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Reconnecting with our Urban Rivers

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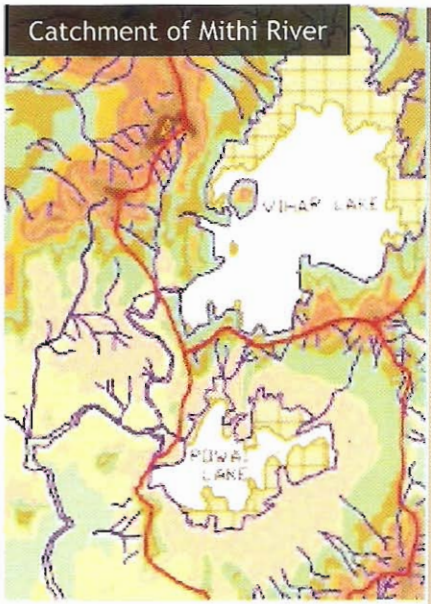


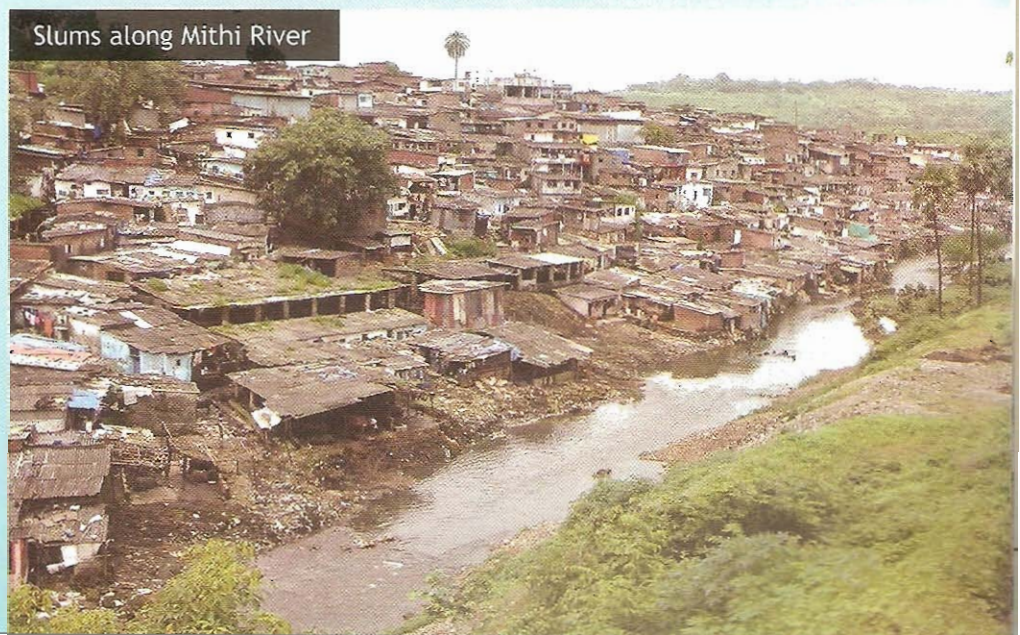
Catchment of Mithi River

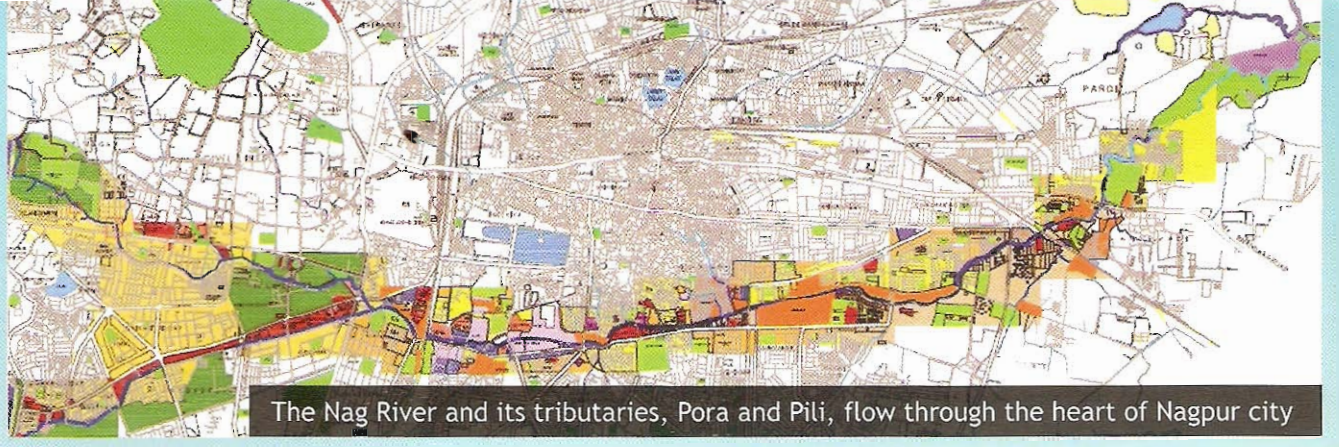
Introduction

In urban context, rivers play varied roles - social, cultural, infrastructural and environmental. The rising urbanization has altered these roles, impacting the river systems and vice versa. The article explores the changing status of rivers with respect to these in context of the rising urbanization of our cities through four case studies of rivers in urban contexts at different stages of development. These studies are part of extensive research carried out by Grass Roots Research and Consultancy for the respective Governing bodies. It proposes an inclusive approach towards the changing trends, incorporating them into the development. At the same time ensuring that ecological balance is maintained through appropriate engineered and biological measures.

Case Study 1: Mithi River, Mumbai

Mithi River which was lost in the backyards of Mumbai city, unexpectedly came to the fore after the flooding of Mumbai city on July 26, 2005. The failure of our drainage systems in dealing with the sudden downpour brought many environmental issues to the forefront. It was then that the city woke to the fact that the Mithi River, and also the northern rivers of the city, have a crucial environmental role to play in mitigating natural disasters. The case of Mithi River is an illustration of the shortfalls of our system in incorporating environmental demands into the planning and development process. Deterioration has reached a state in which the natural processes are heavily compromised and restoration might be the only option if the river has to provide useful environmental services. Until now, crores of rupees have already been spent in just dredging and widening the river channel. The case of the Mithi River might be a tough battle, where restoration of the river to an acceptable state would require huge funding and dedication. But it remains an example to protect and preserve our rivers, water bodies and natural ecosystems within our cities and towns, so that the environmental demands are not compromised at the alter of urban demands.


Slums along Mithi River

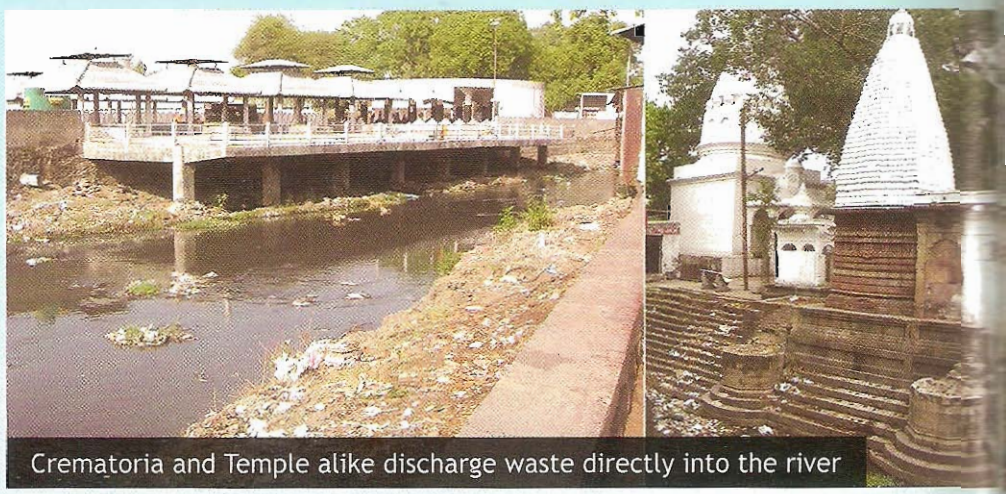


The Nag River and its tributaries, Pora and Pili, flow through the heart of Nagpur city

Case Study 2: Nag River, Nagpur

The Nag River and its tributaries, Pora and Pili, flow through the heart of Nagpur city. The district being named on the basis of the Nag River, is itself a huge testament to its remarkable significance in regional history. At the same time, the entire Nag River serves as a biodiversity corridor meeting the larger Kanha River further towards the East. The 15 km stretch of the river through the Nagpur city flows through a mix of land uses along its banks, including residential, low-rise dense settlements, upcoming residential complexes, institutional, industrial and also public spaces like temples, playgrounds, crematoria, etc.

Though the river is in a general state of neglect, it is a significant element flowing through the heart of the city. It also offers the largest potential for open public space within a city, where space is the biggest constraint. The mix of land uses along the length of the river provides many opportunities to introduce a variety of activities at various nodes. Areas which are still being developed also have the potential for river front development to be included right at the planning stage. These would bring the river back into the public domain and increase human interaction.



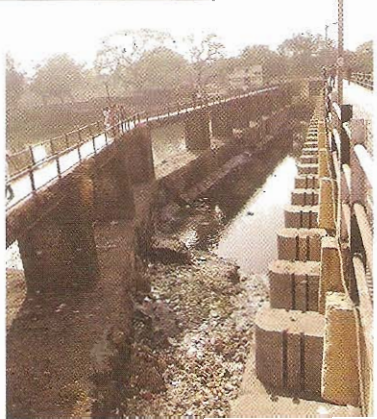
Crematoria and Temple alike discharge waste directly into the river

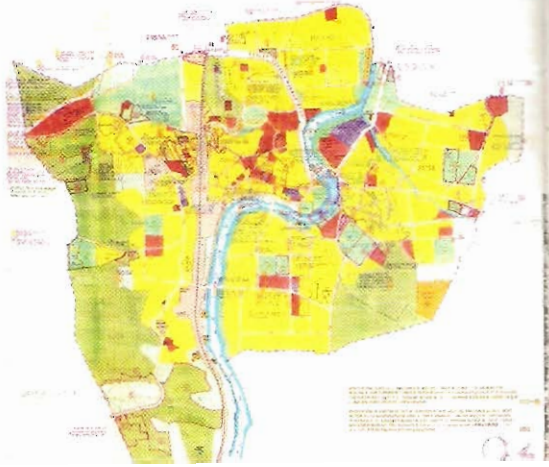
Case Study 3: Ulhas River, Karjat

Ulhas River originates in the Sahyadri Mountains near Lonavala at a height of 800 meters above mean sea level. By the time the river reaches Karjat town, the slope becomes gradual, leading to a slight meandering shape through the town. The Basaltic bed rock and shallow soil depth are incapable of holding much ground water. Hence the prime source of water for the river is only through its catchment area in spite of heavy rainfall throughout the region.

The presence of large number of hill ranges offering opportunities for activities like trekking and river rafting, historical attractions like forts and Buddhist caves and good road and rail connectivity, makes the town ideal for tourism, which is the major activity in Karjat. The city has had a phenomenal decadal growth since the last two decades. The growth for the year 1981-1991 is 150% while for the year range 1991-2001 is 232%. The main reason for the same can be attributed to

Eutrophication of Ulhas River due to sewage discharge





Activities along the Mosam River, Malegaon causing pollution

migration of people for better employment opportunities as well as relatively low living cost. At present, Karjat does not have an underground sewerage system and about 15% of households have no drainage facility at all. The wastewater is directly dumped into the river basin leading to complete destruction of the river ecology. With Karjat growing exponentially, the lack of these facilities poses a threat to the town.

Case Study 4: Mosam River, Malegaon

Malegaon is a city in Nashik District of Maharashtra, India. One of the largest cities in northwest Maharashtra, it is famous for power looms and hand looms. Malegaon lies at the confluence of Girna & Mousam Rivers. The stretch of Mosam River flowing through Malegaon city is 6 km with an average width of 75 meters. The shallow and wide nature of the river with rock basin at bottom combined with the dry, semi-arid climate and absence of large trees causes the river to completely dry up during the non-monsoon months. The river is the only free space in the congested town area and can be utilized to our advantage if designed effectively.

The river is a common factor with many temples, crematoria as well as Muslim burial grounds located along it. The proposal for river front development will create common gathering spaces and recreational facilities for the citizens. The river also forms the heart of the city with several bridges crossing it at intervals, keeping the river in constant visual connectivity. An old fort constructed in 1740 adjoining the river is a major landmark as well as heritage site for the city. Incorporating it into the river front development would provide a city center for the residents.

Rejuvenation of Urban Rivers – Reflections and Perspectives

All the above case studies indicate the impact of urbanization on watersheds. Urban development

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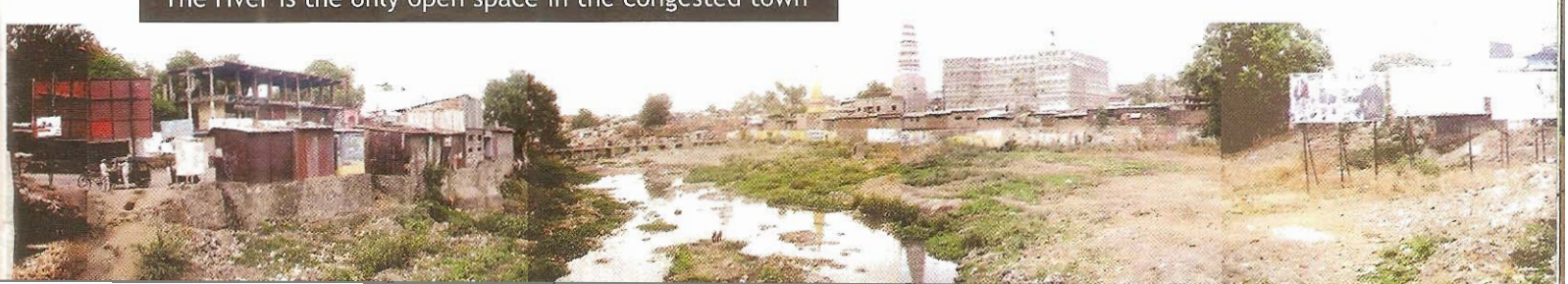
The river is the only open space in the congested town



has increased storm water runoff, accelerated erosion, sedimentation, degraded water supplies and caused severe disturbance of aquatic systems. Conventional surface drainage systems and engineered hydrologic controls are ineffective in mitigating development influences. The imbalances between the natural systems and urban development have resulted in catastrophic damage to life and property. The Mumbai deluge stands as a testament of the failure of our engineered systems.

The storm water and sewerage networks are the biggest contributors to pollution of our rivers in urban areas. In dense urbanized towns/areas, though the systems exist they are either inadequate or poorly maintained. Effective solution calls for the management of the 'environmental infrastructure', through reduction of storm water runoff, centralized and decentralized treatment of sewerage and solid waste management.

Rivers by nature are in a constant state of flux, going through cycles of flooding and dryness. These seasonal changes if recognized and incorporated into the design process could provide for much needed open public spaces by activating the river bed through sensitive design and usage. At the same time it is critical to ensure that the ecological processes and functions of the river are not undermined. If the environmental processes of rivers are acknowledged then they could become design strengths providing much appreciated social and cultural benefits to the citizens.

Conclusion

Daily life of people is closely associated with rivers, much more so in smaller towns. In the studied towns of Karjat and Malegaon, activities such as washing clothes, religious offerings, crematories, cattle washing, etc are commonly observed. Rather than barring such activities, proper provisions should be made to incorporate those into the River front development schemes. These include spaces for dhobi ghats, crematoria, Ganesh idol immersion tanks, ghats, etc., with the necessary infrastructure incorporated into the design.

"The imbalances between the natural systems and urban development have resulted in catastrophic damage to life and property. The Mumbai deluge stands as a testament of the failure of our engineered systems."

Rivers cannot be seen in isolation, but as a component of the manmade and natural systems of the city. River restoration projects cannot be limited to the water course, but also need to include storm water, sewerage and solid waste management of the entire watershed, or at least its immediate influence area. In the long term, it is important to instill a sense of belonging and responsibility towards the resources through public participation and by encouraging lifestyle changes with regards to sanitation and civic sense.

River system management needs to have an inclusive approach, from less command and control to more integration and adaptation, providing for space for the natural processes rather than controlling them. The approach to river restoration is shifting from merely pollution control to revival of natural processes within the river basin. The rivers are being accepted as natural systems with vibrant ecosystems and important biodiversity corridors, rather than as mere water channels.

River-front development schemes re-connect people to rivers