescue teams. Building community resilience to climate change is just as important as physical structures" (Interview 2014).

As one can see, even though building physical infrastructure often requires more financial resources – which, in the case of Bhubaneswar, can cost upwards of ten million rupees for each cyclone shelter (Interview 2014) – cities must also recognize the importance of softer, supporting interventions.

These examples show how cities are gradually taking ownership over how adaptation projects are built across the landscape. Due to high degrees of uncertainty associated with investing and maintaining infrastructures, Bhubaneswar, Indore, and Surat have diverted external finances to incrementally upgrade existing or pipeline projects. Many of these projects focus on protecting valuable assets, such as factories in Surat, critical water supply and distribution pipelines in Indore, or flood barriers around core areas of Bhubaneswar. However, unequal power relationships embedded in the pursuit of spatial strategies alludes to the historic patterns of development aid that supported certain forms of speculative infrastructure investments, often with ambiguous – or even detrimental – results for poor and vulnerable urban residents (Anguelovski et al. 2016). Here, the paradox of agency is clear. Although having power over the spatial implications of adaptation governance is critical, the reliance on external support actually limits the scope of possible interventions to those that fit certain economic investment criteria. In this sense, cities actually have a limited catalogue of solutions to choose from, and are often unable to independently seek out alternative strategies that do not emphasize an immediate economic logic.

*Institutional Culture*

Most officials in Surat, Indore, and Bhubaneswar attribute the ability to address climate impacts on the constant engagement activities spearheaded by external agents such as the Rockefeller Foundation and UNDP. One local official in Bhubaneswar noted that,

"The cities did not really have trouble because there was handholding from [international] partners. They were spending a lot of time with the city officials... The strategy was prepared together with local officials to have local perspective, knowledge, challenges and constraints, and responses – even though the [international] partner remained a very strong component" (Interview 2013).

These hand-holding processes, continuously pursued across time, not only increases their legitimacy and awareness, the interactions also gradually lead to a culture of adaptation from the bottom up. This process of acculturation subsequently transformed adaptation from a form of explicit knowledge that involved technical assessment tools, risk projections, and climate scenarios into a form of tacit knowledge, with a deeper recognition of how these technical skills interacted with daily work routines.

The permeation of tacit knowledge within local government allowed for increased creativity and flexibility around how adaptation objectives can be reframed to address additional – and often conflicting –development needs. This trend mirrors theories of street-level bureaucrats who can autonomously apply policies according to contexts (see Lipsky 1981). For example, in Indore, this interaction allowed officials to forge creative ways of learning and incorporating climate objectives into ongoing development needs (Interview 2013). In this case, governance limitations were slowly overcome due to increased awareness over the issues and flexibility over changing rules and procedures.

The successful implementation of adaptation in Bhubaneswar, Indore, and Surat depended on the fact that external actors have spent many years engaging with key stakeholders and decision-makers (Interview 2014). The ability to engage and communicate issues then permeated into a wide array of other work streams, while simultaneously supporting a cultural change towards a better recognition of climate change needs within different bureaucratic arms of the city. This process not only succeeded in embedding knowledge and practice within local government, it also facilitated the bridging of policy coalitions, interest groups, and epistemic communities within the complex governance terrain of external actors, politicians, and local beneficiaries.

Despite these successes – and as I have continually alluded to – this increasing ownership over adaptation may also correspond to new forms of governance dependency. Though well resourced, external agents such as the Rockefeller Foundation and UNDP have their own agendas, including their assumptions over appropriate accountability methods, participatory strategies, and scaling up opportunities. The previous sections showed that adaptation interventions are actually only labeled as successful if they fall within the criteria delineated by external actors. Given internal governance constraints within Indian cities, they often do not hold enough power to design adaptation strategies independent of these external incentives. One particular poignant example comes through when evaluating the municipal budgets of Surat, Indore, and Bhubaneswar. Figure 1 shows the

proportion of revenue income in the three cities sourced from the local taxation, which can be used as an indicator of autonomy.
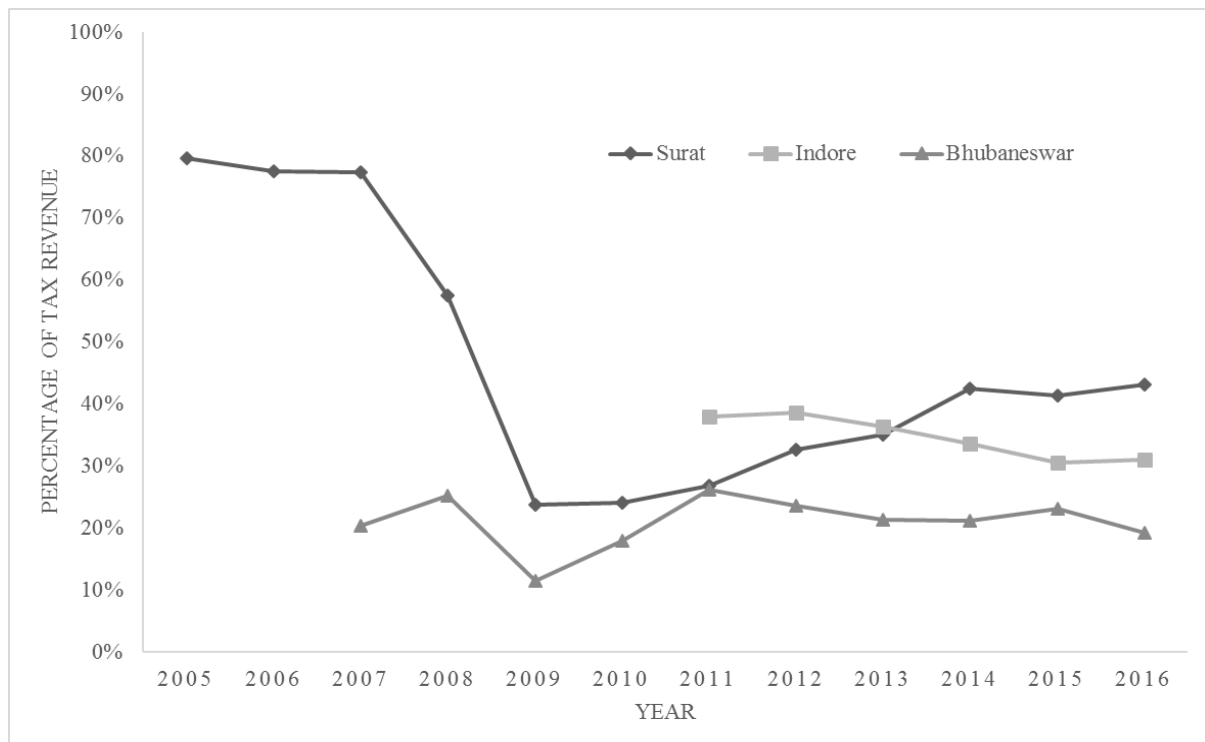


**Figure 1**
Proportion of total revenues sourced from municipal taxes (2005-2016). Source: public records from Surat, Indore, and Bhubaneswar

The data shows that since 2008, municipal taxation has only accounted for between 20 and 40 percent of total revenue sources[1], which may help to explain why cities have become open to – but also dependent on – external support, particularly for new priorities such as climate adaptation. This then questions whether the institutional arrangements built around adaptation are actually genuine innovations or whether they are simply adjustments based on economic necessity and political realities. This same logic can be applied to evaluate the other *powers of agency*.

*Powers of Agency* **vs.** *Agentic Powers***: New Forms of Dependency?**
A nuanced assessment of political agency can offer a more comprehensive look at the dynamics between transnational climate change resource flows and local governance opportunities and constraints. As cities are increasingly active agents in global environmental policy-making, I question whether such emergent forms of multilevel engagement actually facilitates more effective and equitable outcomes in the long term, especially for cities where local governance can be circumscribed by neoliberal market logics. The key contribution of this paper is therefore a call to

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[1] Indian cities experienced a drop in taxation autonomy around 2008 due to the abolishing of the *Octroi* tax, which was a local consumptive tax applied to goods traded across jurisdictions.

more reflexively engage the ideologies and assumptions behind the burgeoning arena of transnational support for climate change action in cities. On the one hand, as Bulkeley and Betsill (2013) note, multilevel governance can offer cities a voice in designing policies that pertain to their own political, economic, and ecological contexts. However, as I argue, the presence of these *powers of agency* does not automatically translate to *agentic powers* over articulating more transformative actions independent of external support or as an alternative to neoliberal parameters. This lack of *agentic power* not only alludes to the emergence of new forms dependency at the environment-development nexus, it also dampens the prospects for cities to offer truly transformative solutions that place equity and justice at the center.

In light of these conceptual contributions, I conclude by exploring two hypotheses of constraining *agentic powers* and offer some suggestions for future research. First, a reliance on transnational resources may point to the repackaging of historic trends of aid dependency (Svensson 2000; Riddell 2007), entrepreneurial urbanism (Harvey 1989; Sager 2011), and philanthro-capitalism, all of which may result in entrenching existing North-South geopolitical dynamics or neoliberal, capital oriented modes of production and accumulation. In the case of Indian cities, climate adaptation funds are supplied in a similar fashion to development aid and are aimed at building economic resilience and protecting critical infrastructure against climate impacts, thus focusing less on poorer, more vulnerable communities. Second, since many of the incentives for adaptation are derived from outside of the city, external interests may end up dominating or usurping the local development discourse. This capturing by powerful elite groups may result in further marginalization of more vulnerable sections of society. Many of these critiques mirror those leveled against resilience theories, which argue that the concept is power-blind, overly emphasizes the economic benefits of action, and fails to account for historical patterns of exclusion and marginalization (Harris et al. 2017; Patterson et al. 2018). Therefore, the main question for future research is to what extent – and through what strategies – can cities pursue more *agentic powers* to enable transformative change beyond the confines of neoliberal governance logics?

In conclusion, despite emerging paradoxes of agency, experiences from Bhubaneswar, Indore, and Surat do show that – to a large extent – cities are able to assert their *powers of agency* within an ever-expanding regime of transnational actors and resources. The ability to exert agency over how adaptation priorities are embedded into policy procedures, budgets, and spatial plans means that cities can be quite powerful actors within the marketplace for climate finance. However, these new multilevel interactions may simultaneously open up new pathways of economic and political dependency. In response, we should pay more attention to enabling urban *agentic powers* to construct and sustain climate resilient development pathways, as well as to advocate for more transformative visions of climate adaptation and governance change.

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