Asian Cities Climate Resilience
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Resilience planning in Asian cities: lessons from the ICLEI–ACCCRN process

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Asian cities are on the frontline of climate change. A third of all low-elevation coastal zones in the world are located in Asia, where two-thirds of the world's urban population reside (McGranahan *et al*., 2007). A number of Asian cities have been involved in climate change adaptation and resilience-building initiatives, focusing on the capacity of local governments to assess vulnerabilities and implement effective mitigation strategies. One such initiative is the Asian Cities Climate Change Resilience Network (ACCCRN). In 2008, it began a process of understanding vulnerability and developing and implementing resilience strategies in 10 cities across South and Southeast Asia. In 2012, with ICLEI's involvement, the process was extended to a further 46 cities, to improve their capacity to plan, finance and take action to promote urban resilience, using city resilience strategies (CRS). Based on a sample of 15 city resilience strategies from India, Bangladesh, Indonesia and the Philippines, this briefing presents the key lessons.

Policy pointers

- **The lack of data and uncertainty about future climate scenarios will always be a challenge. But experience shows it is better to start the resilience-building process, reviewing and repeating the cycle as new information becomes available.**
- **The support of city leaders – particularly the mayor's office – is critical to providing the climate resilience strategy (CRS) process with legitimacy and authority.**
- **Climate change resilience planning should be integrated into development planning and budgeting processes, to allow for consideration of how social and economic factors drive the vulnerability of certain urban residents to environmental hazards.**
- **A greater emphasis on the co-production of city resilience strategies by different stakeholder groups helps to diversify responsibility from the city government, build consensus around common goals, and facilitate the representation of vulnerable groups.**

The ICLEI–ACCCRN process

The ICLEI–ACCCRN process (IAP) (Gawla and Tiwari, 2014) was developed by ICLEI South Asia and Oceania offices. It draws on the experiences of the original 10 ACCCRN cities, combined with elements of existing ICLEI approaches. The process is divided into six phases, and distinguishes between three key elements: systems, institutions and agents (Figure 1). A spatial dimension of analysis is provided through mapping of urban systems alongside areas of climatic vulnerability, allowing for the identification of 'hotspots' where building adaptive capacity is a priority.

The IAP targets city governments in their role as service and infrastructure providers, as well as their potential to catalyse community action. It is designed to be a continuous cycle of review and refinement, in recognition of the importance of learning to building resilience. In each of the four countries, the first four steps of the IAP were delivered (up to the production of the CRS), with the fifth implementation step being enabled somewhat through the small grant process facilitated by ICLEI, and the sixth monitoring and evaluation step yet to be tested.

Of the 46 local governments that participated in the IAP, 36 had produced CRS by January 2017. A cross-section of city resilience strategies was included in this study, purposively sampled to ensure the inclusion of different climate change impacts, different base levels of climate knowledge, and different experiences of ICLEI funding (Table 1).

Key findings

The CRS produced by the 15 cities were analysed along three dimensions: context, process and outcomes. Additional contextual and procedural information was supplied by the ICLEI country teams and interviews with city representatives. The initial findings were presented at a workshop of local government representatives from the four countries held in Bangkok in February 2017, to obtain feedback and to fill information gaps.

Drivers and actors

Key drivers of the city resilience strategy were revealed at the validation workshop. These included past experiences of climate-related disasters, such as typhoons and flooding; past participation in other climate-related city-level initiatives; higher-level political mandates;

Table 1. Key city characteristics

The Philippines		
Total population (2015)*		100,699,400
Urban population (2014)**		44,531,000 (44%)
City name	**ICLEI Small Grant?**	**Population size**
Quezon City	Yes	2,761,720 (2010)
Tublay	No	16,555 (2010)
Naga	Yes	195,068 (2014)
Santa Rosa	Yes	353,767 (2015)
India		
Total population (2015)*		1,311,050,530
Urban population (2014)**		410,204,000 (32%)
City name	**ICLEI Small Grant?**	**Population size**
Gangtok	Yes	100,286
Nainital	Yes	41,377
Nashik	No	1,486,973
Patna	No	1,680,000 (2011)
Indonesia		
Total population (2015)*		257,563,820
Urban population (2014)**		133,999,000 (53%)
Balikpapan	No	621,240
Sukabumi	Yes	311,508
Bogor	Yes	1,030,720 (2014)
Bangladesh		
Total population (2015)*		160,995,640
Urban population (2014)**		53,127,000 (34%)
City name	**ICLEI Small Grant?**	**Population size**
Mongla	Yes	39,837
Barisal	No	328,278
Rajshahi	No	448,087
Sirajganj	No	158,913

* See World Bank (2017) ** See UNDESA (2014)

the passion and commitment of individual city leaders; the opportunity to be recognised for good governance and access to funding through official competitions; and a recognition that key areas of urban industry may be hampered or damaged if no action is taken (see Box 1).

One of the first stages of the ICLEI–ACCCRN process is to create a climate core team, responsible for driving the process at the city level. It requires an institutional 'home' and coordinates a process of stakeholder engagement that ideally balances legitimacy, authority and representation. In both India and Bangladesh, the climate core team generally included either the mayor and/or city commissioner. The teams in the Philippines had memorandums of understanding with city mayors. Those in Indonesia were established by mayoral decree. The support of city leaders – epitomised by the position of the mayor – was critical to providing the CRS process with legitimacy and authority (Box 2).

Most of the studied CRS processes included community and civil society groups as stakeholders, selected both in line with local hazards (eg communities susceptible to landslides) and forms of political organisation (eg trade unions). However, private-sector actors and particularly vulnerable communities (eg federations of the urban poor) were often absent.

Box 1. Examples of CRS drivers

In the Philippines, the scale of damage caused by Typhoon Haiyan in 2013 and the threat of future extreme weather events helped drive the development of the CRS, underlined by a national mandate. Similarly, previous experiences of cyclones in Bangladesh were important drivers behind the CRS process. In Indonesia, cities responded to national climate resilience mandates and a presidential directive to reduce greenhouse gas emissions, while Indian cities were influenced by federal governments plans and, in Nashik, by international donors.

Box 2. Supportive leadership in Bogor

The current mayor of Bogor has provided both strategic vision as well as championing on-ground efforts. He understands and supports the integrated nature of climate change resilience planning – from mitigation efforts and disaster risk reduction through to climate change resilience and development. He also promotes local initiatives such as the capacity-building small grant initiative implemented in Bogor.

Systems, hazards and vulnerabilities

Three fast-onset hazards were identified in the strategies of virtually all cities: cyclones (or typhoons), floods and landslides. However, different emphases were placed on these in different settings in line with the particular characteristics of local systems. For example, Tublay's CRS was primarily concerned with landslides on account of the city's steep topography, which places pressure on municipal food and agricultural systems. Furthermore, the three Philippine cities emphasised the vulnerability of their health and agricultural systems to cyclones in the wake of Typhoon Haiyan. The four Bangladeshi cities underlined the vulnerability of their health and housing systems to flooding on account of the cities' close proximity to river basins and the poor capacity of their storm drainage systems.

The most common slow-onset hazards identified in the CRS were temperature increases, and associated forms of climatic disruption. Unsurprisingly, soil erosion was identified as a particular problem in high-altitude cities such as Tublay, and sea-level rise in coastal cities such as Balikpapan and Mongla. Soil degradation through landslides and flooding was understood to place medium- and long-term pressure on agricultural systems in India and Bangladesh.

Due to the stated focus on climate change hazards, few cities identified non-climatic determinants of vulnerability such as poverty. As such, there is further scope to think of vulnerability as something that transcends environmental issues. Furthermore, cities generally assessed vulnerability in relation to past events (and their likely reoccurrence), rather than anticipating new or developing events in the future.

Types of initiatives

City resilience strategies across all four countries generally linked vulnerabilities with strategic goals and actions, and according to the most vulnerable hotspots identified in the city (see eg Box 3). Interventions were prioritised on the basis of their resilience potential, in terms of their redundancy, flexibility, responsiveness and ability to provide access to information. A diverse range of initiatives was identified across a multitude of sectors, integrating climate adaptation and mitigation measures, and soft and hard measures, from capacity building to investing in storm drainage. These were usually linked to key local sectors, such as the tourism industry in Gangtok, or the port in Mongla. However, the four most common sectors for intervention were water, solid waste, public health and ecosystems, in line with fragile systems identified. These sectors were selected for their ability to respond to the types of vulnerability outlined previously.

Box 3. Transport initiatives

Gangtok and Nainital illustrate the different transport intervention approaches taken in the CRS. Gangtok connected rising temperatures to increased private car usage, and increased rainfall to deteriorating roads. Initiatives to combat these problems included planting trees, introducing public walkways, increasing public buses, introducing car-pooling bylaws, and building better roads. In contrast – and starting from a similar problem statement – Nainital planned to introduce a park-and-ride scheme for tourists. The different initiatives are arguably due to the contrasting geomorphological and socioeconomic profiles of the two cities. For example, the earthquake zone of Nainital has two zones where no infrastructure construction is allowed, increasing congestion in other zones, and the city attracts a greater number of tourists, who have different municipal transport needs.

Implementation and financing

While funding options for climate change resilience are growing, with a number of international climate adaptation funds, they remain inadequate, unaccountable and inaccessible. For example, Bangladesh has a Climate Change Trust Fund, which has been allocated approximately US$400 million. However, its projects are predominantly rural-focused, and it sits under the Ministry of Environment and Forests. Similarly, the Philippine People's Survival Fund has made 1 billion PHP available for local government units (LGUs) that have done vulnerability assessments. Yet only two cities' applications have been successful so far, due to the complexity of the application process.

These limitations, alongside the often low local revenue-generation base of many of the cities – which may earn income through waste management or other fees but frequently do not have the ability to raise their own taxes such as land tax – have to be borne in mind by the cities to ensure their resilience strategies remain viable without seeming to be wish lists. At the same time, it is advantageous to develop a plan that is open to a mix of funding options. The 15 case-study CRS mainly rely on budgetary mainstreaming to ensure that their plans can be financed. This means ensuring that resilience strategies and local development plans are timed to coincide. For example, in Balikpapan in Indonesia, many resilience interventions identified are linked with other planned projects, such as projects to improve water and drainage infrastructure, or forest management and protection, increasing the financial feasibility of these initiatives.

Certain initiatives can benefit from a clustering approach between multiple local governments – such as watershed management, where a number of local governments may share management of a resource. In the Philippines, a clustering approach was used in the IAP to reach a larger number of LGUs while fostering collaboration across LGUs sharing cross-border issues. This experience suggests that clustering works best where a large city is surrounded by smaller municipalities, or where there is a strong relationship between a city and its hinterland (Scott, 2016). This can offer opportunities for cities to collaborate on a joint bid of a larger financial scale than might be manageable for an individual city, opening up the door for applications to large funders such as the Asian Development Bank.

Monitoring and evaluation

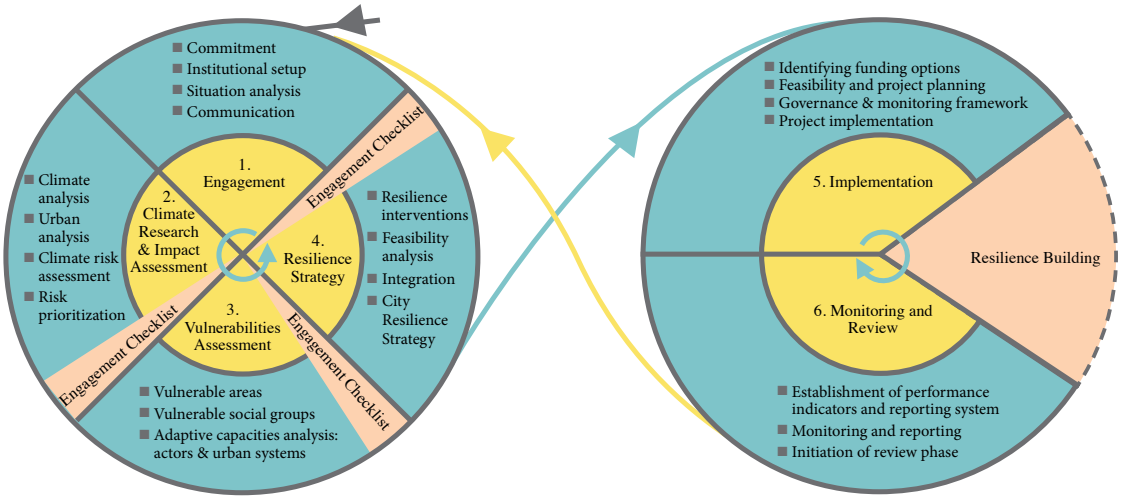
Globally, monitoring and evaluation of climate change resilience by local governments is not yet well understood or prioritised, and few plans incorporate comprehensive frameworks. Development of monitoring and evaluation frameworks was not specifically covered in phases 1–4 of the IAP toolkit (Gawler and Tiwari, 2014), and was not expressly required in the production of the CRS. Thus we see that monitoring and evaluation frameworks and indicators were absent in the CRS in Bangladesh and Indonesia. Similarly, Indian cities do not currently have the capacity to monitor the implementation of resilience initiatives, with the exception of cities with existing relationships with international donors. The CRS produced by the four Philippine cities demonstrated the strongest engagement with monitoring and evaluation through the inclusion of a number of performance indicators and monitoring frameworks. The absence of monitoring frameworks and evaluation strategies was nevertheless a shortcoming of the strategies produced. This absence was primarily due to a lack of applicable monitoring and evaluation frameworks for climate change resilience, and therefore, the associated evaluative capacity and resources.

City resilience strategies across all four countries generally linked vulnerabilities with strategic goals and actions, and according to the most vulnerable hotspots identified in the city.

Key recommendations for city governments

The review of the 15 sample CRS allowed us to draw a number of conclusions relevant for other local governments seeking to develop and implement city resilience strategies.

Figure 1. The six steps of the ICLEI–ACCCRN process (IAP)



Source: Gawler and Tiwari (2014)

Ensuring engagement and inclusion

It is important that resilience strategies are appropriate to the specific needs of individual cities and that time is given to developing shared visions of the city. To achieve high levels of engagement and inclusion, resilience initiatives must take into account the specific needs of different stakeholders and the intersectional nature of risk in climate-vulnerable cities. They must consider how social and economic factors, such as gender and poverty, conspire to increase the exposure of certain groups to environmental hazards.

A greater emphasis on the co-production of city resilience strategies is needed. For example, ensuring climate core teams always include civil society would diversify responsibility from the city government, and help build consensus around common goals while ensuring the representation of vulnerable groups.

Effective resilience planning should also consider the important role played by the private sector, as both a major engine of job and livelihood creation, and as an important actor in the funding, construction and maintenance of urban infrastructure.

Achieving scale

The experiences of cities in the Philippines suggest that a clustering approach can facilitate cross-boundary resilience planning that involves a larger number of local governments. This approach is particularly effective for dealing with systems that transcend the city – such as ecosystems, water and food – where there is a strong relationship between a city and its hinterland.

Scale can also be achieved through shared learning dialogues and outcomes. Examples include inviting neighbouring municipalities to participate in resilience-planning workshops, and by celebrating model cities and best practice through national awards.

The experience of developing a local climate change resilience strategy is instrumental in enabling the identification of structural limitations at higher institutional levels, empowering municipal organisations to lobby for change at the national level (such as the introduction of accessible funding instruments).

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