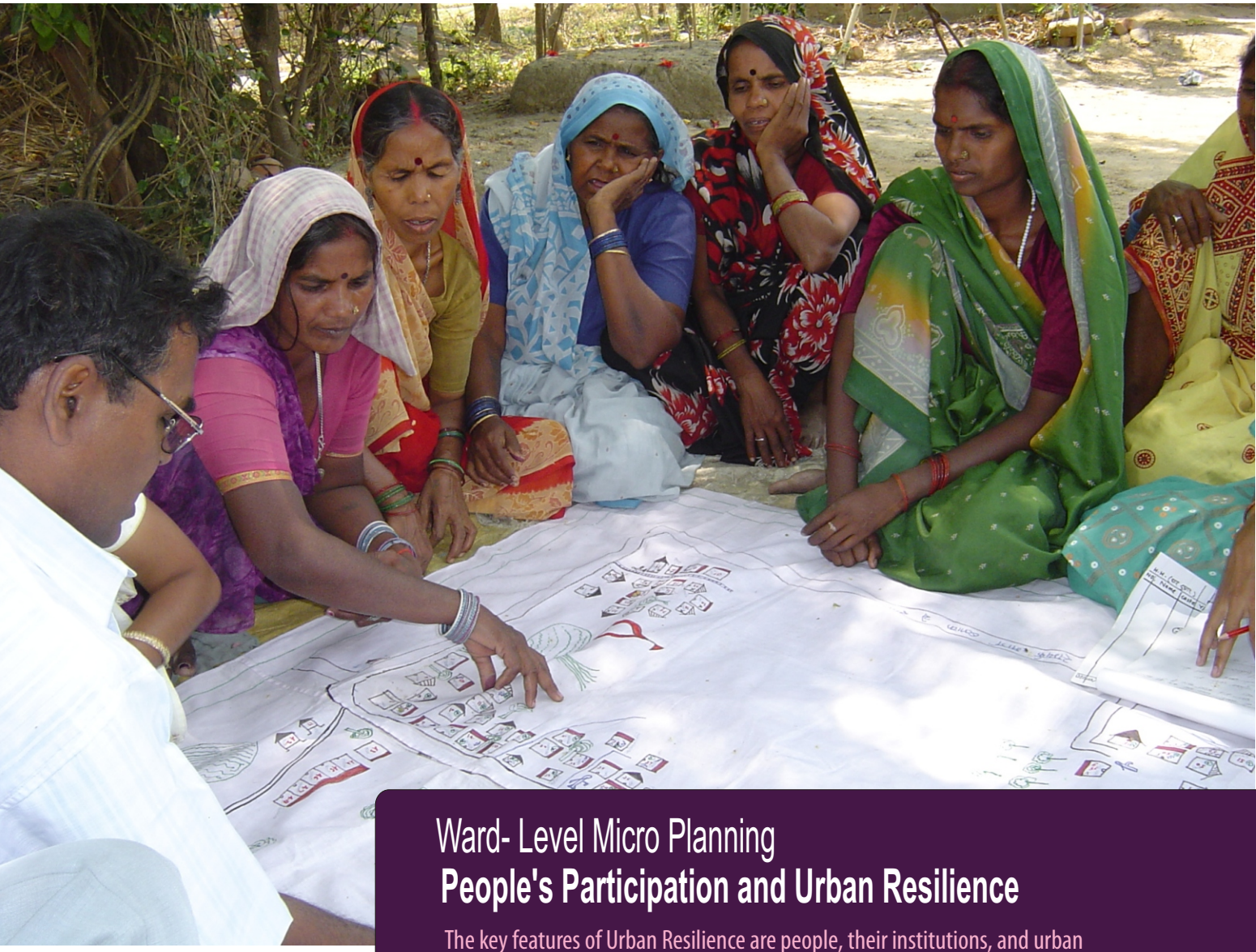
Urban Climate Change Resilience

POLICY BRIEF



Ward- Level Micro Planning
People's Participation and Urban Resilience

The key features of Urban Resilience are people, their institutions, and urban systems. It could be strengthened by empowered process of micro-planning and participation of people and other actors in decision making...

KEY MESSAGES

- **M**icro plans articulate vulnerability of households, it would like to address first.
- **P**eople's behavior is crucial determinant for efficiency and performance improvement of urban systems and institutions
- **N**urturing of complementary and subsidiary relations between micro and macro plans is essential to build resilience of large complex urban systems
- **P**articipatory assessments combined with scientific threshold-based modeling climate risks are valuable inputs to design improved and efficient systems
- **M**icro plans accrue high per capita social, moral, economic and strategic benefits through cost sharing and efficient management of services

1 CONTEXT OF URBAN POVERTY, CLIMATE CHANGE AND MICRO PLAN

Level of poverty has fallen to a record 22 per cent in 2011-12. It continues to witness consistent decline with levels dropping from 37.2 per cent in 2004-05 to 29.8 per cent in 2009-10. 25.7 per cent of people in rural and 13.7 per cent in urban areas live below poverty line[1]. While this disclosure stirred up a hornet's nest for many; policy analysts, economists and development practitioners debated accuracy of methodology used by different committees[2] to arrive at poverty figures for the country.

It is interesting however to note that during same period, urban population in country increased at rate of 31.8 per cent compared to 12.2 per cent and 17.7 per cent in rural areas and in country[3] respectively. This increase of urban population finds commensurate growth in number of poor, vulnerable and slums in India. Specifically, a total of 2613 towns reported slums in census 2011, which is approximately an increase of 49.9 per cent since 2001. Clearly, large numbers of people in urban areas live in some of the most vulnerable conditions exposed to climate change and other disasters. More people and assets locate in areas of high risks. During 1995 to 2005, approx. 53.8 per cent increase is reported in economic loss due to hydro-meteorological hazards[4] only. Cities situated on river banks or located close to coastal areas are regularly impacted by extreme climate events and hydro-meteorological shocks. Particularly, small and medium towns without adequate infrastructures but rapidly increasing population are badly affected with abysmal problems for poor and vulnerable communities.

World's population has grown by 87 per cent since 1970. Proportion of people living in flood-prone river basins has increased by 114 percent.

JNNURM reaffirms central government's resolve to implement decentralization measures envisaged in the Constitution (74th Amendment Act, 1992). It imposes mandatory conditions on state governments to reform for implementation in addition identifies enactment of community participation, law to institutionalize citizen's participation and introduce the concept of Area Sabha in urban areas.

Micro plans and bottom up processes find special meaning in small and medium cities where urbanization is still in initial stages, systems are developing and climate shocks prominent and recurrent. 74th amendment envisages people's participation in development and involvement in decision making by setting an institutional mechanism and defining the roles and responsibilities. Key highlights are mentioned as under :

- District Planning Committee (DPC) to consolidate plans prepared by Panchayats and municipalities in district into the Draft District Plan.
- Central Government is responsible to ensure full implementation of Parts IX and IX A of the Constitution and empower Panchayats and Municipalities as institutions of local self-government.
- Roles and functions of ward committee, area sabha and process of preparation of ward and area micro-plans[5].

Existing provisions in most State laws, including the Municipal Corporation and Municipality Act of Uttar Pradesh[6] are still to delegate powers for effective participation of people. It amounts to great loss of social, economic and management benefits that come packaged with micro plans. Vulnerable communities being situated at the very eye of climate risks and disasters provide valuable supplementary knowledge to city development and disaster risk reduction plans of city. National and State Action Plans on Climate Change make brief mention of significance of micro plan processes and importance of people's participation in development.

1 Planning Commission of India Report 2011-12
2 Arjun Senguta Committee, N.C. Saxena Committee, Suresh Tendulkar Committ, the World Bank estimate on poverty
3 Primary Census Abstract, Census of India 2011
4 Disaster Risk and Resilience, UNISDR, WMO, May 2012
5 Manual for Integrated District Planning in India, Planning Commission of India
6 The Uttar Pradesh Municipal Corporation Act 1959 (U.P. Act No. 2 of 1959) and U.P. Municipalities Act 1916

2 CURRENT TRENDS AND FUTURE IMPACTS OF CLIMATE CHANGE AND ISSUES IN URBAN RESILIENCE

IPCC reports on climate change and host of different other climate projection models suggest increase in global emission of Carbon Di-Oxide and other Green House Gases (GHG). In last decade, GHG emission for India increased at rate of 1.9 per cent per annum but India is ranked well below developed countries in terms of Human Development Index (HDI), per capita electricity consumption[7] and world average 4.25 metric tons of per capita Carbon Dioxide emission. National Action Plan on Climate Change reemphasizes maintaining high growth rate at the same time reduce vulnerability of climate change impacts. Plan reinvents central role of communities in maintaining growth and reduction in vulnerability.

Climate change trends could severely challenge sustainable high growth possibilities if not addressed properly. Drinking water, sanitation, drainage, housing, electricity and transportation are among most badly affected sectors (Wajih, 2010). The problem is significantly due to pace of (unplanned) urbanization surpassing pace of development of urban services while can also be attributed to changing climatic patterns (see Box).

- National Action Plan on Climate Change recognizes community participation and role of urban local bodies in designing of climate adaptive resilience actions in development programmes of government.
- Community based management of solid waste, ecosystems, incentives to community organizations and panchayat/ULBs for protection and conservation of forest and water bodies find emphatic mention under Sustainable Habitat Mission, National Mission for Sustaining Himalayan Ecosystem and National Mission for Green India.

Box : Inadequate urban basic services: A fallout of rapid unplanned urbanization

Considering that more than 40 percent of population of Maheva ward has settled in less than 3-4 years, water supply coverage through formal system is only 40 percent while 60 percent households do not have access to toilets. Similar is the dismal scenario in solid waste management, drainage, sanitation and health sectors. Further the socio-economic visioning exercise in Maheva conducted by GEAG suggests that if business-as-usual case continues, there could be drastic reduction of open spaces and clogging of drainage channel due to pressure of real-estate development. The situation is similar in other wards of Gorakhpur.

Critical thresholds of rainfall causing large-scale water logging and consequent impacts in Mahewa ward were assessed using combination of participatory and scientific methodologies (including considering climate projections). It shows the following rainfall magnitudes are critical thresholds: i) atleast 208.8 mm (single day event); ii) 165.4 mm (over four consecutive days with short breaks); iii) 192.6 mm (over eight consecutive days with short breaks). The assessment finds that the frequencies of such critical events are likely going to increase considerably--for example, the four-day and eight-day events are likely to increase by 0-28% and 5%-52%, respectively (Opitz-Stapleton, 2013).

In addition, Optiz-Stapleton, 2010 finds that maximum temperature is likely to rise in all four seasons, high temperature and unpredictable precipitation may lead to increase humidity. Following are some key climate change impacts and issues experienced across large number of cities in India.

- Increase of floods, water logging, humidity, cyclones and sea-level rise
- Increase in vector and water borne diseases
- Loss of life, employment and damage to property/ crop failure

7 Human Development Report 2006, UNDP

- Frequent breakdown of power supply, transport and other systems
- Intrusion of saline water in drinking water sources
- Ward and Area sabhas do not exist. Hence no role of local communities in planning and development
- Unregulated and unplanned land use development in urban areas
- Encroached water bodies, forest and common land
- Insufficient and poorly designed urban systems
- Lack of well researched frameworks and methods to assess climate change risks and vulnerability
- Capacity gaps, lack of credible data and information

3 CLIMATE COMPATIBLE URBAN DEVELOPMENT ACTIONS

Large number of cities in India are facing problem of population growth. Climate change exacerbates risks and increase vulnerabilities of communities. Large numbers of migrants often do not have access to basic services like safe drinking water, sanitation and resilient housing. Sewer, storm water drains, transportation and electricity systems are mostly over-stressed and inadequately perform even under current (unplanned) urban growth scenario the situation will only worsen with exacerbating climate change stresses if no tangible steps are taken. Capacity of service providers and institutional norm sometime do not meet climate challenges faced by urban systems. Climate compatible actions, therefore, demands composite strategies at the levels of systems, agents and institutions. To work for urban resilience demands short and long terms interventions. It demands for revisiting of current government programmes by drawing lessons from multiple stakeholders. Following short and long-term activities could address climate change impacts on basic services find mention here:

Ward and Area Sabha Committee

Constitute ward and Area Sabha committees of local residents for micro-level development planning

Solid Waste Mangement

- Suitability analysis of present dumping grounds
- Restricting solid waste dumping in unsuitable ground with immediate effect
- Door to door collection of waste, transport to primary collection and later for processing and disposal

Development Authority and Municipal Corporation as per respective jurisdictions apply Schedule II, point 2 to organize awareness programs and undertake phased program ensuring community participation in waste segregation. Development authority has power to notify for setting up of primary collection center as per number of wards to be covered and population catered. It can demarcate and buffer proposed SWM plant within the land use plan of city. District Collector and Pollution Control Board can monitor implementation as per standards laid down under the MSW Act 2000.

Drainage and Sewer Management

Revisit drainage proposal : Allow for phase II include sewer lines and sewer treatment plants. Revisit drainage plan. The existing design norms need to be revisited considering the climate change projections using threshold-based approach. Identify channels for disintegration of sewer in future, decentralized sewer system.

***Frequency of cleaning drives* :** Ascertained and notified by Municipal Corporation, Special cleaning drives during pre-monsoon vide notification from Division Commissioner and carried out by Dept. of health.
Use of polythene : Ban use of polythene vide introducing change in the Nagar Nigam Act Strict enforcement, State incentive to small scale industry producing cloth bags.

Set up inter-departmental : Involve Pollution Control Board, Urban planning dept. Jal Nigam, Municipal Corporation and City Deve- lopment Authority, Industrial Development Authority, Divisional Commissioner and seek technical and financial assistance by setting inter-departmental assistance mechanism

Rules and guideline of State Pollution Control Board as applicable to the local authority of the city.

Drinking Water

- Quality monitoring of water at source and destination
- Technical assistance from Indian Meteorological Department (IMD), Ground Water Development (GWD) for execution and coordination to Jal Nigam for providing water infrastructure/Municipal Corporation especially for designing resilient water supply systems
- Frequency of quality checks and choice of locations for data collection to be brought under law/stipulated through gazette notification by state government
- Establish multiple channels for data collection and reporting based at GWD local office or based at Municipal Corporation with assistance from E-governance wing and GWD
- Ground water recharge and rainwater harvesting regular assessment of aquifers, conservation and restoration of natural water bodies and catchment areas

Model state zoning regulation section 1-6 stipulates preparation of inventory of natural water bodies in a city and states that the responsibility of maintaining and conserving these water bodies would be that of the local body.

Other relevant policies referred 74th Constitutional Amendment Act stipulates for the ULB as nodal agency for coordinating environmental conservation activities. State Development Act, 1973 identifies development Authorities as the nodal agency for provision of environmental infrastructure- drainage, sewerage, etc. State Municipal Corporation Act, 1959 directs Sanitation & Hygiene and maintenance of civic services as one of the Municipal functions. State Parks, Playgrounds and Open Spaces (Preservation and Regulation) Act, 1975 identifies Municipal Corporation for parks/green spaces.

Barring certain limitations, urban resilience could well be build using available policies and regulatory frameworks. Urban climate change resilience in Gorakhpur laid a clear road of activities segregating long and short term interventions desired by people.

Plans prepared at ward and area levels follow regular monitoring and periodic reviews in city steering committee and also discussed in citizen's forum at state level meetings. Time to time, schools and colleges are also involved in campaign activities. Clearly, urban resilience is not just about one-off micro plan of activities by local communities but their voices are articulated at different strategic levels and sectors at city and state.

City Resilience Action Plan for Gorakhpur City

City Resilience action plan of Gorakhpur was prepared through comprehensive consultative method of risk and vulnerability analysis of populations to climate change. CRS is unique in the sense that it was developed by local people in consultation with government functionaries and stakeholders. Notion of resilience is premised at developing community institutions in municipal wards and Mohalla (Area). Ward and Mohalla committees work in coordination of City Steering Committee chaired by the Municipal Commissioner of Gorakhpur. Ward and Mohalla committees prepare monthly action plans to monitor access of households to basic services like safe drinking water supply, sanitation, collection, segregation and processing of solid waste, drain and urban agriculture. Five core issues were identified that people feel are important to address as it adds to vulnerability of households. Community plans are monitored by assigned leaders from the community and problems are brought to notice of City Steering Committee.

Ward resilience micro plan has shown tremendous change in behavior of local communities. Model successfully demonstrated participation of people in planning and monitoring of development activities and self-management of institutional activities, services including raising of finance from individual households. Elected leader of municipal ward participates in committee meetings and have implemented projects of piped water connection, improved drinking water sources, construction of drains and road. Representative is taking keen interest to set up solid waste recycle enterprise.

FURTHER READING AND RESOURCES

This policy brief does not provide details about the methodology and findings discussed in this Policy Brief. The followings are more technical resources and/or provide more information on Gorakhpur and resilience activities :

1. Opitz-Stapleton, S, (2010), Climate Scenario for Gorakhpur, I-S-E-T- International, sectoral study conducted under ACCCRN process, 15 page.
2. Opitz-Stapleton, S. (2013). Mehewa Ward, Gorakhpur, India: Extreme Rainfall, Climate Change and Flooding. *Policy Brief for the ACCCRN Initiative* (pp. 6). Boulder, CO: Institute for Social and Environmental Transition.
3. Wajih, S.A., Singh, B., Bartarya, E., Basu, S. & the ACCCRN ISET Team (2010). Towards a Resilient Gorakhpur. Gorakhpur: GEAG with support from The Rockefeller Foundation.
4. Panday, K.C and Monojeet Ghoshal, (2013) Prognostic study of climate behavior in Gorakhpur, Working paper 1/2013, GEAG.
5. Sharma, D, D. Mohan, H. Zia, R. Singh, R.Nigam, S Bharadwaj and S. Nair, (2012), Mainstreaming climate resilience in urban Areas: A case of Gorakhpur city, Synthesis report, TERI, New Delhi,54 pages.
6. DDMA, Gorakhpur , (2013),Gorakhpur District disaster management and risk reduction plan, 2013.

Gorakhpur Environmental Action Group
Post Box # 60, Gorakhpur-273001 (U.P.)
Phone # 91 551 2230004, Fax # 91 551 2230005
E-mail : geagindia@gmail.com, geag_india@yahoo.com
Website : www.geagindia.org