

Inclusive approaches to urban climate adaptation planning and implementation in the Global South

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Abstract: As cities increasingly engage in climate adaptation planning, many are seeking to promote public participation and facilitate the engagement of different civil society actors. Still, the variations that exist among participatory approaches and the merits and tradeoffs associated with each are not well understood. This paper examines the experiences of Quito (Ecuador) and Surat (India) to assess how civil society actors contribute to adaptation planning and implementation. The results showcase two distinct approaches to public engagement: The first emphasizes participation of experts, affected communities, and a wide array of citizens to sustain broadly inclusive programs that incorporate local needs and concerns into adaptation processes and outcomes. The second approach focuses on building targeted partnerships between key government, private, and civil society actors to institutionalize robust decision-making structures, enhance abilities to raise funds, and increase means to directly engage with local community and international actors. A critical analysis of these approaches suggests more inclusive planning processes correspond to higher climate equity and justice outcomes in the short-term, but the results also indicate that an emphasis on building dedicated multi-sector governance institutions may enhance long-term program stability, while ensuring that diverse civil society actors have an ongoing voice in climate adaptation planning and implementation.

Policy relevance: Many local governments in the Global South experience severe capacity and resource constraints. Cities are often required to devolve large-scale planning and decision-making responsibilities, such as those critical to climate adaptation, to different civil society actors. As a result, there needs to be more rigorous assessments of how civil society participation contributes to the adaptation policy and planning process and what local social, political, and economic factors dictate the way cities select different approaches to public engagement. Also, since social equity and justice are key indicators for determining the effectiveness and sustainability of adaptation interventions, urban adaptation plans and policies must also be designed according to local institutional strengths and civic capacities in order to account for the needs of the poor and most vulnerable. Inclusivity, therefore, is critical for ensuring equitable planning processes and just adaptation outcomes.

Key words: climate adaptation; urban planning; civil society; inclusion; participation; justice

1. Introduction

The engagement of local actors in climate change adaptation planning is critical for ensuring overall efficacy and representativeness of both processes and outcomes (Cloutier et al., 2014; Sherman & Ford, 2014). Recent literature has documented urban-level adaptation interventions and shed light on how and why municipalities select different strategies for reducing exposures to impacts, addressing vulnerabilities, and improving capacities of different city institutions (Carmin, Anguelovski, & Roberts, 2012; McEvoy, Fünfgeld, & Bosomworth, 2013; Tanner, Mitchell, Polack, & Guenther, 2009). Still, many of these studies are centered on one type of actor operating within particular adaptation interventions. Less is known about the role of a combination of civil society actors in participating and facilitating climate adaptation across a city, the ways through which municipalities engage different actors over time, and how these engagement approaches take into account local contexts.

Given these gaps, this paper critically assesses the cities of Quito in Ecuador and Surat in India, who both have long histories of engagement in adaptation planning and are considered leaders in this field, to examine how civil society actors influence adaptation planning and policymaking. By juxtaposing theories of participation, justice, and equity in urban climate adaptation planning against empirical evidence from Quito and Surat, this paper asks the following questions: How do municipalities in the Global South engage civil society in urban adaptation planning, policymaking, and implementation? What are the implications of these different approaches in furthering equitable, just, and inclusive adaptation outcomes?

Our analysis reveals that Quito relies on broadly inclusive strategies while Surat builds targeted stakeholder partnerships to legitimize urban adaptation objectives and to institutionalize planning and policymaking processes. The cases highlight how these two different approaches to engagement in adaptation planning involve distributional tradeoffs in legitimacy, equity, and justice outcomes. This paper confirms that more inclusive planning processes lead to greater recognition of equity and justice criteria, which are particularly important for the urban poor. More specifically, a critical comparison of the Quito and Surat cases shows that an emphasis on building multi-sector governance institutions and horizontal partnerships between different civil society actors, including community leaders, environmental organizations, youth groups, and scientific experts, may enhance long-term program stability while ensuring that poor and vulnerable community members have an ongoing voice in planning and implementation.

2. Theoretical groundings

2.1 Climate adaptation in the urban context

While climate stresses are global in origin and scope, adaptive responses are often locally situated (Ruth & Coelho, 2007). Local governments are closest to climate impacts (Carmin et al., 2012; Hunt & Watkiss, 2010; Sanchez-Rodriguez, 2009) and are most sensitive to the context-specific nature of risks and vulnerabilities (Bicknell, Dodman, & Satterthwaite, 2009). To facilitate adaptation, many municipalities are improving existing infrastructure and services, protecting vulnerable sectors from increased exposure, and streamlining modes of communication and coordination across decision-making institutions (Carmin et al., 2012; Dovers & Hezri, 2010; Hunt & Watkiss, 2010). They also oversee responsibility for managing infrastructure and services that are essential for improving the livelihoods of the urban poor (Ayers & Dodman, 2010; Dodman & Satterthwaite, 2009; Jerneck & Olsson, 2008; Metz & Kok, 2008).

Many local governments are pursuing adaptation activities through innovative planning experiments and through various learning-by-doing initiatives (Bulkeley & Castán Broto, 2013; Carmin, Dodman, & Chu, 2013; Castán Broto & Bulkeley, 2013; Roberts et al., 2012). Municipalities that are ‘early adaptors’ are motivated by the presence of institutional champion, internal programmatic incentives and benefits, ideas and knowledge generated through local networks and demonstration projects, and the ability to enlist the support of diverse stakeholders from within the city (Anguelovski, Chu, & Carmin, 2014; Burch, 2010; Carmin et al., 2012; Pasquini & Shearing, 2014). Two issues that cities seem to consider when institutionalizing adaptation are the needs to coordinate efforts and to integrate adaptation into the existing work of departments (van den Berg & Coenen, 2012). Local governments tend to formalize adaptation planning, such as in the form of laws and legislations, in order to strengthen the legitimacy of the process and facilitate implementation and coordination across sectors and departments (Anguelovski et al., 2014; Hamin, Gurrán, & Emlinger, 2014; Pasquini & Shearing, 2014; Sharma & Tomar, 2010; Uittenbroek, Janssen-Jansen, & Runhaar, 2012).

Cities in the Global South often lack institutional capacity and operate within strict resource limitations (Ayers, 2009; Bicknell et al., 2009; Carmin et al., 2013). As a result, many of them have opted to mainstream adaptation priorities into existing development, disaster risk

reduction, public health, or sustainability plans (Ayers & Dodman, 2010; Bowen & Ebi, 2015; Eriksen & O'Brien, 2007; Mercer, 2010; Puppim de Oliveira, 2013; Solecki, Leichenko, & O'Brien, 2011; Wilbanks, 2003). At the same time, a number of private businesses, civil society groups, and transnational networks have emerged to support capacity development, project implementation, and other financial needs (Anguelovski & Carmin, 2011; Brown, Dayal, & Rumbaitis Del Rio, 2012; Bulkeley et al., 2012). For example, programs such as the Rockefeller Foundation's Asian Cities Climate Change Resilience Network (ACCCRN) and ICLEI-Local Governments for Sustainability's Cities for Climate Protection program incentivize urban adaptation through grant transfers, reputational legitimacy, and operational guidelines (Fünfgeld, 2015). Within cities, nongovernmental and research institutions have stepped in to support adaptation activities (Kern & Bulkeley, 2009; Lee, 2013). For example, Mercy Corps in Indonesia and ActionAid in Bangladesh are facilitating community-based adaptation through fostering community awareness programs. The diversity of actors is a major determinant of the increased legitimacy and sustainability of adaptation processes (Bernauer & Gampfer, 2013; Finan & Nelson, 2009; Paavola, 2008).

2.2 Civil society inclusion and participation in adaptation

Considerations of the role of civil society in planning are not new, as existing scholarship in the field of urban and community development has noted the benefits of public engagement in ensuring representative planning processes, incorporation of the needs of the most vulnerable, and in producing just planning outcomes (Briggs, 2008; Fainstein, 2010; Fung, 2006; Young, 2000). In climate change planning, scholars have started to examine the implications of unequal distribution of projected climate impacts, including the justice and equity implications of differing structural and institutional capacities to adapt to such impacts (Anguelovski & Roberts, 2011; Aylett, 2010; Barrett, 2013; Hughes, 2013). As a result, many local governments have relied on participatory processes to address issues of justice and equity in their climate adaptation efforts (Bulkeley, Carmin, Castán Broto, Edwards, & Fuller, 2013; Paavola & Adger, 2006).

Climate justice literature at the global scale focuses on equitable distribution of adaptation costs and the lack of capacity of nations in the Global South to address climate impacts (Huq, Kovats, Reid, & Satterthwaite, 2007; Paavola & Adger, 2006; Parks & Roberts, 2010). At the local level, poor and disempowered groups have been shown to bring fewer

resources to prepare for, cope with, and recover from climate hazards (Roberts, 2009), which results in a situation where climate injustices exacerbate existing local inequities (Barrett, 2012; Ciple, Roberts, & Khan, 2013). These studies often highlight the difficult balance between planning long-term equitable development while simultaneously attending to most urgent local environmental needs (Anguelovski & Roberts, 2011; Roberts & O’Donoghue, 2013).

As a strategy to ensure adequate representation of civil society interests, local decision-makers are increasingly valuing stakeholder engagement in the design, implementation, and monitoring of adaptation interventions. Such a commitment is linked to the fact that climate impacts and the actions to reduce these impacts are interwoven with specific local socioeconomic contexts (Bulkeley & Tuts, 2013; Friend & Moench, 2013). In this context, many community-based adaptation initiatives, which are small-scale projects that target developmental needs as a basis for reducing climate vulnerabilities (Ayers & Forsyth, 2009; Heltberg, Gitay, & Prabhu, 2012), have emerged to bridge the divide between social justice and local adaptive capacity (Ensor & Berger, 2009; Forsyth, 2013; Magee, 2013).

Finally, in practice, adaptation options are considered to be more effective if designed, implemented, and monitored with engagement by those who have knowledge of the place (Forsyth, 2013; Hughes, 2013; Pringle & Conway, 2012). Still, general low awareness of adaptation needs and options amongst urban actors continue to inhibit effective participatory planning processes (Carmin & Dodman, 2013; Few, Brown, & Tompkins, 2007). Table 1 unpacks the different dimensions of inclusiveness in urban climate adaptation and highlights three variables critical to understanding the implications of participation, equity, and justice in planning processes and outcomes.

[TABLE 1 HERE]

Table 1. Indicators of inclusivity in urban climate adaptation planning and implementation

While current literature addresses the motivators and enablers for urban adaptation planning and policymaking, scholars and policymakers have not paid enough attention to the role of civil society and other non-state actors in participating, facilitating, and implementing adaptation options over time. Therefore, using the indicators of inclusiveness presented in Table 1, the comparative analysis of Quito and Surat presented in this paper attempts to fill these gaps

by understanding how civil society interests, needs, and capacities come together to produce just and inclusive adaptation outcomes on the ground.

3. Methodology

Both Ecuador and India have strong traditions of public participation in urban policy and planning. Within each country, Quito and Surat are emblematic cases of ‘early climate adapters’ because of their long history in adaptation planning, the complexity of adaptation policies and plans already in place, and the diversity of international, national, and local actors involved in the process. This paper charts the climate adaptation experiences of Quito, beginning in 2006, and Surat, starting in 2008, with an emphasis on the innovative civil society engagement approaches employed in these two cities to ensure representative processes and just adaptation outcomes. Lessons from these two cases will help to inform other cities about the opportunities and constraints associated with different strategies for public engagement in adaptation and how equity and justice indicators can be incorporated into adaptation planning processes.

The data draws on analyses of development policies, stakeholder engagement strategies, poverty reduction programs, as well climate adaptation plans and interventions in Quito and Surat. The authors performed fieldwork in these cities between 2008 and 2014, which included conducting nineteen in-person semi-structured interviews in Quito and twenty interviews in Surat (see Table 2 for details). The interviewees were selected through snowball sampling. Our interviews examined ways in which both cities conceived inclusiveness and equity in planning processes, the extent to which they take into account the increased vulnerability of marginalized groups, and the participatory mechanisms put in place to better include demands of residents. The interviews were recorded, transcribed, and analyzed through a thematic analysis to understand how Quito and Surat engage civil society actors at various stages of the planning and implementation process. In the discussion section, we present select quotes to highlight some of our findings.

[TABLE 2 HERE]

Table 2. List of actors and institutions interviewed by the authors in Quito and Surat

4. Civil society engagement in urban climate adaptation

4.1 Quito: a case of broad inclusion

Municipal officials in Quito have historically prioritized bringing equitable development and quality of life to all residents while also promoting an active civil society to support policymaking. This approach has been illustrated in a number of municipal plans, such as the *Metropolitan Development Plan (2012-2022)* and the *Plan Equinoccio 21- Quito Hacia el 2025*, and confirmed by interviewers with local civil society organizations (such as ECOLEX). To promote engagement, the municipal government relies on tight networks of neighborhood groups, parish assemblies, and neighborhood councils that organize and facilitate direct citizen access to local government decision-making. According to the *Municipal Ordinance 46* passed in 2000, both assemblies and councils can propose local plans to the Quito Metropolitan District and can also control the execution of these plans. For instance, *Plan Equinoccio*, enacted in 2004, formally codified the role of citizen engagement in facilitating social justice, equity, and environmental quality in the context of rapid sustainable urbanization. These key institutional mechanisms serve as building blocks for Quito to facilitate more inclusive engagement practices in local policymaking and environmental planning.

Under current climate projections, Quito will face decreasing water availabilities, changing urban temperatures, and increasing flooding and landslide events that will disproportionately impact lower-income neighborhoods (Carmin et al., 2012). Planning for climate impacts began in 2006, when the Mayor, together with members of the Quito Metropolitan Council, organized *Clima Latino*, a climate conference for the Andean Community of Nations to be held in October 2007. The event helped participating governments identify appropriate measures for climate mitigation and adaptation and highlighted climate initiatives in Quito (Carmin et al., 2012). The conference also benefited from the participation of indigenous groups, nongovernmental organizations, universities, experts, and students from Quito who put together 21 proposals to address climate impacts across Latin America.

Soon after *Climate Latino*, the city hired the nongovernmental organization, ECOLEX, to coordinate workshops for gathering information from local communities about perceived climate impacts on the city's neighborhoods, economy, and infrastructure. Since they specifically encouraged the participation of lower-income citizens, these workshops set the precedent for widely inclusive planning processes. The workshops' coordinator noted:

'We were not looking to get technical input, but rather to give legitimacy to the

process and ensure that the citizens own the policy. It had to be a climate change strategy from the city and the residents, not from the authorities. We wanted to include people's priorities. We did a lot of workshops in the hillsides and slopes [where the poorest residents live] with the idea that the climate change strategy had to prioritize people's concerns related to climate change' (Interview 2009).

The results from these workshops were eventually compiled into the *Quito Climate Change Strategy*, which was released at the end of 2007. The Strategy highlighted key adaptation priorities, articulated the needs of marginalized groups, and set the stage for future engagement processes in Quito.

After a change in municipal leadership in 2009, the new Mayor, himself committed to environmental sustainability, went forward with institutionalizing climate priorities into a concrete action plan. The Quito Metropolitan District's Environmental Secretariat, together with support from the Climate and Development Knowledge Network, spearheaded efforts to draft the *Quito Climate Change Action Plan (2012-2016)*.¹ This new strategy included three participatory interventions: first in the decision-making process, then during the implementation of climate actions, and lastly in monitoring project effectiveness (Interview 2011). The objectives of this participatory process were to move beyond political cycles, institutionalize climate actions, and allow people to take ownership over projects and programs.

The first intervention defined main lines of planning action by selecting 55 concrete projects that support city climate and development goals over a three-year period. This process was complemented by a survey of 2,500 Quito residents conducted in 2012 that assessed local perceptions of climate impacts, such as changes in temperatures and in precipitation. Finally, rather than prioritizing projects solely within the municipal planning team, a citizens committee was formed to collectively analyze the results from the survey and to identify criteria for project prioritization. This approach combined engagement of local 'street' knowledge (Corburn, 2005) with technical input from experts within the municipal government.

In the end, the collectively-generated criteria for prioritization included uncovering opportunities for finance, synergies with other municipal environmental projects, replicability, potential to generate more information, political will, real benefits to vulnerable peoples, and

¹ The full *Quito Climate Change Action Plan (Plan de Acción Climático de Quito 2012-2016)* can be accessed at http://www.quitoambiente.gob.ec/index.php?option=com_docman&task=doc_download&gid=207&Itemid=59&lang=es.

abilities to reinforce existing institutional capacities (Interview 2011). Based on these criteria, 28 projects were selected for implementation. As the former Metropolitan Director of Environmental Policy and Planning highlighted:

‘We received a lot of feedback [from the civil society], in terms of the focus and the scope of all the projects. Then, based on those criteria and on technical input from people, we chose the projects and [included them in] the final action plan. Then, we went back to the people and we decided to create the institutional framework to implement those programs. For instance, Quito has put in place climate change related initiatives in local schools, involving such things as reforestation projects’ (Interview 2011).

As this quote also suggests, the *Climate Action Plan* emphasized the importance of projects that combine climate adaptation and mitigation, particularly those benefiting indigenous groups and landslide- and erosion-prone communities. Other examples of such co-beneficial options include improving the city’s risk management information system through strengthening the city’s existing fire prevention and rainfall plans, which all work to protect the city against soil erosion and landslides, and building a new geospatial database that prioritizes response actions and evaluates damages attributed to extreme events (Interview 2014).

Much of Quito’s adaptation planning process relied on an inter-institutional approach to engaging civil society stakeholders. Though led by the Environmental Secretariat from the outset, planning for climate adaptation needs brought together different municipal departments such as the Risk Management Unit, the Territorial Planning Office, the Health Department, the municipal water company, as well as members of the scientific community. However such collaboration is not new. Since the 1990s, local academics have produced climate studies for Quito, continuously monitored the rate of melting of the nearby Antisana Glacier, have assessed the impacts of melting glaciers on urban water availability, and collaborated with the municipal water company to improve service provision in poorer areas of the city (Interview 2011).

In 2010, the municipality created a Climate Change Panel for Quito to serve as a knowledge support structure and hub for the *Climate Action Plan*. As the former Metropolitan Director of Environmental Policy and Planning noted:

‘A lot of research that is being done in the universities, it stays on paper, and it’s never used. So what we want to do is create a joint research agenda, so that the

research that comes out from the academies is used by the municipality... The benefits are that you also have the potential to enhance the knowledge base of the metropolitan committee through the engagement process, and hopefully directing research towards the needs of the city, not just to the interests of the research community' (Interview 2011).

In addition to facilitating such knowledge alliances between municipal and academic institutions, which has led to a greater ability to better define and channel benefits from policy-relevant research, this platform has also promoted citizen input in scientific studies. For example, between 2012 and 2013, local universities worked with different vulnerable communities, including women and indigenous groups, to integrate their perceptions of climate impacts into the city's technical vulnerability study. Such an approach, therefore, is essential to holistically assess the most salient urban socio-spatial risks and to ensure that assessments are meaningful for the most vulnerable residents.

Another emblematic approach to Quito's inclusive planning process is its focus on youth. In the earlier years, youth support was galvanized through the Youth National Convention on Climate Change, where young people from around Ecuador had come together to discuss relevant issues and devise appropriate policy interventions. The youth groups eventually passed a climate action platform of their own, the *Convención Nacional de Jóvenes Frente al Cambio Climático*, in June 2011, which included a list of youth-relevant policy recommendations that were submitted to municipal departments.² Some of the recommendations included the efficient use of resources for climate risks reduction, the allocation of human and financial resources towards climate adaptation, and the creation of green urban networks for biodiversity protection. This youth involvement also translated into neighborhood climate risk awareness campaigns, which are led by the youth's championing of climate change as a new and emerging topic (Interview 2011). Young residents facilitated local debate on municipal climate policies, supported policy input and project implementation, and gathered evaluations of different climate measures.

Lastly, local traditional and indigenous knowledge was incorporated into all of the city's climate adaptation policies and plans. Priorities listed under the *Quito Climate Change Action*

² The full version of Ecuador's National Convention of Youth Against Climate Change (*Convención Nacional de Jóvenes Frente al Cambio Climático*) can be accessed at <http://derechosybosques.com/wp-content/uploads/2011/07/Convencion-Nacional-de-Jovenes-Frente-al-Cambio-Climatico-Declaracion-Politica.pdf>.

Plan support and build upon traditional practices of biodiversity conservation, urban agriculture, ecosystem protection, water harvesting, and land management. Youth leaders, in particular, play a critical role in helping to identify and recuperate traditional indigenous practices that contribute to conservation or sustainable agriculture. One municipal official noted this added value of youth leadership:

‘The municipality works with neighborhood leaders, for capacity building, so that they can spread the message and lead actions... People can identify an action, can rescue a creek or a *quebrada*, and work on restoration. This contributes to sustainable development and climate change; it also enhances resilience’ (Interview 2013).

As one can see, civic engagement results in increased local awareness and capacities. These are then sustained through newly created networks of youth and indigenous leaders intervening in neighborhood and school programs or contributing to concrete adaptation projects such as reforestation and land restoration.

Finally, Quito has directed much attention and funding to socially vulnerable groups, especially to residents on the hillsides and slopes and indigenous farmers in the peri-urban areas of the city. The municipality has put in place an early warning system, constructed new water and sewage infrastructure, implemented a relocation program of 600 families to new social housing, and expanded slope protection programs to include 300,000 hectares of newly reforested land (Interview 2014). In 2012, several youth groups received US\$35,000 to implement vulnerability reduction and risk management activities in several water, health, forestry, and farming sector pilot projects. Between 2013 and 2014, the local government released additional funds to build capacity against climate risk in different community-based organic farming and agro-ecology projects.

In sum, Quito’s approach focuses on proposing and implementing adaptation options that simultaneously address environmental and socioeconomic vulnerabilities. Adaptation initiatives in the poorest informal neighborhoods are seen as spatial development policies that include an additional adaptation component (Interview 2014). By doing this, the city generates adaptation outcomes that not only reduce climate impacts in poorer neighborhoods, but also incentivizes infrastructure development and service delivery improvement projects in socially and environmentally fragile areas of the city.

4.2 Surat: a case of targeted partnerships

Surat, with a population of more than 4.5 million, is one of the fastest growing cities in India. In 1994, Surat experienced a plague epidemic attributed to poor waste treatment infrastructure and low public health consciousness (Dutt, Akhtar, & McVeigh, 2006; Shah, 1997). In 2006, heavy rainfall and flooding led to a huge spike in gastrointestinal and vector-borne diseases across the city (Bhat, Karanth, Dashora, & Rajasekar, 2013; Karanth & Archer, 2014). Because of such major disasters, Surat's urban development and environmental policies are focused on addressing public health, water supply, urban economic development needs (ACCCRN, 2011).

Surat has been a part of the Rockefeller Foundation's Asian Cities Climate Change Resilience Network (ACCCRN) since 2008. The ACCCRN program is a 9-year, US\$59 million initiative designed to build climate resilience in Asian cities (Sharma & Tomar, 2010). Surat, being associated with ACCCRN from the beginning, has worked closely with ACCCRN-supported intermediary institutions in formulating its *City Resilience Strategy*, implementing pilot projects, institutionalizing the climate adaptation agenda into the Surat Climate Change Trust, and in all associating public engagement processes in between.

In addition to strong financial and capacity incentives presented through the ACCCRN program, adaptation planning in Surat, as in Quito, has relied on strong political leadership for promoting general public awareness of climate impacts. Between 2009 and 2010, the ACCCRN program and its implementation agency in India, TARU-Leading Edge, directed the drafting process of the *City Resilience Strategy*.³ The process followed an iterative and consultative planning methodology that involved targeted stakeholder engagement workshops, commissioning sector studies and assessments, collaborative city project interventions, and follow-up learning, synthesis, and documentation initiatives (Brown et al., 2012; Karanth & Archer, 2014; Kernaghan & da Silva, 2014). This methodology was steered by a group of local expert leaders, who came together to form a city advisory committee in 2009, to oversee the stakeholder consultation, vulnerability assessment, and project evaluation processes (Interview 2011). As an advisory group with targeted representation, the committee included 14 leaders of different municipal departments and authorities, local academics and experts, nongovernmental organization, and the Southern Gujarat Chamber of Commerce and Industry. Because of Surat's

³ The full *Surat City Resilience Strategy* (2011) can be accessed at http://www.acccrn.org/sites/default/files/documents/SuratCityResilienceStrategy_ACCCRN_01Apr2011_small_0.pdf.

status as an industrial hub, private entrepreneurs have historically exerted strong influence on urban development and policymaking in the city, hence the participation of the Chamber of Commerce.

Vulnerability and risk assessments conducted between 2009 and 2010 involved a series of neighborhood workshops, visioning exercises, and community mapping exercises around particularly vulnerable sectors such as water, public health, and disasters. Much of this community-generated information was then incorporated with geospatial data and climate projections through a series of risk-to-resilience workshops. These workshops relied on scenario planning exercises to identify indicators for potential short- and medium-term adaptation interventions (Sharma, Singh, & Singh, 2013). Between 2010 and 2011, several of these recommended projects were piloted across the city, including the development of a short message service public health monitoring tool, a climate resilient housing design competition, and the creation of a community-based climate watch group (ACCCRN, 2013). In an effort to boost community awareness and capacities, these watch groups focused on documenting and reporting neighborhood-level incidences of disease outbreaks and places in need of infrastructure repairs. The results from the various vulnerability assessments, public engagement exercises, and pilot projects were eventually included in the final *City Resilience Strategy* released in April 2011.

Since ACCCRN engagement in Surat has always been a time-bound intervention, after the release of the *City Resilience Strategy*, the multi-stakeholder advisory committee focused on institutionalizing adaptation projects into city activities. In June 2012, the Surat Climate Change Trust was established with the 14 original advisory committee members staying on as trustees. This form of network association reflects the strong role of private actors in civic affairs in Surat, as one trustee noted:

‘The main reason [for the Trust] was to engage stakeholders to address this issue of climate change. Also, to engage in policy advocacy regarding urban climate resilience, and to mainstream the paradigm into urban management... Essentially the idea was ultimately to improve the quality of life of citizens’ (Interview 2013).

The Surat Climate Change Trust believes that adaptation planning is critical to the continued economic development of the city, will be an important mechanism for preparing the population against projected impacts, and will serve to raise the profile of Surat in the international arena

(Interview 2014).

The institutionalization of adaptation into the Trust allowed Surat to focus on building the adaptive capacity of particular vulnerable sectors, to articulate concrete channels of funding support, and to ensure the continuity of the adaptation agenda in urban planning. The implementation of different adaptation project also benefits from the expertise of research institutions (such as local universities), private engineering firms (such as TARU-Leading Edge, the local ACCCRN partner), and existing local nongovernmental organizations working on providing basic services and infrastructure to slum communities in the city (Interview 2011). These external organizations provide additional knowledge and technical capacity, community networking support, and public exposure and legitimacy. For example, since its inception, the Surat Climate Change Trust has implemented two projects: an end-to-end early warning system and the Urban Health and Climate Resilience Center. The goal of the end-to-end early warning system is to integrate existing hydrological models, climate projections, and urban socioeconomic vulnerability indicators into one comprehensive database. This database would then be a mechanism to alleviate impacts of urban flooding through better prediction technologies and improved evacuation coordination (Interview 2014). The primary beneficiaries of the project are low-lying settlements that are disproportionately exposed to floods and, thus, are exceptionally vulnerable to vector-borne diseases and gastro-intestinal ailments.

Launched in June 2013, the Urban Health and Climate Resilience Center aims to generate city-based scientific evidence on the links between climate and health. The benefits of the Center, as highlighted by the technical director, are a comprehensive understanding of urban health and the involvement of various relevant public and civic sectors for assessing urban health needs and implementing concrete actions:

‘For the first time in India... [There] is an urban health specialist association [comprised] not only of doctors, but also urban planners and nongovernmental organizations... [The] idea is that when there are just academics and researchers working in the field of urban health, nothing reaches the administrator, so it is not translated into programs. [U]rban health interventions must have local focus... The idea was to provide a platform to bring people together and learn from each other and ensure that the research reaches the implementers’ (Interview 2013).

Initial projects pursued by the Urban Health and Climate Resilience Center include installing an

improved citywide vector-borne disease surveillance system, steering an interdisciplinary research team to advise the city's ongoing public health infrastructure, and starting a community-wide outreach and education program (Interview 2013). These projects all seek to facilitate access to health services by vulnerable populations and to improve public health emergency response in case of disaster events, particular in informal settlements.

While this targeted partnership and engagement approach allows Surat to formalize the decision-making and managerial aspects of adaptation planning, it also facilitates and streamlines capital raising and engagement with institutions beyond ACCCRN. As the president of the Chamber of Commerce noted:

'What is important is the funding and action from civil society and public and private sectors... And the areas which are identified, especially in capital investment in the city of Surat, are in the areas of micro-insurance, health care, waste and sanitation, water management, affordable housing, off-grid energy, micro-finance. These are the areas which capital can be created and can come into this area' (Interview 2013).

Given that cities in India cannot independently generate funds, the Surat Climate Change Trust offers a vehicle through which to solicit additional funding for these key urban sectors and to redirect money for adaptation purposes to the most vulnerable groups in Surat.

Lastly, the Surat Climate Change Trust provides a home for the adaptation agenda in Surat. Since its inception in 2012, the Trust has helped make the agenda more durable and secure in the face of administrative and political change. Rather than pursuing broadly inclusive engagement processes like those in Quito, Surat's approach strategically focused on targeting sector and expert engagement and ensuring political and financial feasibility over time. Frequent changes to city leadership prompted the adaptation agenda to find a home amongst networks of key sectors and stakeholders and within a nonprofit association of civic leaders. Therefore, in terms of Surat's more targeted approach, the tradeoff for policymakers was between the ability to ensure the sustainability of the adaptation agenda and feasibility of implementable outcomes against the inability to broaden horizontal engagement beyond a select number of experts and civil society leaders.

5. Discussion: deciphering patterns of inclusion

The case studies showcase two distinct approaches to public engagement and inclusion in urban adaptation planning and implementation. Table 3 presents a summary comparison of the Quito and Surat cases based on the indicators of inclusivity listed in Table 1. In the following section, we critically assess and further highlight opportunities and constraints associated with Quito and Surat's experiences with identifying the needs vulnerable populations, ensuring equitable procedural representation, and producing just adaptation outcomes.

[TABLE 3 HERE]

Table 3. Summary comparison of inclusive approaches to adaptation planning and implementation taken in Quito and Surat.

In terms of procedural equity, Quito's approach is infused with a strong culture of grassroots representation and participation that values public engagement in local decision-making. This approach fits well in a city with a dynamic civil society historically active in engaged in sustainability activities. Environmental consciousness is very high in Quito, both within the formally educated citizenry and within historically marginalized populations. The municipality has also emphasized addressing spatial and social vulnerabilities, particularly across the hillside and slope areas of the city. This corresponds to long-term political commitments to not just economic growth, but also to environmentally sustainable development, ecological protection, infrastructure and public service improvements, and social equity.

Multiple horizontal lines of engagement characterize Quito's approach. Such an approach enabled a planning process that supports, but is also autonomous from, municipal offices such as the Quito Metropolitan Government's Environmental Secretariat. The process' legitimacy and fulfillment of equity concerns can be attributed to the various intensive engagement activities that valued participation from key urban sectors and members of fragile social groups, such as indigenous and youth communities. The ability to link adaptation to mitigation and spatial development priorities further facilitated public understanding and buy-in while simultaneously widening the scope of how adaptation opportunities and options could be framed. The municipality has paid much attention to adaptation projects and outcomes that address the needs and livelihoods of the urban poor, especially indigenous groups living on the hillsides and in more rural areas of Quito. For instance, relocation is only considered when no other solution has

been found and when climate risks cannot be mitigated (Interview 2014).

The joint process for prioritizing and categorizing the 28 projects that were eventually compiled into the *Quito Climate Change Action Plan* (2012) is one such example of how authority over the planning process and ownership over planning outcomes were both decentralized. Furthermore, the presence of scientific expertise on climate issues has led to strong collaborative linkages between the municipal government, local research institutions, public utility companies, and, at times, support from international actors. For Quito, the combination of these engagement initiatives resulted in an inclusive governance arrangement and in more comprehensive public understandings of resilience.

One tradeoff of Quito's broad-based approach is that it yielded a citywide adaptation planning process that was equally as broad. Adaptation programs that are completely integrated into existing urban policies may result in the lack of climate specificity in how adaptation interventions are framed, implemented, financed, and politically sustained and in a loss of "climate momentum" and dedicated attention. Furthermore, a focus on co-beneficial solutions that achieve adaptation, mitigation, and sustainable development has the potential to increase the difficulty of assessing the benefits of particular adaptation interventions and heightens the risk of overlooking important climate impacts that require a more targeted adaptation approach, such as in the case of public health.

As opposed to Quito's broadly inclusive approach, civil society engagement processes in Surat were only emphasized during the vulnerability assessment and the *Surat City Resilience Strategy* drafting phase between 2010 and 2011. Once published, the issue of social cohesion came through very strongly in the strategy (Interview 2013), partly due to the historical role of the city's close-knit and caste-delineated mercantile class in directing economic development, but also partly due to the more recent role of social networks in facilitating the city's rebound from the plague epidemic in 1994 and the catastrophic floods in 2006. As a result, inclusivity and public engagement became monikers for achieving social cohesion. Despite Surat's reputation as a city of wealth and good governance, the city faces perennial poverty and economic inequality. So even with the city government's continued pursuance of social cohesion and inclusivity, Surat's underlying governance structures are built upon high socioeconomic disparities between different sections of society and upon partially representative democratic processes that are biased towards the private sector.

After the publishing of the *City Resilience Strategy* in 2011, the foremost adaptation priority for Surat was institutionalization. Surat's approach, unlike in Quito, featured equity and justice considerations less prominently from the outset, which was a necessary tradeoff to protect the adaptation agenda's long-term viability. Surat's city government, like other cities in India, oversee only a limited number of responsibilities, such as public service provision and infrastructure development, and is unable to exert control over other responsibilities such as fundraising (Roy, 2011; Sivaramakrishnan, 2011). As a result, adaptation responsibilities were removed from the city advisory committee and placed in an association of civil society representatives. To ensure continued adaptation efforts over time, the Surat Climate Change Trust created a robust decision-making structure, a platform to raise funds, and an ability to directly engage local nongovernmental and international actors, which would have all been constitutionally barred if adaptation remained on a policy agenda of one particular municipal department. Despite being less inclusive overall, embodying adaptation programs and projects within the Surat Climate Change Trust, therefore, became a way to circumvent the jurisdictional and legal constraints on planning, in general, in Indian cities.

A obvious disadvantage of the nonprofit trust approach is that it confines decision-making responsibilities to a few elite decision-makers and community leaders who are already part of the city's adaptation planning process, and further restricts representation of the urban poor in future programs and projects. This approach facilitates targeted actions directed at a few key sectoral and institutional domains, but sidelines the needs of the most vulnerable while limiting community input along the way. As a result, many poor communities have become mere recipients of aid and development projects rather than becoming participants and true stakeholders with ownership over the project decision-making, prioritization, and implementation processes.

6. Conclusion

Our assessment of the Quito and Surat experiences highlights the role of different combinations of civil society actors in participating and facilitating climate adaptation across a city, the ways through which municipalities engage with different actors over time, and how these engagement approaches take into account local development contexts and needs. The results show that Quito's approach promoted broad inclusivity while Surat's approach established a robust

decision-making structure. The analysis furthers existing scholarship on the planning dimensions of climate adaptation (Anguelovski et al., 2014; Few et al., 2007; Polack, 2009; Sherman & Ford, 2014), and argues that adaptation approaches must be designed and modified according to local institutional strengths, civil society capacities, and urban climate adaptation needs.

For the purposes of policy-making, the analysis indeed suggests that broadly inclusive planning processes that involve a wide variety of actors and institutions can contribute to higher procedural justice and equitable outcomes in the near-term, as illustrated by the Quito case. In contrast, as the Surat case shows, longer-term priorities around institutionalizing the agenda and implementing durable and targeted adaptation projects may inhibit the immediate ability of cities to pursue more inclusive engagement processes. However, both cases show that an emphasis on building multi-sector governance institutions that ensure tight and multilevel relationships between government and civil society actors, as in the examples of the Climate Change Panel of Quito and Surat Climate Change Trust, can enhance program stability and ensure that diverse civil society actors have ongoing voice in adaptation planning and implementation. The dissemination of participatory urban adaptation approaches should therefore be adjusted according to different multilevel political opportunities and constraints as well as local developmental needs in order to ensure policy and plan continuity, ownership, and equity.

Indicator	Definition	Examples
Consideration of the needs of vulnerable residents	The degree to which the social, economic, and political interests of the urban poor, under-represented minorities, and other vulnerable groups are considered in the adaptation process.	<ul style="list-style-type: none"> □ Recognizing and prioritizing the needs of the urban poor; □ Linking adaptation needs to infrastructure development, service provisions, and livelihood requirements of vulnerable communities; □ Recognizing existing community-based adaptation initiatives; □ Including socioeconomic vulnerability assessments as an integral part of the city's overall climate risk and adaptation planning process.
Procedural representation and equity	The degree to which all urban public, private, and civil society actors adequately participate in the adaptation process.	<ul style="list-style-type: none"> □ Involving the public in framing most acute climate risks, socioeconomic vulnerabilities, and adaptation priorities; □ Facilitating equal access to climate information and knowledge □ Addressing existing class, gender, caste, age, and wealth hierarchies in political decision-making; □ Identifying and prioritizing pilot projects, monitoring project impacts, and evaluating programmatic outcomes.
Just adaptation outcomes	The degree to which formal or institutionalized adaptation projects and programs achieve just results.	<ul style="list-style-type: none"> □ Improving capabilities and capacities for adaptation of the urban poor; □ Protecting assets and property of under-represented communities; □ Preparing for disasters and targeting early disaster assistance to urban poor; □ Facilitating access to democratic decision-making processes; □ Preventing unequal spatial distribution of losses and damages attributed to climate impacts; □ Enhancing access to basic services, infrastructure, and resources; □ Streamlining knowledge, capacity, and resource transfer mechanisms.

Table 1. Indicators of inclusivity in urban climate adaptation planning and implementation (Adapted from: Anguelovski et al., 2014; Archer et al., 2014; Barrett, 2012; Harris & Symons, 2010; Hughes, 2013; Klinsky & Dowlatabadi, 2009; Paavola & Adger, 2006; Schlosberg, 2012).

City	Duration of Research	City Institutions Interviewed
Quito, Ecuador	2008 - 2014	<p> Andean Project for Climate Adaptation CARE Ecuador Climate and Development Knowledge Network Climate Change Strategy Office, Metropolitan Office for the Environment ECOLEX Ecuador National Program for Climate Adaptation FLACSO - Latin American Social Sciences Institute FONAG - Fund for Water Protection Metropolitan District of Quito Metropolitan Office Disaster Risk Management Unit Metropolitan Water Distribution and Treatment Company Quito Climate Change Panel Quito Environmental Secretariat Quito Health Secretariat Quito Metropolitan Council Quito Territorial Environment and Housing Secretariat Red Ambiental </p>
Surat, India	2010 - 2014	<p> Asian Cities Climate Change Resilience Network, Rockefeller Foundation Association of Architects and Builders Center for Social Studies, Veer Narmad South Gujarat University Central Water Commission Gujarat State Disaster Management Authority National Institute of Urban Affairs Sardar Vallabhbhai National Institute of Technology South Gujarat Chamber of Commerce and Industry Surat Climate Change Trust Surat Municipal Corporation Surat Municipal Institute of Medical Education and Research TARU - Leading Edge The Energy and Resources Institute Town Planning Department, Surat Urban Development Authority Urban Health and Climate Resilience Center Urban Social Health Advocacy Alliance Vector Borne Disease Control Department </p>

Table 2. List of institutions interviewed by the authors in Quito and Surat

	QUITO	SURAT
Approach to civil society engagement	Broadly inclusive	Targeted representation
Consideration of needs of the vulnerable	High: The needs of the urban poor and other socially and spatially disenfranchised groups have historically featured highly on the municipal government's policy and planning agenda.	High: The municipal government recognizes emerging climate change impacts on vulnerable communities' capacity to adapt and on their right to socioeconomic development.
Procedural representation and equity	High: Representative processes are codified and required under current urban policies and legislations. Decision-making processes are broadly inclusive of marginalized communities, youth groups, environmental organizations, and other civil society organizations.	Ad hoc: City government solicits feedback from targeted sectoral advisory groups, scientific expert committees, and through formal and informal networks of key stakeholders. The implementation process is driven by industry leaders and sectoral officials.
Just adaptation outcomes	Clear: Adaptation policies and programs are designed with additional benefits to the urban poor in mind. There are clear directives for improving the wellbeing of vulnerable populations, upgrading informal settlements, reducing capacity gaps, and ensuring local ownership over project implementation.	Uncertain: The city has implemented many projects around protecting urban infrastructure, public services, and socioeconomic wellbeing, but the particular benefits toward improving the capacity of the poor are unclear. Specific sectoral projects may lead to negative distributional impacts on vulnerable communities.

Table 3. Summary comparison of different inclusive approaches to adaptation planning and implementation taken in Quito and Surat

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