

# Massive Displacement and Degraded Ecosystems: Long Shadows of India's rapid Urban Growth

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### Summary

377 Million or 37.16% Indians now live in her cities. More than 23 Indian cities have a population exceeding 1 million. 26.31% of urban population lives in slums (2001 Census), with minimal water and sanitation coverage. Such urban growth has concentrated water demands, put immense pressure on water infrastructure, led to severe pollution, inequity and conflicts. Urban areas are sourcing more water from farther away through large dams based in rural and ecologically sensitive areas. No options assessment studies for identifying optimal and sustainable options is being carried out. We look at a case study of large dams planned for the mega city of Mumbai and their implications on communities and ecosystems. Case study of Pune shows possible potential for reducing urban water demand through peoples participation

### Introduction

**Mumbai**, India's financial capital is constructing and planning more than 8 large dams in the global hotspot of Western Ghats which will **submerge more than 14000 hectares** of villages, farm land and forest in the eco sensitive, proposed global heritage area, including a National Wildlife Sanctuary. They will also **displace more than 25000 tribals** from their livelihood, without any mitigative provisions. Mumbai has encroached upon its rivers and generates more than 2700 MLD sewage, more than 70% of which goes untreated to the Arabian Sea.

National capital **Delhi** receives water and electricity from large dams built on Yamuna, Bhagirathi, Ramganga and Sutlej at distances as much as 300 kilometers. Delhi was also planning to get water from Renuka Dam, affecting more than 1000 families in an ecologically sensitive area and a Ramsar wetland

Other metros like **Ahmedabad, Hyderabad, Bangalore, Pune and Chennai** have similar stories in which the upstream and downstream impacts of dams for urban areas have been **staggeringly negative** for communities and ecosystems.

There is a very urgent need to highlight and mitigate the impacts of such mega infrastructure on their footprint regions.

At the same time, there is a potential for managing urban water demand which can be spear-headed through participation of urban and rural population in management of their basin.



Far left: Tribals dependent on forest produce, Middle Vaitarna. Left: Illegal work on Kalu Dam

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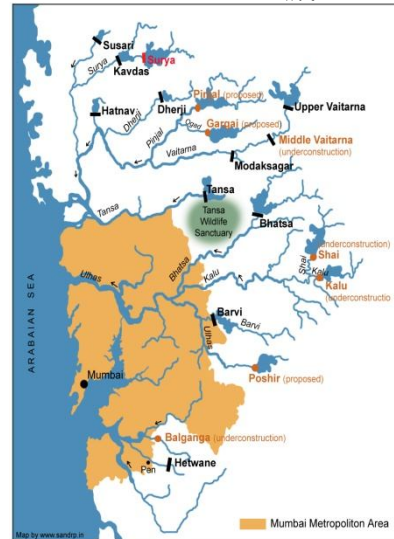
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### Results and Discussion

#### How many more mega dams for Mumbai?

- Dams under construction and proposed for Mumbai Metropolitan Region are set to **displace more than 25000 tribals and submerge more than 14000 hectares of primarily tribal land, including 5685 hectares forest land** in global biodiversity hotspot of Western Ghats.
- These include the Kalu, Shai, Middle Vaitarna, Pinjal, Gargai, Balganga and Barvi.
- Most of the land submerged comes under tribal Sub Plan area, targeted for tribal development.
- Water allocations of existing dams like Hetawane and Surya have been changed from irrigation to tribal beneficiaries to Industrial and Domestic use and, Special Economic Zones in urban areas. Such change in water allocation from rural to urban areas resulted in huge protests, which culminated in **death of 3 farmers** (9 August 2011)
- These dams are exempt from the most basic environment checks like Environmental Clearance, Environment Impact Assessment, Environment Management Plan and Public Hearing processes. In the absence of these, there is not scope for any mitigative action.
- In case of Kalu and Shai, **majority of the Gram Sabhas (Village councils) have passed resolutions against land acquisition for these dams** and a local organisation has filed a Public Interest Litigation (PIL) against the dam
- This is a proposed global heritage area with critically endangered species and community conserved areas like Sacred Groves and Temple Fish Sanctuaries protecting endangered fish
- No provisions have been made either for Payment for ecological services or allocating environmental flows through these dams for villages and communities downstream

Below: Planned, constructed and dams under construction for supplying water to the MMR



Below: Table depicting dams planned and under construction for MMR

Name of the Dam	District	Storage Capacity, MCM	Total Submergence Area (ha)	Forest Area (ha)	Population Affected	Environmental Clearance Required?
Kalu	Thane	407.99	2100	999	3169	No
Shai	Thane	348.00	3040	494 (43000 trees to be cut)	5124	No
Middle Vaitarna	Thane	172.00	3473	760 (over 100000 trees cut)	Eight villages (minimum 1600 people)	Yes, submerging part of Tansa Wildlife Sanctuary. Cleared
Balganga	Raigad	127.76	1240	265	8000	No
Gargai	Thane	180.00	900	765	NA	Yes, affecting part of Tansa WS
Pinjal	Thane	425.00	1900	1188	NA	Yes, affecting part of Tansa WS
Barvi	Thane	250.00	NA	1214	3375	No
<b>Total</b>		<b>1910.75</b>	<b>12653</b>	<b>5685</b>	<b>21268</b>	

#### Peoples Participation in Urban Water Management, Pune

- Pune is merito with a population more than 7 million, 170 kms south of Mumbai
- Civil Society Organisations, citizens groups and Research Organizations have come together to form **Jal Biradari**, an informal platform for rivers flowing through Pune
- Jal Biradari has tried to integrate upstream and downstream rural areas in a dialogue with Pune residents
- Through meetings and media, residents of Pune are becoming aware of their extreme negative impact of ecosystems and communities upstream and downstream
- In response, some local programs on stream and river rejuvenation are developing. Nearly 7 streams are being restored using a local, low cost eco purification technique
- PIL has been filed by citizens against channelization of rivers in the urban area by the Municipal Corporation and the channelization and encroachment is halted for now.
- Programs like 'One day for the river' and 'Jal Dindi' are gaining momentum and participation
- Jalbiradari is in talks in the Municipal Corporation for utilizing local water sources and traditional water harvesting structures for partially fulfilling urban water demand, instead of water from Bhama Ashked Dam, which is meant for Irrigation.



Above :Activities of Jal Biradari Pune.

### Policy implications

•**Environment Impact Assessment, Environment Management Plans and Public Consultations** should form the backbone of any proposed large infrastructure project, irrespective of its intended use.

•**Options assessment and Cost benefit analysis** should form the first step before any new plans for dams are considered for urban areas. Options include water supply efficiency, waste water reuse, rainwater harvesting, demand management, conjunctive use through local water sources in urban areas, Groundwater recharge and regulation, curbing wasteful uses and democratizing governance

•Urban and rural basin population should be **involved in planning, implementing and decision making about their basin on lines of WCD recommendations**

•All dams should release **environmental flows** for downstream ecology and implement compensatory mechanisms like **Payment for Ecological Services**

•Compliance to environmental norms should be monitored through community participation

•Some rivers with high conservation and community value flowing through urban areas should be protected as **Free Flowing Rivers**.



Above and left: Submergence area of Pinjal-Gargai Dams. Top: Tribals in Vaitarna basin look for water even as their basin has three dams for supplying water for Mumbai

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