Towards a Climate Change Adaptation and Mitigation Policy for Maharashtra: Urbanization

Presented at Yashwantrao Chavan Pratishthan, Mumbai on 6 March 2010

Rationale /overview for the theme

Maharashtra is among the states with the largest urban populations in India. Till 1991, Maharashtra was the most urbanised state in India among the 16 largest states in India with a population of 78 million. In 2001, with regard to the urban population, Maharashtra ranked second with a share of 42.4% urban population next to Tamil Nadu with a share of 43.9% of urban population. In absolute numbers, according to the 2001 census, 10.5 million was urban population out of a total population of 97 million. The economic and industrialization policies of the state are also further encouraging a shift from agriculture to other sectors that are urban-based, with the objective of economic growth.

Given the large populations that cities host, and the higher energy consumption associated with cities, it is clear that urban areas need special attention while developing state-level strategies to address climate change related issues.

Cities have a critical role in addressing vulnerability, protecting people, preparedness, and resilience. Satterthwaite and Dodman (2009)[1] suggest that while cities are often implicated in discussions on climate change, making cities the culprit misses the fact that a significant proportion of GHG emissions are caused by consumption patterns of middle and upper income groups. Also, it misses the role that well-planned cities have in achieving a healthy habitat and a good quality of life with low GHG levels. A more nuanced approach is therefore necessary.

Certainly reductions in green house gases (GHGs), the sources of which include industrial production, transport, buildings, waste, etc are desirable. However, there is a lot of variation regarding quantity of GHG emissions between different cities. Some cities in high income countries show lower per capita GHG levels than their national averages in Europe and North America e.g. New York and London, especially because of the investments made in public transport and disincentives to private transport. As Maharashtra takes up large transport infrastructure projects, it would be useful to look at what cities like New York and London are doing now to improve mobility while reducing the carbon footprint. In accordance with the National Urban Transport Policy, cities in

[1] Satterthwaite, David and David Dodman (2009). 'The Role of Cities in Climate Change' in *State of the World 2009*. World Watch Institute

Maharashtra need to develop a multi-modal approach to mobility with emphasis on public transport and non-motorized transport facilities.

Most cities in Maharashtra have inadequate provision of municipal services. Supply of water, waste-water treatment, solid waste management and preservation of gardens and green areas are among the core municipal services and amenities. These are essential to maintain healthy living conditions and have a key role in disease prevention, which is one of the ways to build resilience. While support is being made available through the JNNURM for improvement in the provision of basic services, a lot remains to be done on the ground.

Livelihood support and micro-credit enable individuals and families to develop a solid economic base which can also help them to be more resilient to shocks caused directly or indirectly due to climate change. A large proportion of the jobs of the urban poor is generally in the informal sector. Some of these informal sector jobs provide services that are 'low carbon' and need to be upgraded and supported in various ways. For example, transforming the work conditions of rag-pickers and including them in improving municipal waste management systems can achieve multiple benefits. Not only does the sector provide employment, it also promotes recycling. Work conditions can be improved by mandating source segregation, allocating spaces for neighbourhood composting and sorting of dry recyclables etc. and also encouraging the setting up of facilities for material recovery and recycling in and around urban centres.

Another way of enhancing urban resilience is by adopting pro-poor strategies to address lack of access to decent housing, sanitation, health care, schooling, political voice, etc.

The major tools for city planning are development plans or master plans, development control rules and building codes. Changes are needed in the practices of town planning to take into account strategies for disaster risk reduction (DRR), extreme weather events, space allocation for core services delivered in 'low carbon' ways, etc. Building codes to promote 'low carbon buildings' should no longer remain voluntary and incentive based, but should become mandatory.

Another important facet is the need for information to support decision making. The reporting framework, as well as the processes of use of city State of the Environment (SoE) reports need strengthening so as to include monitoring of local action taken related to addressing climate change impacts. The SoE reporting process in any case needs strengthening to be useful in the exercises of municipal planning, budgeting and implementing programmes and projects.

City governments and civil society also need to develop mechanisms to greatly enhance public participation. Effective institutions and mechanisms of democratic governance provide the basis for a society to act in concert to face stresses. Participation of citizens in preparation of master plans, annual ward level and sectoral budgets, neighbourhood infrastructure related decision, participatory monitoring and evaluation of development

projects are some areas that require a much more open attitude by municipal administrators as well as elected officials.

While there are specific tasks that need to be done within cities, an overall macro policy of climate-change sensitive urbanization in the state also needs to be developed. Urbanization in the state should be planned considering the environmental CARRYING CAPACITY of the region.

Climate Resilience Goals for Cities

Climate change is related to social, environmental and economic aspects of a city's life. Considering this, we propose the following as goals for climate resilience and also development per se:

a. Improve Quality of Life for All
   - Healthy living and working environments for the inhabitants, especially vulnerable populations
   - Civic services and amenities essential for health should be available to all (safe water, sanitation, waste management, paved roads, footpaths, shelter, etc)

b. Reduce the Footprint
   Reduce the environmental impact on local, regional and the global environment

c. Triple bottom line decision-making
   Development decisions should aim for environmental improvement, social benefits and economic efficiency simultaneously

Specific Recommendations

Addressing urban environment and sustainability issues in urban areas requires action related to:

a. Development plans
b. Environment assessments and reporting
c. Green areas and Biodiversity
d. Eco-building code
e. Water
f. Waste water
g. Waste
h. Mobility
i. Poverty and vulnerability reduction
j. Industrial pollution control

Recommendations for each of these aspects are detailed out below.

Development Plans

A Development Plan (DP) helps the administration to plan its functions, and prepare projection of works and services to make cities more livable for all citizens. In Maharashtra, DPs are prepared as per the Maharashtra Regional and Town Planning Act 1966.

Recommendations

a. Integrate Disaster Risk Reduction in Master plans
   - extreme weather events and flash floods
   - information on high flood lines
   - status of catchment areas which may lie outside city limits

b. Include Ecologists in town planning committees

c. Encourage compact cities (not sprawl) and vertical development with adequate provision for green cover and open spaces as per norms

d. Process of preparation and implementation of DP
   i. should be more transparent and inclusive, even in the formative stage through public consultations
   ii. Local and regional level data collection and information support should be improved using IT and GIS
   iii. Should include compulsory Environment Assessments and Auditing
   iv. Should include micro-planning and TP schemes even in already built-up areas

e. Stringent implementation should be done of Master Plans/ Development Plans/ Regional Plans, and implementation should be reviewed every 5 years

Information Support: Environment Status Reports of Cities

It is mandatory for local self governments to produce annual State of Environment Reports (SoE) as per the BPMC Act in Maharashtra. The SoE is a good tool to assess the environmental health of urban areas. However, it needs to be made more comprehensive to include climate change related parameters. Its use in municipal planning and budgeting also needs to be enhanced so that decision making is increasingly based on environmental considerations. It can also be a very useful tool to enhance public awareness about local environmental issues.

Recommendations

a. Reporting framework should include
   - carbon emission inventories and studies
   - track emission reductions
   - 'human development' indicators

b. Should be discussed publicly

c. Should be used as inputs when preparing annual municipal plans and budgets to meet goals for emission reduction and coping mechanisms

Policies and Codes for Building Construction and Zonation

The intent to encourage eco-buildings has recently been announced for commercial, residential and other buildings. The state-level code should take into account the existing ones include Energy Conservation Building Code prepared by the Bureau of Energy Efficiency; Leadership in Energy and Environmental Design (LEED); TERI Gruha; Ecohousing policy.

Recommendations

a. A state-level eco-building code should be made mandatory for all new construction rather than voluntary or incentive-based; and incentives should especially not be increased FSI or TDR
b. Retrofitting policy for old buildings should be created

Green zones, buffer zones, no-development zones and Biodiversity

Urban areas have a significant role in Biodiversity Management at the local and landscape levels, as well as in awareness creation. Equally, biodiversity provides several ecosystem benefits to urban areas, such as in flood control, pollution absorption, recreation, and even in livelihoods for some of the very poor populations in cities.

Recommendations

a. Strict conservation through Development Plans
streams, rivers, wetlands, under-ground aquifers, water recharge zones, grasslands, forests, hills, gardens, botanical and zoological gardens etc within urban areas

b. Make City Biodiversity Management Plans

- Plant local indigenous species in gardens, avenues instead of exotic ornamentals or lawns
- Encourage plantation (trees/ grasslands as locally relevant); promote UN program 'one person one tree'

c. Identify and protect lands for food, water, energy in the vicinity of urban areas

d. Encourage city farming for income generation and to reduce to some extent 'food miles' of food consumed in urban areas

Urban Water Management

As cities grow, the tendency is to draw water from farther and farther away, or from deeper and deeper aquifers. However, urban areas must now consider the impact of such

water withdrawals on surrounding populations and plan for sustainable use of available water.

Recommendations

Sources of Water

i. Surface - Encourage rainwater harvesting and storage in cities including in natural or created ponds and lakes
ii. Ground - Develop a mechanism for sustainable use and re-charge of ground water in cities
iii. Recycled/ Treated water should be treated as a 'source' of water - Encourage use of recycled / treated water as a source for non-drinking purposes

Use of Water

i. Delivery system for domestic use should ensure equity in supply as per Central Public Health Environmental Engineering Organisation (CPHEEO) norms
ii. Recovery of charges – water supply should be metered and telescopic tariff be introduced with common minimum charge for a basic quantum and heavy charges for 'luxury uses'
iii. Responsibility for reduction in leakages and 'Unaccounted for Water' (UFW) should be a priority

Sewage Treatment

Several rivers in Maharashtra are heavily polluted from industrial effluents as well as untreated sewage. The laws and regulatory framework for waste water treatment already exists. It is necessary that the state introspect and review the monitoring and legal mechanisms related to waste water and river quality. The situation is such that a Waste Water Treatment Mission should be taken up on priority in the state.

Recommendations

a. Mission needed at state level for Safe Urban Sanitation and Sewage Mgt
b. Substantially increase capture and treatment of waste water, going towards 100%
c. Grey and black water may be treated separately and re-used optimally
d. Mandate methane recovery from sewage treatment plants, where feasible
e. Re-use grey water for flushing in flats below in multi storey buildings

Municipal Solid Waste

A paradigm shift is required from '**Solid Waste Management**' to '**Materials Recovery and Recycling**'

Recommendations

a. Segregation at source and maximize processing of wet waste as near source as possible through composting and bio-methanisation
b. Encourage decentralized management by including spaces in master plans/ layouts

c. Encourage public-private partnerships in collection, especially integrating the informal sector (of rag pickers and scrap dealers) and recovery of recyclables
d. Develop mechanisms to link manufacturers in waste management and materials recovery through Extended Producer Responsibility arrangements
e. Incineration-based disposal should be restricted to bio-medical / hazardous wastes as appropriate
f. Local policies needed for construction and demolition debris (which should be re-used rather than dumped in eco-sensitive areas like wetlands)
g. Encourage use of 'urban generated biomass' in agriculture

Mobility and Transportation

As cities grow, the mobility needs also grow. Mobility is a significant factor in employment and incomes, especially of the poor. Improved and stable incomes contribute to the ability of individuals and families to tackle shocks (environmental, social, and economic). Considering this, comprehensive mobility plans must be mandatorily prepared by/ for each city with access for all, reduced energy use as goals.

Recommendations

a. Adopt multi-modal approach with priority to public transportation
b. Create superb facilities for Non-Motorized Transport (walking and cycling)
c. Encourage cleaner fuels
d. Follow National Urban Transport Policy guidelines such as restricting parking, and encouraging non-motorized transport facilities
e. Create mechanisms that limit the growth of private vehicles
f. Develop Intelligent Traffic Systems in larger cities

Poverty, Vulnerability and Risk Reduction

Pro-poor policies and programmes can help build overall urban resilience. Cities must on priority address the lack of access to decent housing, sanitation, and health care to the poorest segments. This affects not only individuals and families who are poor but the whole city as the city operates as both an environmental as well as an economic and social ecosystem.

Recommendations

a. Creation of adequate decent housing for all is a major strategy in risk reduction; create mechanisms for large scale availability of affordable housing stock for current and future demand (keeping in mind in-migration due to climate change induced stresses in rural areas)
b. Provide support to a range of informal economic activities including through registration, credit, insurance, space allocation, training etc with a view to poverty reduction
c. Invest in enough numbers of public toilets, related sewerage, and community managed systems in all recognized/ non recognized slums – sanitation has to be seen as a basic service at par with drinking water

d. Ensure adequacy of infrastructure and effective operation and maintenance of drinking water and sanitation facilities in municipal/ government schools

Industries and Urban Areas

a. Ensure pollution control by eco-industrial networking, installing Common Effluent Treatment Plants and hazardous waste disposal facilities including by mechanisms like PPP, cluster formation etc in MIDCs
b. Buffer zones between industrial zones and residential areas
c. Environmental monitoring and remediation in the vicinity of industries should be mandatory for MIDC
d. Composite Industrial Township development should be encouraged

Group

Ms Vandana Chavan, ALERT
Ms Sanskriti Menon, Centre for Environment Education (CEE)
Mr Mangesh Dighe, Environment Officer, Pune Municipal Corporation
Mr Ameya Jagtap, Youth to Youth
Mr Sufi Pore, Independent Consultant
Ms Pallavi Nanda, Youth to Youth
Mr Prasoon Kanmadikar, Youth to Youth
Ms Kishori Gadre, Janwani and Mahratta Chamber of Commerce Industry and Agriculture
Mr Lalit Waykole, Mahratta Chamber of Commerce Industry and Agriculture

With inputs from Mahesh Rajwade (Ecological Society), Vijay Paranjape (Gomukh), Vishal Jain (Shelter Associates) and Prashant Shinde (Srustidnyan)