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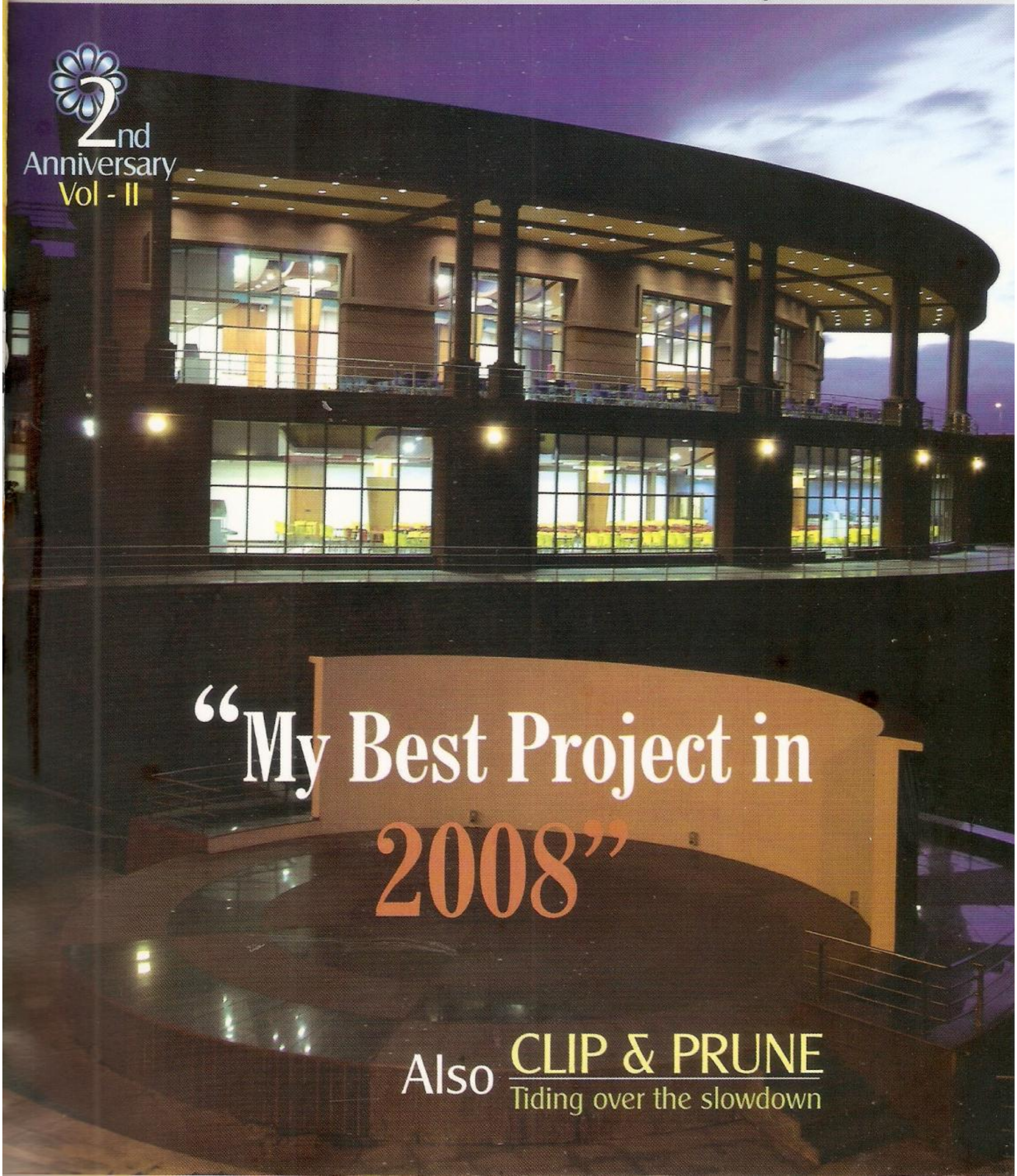

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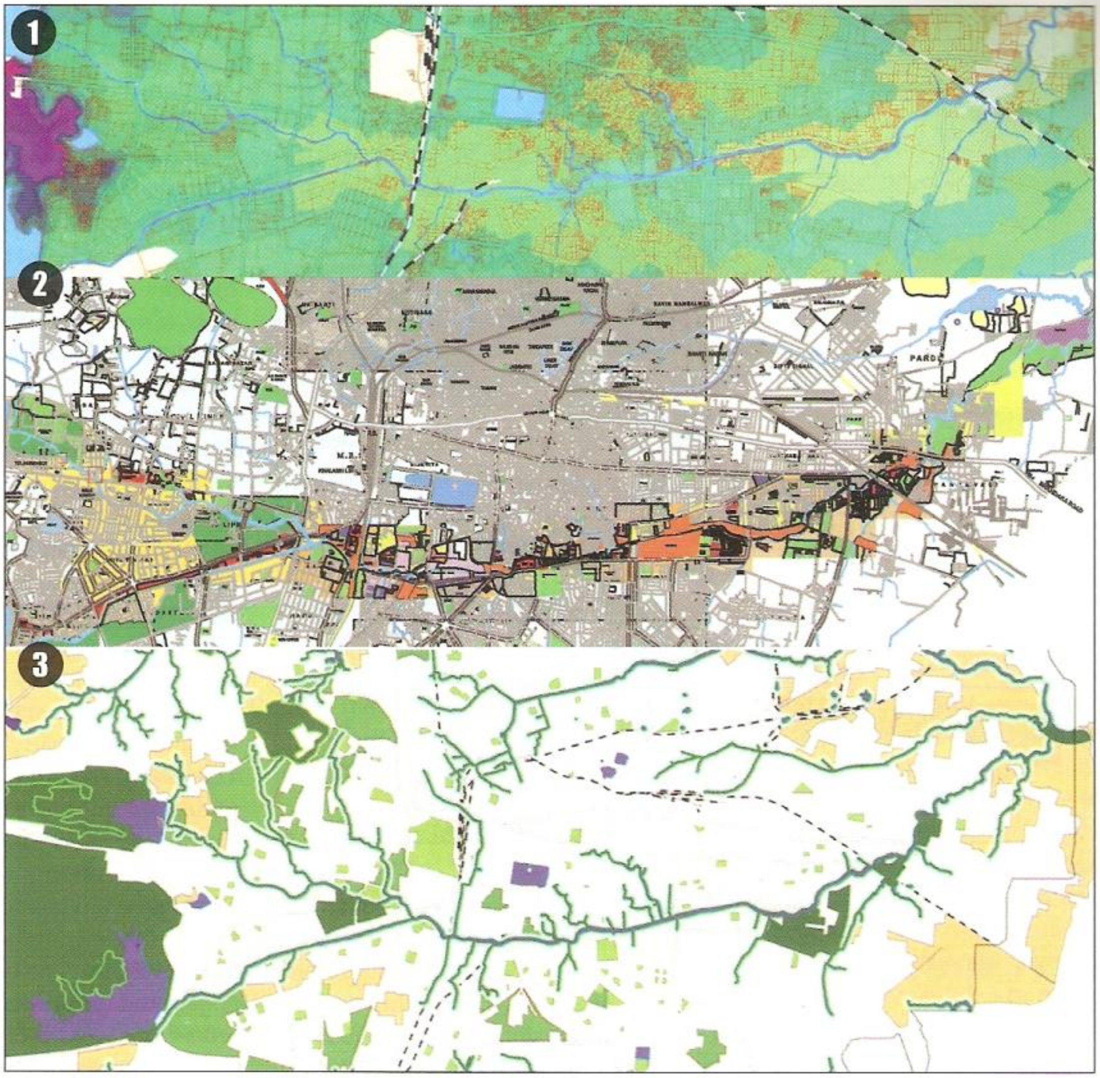


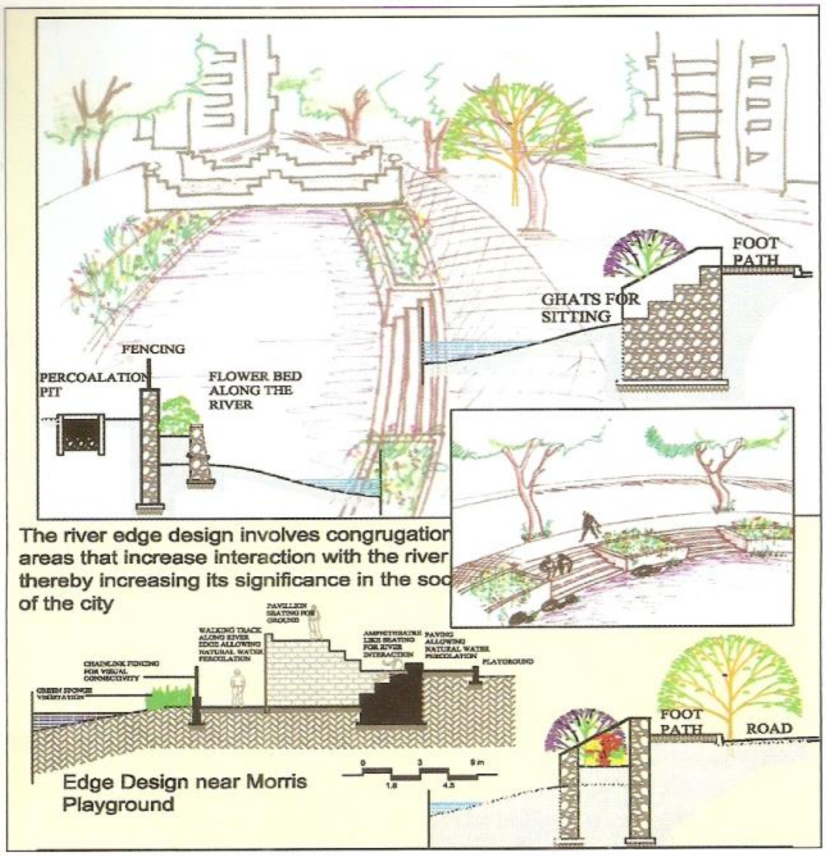
1. Physiographic profile of Nag 2. Overall land use of Nag showing river edge condition as well as activity pattern and 3. Future profile of the Nag river showing increase in green spaces

REJUVENATION OF LAKES AND RIVERS OF NAGPUR

Ar Pallavi Latkar, Director, Grassroots Consultancy & Research, Mumbai, explains the details of the project for rejuvenation of lakes and rivers in Nagpur, which her firm undertook recently

Since ancient times, nomadic man's choice to settle down at a particular location has been linked with the availability of water or vice-versa. This has led to the formation of large human settlements along the banks of the most perennial water resource i.e., the rivers. For centuries, this continuous source of water has been harnessed and its faculties been regulated facilitating the development of these small settlements into cities and megalopolis.

But as the technological advancements gained momentum so did man's dependency on it. Water, instead of being drawn from the river, now started reaching homes directly through taps. A system of harnessing, purifying and supplying water was put in place and its charge was shifted from individuals to government agencies. Large dams and purification plants were set up for this purpose. The consequence of these developments was reduction in water



The proposal for accessible nodes

resources. Wells were abandoned and rivers became mere carriers of sewage out of the city.

The Nag river in Nagpur like most of our rivers exemplifies this scenario. Originating to the west of the city on the slopes of the Ambazari mountains, it has a relatively gradual course as it cuts across the city. The Pili river originating to the north meets the river at the eastern city limits whereas the Pora river meets the river from the south a little ahead of this intersection. The district being named on the basis of this river is itself a huge testament to its remarkable significance and the presence of temples along its edge solidifies its historic association with the city. At the same time, the entire Nag river serves as a biodiversity corridor meeting the larger Kanha river further towards the east.

Recognising this, the Nagpur Municipal Corporation (NMC) initiated a programme to revive its significance with a vision that included implementation of restoration measures based on the development of an environmental understanding of Nagpur for which Grassroots Research and Consultancy was appointed.

Our research involved the use of satellite images, GIS, and other data to develop an understanding of not only the ecological, natural, environmental and social aspects but also urbanisation along the river edges.

The study began by understanding the region's conditions. Nagpur is bordered on all sides by natural forests. In the South - Bor, in the north - Melghat, in the east - Bora, Nagzira, Mavegaon and Tadoba, and in the south - Kinvat.

The Nag is a key tributary of the Kanha that passes through all of these rich forests. It is a key component of the larger regional level ecosystems, forming continuous biodiversity corridors for movement of animals, birds and insects thus offering rich habitats for flora and fauna.

Dense vegetation is observed on hills towards the city's southern periphery as well as the institutional areas. Upon assimilation of such data comprising maps and statistical records, the only logical conclusion that came forward was the immediate requirement of preserving these small clusters of vegetation under various schemes. A vegetative corridor along the river edges could also be created to conserve these natural corridors thereby adding to the necessary lungs that every city desperately needs.

The micro level study of the river facilitated the understanding of problems and factors that were responsible for its reduction to a sewage-carrying corridor.

The river edge changes its land use as it flows through the city. It flows through institutions as well as slums. The garbage dumped along its edges and plastic bags floating in the river reflect the lack of discipline towards environment as well as negligence that is prevalent. This is repeated all through the stretch.

It was evident that the prime task was to rejuvenate the river in terms of its water quality and quantity only then can one revive the spirit and value associated with it. It was important to create contact areas either visual or physical to be able to link or connect to the river spiritually in order to have public participation through the entire process which is huge. It is also impossible to revive or provide access along the 16 km stretch of the river due to various difficulties on account of the constant change in the land-use. As a result, specific locations or nodes were identified where interventions could be made that would be in addition to the overall guidelines for the river stretch. These have been identified based on factors such as ecological status, ownership pattern, heritage value, religious values, land-use and activity pattern, aesthetic quality and scope for development as public activity nodes. The understanding thus developed facilitated the identification of specific actors that influenced the past and the present of these nodes thereby assisting in development of concepts that should be implemented.

Beginning at the origin of the river is the Ambazari Dam. Built in 1870 to supply water to the city, its use as a drinking water resource has been stopped due to pollution on account of industrial development. The overflow of this dam acts as the origin of the river. After passing through the likes of a water park, residential buildings, crematoriums and so on, the river comes in contact with the everyday life of the city along the Canal Road.

Here the city continues its humdrum routine neglecting this black river reduced to a *nala* amidst the movement of local population. No intermediate lanes and surroundings of shade-giving trees with one edge lined with buildings and other housing the greenery-laden institutional campus.

Here is an excellent opportunity to take the citizen closer to the soul of the river or bring the river back in the routine life of the city. In order to achieve this, it is key to clean the water flowing into the river from the gutters by provision of a small STP only when the river water is perceived to be clean then can the process of taking people walking on the footpath closer to the river basin by provision of ghats.

Plantation of shrubs and flowering plants on both sides was conceived as part of reviving the river edges. Providing bunds in the river basin will allow better percolation of river water and thereby increase the moisture content of the air, which is necessary at a place where the temperature rises as high as 48°C.

The Maharajbaug and other institutional areas, where the basin is still undisturbed and in its natural state, coir like natural materials can be used over bunds to purify water. Wetland vegetation will also play a key role in some areas.

Moving ahead along the course of the river, the next important node is the *Sangam* of Nag and Phutala Nala. Dominated by encroachments, this junction has lost its uniqueness in the city's cultural life. There is garbage-dumping and dirt and human defecation that makes this node almost impossible to access and explore.

In spite of all this, the ancient Shiv temple and the *ghats* built at the junction try to hold on to the sanctity of the place displaying excellence in craftsmanship and extensive detailing in terms of carving put into their construction. The *Sangam* is therefore one of the key nodes with potential to give the historic association of sacredness back to the river thereby restoring its cultural value in the city. With this intention the proposal that began to evolve required immediate repairing of *ghats*, demarcation of temple area, small bridges to cross the river, public toilets, *Nirmalya* management, ecological park and so on.

The eastern part of the river provides an excellent opportunity to revive its natural ecology and bring people closer to the nature. The far eastern river edge is a little less affected by urbanisation as compared to the rest of it in the city. The chances of flooding due to heavy rain can cause extensive damage if this edge is encroached by human settlement.

A similar situation is seen in few other parts of Nagpur. The presence of pleasant and soothing surroundings also help in maintaining social health of the city. The availability of open, non-controlled edges along this part of the river presents an opportunity that cannot be let go. It is possible to plant indigenous vegetation and create a protected belt along this part. Jogging and cycling tracks could be introduced to generate revenue for maintenance purpose. This belt will also attract nature lovers.

The river flows through various institutions at different points in its course. Once the river water purification process is set in action then one can use the river edges to carry out practical experiments in organic farming and other natural production techniques which will provide an excellent platform for education regarding local farming to the city-dwellers.

It is difficult to put together the extensiveness of the entire study. In order to summarise in brief, a strong environmental and social outlook was the guiding factor in the process. In addition, developing a certain degree of respect for our immediate environment and an aim to provide open spaces within the city that provide for an interaction between the nature and the city life. Attempts big or small, once a relationship begins to develop with the river a certain degree of responsibility sets in the city's consciousness. Then with public support and participation one can rebuild the burnt bridges between ourselves and nature and revive the cultural values and traditions long associated with the rivers.

SNAPSHOT

Project: Rejuvenation of lakes and rivers of Nagpur
Client: Nagpur Municipal Corporation
Research: Grassroots Consultancy & Research