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Capacity Building for Building a Sustainable and Smart Urban India

Introduction

Urban India is at the threshold of major transformation. While we are gearing up for building smart Indian cities, we are also recognizing the need for sustainability in our development patterns. Therefore, there is a need for us to relook the ways in which we design our infrastructure, run our cities, and manage current pressures emanating from urbanization. All these requirements are also coupled with serious development related challenges confronting the cities of the 21st century. Cities need to continuously gear up for addressing issues of increasing pressures on resources, environmental degradation, air pollution, climate change, and increasing frequency of climate induced events and disasters.

There is a strong need for addressing each of these challenges and equipping the cities to take these challenges head on.

Continuous skill development of people who are responsible for addressing the urban challenges is an absolute necessity for bringing about requisite changes in existing urban governance and management systems.

It is also about learning from the past and bringing in new and improved systems that facilitate efficiency in municipal functions as well as bring in planning and management tools that equip cities to deal with the present and future challenges more efficiently.

This briefing paper draws from the key learning derived from TERI's programme on capacity building which was supported by the Asia-Pacific Network for Global Change Research (APN). The programme covered urban local bodies (ULBs) of four Indian states on the theme of 'Urban Climate Resilience'. The key messages from this experience have gone beyond the theme for the training programme itself and posed challenges of larger issues with training and capacity needs at the ULBs' level. These are the challenges that call for a relook on the training needs and design of targeted and focused

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training programmes that are able to derive tangible benefits and those that can be monitored. It also calls for facilitating a culture of learning and continuous education that equips urban managers, engineers, planners, and decision makers to deal with new changes in the technology and new demands of the future cities in India. This paper attempts to bring out some of these requirements and synthesize experience from the TERI-APN programme in the larger context of existing capacity building initiatives in urban India.

Matching Capacities with the Requirements of the National Agenda on Urban Development and Urban Growth

On April 29, 2015, the Union Cabinet approved the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities Mission to drive economic growth and foster inclusive urban development. The basic aim of these schemes is to recast the urban landscape of the country to make urban areas livable, sustainable, smart and inclusive besides driving the economic growth of the country. With an outlay of INR 45,000 crore for 500 cities under AMRUT and INR 50,000 crore for 100 cities under the 'Smart Cities Initiative', both these schemes define the National government's agenda to meet the challenges of growing urbanization in the country in a sustainable manner as well as ensuring the benefits of urban development to the poor through increased access to urban spaces and enhanced employment opportunities.

While the 'Smart Cities Initiative' will entail project-level planning as well as implementation of retrofitting, redevelopment, pan city initiatives, and development of new cities; the AMRUT scheme, on the other hand, will be a project-based approach to ensure basic services and infrastructure which will be linked to urban reforms. These reforms as envisioned at present will include e-governance, constitution of municipal cadre, devolving functions and funds to urban local bodies, review of building bye-laws, improvement in assessment and collection of municipal taxes, credit rating, energy and water audit, and citizen centric urban plans. It is believed that the implementation of AMRUT scheme will enable cities and towns to eventually graduate to 'Smart Cities'. The candidate cities for Smart Cities will be required to prepare their smart city plans and city challenge applications and will be required to work closely with national and international consultants in implementing smart initiatives.

While these schemes have ambitious and relevant agendas of the National government, in practice, the success of these schemes will depend on the cities' capacities, financial prowess

, and preparedness to implement it. Urban development policies and schemes are expected to become more and more cross-sectoral and dynamic in nature.

To start with, extensive awareness generation is needed to disseminate the very basis and intent of this agenda to all levels of urban functionary. While this is done, a parallel programme on skill building, technical assistance, and administrative reforms to match the requirement of the new age needs to be facilitated. As we can see, the training has to go beyond a classroom format and get into a demonstrative doing, learning, and reiterative learning mode.

Experience thus Far

Several assessments and reports like: The High Powered Expert Committee (HPEC) Report on the Urban Infrastructure and Services (2011); Report on the Mid-term Appraisal of the Eleventh Five Year Plan (2010); Training Needs Assessment (TNA), and Strategic Training Plan (2014) have expressed serious concerns over the need for extensive capacity building in ULBs. The training needs assessment report, prepared as part of Ministry of Urban Development (MoUD) and The World Bank's Capacity Building for Urban Development (CBUD) project, notes that the requirements for capacity building is high not only on account of the number of people to be trained but also in terms of the competencies of the trainers required. It is also to be noted that given the purview of the 74th Constitution Amendment Act, very few cities are looking at urban planning as a function which is reflected in the quality of development plans and Master plans. The concerns like environmental degradation, air pollution, and extreme climate events are not addressed and need a specific entry point in the capacity building plans of the government.

Capacity building has so far been accorded very low priority and is largely limited to administrative training. In the current context of rapid urbanization, the challenges in urban management require not only specialized knowledge but also cross-sectoral learning to tackle several new and emerging challenges in managing a city. The training needs assessment carried out under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) scheme points out the strong need for systematic training which would enable the urban local bodies to discharge their duties and responsibilities effectively.¹ Notwithstanding the fact that systematic training programmes have to be designed, it is to be ensured that tangible benefits are derived and monitored at all levels through these training programmes. Besides this, the content of the training programmes should also be critically formulated to address these issues holistically. Partnerships from global progressive cities, National and Global governments

¹ http://jnnurm.nic.in/wp-content/uploads/2014/06/TNA-Strategic-Training-Plan_Vol-I-6-June14Eng.pdf (last accessed on May 22, 2015).



and expertise would go a long way in addressing this challenge pragmatically. The capacity building scenario in urban India has been sporadic and detached from the real and continuous need for knowledge upgradation and skill building. For the urban sector, the capacity building initiatives could be phased out into two—pre JNNURM and post JNNURM. The following table enlists various programmes targeting capacity building for city officials.

Pre JNNURM

Before JNNURM, the public health engineering training programmes were conducted with an objective of providing training to in-service engineers and para-engineers. Besides

this, the Regional Centre for Urban and Environmental Studies (RCUES) and the National Institute of Urban Affairs (NIUA) played an important role in disseminating information about government rules, policies, and programmes, besides acting as a knowledge hub and training institute. Apart from these, individual organizations like Central Public Health and Environmental Engineering Organization (CPHEEO) and the Town and Country Planning Organization (TCPO) prepared policy and guidelines to assist cities to prepare various plans and policies. These efforts, however, were sporadic and were not part of a larger scheme of events that might have led to a systematic change in the level of capacity and skills in the ULBs in India.

ORGANIZATION	PROGRAMMES
	Pre JNNURM
MoUD ²	Public Health Engineering Training Programme
	Financial Assistance
	Establishment of Regional Centres for Urban and Environmental Studies
	National Institute of Urban Affairs
	Research and Capacity Building in Urban and Regional Planning
	Central Public Health and Environmental Engineering Organisation
	The Town and Country Planning Organization
	Under JNNURM
JNNURM ³	Toolkits and Guidelines for Preparation of City Development Plans (CDP) and Detailed Project Report (DPR)
	Independent Review and Monitoring Agencies
	Reform Appraisal and Monitoring Agencies
	The Programme Monitoring and Evaluation System
	Programme Management Unit and Project implementation Unit
	Rapid Training Programme
	Peer Experience and Reflective Learning
	National Mission Mode Project
	Regional Capacity Building Hubs
MoHUPA ⁴	A Toolkit for Financial Support
	A National Network for Resource Centres
Capacity Building Under CBUD ⁵	Component 1: Capacity Building for Strengthened Urban Management
	Component 2: Capacity Building for Effective Urban Poverty Monitoring and Alleviation
Capacity Building Under CBULB ⁶	Component 1: Capacity Development of ULBs for Strengthened Urban Management
	Component 2: Creation of Supporting Structures and Mechanisms at State and Central Level to Facilitate Capacity Building of ULBs
NERUDP ⁷	Five Capital NE Cities—Technical Assistance for Project Design, Monitoring and Implementation, Financial Reforms and Institutional Development and Project Management Capacity
LBS NAA ⁸	National PPP Capacity Building Programme (NPCBP)
	Capacity Building Project on Disaster Management

² Report of the Working Group on Capacity Building for the Twelfth Plan – Planning Commission, 2012–17.

³ Report of the Working Group on Capacity Building for the Twelfth Plan – Planning Commission, 2012–17.

⁴ Report of the Working Group on Capacity Building for the Twelfth Plan – Planning Commission, 2012–17.

⁵ <http://jnnurm.nic.in/capacity-building-activities-under-cbud-program.html> (last accessed on May 22, 2015).

⁶ <http://jnnurm.nic.in/toolkit-for-comprehensive-capacity-building-programme.html> (last assessed on May 22, 2015).

⁷ NERUDP-North Eastern Region Urban Development Programme Report of the Working Group on Capacity Building for the Twelfth Plan – Planning Commission, 2012–2017.

⁸ Report on Pilot Project - Capacity Building Project on Disaster Management, Centre for Disaster Management, 2012–13.



Post JNNURM

JNNURM marked the beginning of the realization of systematic capacity and skill building of the ULBs to implement reforms, to match the National and State level agendas for urban growth and development. The scheme required the cities to prepare their city development plans and detailed project reports, the guidelines for which were made available by the JNNURM cell and the cost of preparation of CDPs and DPRs were dispersed to the 65 cities covered under the scheme. Besides, these rapid training programmes to upgrade the skills of municipal and parastatal staff involved in service delivery were implemented to support reform implementation, DPR preparation and project management and implementation. Regional capacity building hubs were established across India to strengthen and facilitate the capacity needs. Even the peer experience and reflective learning (PEARL) programme was launched to support and facilitate knowledge and experience sharing with peer networks and to disseminate best practices taken up in different cities.

Other Parallel yet Important Initiatives

In addition to this, the Ministry of Housing and Urban Poverty Alleviation (MoHUPA) prepared a toolkit for financial support for comprehensive capacity building meant for improving urban governance and poverty alleviation. The Ministry also created a national network of resource centres to contribute towards knowledge management, capacity building on various issues related to housing, and urban development in the cities.

The capacity building under CBUD programme funded by The World Bank and housed within the Ministry of Urban Development and the Ministry of Housing and Urban Poverty Alleviation targeted capacity needs through its two major components:

- Capacity building for strengthened urban management—A component that was designed to provide support to urban local bodies (ULBs) on financial management reforms, urban planning, service delivery, and governance.
- Capacity building for effective urban poverty monitoring and alleviation—The component included support in upscaling and replication of good practices, support to create networks of practitioners and network on community development and formation of apex resource institutes.

Similar to this programme, the capacity building for urban local bodies (CBULB) programme undertaken under JNNURM in the year 2013 also had two components:

- Capacity development of ULBs for strengthened urban management for 375 cities—This included the

establishment of city level reforms and performance management cell (RPMC) in all these cities and also provided capacity building support for preparation of Integrated City Plans for the city and the peri-urban areas of these cities. The scheme also included support to these cities in preparation of business cum financial plans and also to conduct residential and non-residential training programmes for staff and elected representatives of all the ULBs on the basis of their training need assessments.

- Creation of supporting structures and mechanisms at State and Central level to facilitate capacity building of the ULBs—This included establishment of State level RPMCs in 31 States/UTs, strengthening of state administrative training institutes (ATIs) by establishing urban management centres to help support training of municipal officials, preparation of state capacity building strategy and capacity building plan, preparation of training modules and implementation of training programme workshops along with exposure visits for the staff and elected representatives.

Under the CBULB programme, 13 Centres of Excellence were established in the Ministry of Urban Development out of which nine were for urban development and four for urban transport. Besides this, the North Eastern Region Urban Development Programme (NERUDP) needs a mention here as this was specifically formulated to provide technical assistance for project design and monitoring, implementation of institutional and financial reforms, and for creating project management capacity at the State level.

National and State Level Training Institutes

The National and State level training institutes—Lal Bahadur Shastri National Academy of Administration (LBSNAA), and other State ATIs were established for implementing national- and State-level capacity building programmes and train probationary and serving officials of State governments, urban local bodies, and Central government departments. LBSNAA, established in 1959 at Mussoorie (Uttarakhand), is a research and training institute on public policy and public administration undertaken by the Government of India to train civil service officers.

Besides this, some State governments have initiated their own capacity building programmes. The foremost amongst these are the states of Tamil Nadu, Karnataka, Andhra Pradesh, and Maharashtra. While Tamil Nadu has created an exclusive institute for the urban sector, Karnataka has established a State Institute of Urban Development at Mysore. The State governments of Andhra Pradesh and Maharashtra have been utilizing their own state ATIs and local training organizations to conduct capacity building programmes in their states.



Gaps in the Current Plans and Schemes for Capacity Building

The working group on capacity building under the 12th Plan document highlights some of the gaps and shortcomings of the capacity building initiatives. The report emphasizes the fact that there is a lack of demand for systematic skill enhancement and planned capacity building in the urban local bodies (ULBs) in India. Absence of formal structures to support capacity building, lack of municipal cadre and staffing norms, clear job descriptions and reluctance to adapt to new technologies are some of the shortcomings with the current system. Again, issues such as low budgetary support, lack of autonomy to plan and govern cities, lack of the culture that supports skill development for technical and managerial capacities and little attention to competencies of the elected representatives create further problems. The report also highlights the limited capacity of the ULBs to absorb various capacity building programmes and subjects that were directed to them under the JNNURM. Also, the scale and pace of the states and the cities to implement these capacity building programmes could not match the pace of the large scale government programmes. This is particularly because of the absence of a strategy for planned capacity building and skill enhancement that led to implementation of stand-alone training programmes rather than having process- and outcome-based regular training programmes that could be measured for their effectiveness. The following table consolidates some of the recommendations made by the working group on capacity building under the 12th Plan period:

The **Working Group Committee recommended** starting a campaign of capacity building for the ULBs and State governments. The following were its recommendations:

- Set up **five Indian Institutes of Urban Management** through partnership between the Government of India, State governments and the private sector
- **Lateral hiring of professionals** into the municipal cadre with flexibility with respect to special skills into the cadre
- **Infuse funds and new talent** into existing Schools of Urban Planning
- Promote **think tank initiatives** in urban policy through Centres of Excellence/ Innovation in existing institutions
- Create a **Reform and Performance Management Cell (RPMC)** in the Government of India (at State level and in large cities) with a multidisciplinary team undertaking activities
- Train civil service officers and others central services annually as **urban specialists**
- **Build/Reform Municipal cadres**

The working group also notes the recommendations made by the **Second Administrative Reform Commission** in its report "Local Governance—An Inspiring journey into the future". The following recommendations on Capacity Building were made:

- State governments should encourage **local bodies to outsource specific functions to public or private agencies**, through enabling guidelines and support, backed by the development of in-house capacity for monitoring and oversight of outsourced activities
- **'Networking' of institutions concerned with various subjects** such as financial management, rural development, disaster management, and general management
- A **pool of experts and specialists** (engineers, planners, etc.) could be maintained by a federation/consortium of local bodies, to be utilized whenever required for specific tasks

Based on **JNNURM experiences**, the Working Group arrived at certain conclusions:

- It might be preferable that **capacity building interventions precede the implementation of programmes** for infrastructure development and governance reform, rather than implemented either simultaneously or separately
- **Capacity building has been limited** due to the supply driven approach, provision of support on a 'first come, first serve' basis, limited and unpredictable modalities of funding
- The interventions have had **limited success in engaging political leaders** and elected representatives
- **Absence of capacity building strategy** at the administration level stand-alone programmes with no measurable process and outcome indicators, save utilization of funding
- **Inadequate engagement of supply side agencies** which are essential partners in any comprehensive capacity building programme for the urban sector

Source: Report of the Working Group on Capacity Building for the 12th Five-Year Plan – Planning Commission, 2012–17

Learning from TERI-APN Programme: Feedback and Experience

The 'Capacity building programme on urban climate change resilience in India' is sponsored by the Asia-Pacific Network for Global Change Research (APN). Under their CAPaBLE programme, The Energy and Resources Institute (TERI) designed and delivered capacity building programmes on urban climate resilience in four states of India—Goa, Uttarakhand, Odisha, and Maharashtra. For Goa, TERI associated with the Directorate of Municipal Administration, Government of Goa; for Uttarakhand, The Department of Urban Development, Government of Uttarakhand; and for Odisha and Maharashtra, TERI associated with the respective state ATIs to conduct these training programmes. It included a day-long orientation programme for elected representatives of the ULBs of the selected states and a two-day long training programme for city officials and practitioners. A seminar for students and researchers was also conducted in association with the TERI University.

The project endeavours to inculcate the goal of building urban climate change resilience at all levels of governance and is

implemented to its true intent. The content of the programme included lectures on application of tools and techniques, such as climate modelling and GIS for climate proofing the cities; risk and vulnerability assessment approaches; financing mechanisms for implementing resilience; policy and regulatory measures for mainstreaming urban climate change resilience; role and functions of various institutions and public agencies in building urban climate resilience and disaster risk reduction in urban areas. These were substantiated by screening films on the subject and group exercises for the participants.

The feedback received from these training programmes has been consolidated under the following heads for clarity:

Language

Language is an important consideration while designing a training programme in Indian cities. Unlike the common belief, English may not work in every situation and the local/regional language is the preferred mode. Hindi works better than English in some states, but a pre-assessment of language requirement goes a long way in increasing the effectiveness of the programme. Since it might not be possible for experts to know all languages, it is also advisable to prepare short and crisp reading materials in the regional language. Inviting local resource people and keeping a good mix of external and local experts help in covering a range of topics.



Duration

Duration of the training programme is an important factor. If the training is organized for various ULBs and for a particular set of audience, for example, engineers, the training could be more technical in nature and could be planned for a longer duration. While a training programme for a mix group will have to compromise on the technicalities, but it could focus on broader issues related to the subject and have to be shorter than the one that is designed for a focused group. The duration of the training programme would also depend on the location. For example, in Uttarakhand, not all municipalities could attend the training programme because they found Dehradun

too far to go for a two-day training programme. Some of the participants, particularly elected representatives travelled for an average of six hours to attend a day-long training programme. It was suggested that the duration and location have to be a major consideration while planning a programme.

Audience/Participants

Keeping two separate programmes for elected representatives and municipal officials turned out to be a good decision because of the clear distinction of roles and responsibilities of the two groups and also the level of understanding of the topic of training. However, it was suggested that for matters related to ULBs, a day should be dedicated only for interaction and collective learning between the elected representatives and city officials—something that is not possible under the regular protocols of municipal administration and hence, there is great communication gap between the two levels of functionaries.

Content

While the subject matter was found interesting and new, and the overall reaction to the training programmes was positive, yet it was suggested that the training modules should give direct examples from the day-to-day functioning. Subjects like climate change and climate resilience, even, disaster management are not directly related to the functions of the officials. While the officials were very interested in knowing about the theme, they wanted sector specific solutions to be presented along with the problems, risks, and vulnerability. It was suggested that there should be avenues for more involvement/interaction of the participants, with their roles in the respective projects being discussed. It was also discussed how their role in the projects could be streamlined towards building climate resilience.

Besides these, demonstrations and site visits to projects were suggested to be more effective than classroom teaching. The participants also suggested that if these training programmes have to become practical and something that they could use in their regular working, then these should also





provide information on how projects to build climate change resilience can be brought into the cities and where officials should apply to bring such projects to their municipality. It was also advised that information should be provided on what each department specifically should do to build climate change resilience in the cities.



The sessions should focus on more practical and ground-level implementable solutions such as sewage treatment plants (STPs), biogas, rainwater harvesting and use of renewable energy. This programme should also be open to different planning department heads of local bodies, such as executive engineers, assistant engineers, medical officer for health, staff like junior engineers and staff looking at municipal solid waste (MSW), block level officers, Nagar Parishads, Jal Nigam, electricity department, development authority, PWD



and the environment department.

It was suggested that the content of the training programme should be designed to be context specific, for example, adaptation solutions specific to hill states in Uttarakhand. It was also suggested by the participants that they would prefer training programmes that equip them best to deal with their day-to-day activities and learn new things in the area of their work. They will be more interested in learning new things if it adds value to their current responsibilities and the training programme is designed, such that they can relate functionally to the subject. So, the modules should be streamlined and aligned to such needs.

Sustainability and Regularity of the Capacity Building Programmes

TERI-APN programme was organized in association with the State government and the State ATIs of participating states. This helped plan the date, duration, and venue for the programmes besides ensuring participation. Participants suggested that similar training programmes should be organized at regular intervals. A State level training calendar where municipal officials are trained on various topics of relevance on a regular basis will help in skill building as well as in inculcating a culture of education and learning.

Dedicated Programmes for Targeted Group of Officials

This was a general suggestion across the four states, that training programmes for specific group of officials, for example, senior engineers, junior engineers, etc., should be designed and conducted as these officials work on ground and deal with day-to-day challenges and has the least opportunity for skill building.

Learning from the Seminar for Students

A two-day long seminar for post graduate students of architecture and planning and early researchers was organized in association with the TERI University. The objective of the programme was to acquaint future practitioners with the technicalities of the subject and to create interest in the emerging challenges that cities are facing and for which cities should equip themselves. The students suggested that the duration of the programme could be extended to accommodate more technical subjects and demonstration projects. It was suggested that subjects like climate resilience and associated technical modules should be mainstreamed into their course curriculum. The students wanted to be trained on the usage of different tools available in the knowledge domain and also wanted to have hands-on training for some of these tools in training programmes such as these.

Conclusion

The challenges related to capacity of urban local bodies are multiple and have to be addressed at various levels. At the larger level, mandates and mechanisms have to be created that foster an environment of learning and skill building. There should be a planned mechanism to ensure regular training. Besides this, different requirements of different cadre of officials should be assessed and accordingly training programmes should be designed. Issues related to subject matter, new developments, information on the government's new agendas and expectations thereof, have to be addressed through these capacity building programmes.

It is also recommended that capacity building should be the first activity when a new scheme/programme is implemented by the government. Several other new subjects such as energy efficiency, climate change impacts, and disaster management that may not fall directly in the purview of ULBs' functioning have to be covered through standalone programmes, to keep the official abreast of new developments and also to build a cadre of well-informed and skilled ULB officials.

Language barriers, challenges related to scheduling the training programmes and time of the officials could be planned in consultation with the State government. State ATIs will have to play a key role in this, while the State and National government have to tap external and institutional expertise, considering the huge volume of capacity building that is required in Indian cities at this juncture. Strategic planned efforts towards a common goal of smart and sustainable ULBs will go a long way in building smart and sustainable cities in India.

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strategies, effective science and policy linkages, and capacity development. The CAPaBLE programme focuses on enhancing scientific capacity in developing countries to improve decision-making in focus areas of global change and sustainable development.

References

- Capacity Building for Urban Development Project (CBUD). 2014. Conducting Training Needs Assessment (TNA) & Preparation of Strategic Training Plan Vol-I. 2014. Ministry of Urban Development, Government of India & World Bank. Available at <http://jnnurm.nic.in/wp-content/uploads/2014/06/TNA-Strategic-Training-Plan_Vol-I-6-June14Eng.pdf> (last accessed on May 20, 2015)
- UNDP. 2005. Capacity Building for Decentralization. Ministry of Urban Development (MoUD), Government of India. Available at <http://www.in.undp.org/content/dam/india/docs/urban_governance.pdf> (last accessed on May 15, 2015)
- Report of the Working Group on Capacity Building. 2011. Urban Development Management for the Formulation of the Twelfth Five-Year Plan (2012–17). Planning Commission of India. Available at <http://planningcommission.gov.in/aboutus/committee/wrkgrp12/hud/wg_capacity_%20building.pdf> (last accessed on May 15, 2015)
- Capacity Building Project on Disaster Management. 2013. Report on Pilot Project (2012–13). Centre for Disaster Management, National Institute of Administrative Research & LBS National Academy of Administration. Available at <http://www.ndma.gov.in/images/cbt/ndmaignou/ndma_pilot_report_final.pdf> (last accessed on May 15, 2015).
- Planning Commission of India. 2013. Twelfth Five-Year Plan, Volume II (2012–17): Economic Sectors. Sage Publications India Pvt. Ltd. Available at <http://planningcommission.gov.in/plans/planrel/12thplan/pdf/12fyp_vol2.pdf> (last accessed on May 15, 2015).

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