

Addressing future climate change by building institutional capacity

The ICLEI-ACCCRN Process underpins the replication phase of the Asian Cities Climate Change Resilience Network. This case study looks at the process and the results of Shimla which was one of the first cities to be part of the project.

Summary

Shimla Municipal Corporation seized the opportunity to pilot the ICLEI-ACCCRN Process (IAP) of climate resilience planning during 2012. The IAP pilot was an innovative approach to climate resilience planning that draws on the ACCCRN experiences of the previous years. As a result, Shimla now has a better understanding of the future climate scenario the city may face. The Shimla Municipal Corporation (SMC) has a structured process for identifying future climate vulnerability 'hotspots' to target for priority action, while staff have a better understanding of the interconnected range of possible impacts the city may need to contend with.

The collaborative nature of the IAP was recognized as a valuable strength of the approach and methodology. Piloting the process also identified areas for improvement; including simplifying the theory and language used, progressing quickly to ensure 'quick wins' could be actioned swiftly, and perhaps most importantly, ensuring cross-organizational ownership of the process to assist with embedding climate considerations in city planning, decision-making and operations.

High staff turnover at SMC has reduced the potential impact of the IAP for Shimla. However, the pilot serves to highlight the importance of bringing participants into the process from across the organization and embedding climate decisions into processes as quickly as possible.

Introduction

Local governments are tasked with the future planning for their areas yet satisfying immediate priorities often takes precedence over planning for the long term. SMC saw the need to plan for the future impacts of climate change but discovered that continuing the momentum when staff leave or change roles is a challenge. Designed to facilitate learning and ongoing action, the key objectives of the IAP included helping the SMC to understand its future climate risks and to determine priority actions that are cross-organizational.

In particular, ICLEI – Local Governments for Sustainability has provided the much-needed drive for action, external support and continuity that busy city leaders need in order to make time for future planning.



Facts & Figures

Name of Municipality

Shimla Municipal Corporation

Municipal budget

Approx. \$9.17 USD / € 8.3 million
Euros (2011)

Population

171,817 (2011)

Population density

120 inhabitants / km²

Land area

19.99 km² (2001)

Climate

Subtropical highland

Languages

English, Hindi, Pahari

The City of Shimla has been a member of ICLEI since November 2014.

City context

Shimla is the capital of Himachal Pradesh and is perched in the southwestern ranges of the Himalayas of Northern India. It is built over several hills and connecting ridges, occupying an area of approximately 20 km². Formerly the British 'Summer Capital' of India, it is now one of the most popular tourist destinations in the State both for Indian and international travelers alike. However, Shimla's popularity has led to a rapidly increasing population that is far greater than its infrastructure can bear. In a 2011 census, the urban agglomeration of the city was a population of over 171,000 while the growth rate is 16.21% (Municipal Corporation of Shimla 2009).

According to the Indian earthquake hazard zoning, Shimla is classified as Zone IV - Higher Danger Risk Zone. In recent years the risk of landslides, following heavy rains, has increased the city's risk profile even further. The Shimla District lies within the catchment area of three rivers, the principal of which is the Sutlej River that is located 21 kilometers from the city. Its water supply is also pumped to the city at a significant and increasing cost to SMC.

Shimla's economy is predominantly services focused, particularly in the government and tourism sectors. As the state and district capital, the city houses many representative government agencies. Being tourism dependent, the floating population of the city is significant with large influxes of temporary visitors that significantly demand on services and infrastructure.

Box 1: IAP Project Phases

IAP consists of 6 phases as outlined in the image. Shimla has thus far been taken through the first 4.

- Phase 1. Engagement: Political commitment, Institutional set-up, Identification of perceived threats, past practices and opportunities; Communication.
- Phase 2. Climate Research and Impact Assessment: Assessing projected climate trends, Identifying existing fragile urban systems, Expected impacts of climate projections on fragile systems, Prioritization based on risk assessment.
- Phase 3. Vulnerabilities Assessment: For each impact, identification of vulnerable areas, vulnerable social groups, data gaps.
- Phase 4. Resilience Strategy: Resilience actions identified, Actions prioritized based on resilience indicators and feasibility criteria.
- Phase 5. Implementation: Identifying funding options, feasibility and project planning, monitoring framework and implementation.
- Phase 6. Monitoring and Review: Performance indicators and reporting system, Monitoring and Review.

The ICLEI-ACCCRN Process in Shimla: A pilot city experience

Context and history of the project

In 2008, the Asian Cities Climate Change Resilience Network (ACCCRN), funded by the Rockefeller Foundation, began working intensively with 10 cities in India, Indonesia, Thailand and Vietnam to build resilience to future climate change. An Urban Climate Change Resilience (UCCR) methodology was developed that facilitated experimentation and testing of local approaches to building climate change resilience for institutions and systems serving poor and vulnerable communities. These cities all benefitted from long-term engagement and high-level resource investment which enabled the identification of vulnerable urban systems, capacity constraints and opportunities under a future climate scenario. Recognizing that this level of resourcing (time and money) could not be replicated in the majority of cities across the region, ICLEI was engaged to develop a more cost-effective approach and expand this to new cities in Asia.

For ICLEI the expansion of the project involved:

- a) Distilling the critical successful elements of the original ACCCRN process and supplementing it with other relevant and proven approaches. This became the ICLEI-ACCCRN Process.
- b) Developing a guide and toolkit to help cities prepare local climate change resilience strategies with a reduced level of outside support.
- c) Testing the toolkit in three project cities in India.

This case study focuses on the testing of the toolkit in the project city of Shimla and its lasting benefits for SMC. The project was implemented between June 2011 and June 2012, and a monitoring and evaluation visit to the city was conducted in October 2013.

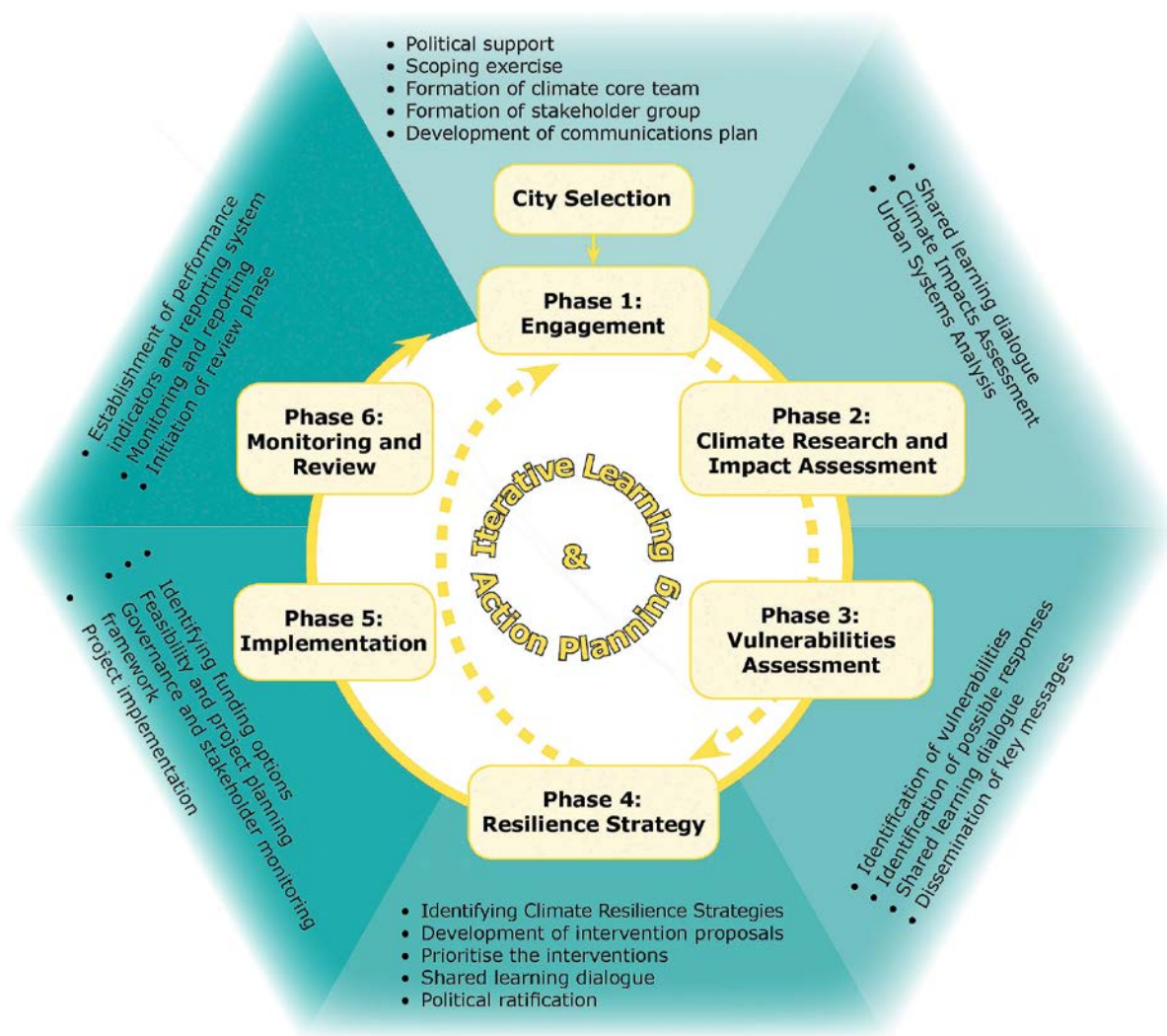


Figure 1: The ICLEI ACCCRN Process guides stakeholders through several steps to assist identifying current vulnerability and future risk © ICLEI South Asia

The particular aims for the project in Shimla were:

- To trial the IAP Guide and Toolkit in Shimla;
- To improve capacity within the City to plan for future climate risks and opportunities; and,
- To develop a plan of action for Shimla to address future climate risks and opportunities.

A summary of the ICLEI-ACCCRN Process that was trialed in Shimla is presented in Box 1.

Circumstances and drivers for the project

Compared with the other two pilot cities in India, Shimla is a small, remote town with significant social, economic and environmental challenges. These challenges coalesced with an increasing awareness of the impacts of climate change to provide the impetus for the municipality to be involved in the pilot project. Dr. Sonam Negi, who is the former Chief Medical Officer with SMC and the key driver behind its involvement in the pilot, noted that “there was a global awakening about the impacts and causes of climate change, and also within [the] Shimla leadership. The Commissioner at that time was particularly interested” (Negi 2013). Additionally, several emerging health issues in Shimla increased the awareness of the impacts of climate change, including the rising incidence of vector borne diseases such as malaria and dengue

fever. As a result, the project was driven through and by SMC's Health Department.

Although there was no particular environmental disaster that triggered SMC's desire to be involved in the pilot, mitigating future disasters was certainly a consideration. The city experiences regular landslides that anecdotally appear to be getting worse with changing rainfall patterns. In 2013, several hundred houses were destroyed in landslides (see Figure 2). Furthermore, issues around freezing of the pipes in winter have led to water supply issues and the increasing population during the summer also places stress on the water supply and sanitation systems. Water has to be pumped up to Shimla to meet the increasing demand, and the sewage system that handles waste is over 117 years old suffers many failings.

Implementing the IAP in Shimla

As the project was new (new templates, new process and new focus area of adaptation) for ICLEI South Asia (ICLEI SA) and for Shimla, there was a significant level of support provided by ICLEI SA to aid SMC's journey through the process, as well as to assist with developing, testing and refining the guide and toolkit. ICLEI SA staff spent considerable time based in the city, driving the project forward, engaging SMC and external representatives, and helping to carry out analyses.

Initial engagement was broad and supported by high-level representatives from local government. Box 2 provides the list of departments represented on the Core Climate Team. The inception meeting included members of the public, institutions and government, who were all initially very engaged in the project. However, as the project progressed and time was taken to collect and analyze data, enthusiasm waned and people became disengaged. Mr Vijay Kumar Gupta, the Municipal Engineer – Water Supply and Sewerage Department, stressed the importance for immediate and practical action to keep people interested in the process.

The IAP (refer to Box 1) brought participants together in a series of workshops to assess current vulnerabilities of the city, as well as the city's adaptive capacity – examining critical urban systems (such as water, electricity and communications

systems) and key actors involved. Future climate projections were sourced for Shimla and discussed with particular attention paid to how these projections may impact already vulnerable people and urban systems. Finally, interactive workshops assisted participants to identify and prioritize actions that could reduce the risk of future climate impacts by helping to reduce the vulnerability, or improve the adaptive capacity of systems and people.

Several participants in the project noted that while there was an unstated awareness of some of the vulnerabilities of the city in relation to



Figure 2: Houses in the Krisna Nagar slum were devastated by landslides in 2012 and 2013 © Helen Scott 2013

climate change, the process of bringing people together and analyzing the data focused people's attention, formalized the process, and placed more gravitas on the findings. It was noted that "it was good to have the departments all together in a workshop to see other views and risks" (Negi 2013). There was a sense that the process was very stakeholder focused and that all individuals were able to present their perspective which helped provide a more holistic view.

As a result of these stakeholder engagement and consultation processes, the Draft Shimla Climate Resilience Strategy (CRS) has been prepared, that identifies a future climate scenario for the city, its vulnerability 'hotspots' and priority areas of action to help reduce future risk (see Box 4). However, a year after the completion of the strategy, many of the people originally involved have either changed roles or moved on from SMC, thereby taking their learning and understanding with them.

The Draft Shimla CRS proposed a number of actions for the SMC to implement that would help reduce its vulnerability to climate change. As can be seen in the table on page 7, many of the "High" priority actions in the area of Water Supply are either already being implemented, or are in development. Most of the projects that are either being implemented or are in development are projects where the municipality has partnered with state authorities or other external organizations.

Box 2: Core Climate Team	
Name	Department / Organization
Mr. Amar Nath Sharma	Commissioner, SMC
Mr. Aashish Kohli	Assistant Commissioner, SMC
Mr. Vijay Gupta	Water Supply & Sewerage Department, SMC
Dr. Sonam G. Negi	Health Department, MCS
Mr. Prakash Chand	Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Projects Department, SMC
Mr. B.S. Chauhan	Road & Building, SMC
Mr. Vibhor Sood	Environment Unit, GIZ-ASEM

Results

Future climate scenario identified for Shimla: Regional projections were used to assess and begin understanding for participants the local impacts of future climate change, and what the future might hold for the different sectors. This scenario (which is detailed in the CSR) can be used in the future to help mainstream climate change considerations into other plans and projects across SMC.

'Vulnerability Hotspots' formally identified and documented: Most participants were intuitively aware of the areas of vulnerability to climate change within the municipality. However, no process had brought the different departments and stakeholders together to describe the risks in each area and to document the level of vulnerability. The process enabled the key vulnerable sectors to be identified, that is, water supply, tourism and transport, and enabled the plotting of vulnerability hotspots where these vulnerable sectors intersected in particular geographic areas: Wards 10, 11, 12, 13 and 14 (see Figure 3). This can enable SMC to target priority actions.

Participating staff have a better understanding of the range of potential climate change impacts: This is a qualitative finding that is based on the perceptions of participants. Bringing together stakeholders from different departments within SMC as well as external stakeholders allowed a range of views and experiences to be heard. In this way, participants reported that they now had a better understanding of the range of potential impacts, not just those related to their own area.

Actions identified in the Climate Resilience Strategy are being implemented: Some of the high priority projects identified in the Draft Shimla CRS are being implemented. These are primarily in the water sector, where there is support from an external

Vulnerability Hotspots

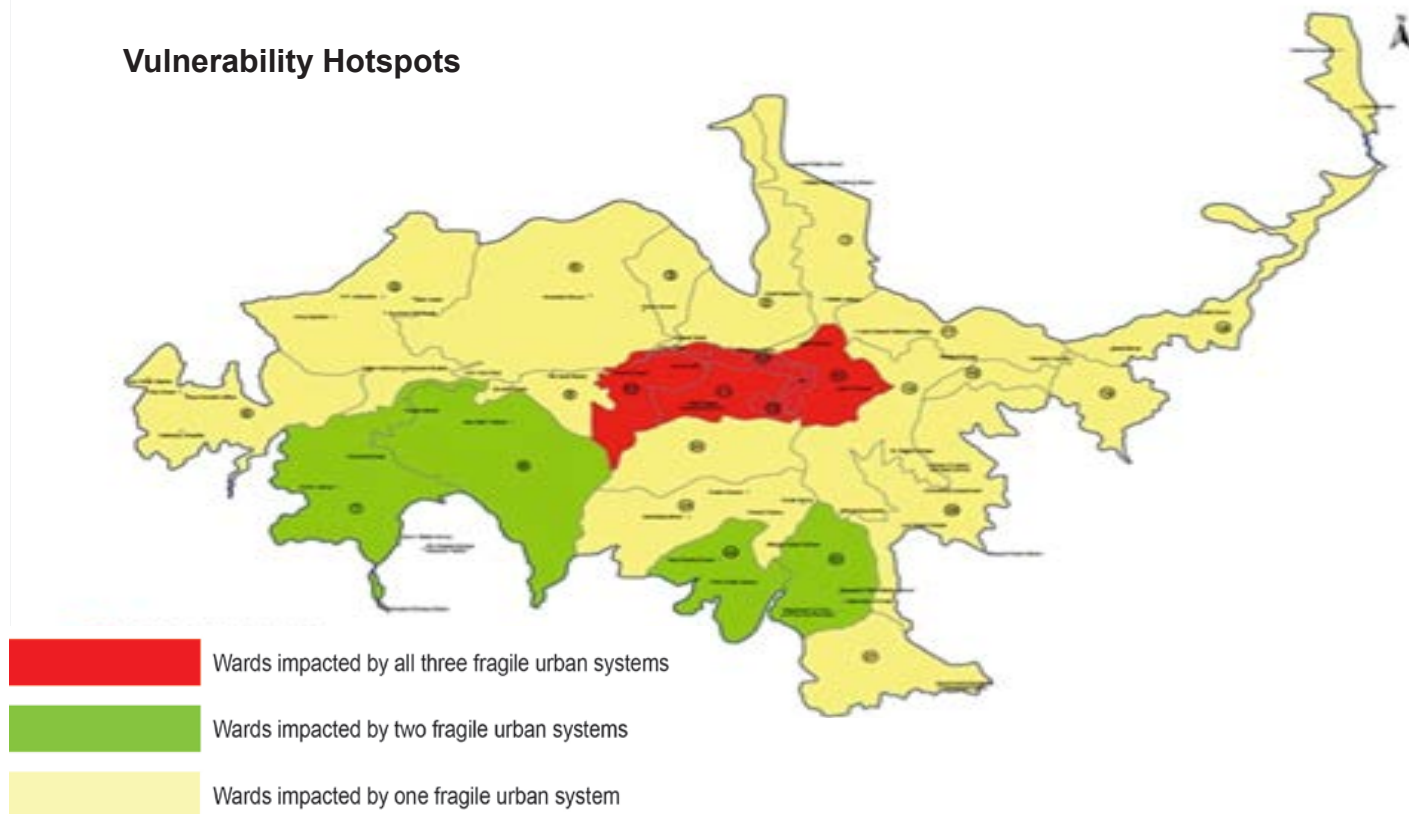


Figure 3: Shimla identified three sectors of high vulnerability that intersect with 5 wards © ICLEI South Asia

Box 3: Urban-LEDS project

An Urban Low Emissions Development Strategy (Urban-LEDS), or Low Emissions Urban Development Strategy, defines a pathway to transition a city to a low emission, green and inclusive urban economy, through its integration into city development plans and processes.

The Urban-LEDS project, funded by the European Commission, and implemented by UN-Habitat and ICLEI, has the objective of enhancing the transition to low emission urban development in emerging economy countries by offering selected local governments in Brazil, India, Indonesia and South Africa a comprehensive methodological framework (the GreenClimateCities methodology) to integrate low-carbon strategies into all sectors of urban planning and development. For more information, please visit: <http://urbanleds.iclei.org/>

partner, and where two representatives of the original Core Climate Team are still in the same roles or departments. For example, the projects identified in the CRS as “Channelization of existing nallahs and natural drainage system”, and “Decentralised wastewater treatment options”, are both being implemented with funding and support provided by GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). SMC has joined the ICLEI-led and EU-funded program – Urban-Low Emissions Development Strategy (Urban-LEDS) and hope to be able to use that program to further develop cross-organizational support for priority actions in the CRS. The hope is that participation in the Urban-LEDS program will bring thinking on climate change mitigation and adaptation together under the broader heading of urban resilience, and will continue to support cross-organisational exchange and cooperation on climate action .

Lessons Learned

- **The IAP was perceived to be thorough and engaging but the underpinning theory was confusing.** Stakeholders committed to climate change action found the theory underpinning the process a little unclear. There was a lot of information for people to learn and apply in a short period of time. Additionally, while participants may have notionally understood the information presented, they found it difficult to then communicate this information to others. One participant noted: “I found it hard to explain to others and also difficult to convince others [of the importance to act on climate change]” (Negi 2013).
- **The collaborative process was considered positive in breaking departmental ‘silos’.** The IAP focused strongly on bringing stakeholders together from different departments across SMC. When this was not possible due to conflicting priorities, one-on-one engagement still allowed all views to be incorporated. Participants

Box 4: List of CRS interventions and their implementation status

The Draft Shimla Climate Resilience Strategy proposed a number of actions for SMC to implement that would help reduce its vulnerability to climate change. As can be seen in the table below, many of the “High” priority actions in the water supply area are either already being implemented, or are in development. Most of the projects that were carried in partnership between the municipality with state authorities or other external organizations.

Urban Systems	Potential Climate Resilience Interventions	Applicability	Indevelopment or Implemented
Water Supply	Rainwater harvesting strategy for the city	High	Implemented
	Reviving traditional water sources	High	
	Extensive early warning systems for increased precipitation to be in place	High	
	Use of composite pipes instead of conventional galvanized iron pipes	High	
	Extensive patrolling to take immediate action on water freezing	High	
	Multiplicity of command needs to be unified. E.g. IPH, MC and Electricity department (To be outsourced in PPP mode)	High	Indevelopment
	Ferro cement water storage tanks for households / clusters	High	
	Channelization of existing nallahs and natural drainage system	High	Implemented
	Proper maintenance of sewerage line- Connectivity of the missing links	High	
	Septage and STP's Sludge management	High	Implemented
	Construction of more public toilets and subsidizing user charges	High	
	Decentralized wastewater treatment options	High	Implemented
Encouraging recycling and conservation of water	Medium	Implemented	
Transport	Implementation of the city mobility plan	High	
	Mass transport systems to be developed – buses, trains, rope rail, escalators	High	
	Integration of existing bus service with regional bus service and HRTC taxi service	High	
	Augmentation of existing public transport - bus service	High	Implemented
	Preparation and implementation of bylaws for road usage / regulation	High	
	Parking provisions in new constructions / new parking provisions / bylaws on parking provisions for hotels	High	
	Snow clearance / cutters on road	High	
	Development of anti-skid pathways	High	
Urban planning to keep important buildings which attract traffic in outskirts	Medium		
Tourism	Development of legal provisions and their strict implementation	High	
	Construction of more lifts and escalators (Old ISBT to DC office)	High	
	Green tax for cars from outside Himachal Pradesh	High	
	Construction of trams, mini deluxe buses (Dhalli to regal building, Secretariat to lift, Advanced studies institute to CTO)	Medium	
	Construction of sky buses (on the circular road linked to mall road through flyover)	Medium	
	Construction of multi-storied parking	Medium	
	Preparation and implementation of bylaws on tourism to address water shortage and traffic congestion	Medium	
	Urban forestry initiatives to be undertaken	Medium	

repeatedly noted how well the process brought together stakeholders from across the organization, temporarily removing them from their 'silos'.

- **Cross-organizational and multi-stakeholder ownership help to embed learnings in the organization.** Establishing cross-organizational and ownership of the process is challenging but important to help entrench learnings. Shimla was able to encourage cross-organizational interest and support for the IAP but were unable to foster a sense of ownership. A year after the project was completed, few people who were involved in the project remain at SMC. The local champion for the project has left SMC and while much of the knowledge and experience developed is now contributing to other organizations, it represents a loss to the municipality. SMC now need to re-engage a new group of staff to implement actions identified in the Draft CRS. Embedding climate considerations and knowledge into the way the city works helps to reduce the impact of staff migration to other organizations or positions. For projects that have a significant cross-organizational impact such as the IAP, sharing ownership and responsibility between departments helps to start the embedding process.
- **Simple, demonstrated actions are needed early.** The approach and theory underpinning the IAP is important. However, to keep people engaged in the process, simple and demonstrated actions need to be undertaken as early in the process as possible. GIZ funding support for priority projects, such as those in the water supply sector, has helped to get these projects started in the short-term.
- **Swift project turn-around helps keep participants engaged.** There is always a tension with determining the best timeframe to implement a planning project. Time is needed to bring people together as well as gather and analyze data with competing priorities can also take time. However, if the project is completed as efficiently as possible, then participants can see action quickly, and will not "disengage" from the process. SMC was taken through the process in about 12 months, with a little longer to finalize the Draft CRS. Experimenting with a six-to-nine month timeframe would be an interesting comparison.
- **Simplifying some of the IAP theory would be helpful.** The theory underpinning

the IAP is important but the theory, concepts and approach are all relatively new to all participants. If concepts and approaches are too difficult for participants to communicate simply to their colleagues, then they need to be redefined. ICLEI support teams need a solid understanding of the underpinning theory but for future implementation, scaling back the amount of theory, simplifying the language and prioritizing the theory exchanged with participants is



Figure 4: Installed rainwater tanks for harvesting © ICLEI



Figure 5: Green Climate Cities Methodology © ICLEI

recommended. This may then improve the general understanding of participants and reduce their confusion and disengagement

- **'Bottom-up' approach – within a 'top-down' governance framework.** The State of Himachal Pradesh was finalizing their climate strategy at the time SMC was going through the IAP. There was some resistance from state-level agency personnel to participate in the process, insisting that it should not be started before the state process was published. The tension between a bottom-up approach and a governance system that favors a top-down approach is challenging so new ways to better engage state-level bureaucrats are necessary.

Replication

The IAP ideally works with cities that already perceive a need for climate adaptation planning, and are seeking an effective and efficient way to undertake it. For cities to engage in future climate change adaptation, they need to perceive a very real future threat, or a current need that will be exacerbated by climate change. This might be related to current environmental disasters (flooding, fires, cyclones) that will likely worsen under a changed climate, or growing health impacts (such as the emergence or increase in vector borne diseases like dengue fever), or a range of other potential impacts.

Structures that enable cross-organizational groups to be established and to work collaboratively will facilitate the replication of the IAP. Within SMC, a high level of support from the Mayor or Commissioner is important but a management structure that allows co-ownership of projects is also vital. For example, rather than a project being 'championed' by one director whose area then receives all associated funding, a structure that enables three or more areas to co-own a project, receive co-funding and be responsible for cross-organizational outcomes, may be an approach that facilitates stronger cross-organizational learning and embedding of climate considerations. In organizations where there is significant competition between 'siloed' departments, the IAP can be undermined by internal competition. Structures that enable cross-organizational groups to be established and to work collaboratively will facilitate the IAP process.

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Budget and finances

As a pilot project, SMC were able to take advantage of the IAP project for no monetary cost. They were only required to commit staff time to the project. Actions implemented from the Draft CRS have individual project budgets, and are not the subject of this case study.

Further Reading

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