

Ecologies of the Periphery

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Introduction

This paper is based on the experiences of the research and projects which we have been conducting in the peripheries of the metropolitan region of Mumbai, through the Design Cell at the Kamla Raheja Vidyaniidhi Institute for Architecture (KRVA). This essay is primarily thematic in nature although it is done through descriptions of the project and our research findings. This is done through in narratives, diagrams, maps and photographs. However, these forms of representation would be connected within the theoretical framework described below.

Through this paper we would like to understand the pattern of ecologies and that occur specifically within the peripheries of Mumbai, although we do realize that there might be aspects similar to other metropolitan areas in the country. The peripheries of our cities have often been neglected or misunderstood and have been subsumed within the primary discourse of the dominant city. The periphery has always been seen to serve the city. This is the assumption upon which the planner/ architect constructs the peripheries. On one hand, it is set aside as a space for recreational tourism and leisure homes, that the city aspires to; on the other, it is as a space for the relocation of polluting industries, garbage dumps, etc. that the city rejects. Another position is that of the city based environmental and social activist, who rejects this position and tries to the preserve the peripheries as environmental zones and ecosystems which should be protected from further human activity. The peripheries lie trapped in the contradiction between these attitudes.

To address this contradiction, this paper tries to argue for an independent position of the peripheral condition through an understanding of its own ecologies. At the end it hints at a possible 'reconstruction', based on this independent position. However, before we begin we would like to clarify some of the terms, especially "ecology" that we would be frequently utilising. The paper has borrowed from the thematic framework that is provided by the work of Felix Guattari in the 'The Three Ecologies'. The three ecologies as stated in the paper are those of the Environmental, Social and the Mental spheres. The author urges thinking transversally through these, not of each in isolation: the three spheres producing and being produced by each in turn. Here, social practices and the environmental sphere are inseparable. Based on such an understanding, in this paper we further urge for a reconstruction of human subjectivity that intersects these spheres through active participation.

Thus, while defining the ecologies of the periphery we would like to mention that in this paper we are exploring the relationships of people / communities and their social practices within their 'natural surroundings'. In the case of the periphery the notions of the 'natural' and the 'social' have enormous significance for the human subject dwelling in the city. The 'natural' is constructed as an outside, imagined as a place of respite, a get-away from the city—a romantic notion that separates nature from the city as an idyllic and pure space.

The 'social' on the other hand, in the context of the periphery, would be constituted by communities primarily

living off agrarian activities based in nature. In the collective consciousness of city dwellers there is a constant attempt to renegotiate this existing relationship for their own needs (sometimes greed) and aspirations (sometimes speculation).

In the case of the Mumbai Metropolitan Region (MMR), the environmental ecology is characterized by a coastal ecology on the western edge, and the mountain terrain of the Western Ghats on the eastern edge. It is from this intensely bio-diverse mountain terrain of the Western Ghats in the eastern part of the MMR that short rivers originate, flow through the agricultural basin/or the city, and then into the sea in the form of creeks characterized by mangrove ecosystems. These rivers have their catchments in the mountains, most of which have been dammed for storing water and supplying it to the city. They flood during the monsoons and dry up during the summer seasons. A section drawn from the east to the west of the MMR will demonstrate this distinctive topographical configuration. In the next section, the patterns that these environmental systems generate would be described in detail.

The next category which requires clarification is the notion of 'community' and their 'social practices'. Communities in the paper have been defined according to their primary occupation as it is this that results in relationships with, and transformations of, the environment. In the case of Mumbai's periphery, communities can be understood broadly as those belonging to the fishing and farming communities. There are others also involved in the activity of sand dredging, brick making, etc. which are

also heavily dependent on the surrounding natural resources. The other communities are those of migrants to this area and city dwellers who are sometimes directly or indirectly interested in these areas and their natural resources through tourism, leisure, housing and recreation. 'Social practices' also consist of the acts and systems of governance carried on by existing institutional structures which make these activities possible.

A later section of this paper would try to decipher these patterns through a study of various actors and agencies and the dynamic of economies and livelihood that they are involved in.

This paper specifically bases itself on the findings and study done on one such 'ecosystem' in the northern part of the MMR constituted by the Tansa River Basin. The study of the Tansa River Basin was conducted by the KRVA, Design Cell for the Mumbai Metropolitan Region Development Authority (MMRDA) as a part of a project to formulate strategies for the villages of Akloli, Ganeshpuri and Vajreshwari. These villages are characterized by the presence of thermal springs as well as recreational and religious tourism.

The project began with the intent to control and regulate tourism related activities so as to reduce the stress on the region's environmental assets - forests, hills, rivers etc. Though this is the primary example on which the paper bases itself, other examples from the MMR are cited sometimes to elaborate certain assumptions.

While the first part of the following section engages with the interpretation of patterns that are observed on site; the latter suggests possibilities of reconstructing and re-conceptualizing the periphery.

Interpreting Patterns Environmental Systems

Environmental systems can be understood as a complex system of human and non human interactions, creating flows of resources, material and also spaces. There are several dynamics-hydrological, geological, vegetal, social, economic that create the landscape. The source of the Tansa River lies in the numerous streams engendered by the forested hills. These hills are the

western offshoots of the Sahyadris into which rivers over millions of years have cut into, creating the fertile valleys now dotted by agrarian settlements and covered over with farmlands. The streams emerge out of the forest carrying silt and merging into one another to form the river below that snakes through the valley and meets the sea in a lazy fingered estuary at the flattened shores.

The forests formed on the crests of the hills are layered and diverse, with grasslands at the edges, and tiers of shrubs and trees covered over by the forest lianas. The forests are tropical moist deciduous forests, characterised by species such as Sag, Am, Khair, Hed, Bibla, Shisham, Savar, Kalam, Palas and Karvi. These become the food and the habitat not only of the various species of flora and fauna, but also of the nomadic tribes: the Warlis, the Katkaris, Malhar Kolis, Mahadev Kolis that travel through the forest collecting wood, medicinal plants, and practice a shifting cultivation on the slopes.

The forests also soak and store the rain water recharging the reserves of ground water that become resource for the villages in the valley and for the plant and animal life of the forests. In summer they are dry and dehiscent, shedding their leaves and spreading their seed, and in the monsoons are lush green with waterfalls that attract trekkers and nature lovers.

Historically, these mountains crests were vantage points where forts were built. These forts controlled the trade route originating from coastal ports to the mainland along the river basin. Each

peak and hill has its local and historical associations. The names of the peaks bear witness to these, (Tungar, Mandagni: an extinct volcano) and also bear the shrines of forest gods and sacred groves.

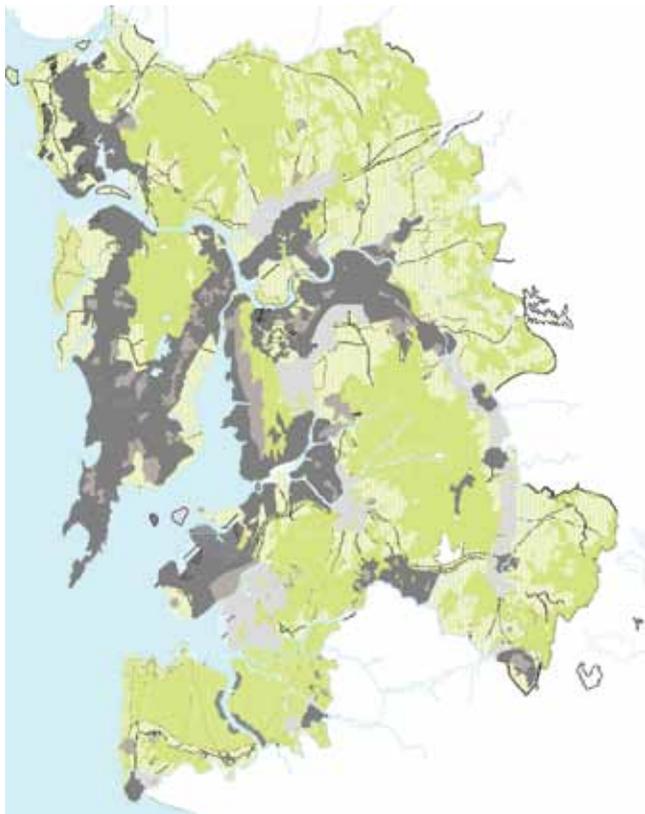
Below, on the lower slopes the forests are sparser near the farmers' settlements in the valleys where the villagers cut wood for fuel; or they bear the armies of the forest department's plantations of eucalyptus and teak on the slopes.

Still lower, in the river valley where all the streams merge and collect into the river that floods and ebbs every year depositing silt on its banks, are the agrarian villages teeming with all sorts of activities. The agricultural fields form a patchwork between tight clusters of goathans connected by tarred roads, along which the Zilla Parishad schools, weekly markets and clinics generate patterns of everyday movement. While these agricultural fields are green and splendid, covered with rice plantations in the monsoons, the same landscape is dotted with brick kilns in the dry summers.

The villages of Akloli, Ganeshpuri and Vajreshwari lie at a juncture along the river where a deep and prehistoric geological moment emerges as an up-thrust, causing the river to snake and curve crazily. At its juncture emerge subterranean springs that simmer with steam and sulphur that speak of the volcanic origins of these hills.

These springs endowed sometimes with sacred, sometimes with therapeutic powers attract tourists, pilgrims, and young couples

A map of the MMR that indicates the expansion of the city into the peripheral areas that are either under forests or are agrarian landscapes with villages and farmlands.



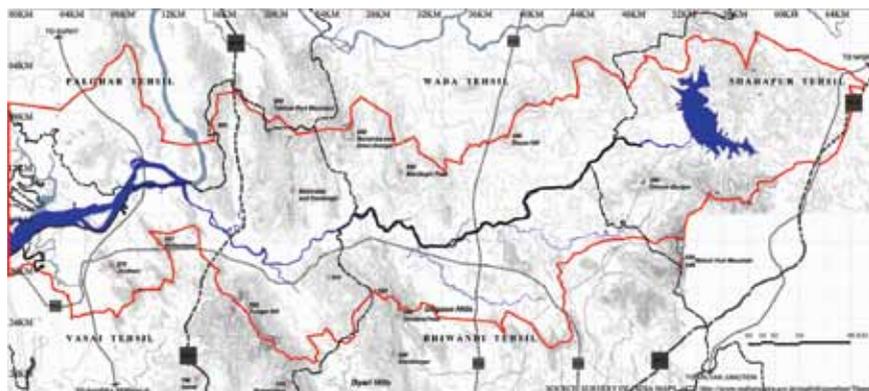
on weekends, holidays and festival days. Lodges, resorts, sanatoriums, the sprawling campuses of religious trusts cluster around the springs creating another kind of tourist village within the agrarian villages.

As the river flows into its estuary with mangrove forests that straddle the intertidal movements, you come upon the flotillas of sand dredging barges that eat into the banks, dredging black sand for the construction industry of Mumbai.

Hydrological patterns of the Tansa river Basin



Physiography of the Tansa river Basin



Forest cover within the of the Tansa River Basin



Economies and Livelihood

This section examines the relationship of the various economies and the nature of their relationship to environmental assets. The primary economy in this region is agriculture.

Despite the nearly two thousand millimeters of rain in the heavy monsoons, there is only one crop a year. In the absence of irrigation infrastructure, most of the rainwater is lost to the river. There is also a lack of crop diversity; the rice



The economic landscape of the Tansa River Basin

that is primarily grown here is mostly consumed within the villages themselves. The farmers here complain about the lack of infrastructure to transport the produce to markets, a lack of storage space and no organization or institutional support to promote agriculture. They resort to renting their land for the manufacture of bricks in order to make ends meet. However, once the kiln has burnt the land, and the top soil lost, the land becomes much less productive and more difficult to work. It is similar in the case of sand dredging (a demand of the city's construction industry) which is carried out all along the river bed. A lot of the earlier labour involved in agriculture is now involved in this industry. Despite the State's ban on mechanized sand dredging that rules that any sand dredging in the river bed has to be performed manually, the volume of sand dredging in the river bed and especially near the mouth of the river is heavy and unsustainable. The creek and river edges have been completely modified and deepened as a result of this.

As a result of the pressures of a dull agricultural economy farmers sell their lands. These are almost immediately bought up by the powerful religious trusts or by individuals from the city. The pattern of ownership that is observed in the Akloli, Vajreshwari and Ganeshpuri indicates that almost ninety percent of the land in some villages is owned by these religious trusts, pushing out local farmers and resulting in huge residential campuses in the place of farms.

Due to the cultural and historical significance of the thermal springs, the dominant economy of the three villages has become tourism- recreational as

well as religious. Many villagers are dependent on tourism for their main income. The area has also attracted a lot of migration through the years of devotees of the trusts and others who see the tourism here as an economic opportunity. These communities have settled around the temples and hot-springs which attract a huge number of tourists during holidays, on weekends and festival days. They manage shops and restaurants for the tourists near the temples and hot-springs located along the river bed. Some have set up lodges where they provide tourists and pilgrims with basic accommodation. Akloli, in the absence of large religious trusts sees mostly recreational tourism and has several resorts which cater to weekend tourists from the city. In the other villages, religious trusts with a large number of followers have residential accommodation within their campus in exclusive environments with spas, landscaped gardens, lawns and mediation centres.

These trusts with their considerable resources have aspirations to expand and have begun to own a considerable amount of land in the area. This phenomenon has led to the redefining of the natural environment in this region from public to private, and from highly bio-diverse natural forests to landscaped gardens. The tourism economy in its current unregulated form has become a threat to the region's environment with transforming patterns of ownership and land-use. The river edge has been encroached and built upon with resorts, shops and restaurants seeking to maximize on their proximity to thermal springs and views of the river. During religious events, which witness

a huge influx of people (over 50,000 a day) and of cars there is virtually no management plan in place to control and regulate these activities. This puts a stress on the surrounding environment with the huge amount of plastic garbage being generated and strewn all over the landscape and polluting the river.

Actors and Agencies

The most important community within the area is that of the farmers who live in the gaothans, and are primarily involved in rice farming. They are the original inhabitants of the area but are not directly involved in the tourism activity of this region which is mostly run by city based individuals or migrant settlers and by religious trusts. However, due to the bleak prospects within agriculture farmers here sell their lands to the religious trusts or rent their land for brick kilns. Sometimes they also find employment with the trusts.

The second important local community is that of the many tribes that inhabit the forests. They are involved in primary forms of agro-forestry, practicing shifting cultivation in the forests and collecting forest produce. However, they are dependent on the nearby village schools and health centers. Since the economic opportunities in the forest are meager and fast dwindling they shift towards the existing villages as laborers involved in brick kilns, sand dredging, agriculture or even construction.

The third community is comprised of people who have migrated here from different parts of the country. They moved here on account of the religious trusts or the economic

opportunities of tourism. They have lived here now for more than 40 years. They settled here on land near the thermal springs or the temples and religious trusts and are now involved in tourism related activities that seem to thrive here. They form a distinct and separate group which has not yet integrated with the farmers of the region. This can be seen in the spatial locations of the two communities observed within the villages. The older farmers live in the gaothans away from the river. Huddled around the hot-springs on the river bed the new settlers serve the tourists that come to the hot-springs, by providing basic services like changing areas, cleaning cars, providing food, etc. Their restaurants, lodging facilities and shops line the main approach roads to the tourism sites.

The fourth important actor within the area is that of the religious trusts. These are the most dominant actors with huge resources of land and finances. Some trusts are much older, connected to historic temples such the Vajreshwari temple which itself dates back to 1739 and to Chimaji Appa. The Shree Vajreshwari Yogini Devi Public Trust owns a considerable amount of land within Vajreshwari. As a result, most of the village is inhabited by farmers who are tenants on trust land. The other kinds of religious trusts were instituted only a few decades ago, such as the Nityanand Trust. They have smaller precincts around temples, with hot springs and baths, shaded courtyards, and they provide basic stay facilities for devotees. Within this type are also religious trusts which are extremely exclusive. They have highly guarded and secured environments with a powerful religious leader and a

very influential set of followers. These have ambitions to expand and the power to control access to resources.

The other dominant group is that of the owners of hotels, resorts and restaurants who are most of the time based in the city of Mumbai. They own individual properties at vantage locations and sensitive zones, near rivers, at the edge of forests and foothills of mountains. They attempt to create landscapes of leisure within their enclaves, with landscaped gardens, swimming pools and rooms with views.

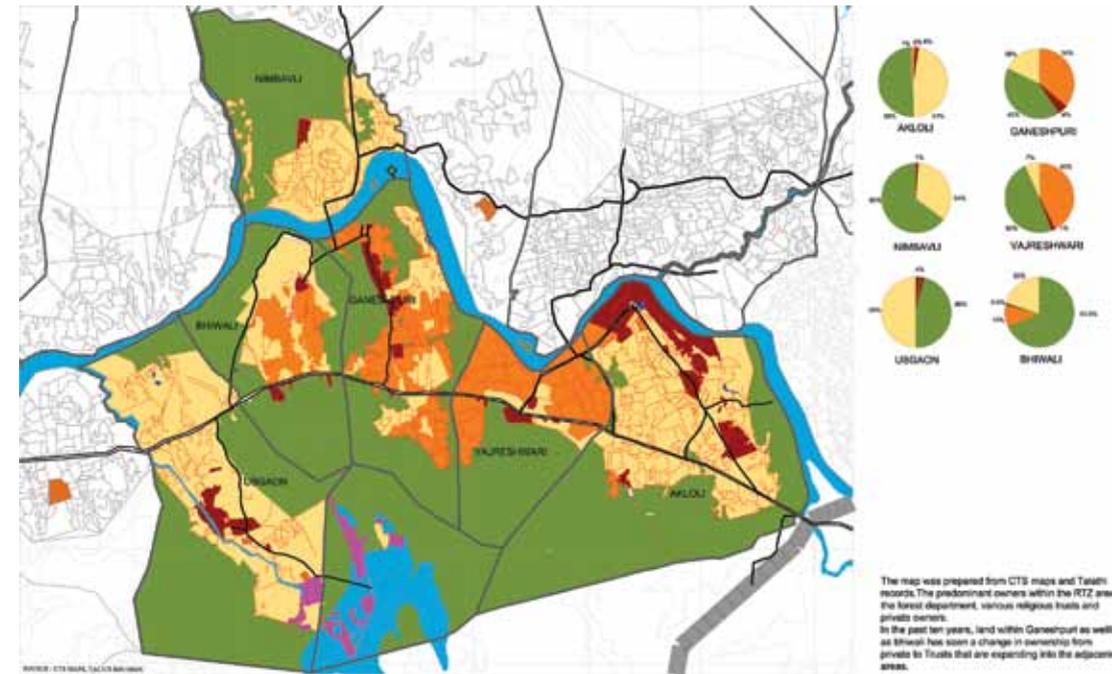
The governance or administration within the area consists of various fragmented and connected bodies. These operate within the area, managing all that lies within their jurisdiction, within their mandate. The form of governance that is most responsive and closely tied to local needs is that of the Gram Panchayats. The Panchayats are involved in the day to day management and distribution of local resources. With their meager resources, although most active, they are unable to respond to the challenges posed by the additional loads of tourism.

Their proposals for larger interventions and improvements require a routing of funds and elaborate procedures through the tiers of rural governance to get executed. For example, the Akloli Panchayat has effectively carried out a project to provide sanitation facilities to households. However, it is unable to maintain common environmental assets such as water tanks, thermal springs, rivers, etc. It is observed that in most cases the Panchayat has no

sustainable sources of revenue or even enough manpower to effectively maintain the village. It is also in some cases overshadowed by the presence of powerful religious trusts which have more control on land and people and therefore the village. The next level in the hierarchy of the local government structure is the level of the Taluka offices and the Zilla Parishad (in case of the legislative structure); and the Block Development Office and the District Collectors office (in the case of the executive). They implement several projects which are generally parts of larger state schemes for rural development and routed through the Gram Panchayat.

The Forest Department, a Central Government agency under the Ministry of Environment and Forest is responsible for the maintenance and upkeep of the areas under forest. However, since they are disconnected from the local community, they have not been able to prevent the deterioration observed in the edges of forest areas. To address this fracture between the forest department and local communities the Joint Forest Management Committee was instituted by the state. This, however, has not been very effective except in the management of cultivation rights for tribal communities and its possibilities remain untapped.

Furthermore, there are agencies which do not directly govern the area but are involved in the formulation of policies that affect it. These are agencies such as the Maharashtra Tourism Development Corporation and the Mumbai Metropolitan Region Development Authority who also implement projects within the area. It was observed that though there is a

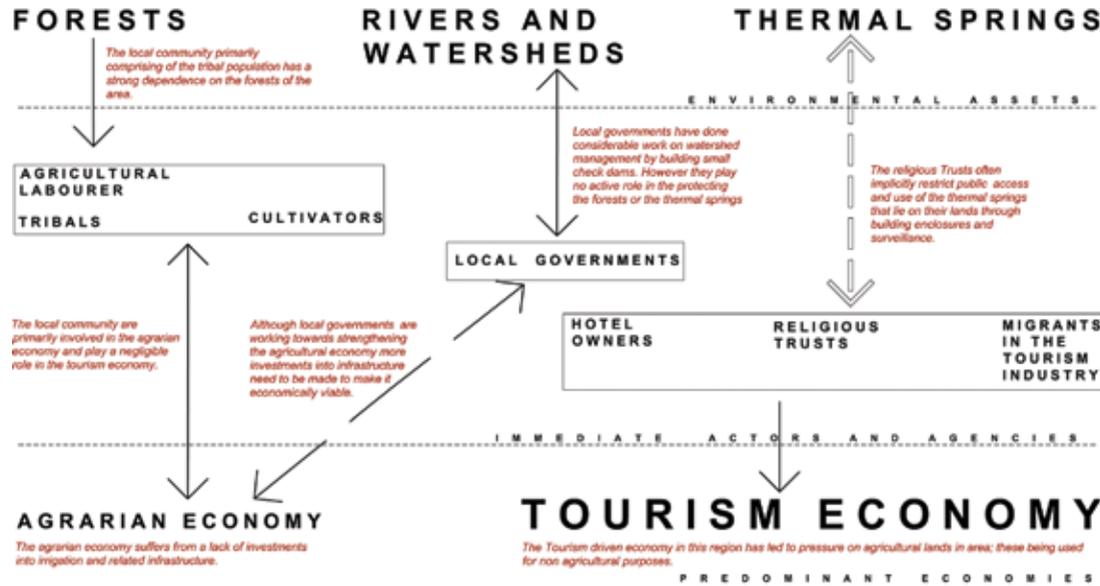


complex organization system which has been established to manage several aspects of the governance of the area by the state, it is evident that the maintenance of environmental assets remains largely neglected. It is in this lacuna that other dominant agencies manipulate the environmental assets to serve their own interests.

Through a further interpretation of the patterns described above the relationships between the three aspects – environmental systems, economies and livelihoods, actors and agencies can be drawn as illustrated by the diagram. The diagram makes apparent that a conceptualization of the environment as a separate sphere in the abstract will not be equipped to deal with the dynamics of use and of abuse, of desire and need, of resource flows that create the complex and contradictory ecology of the region.

The relationships and links to each of the identified aspects need to be understood in order to establish the concerns which this region faces. The local population of the region is composed of farmers and tribal communities who are primarily involved in the agrarian economy. Then there is the powerful group made up of the religious trusts, hotel owners and migrant settlers who play an important role in the tourism economy. The farmers and the tribes who are involved in the agrarian economy are not as well off as agriculture is not as profitable in this region. Consequently, they do not have capital or any economic surplus in order to be able to participate in the tourism economy. However it is these groups and their practices that have a more positive relationship with the local environment. In their need to manage community environmental assets they understand the environment as a system,

RELATIONSHIP OF LOCAL ACTORS AND AGENCIES WITH PREDOMINANT ECONOMY AND ENVIRONMENTAL RESOURCES



Relationships between actors, agencies and environmental resources.

with its flows and cycles that have to be conserved for a sustainable economy. On the other hand, the tourism based practices conceptualise the environment as an object, or as a static site/scene. Therefore, the relationship of the religious trust, hotel owner and migrants to the environment is not as constructive, as the tendency to privatise environmental assets and the race to capitalise on 'proximity' and 'views' makes for exploitative and harmful practices.

Thus, unless we are able to encourage the participation of local inhabitants in tourism, and strengthen the agricultural economy while creating an institutional structure that allows the inhabitants to safeguard their environment, development driven by tourism will be unsustainable.

Reconstructions

This part of the paper deals with the possible notion of a reconstruction, of a new approach to comprehending the peripheries of our city, which are characterized by sensitive environmental systems, marginalized communities and sometimes historic landscapes. In the case of Mumbai they are unique cultural landscapes composed of fertile coastal to bio-diverse mountain landscapes, fishing to agrarian communities, the sea/fort-mountains, etc. This landscape as we observe is constantly under the threat of an ever expanding city. The question is how could the peripheries respond to this process which now seems irreversible? Should the reconstruction of the peripheral condition be based on environmental activism which does not allow any transformations of a place?

Such activism usually results in areas getting declared as 'eco-sensitive zones' by the State. The case of such a top-down approach is seen in Matheran and Mahabaleshwar, where through a central government notification the hill stations were declared as eco-sensitive zones. In these cases the environmental policy that was prepared without any local participation, has sometimes led to opposition from local populace and local governments. Studies by Dr. Ankur Patwardhan of RANWA document the discontent of the local businessmen and labour of Matheran who perceived the notification as restrictive to their interests.

In this paper, we are suggesting a reconstruction based on actions engaging local communities rather than by framing policies for declaring areas as eco-sensitive zones that do not acknowledge lived relationships with, and dependencies upon the environment. Examples of such local mobilization have been carried out in many parts of Maharashtra. In Hivre Bazaar, Amhednagar, Maharashtra, villagers have been mobilized to augment agriculture through a water harvesting plan and forestry initiatives. The model allows for environmental and economic gains simultaneously as it involves local economies in the common management of their resources, balancing out private and common, as well as leading to larger environmental benefits. Another example of such an experiment is the Eco-Tourism Project which is an initiative by the Forest Department and the tribal communities of Wapha in Shahapur forest division. Such a strategy that integrates economic opportunities for

the local community would be, in the long term, much more effective in the conservation of the environment.

This paper also questions the relationship between environment and livelihood. Do both of these need to be contradictory to each other? Also can activities like agriculture and fishing coexist near, or within cities? Perhaps a more useful conceptualisation of the environment would be in the form of what Shiv Visvanathan calls "intermediate ecologies". On the intermediate ecology of the garden and the Geddesian view of city and nature - Shiv Visvanathan states-"Life to a gardener is capable of repair, rebirth and revival... But more than being a source of food and a pollution absorbent, the garden provided a different notion of time, work and rhythm embodied in the peasant view of science. In his "Gardener's View of Science", Patrick Geddes remarked, 'The ancient correlation of astronomy with climate and vegetation and through these with animal life, with human occupation, is thus for us as fundamental as for primitive science... Within the zodiac, the sun, the moon, the world of life and labour all become unified as of old within a single education, a single initiation in which cosmic unity and human ideal unite.' It is in this integrated view of the world that the garden is preserved in the city. If the gardener was the peasant in the city, the zodiac was his compass - a compact cosmos of life giving rhythms integrating folk, work and place."

In this view perhaps relations of stakeholder-ship and responsibility, of an everyday and conscious engagement

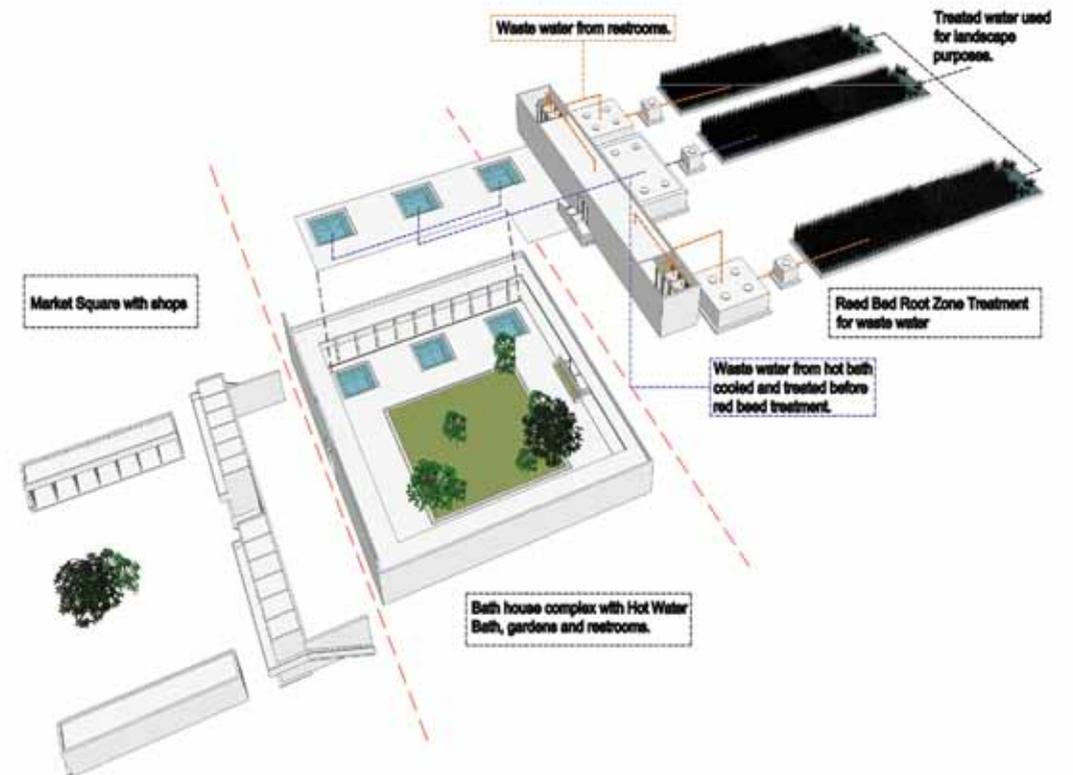
with the environment are essential for greater environmental benefit. At this point, we would like to cite the example of the plantation zone of the Vasai-Virar Sub Region. This is also a region situated in the northern peripheries of the Mumbai Metropolitan Region. Here, the villages have effectively resisted mainstream notions of urbanization driven by the exploitative relationship between the centre and the periphery. The communities there have been primarily involved in agriculture and fishing. They organized themselves through the Gram Panchayats and successfully resisted assimilation into the municipality of Vasai and Virar. They chose to relate to the city on their own terms, safeguarding their livelihood and being still able to sell their agrarian produce in the nearby market of Mumbai; and in the process redefining ideas of development.

The other part of the reconstruction is based on initiating and encouraging a dialogue, a process of negotiation between important stakeholders. An impetus, to start the process can be provided by an outside agency for example, by academia, MMRDA, MTDC and also the District Collector's office. The prime objective would be to encourage local participation in tourism

and governance. Such a step towards engaging with different stakeholders through a simulated exercise has been carried out by the KRVA at two levels.

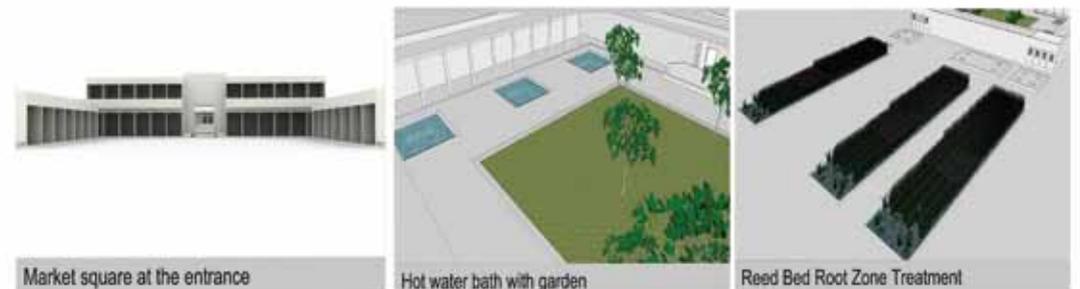
The first was the study of the three villages of Akloli, Vajreshwari and Ganeshpuri sponsored by the MMRDA. During the process of the study the team closely interacted with the Gram Panchayats, to initiate a debate on the future of this region. The second experiment was a design studio at the KRVA that attempted to address the issues identified on site. The brief of the studio was to create environmental 'machines' within the context of the three villages of Akloli, Ganeshpuri and Vajreshwari. These machines would be embedded within an architectural program that students would frame through an interaction with local agencies - establishing their relationship with the environmental assets in these villages. Such a program, it is assumed, could help the agency to establish/re-establish a positive relationship with the environment. The machine could manifest itself in the form of a building, landscape, infrastructure or an object. The findings and proposed interventions of some of these projects are being shared in this paper.

and the Gram Panchayat it was proposed by the KRVA, Design Cell to create an enclosed bath, in the form of a garden, using piped hot water from the springs, thus removing all the activities from the river bed. The present shack owners would be given a space in the form a shop fronting the urban space near the bath complex. This would mean that they could carry out their business through all the seasons and also allow the Gram Panchayat to earn some revenue.



Project 1: Bath Complex Around Hot Springs

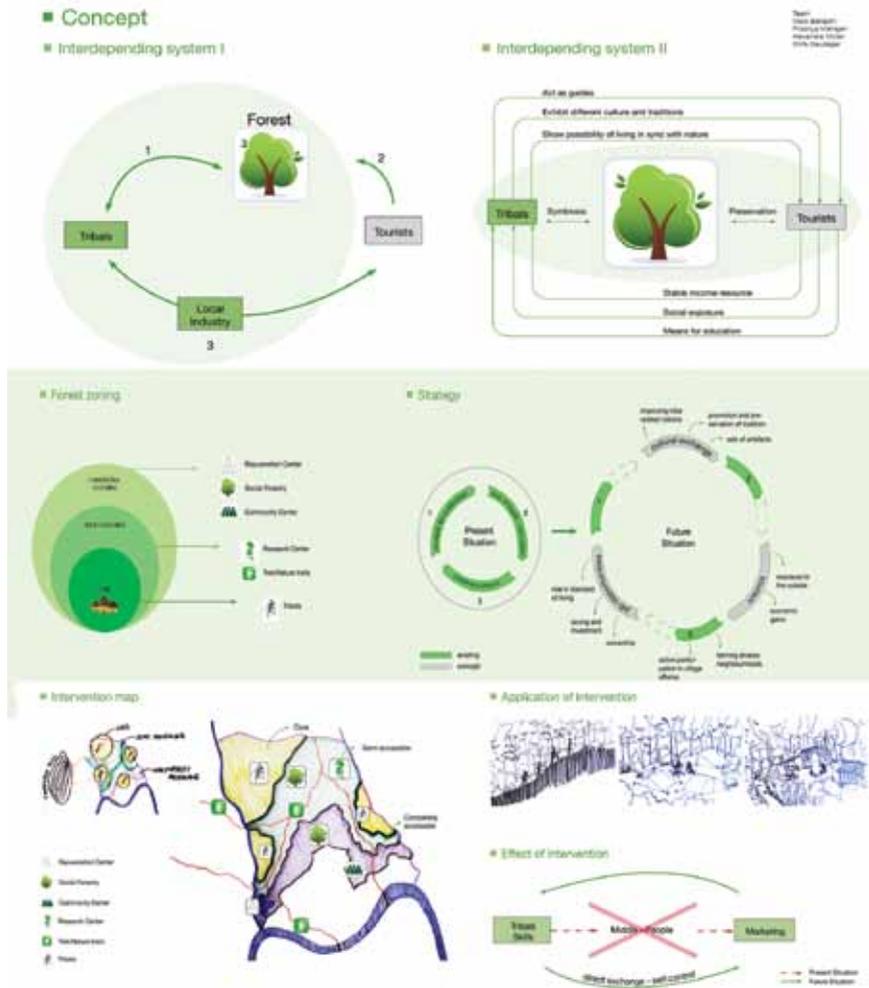
The project was a response to the tourism related to the hot-springs which are present at the river bed in Akloli. Presently these hot-springs are surrounded by temporary shacks owned by migrants who provide tourists coming to the hot springs with services such as temporary shacks as changing rooms, food and car washing. These activities often encroach upon and pollute the river with garbage and untreated waste water. In consultation with this community



Project 2: Tribal Communities And The Forests

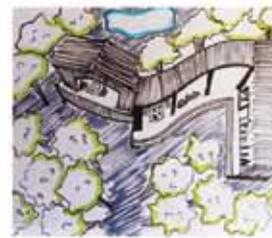
Maro Bartachi, Pradnya Mahajan, Alexandra Muller, Shifa Sadagar

The project dealt with the forest and tribes, leveraging the community's knowledge of local forests and unique culture, to effect forest conservation along with economic benefit to the community. The proposal was to create a project for recreational tourism in the form of treks and nature tours with the help of tribal communities. While it would help the tourist to learn about the forest and its biodiversity, it would also help the tribal communities to improve their financial conditions, and play a positive role in maintaining the regions forests. This project is an outcome of a collaborative studio exercise done by the students of KRVA and the Bern School of Architecture.



■ Masterplan

■ Workshop | Exhibition



■ Botanical gardens | Nursery



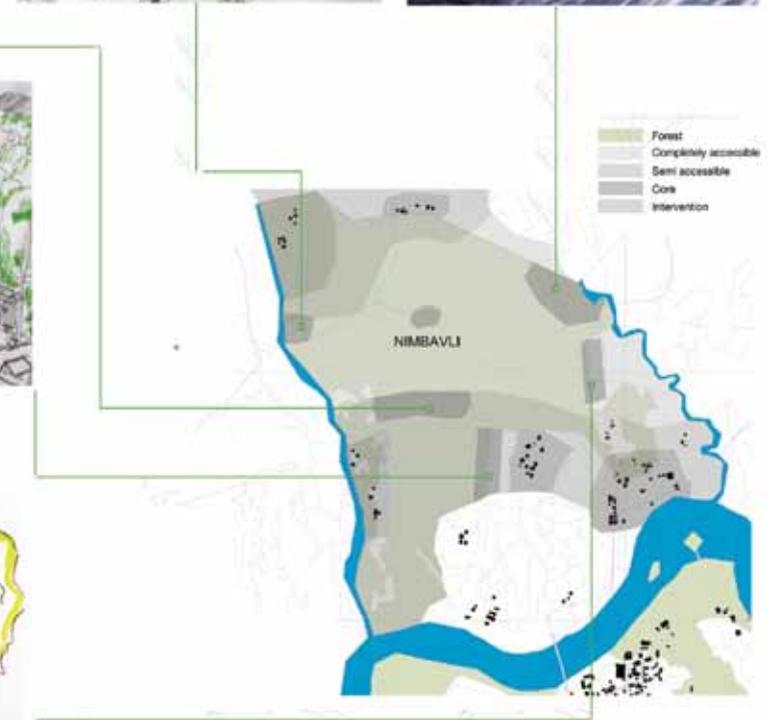
■ School | Education



■ Base Camp | Trekking



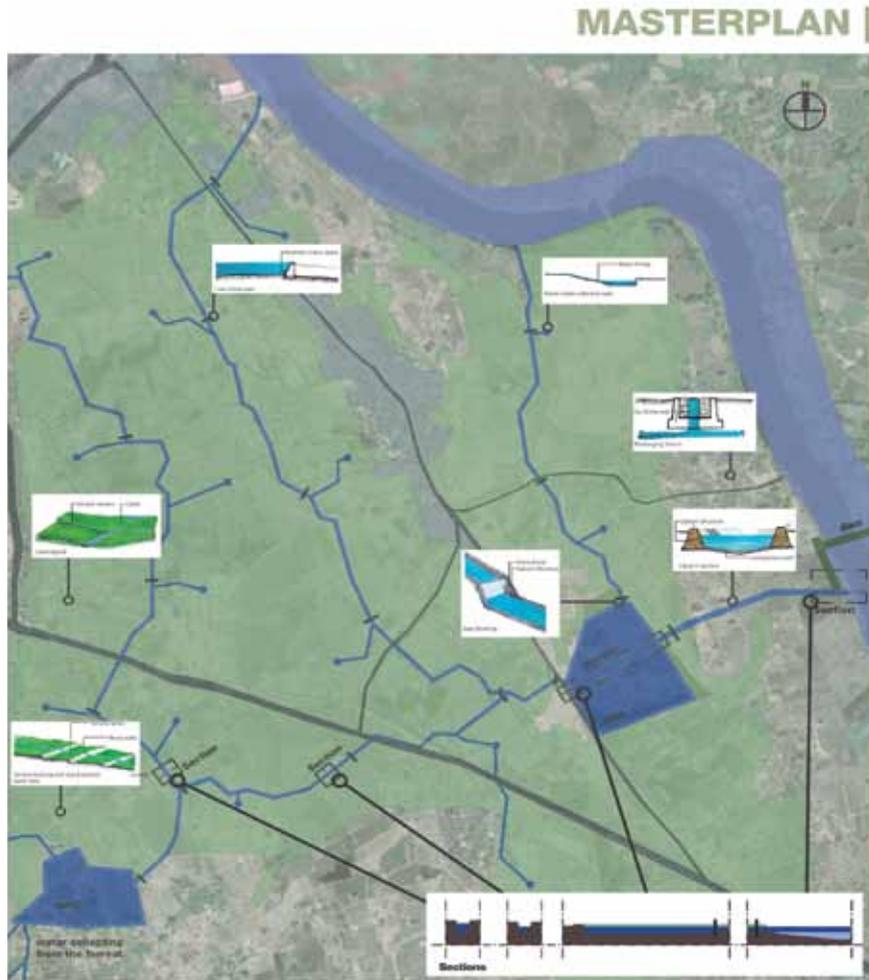
■ Camp stop



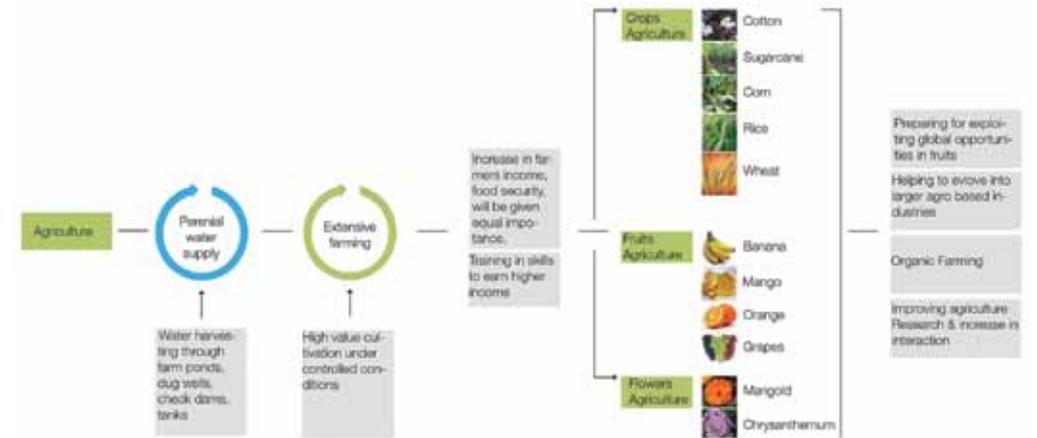
Project 3: Farmlands

Devika Chowgule, Lorenz Bolli, Jennifer Burri, Sharan Suresh, Samarth Das

The third project looked at empowering the agricultural economy which it determined was a more sustainable alternative to the tourism economy. The project looked at all aspects of financing, infrastructure, including watershed management through the creation of check dams, revitalization of tanks and the introduction of alternative crops. This was also a student project within the collaborative studio mentioned above.



CONCEPT | IMPLEMENTATION

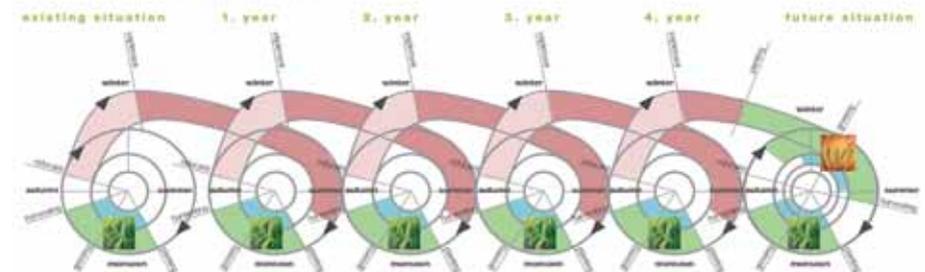


SOCIETY

THE SOCIETY BECOMES POWERFUL



PROCESS OF IMPLEMENTATION



Project 4: Water

Pathik Joshi, Philipp Kurer, Mihir Sanganee, Gionatan Vignola

The fourth student project dealt with water. It looked at the management of water and rain water harvesting schemes. This was not only to strengthen domestic supply but all the dominant economies especially agriculture that are heavily dependent on water. There were other innovations such as the introduction of fish farming as an alternative to, and as a support to rice farming.

strategy | interventions | visuals

strategies

checkdams

built in existing rickens of plainer terrain
height approximately 1 to 1.5 meters
stop the speed of the water
prevent soil from erosion

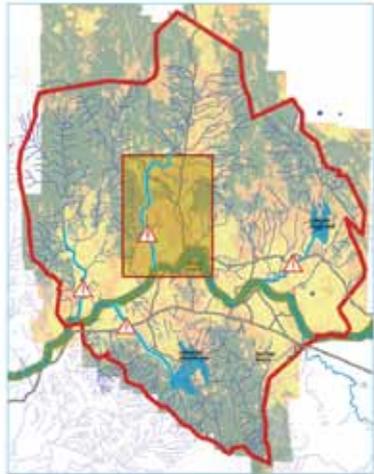
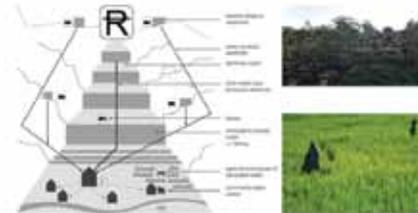
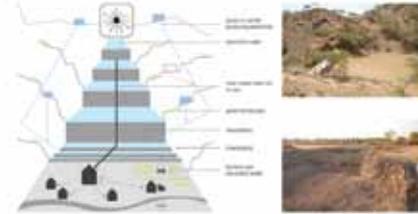
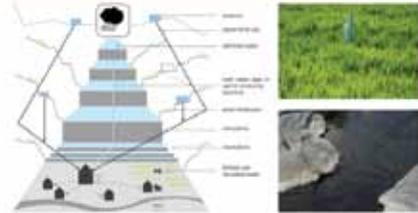
terracing

to be composed of dykes and earth walls
hold back a huge amount of water
prevent from fast draining off
keep soil humid and store water
support slow drainage
afforestation

microdams

built in existing streams, especially in the hill
height approximately 4 to 8 meters
prevent from fast draining off

interventions

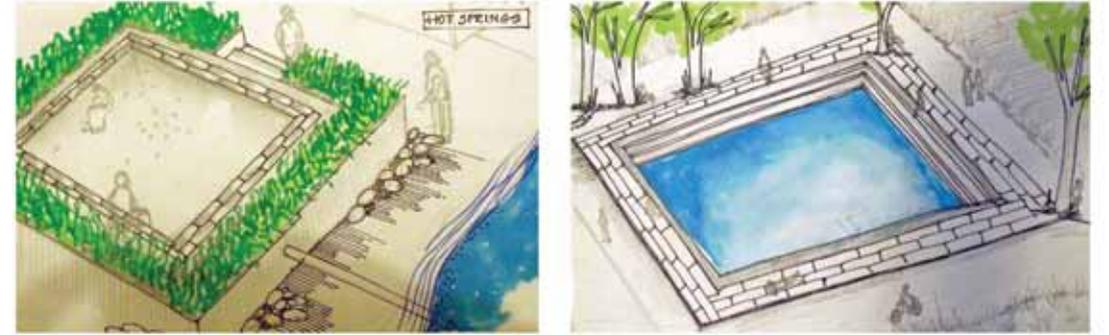
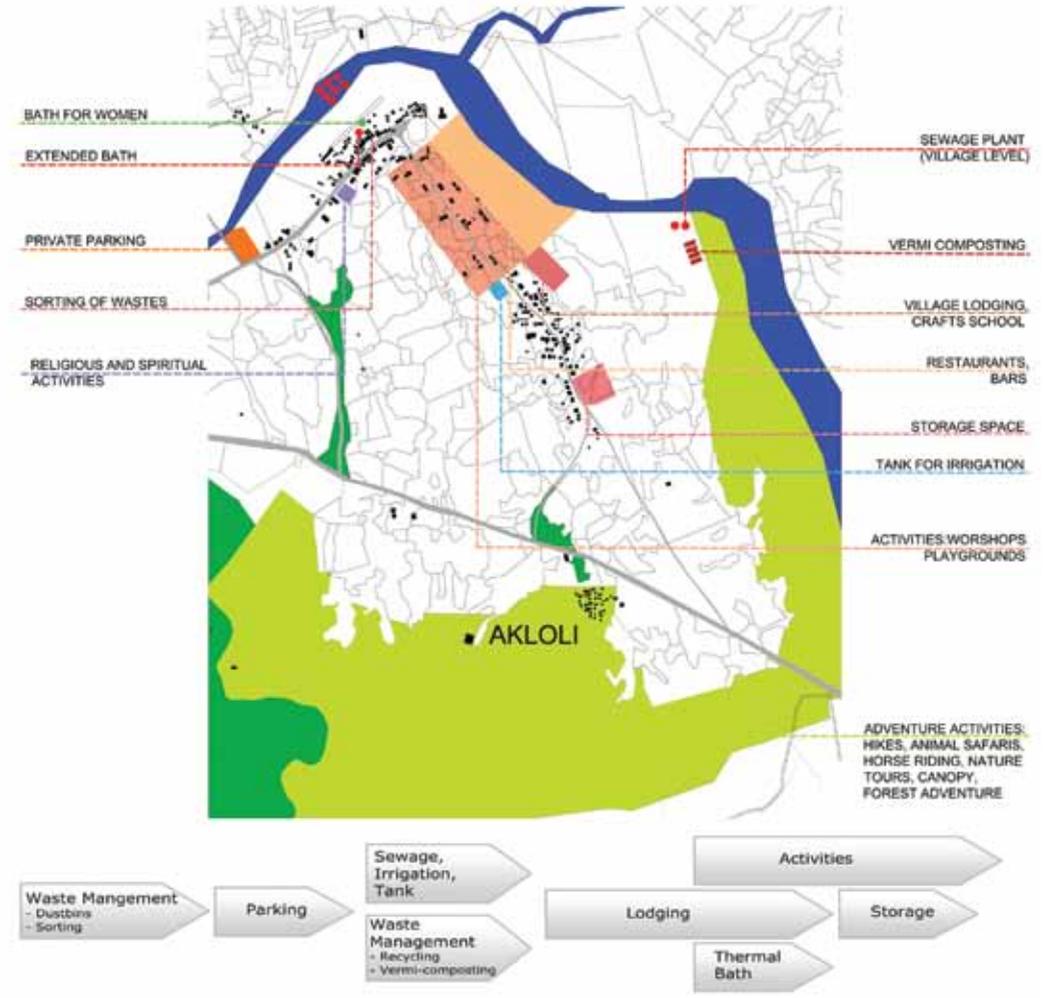
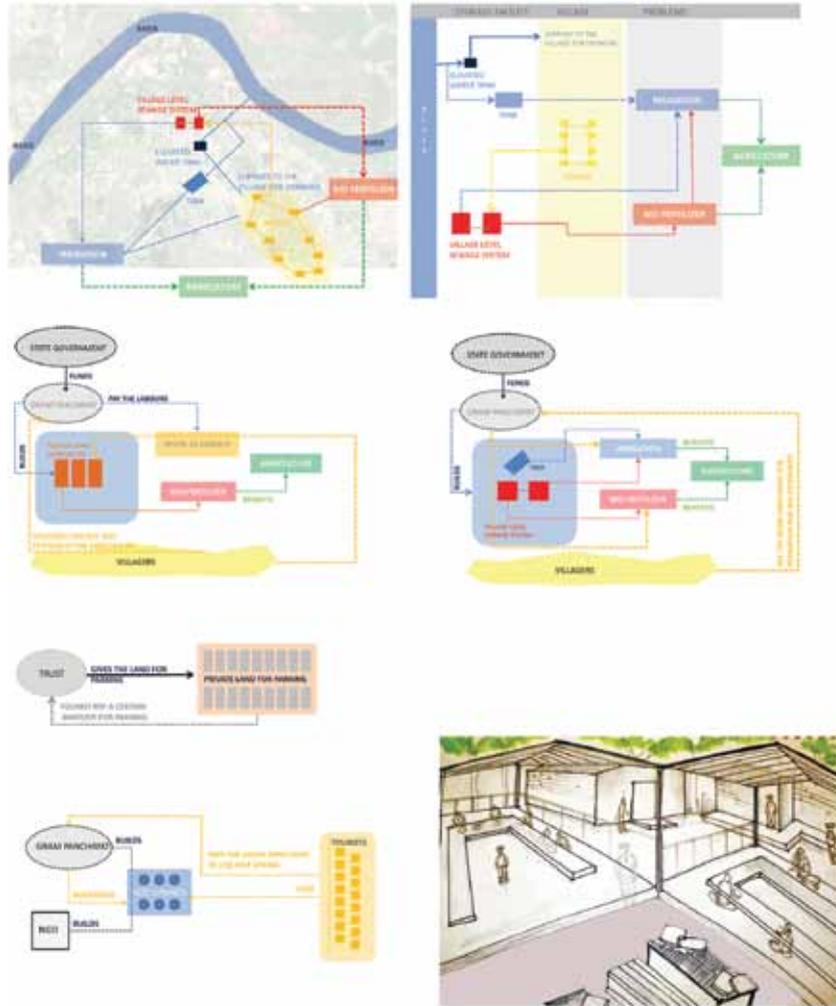


Project 5: Waste

Manuela Roth, Angels Fischer, Nikhar Agarwal, Viral Doshi

The fifth project of the collaborative studio looked at the waste generated by tourism. It looked at the conversion of waste into an industry that mitigates environmental degradation through waste management schemes involving local employment opportunities, production of fuel, etc.

SEWAGE & IRRIGATION



Conclusion

The relations of exploitation that exists in the Tansa river basin also exist in other peripheral areas within the Mumbai Metropolitan Region. The peripheries of Mumbai are environmentally sensitive, rich and diverse as described in the earlier parts of this essay. They are also inhabited by communities involved in agriculture, fishing and tourism based on the area's environmental resources. Against the onslaught of the city whose processes of evolution are irreversible (Special Economic Zones, gated townships, theme parks, huge recreational zones and religious trusts), the important question is, can these local communities hold out against the forces on their own terms? The new forms of the city are mostly an extension of the need/greed of the city. They have been generated and subsequently justified through notions of a rationality extremely divorced from local realities. They are often hidden in the clutter of rhetoric of the nation's need to meet its growth requirements, the need to produce jobs, the need to augment infrastructure and overall- India's need to become a world economic powerhouse (on the lines of China). Often it is forgotten that the goal of growth has to be that it is equitable and beneficial to the majority of its population.

It is in this context that this paper proposes a more consensual method of arriving at the process of imagining the peripheries of the city. Here, all the stake holder's interests are discussed and negotiated. The state has to, or be forced to create an environment where consensus building is

possible. There is a need for a rationality which derives itself from social action, as Jurgen Habermas argues in his 'Theory of Communicative Action'.

However, in the case of Mumbai such a process of arriving at consensus often has had to be forced on the State. For example, in Raigad District, the Maharashtra government was forced to conduct a referendum in the face of heavy resistance by grass-root political groups. The referendum was to determine the opinion of local farmers regarding the Reliance Industries Mega Special Economic Zone that was supposed to acquire 10000 hectares of their fertile land under the command area of the Hetwane Dam. It succeeded in establishing the farmers' unwillingness to part with their land for the project. While, this on one hand, exemplifies the conflict which agrarian villages in the periphery are faced with in relation to the expanding city, it also indicates the requirement for more complex participatory models which can involve local stakeholders in planning processes.

These models require a method of consensus building in these areas with the help of local community based organizations, non - governmental institutes, civil society groups, academic institutes, etc. These can help in initiating a process of embedded and powerful governance that these areas require. The effort of the present paper is towards initiating a process of debate and discussion on the peripheries of Mumbai, which seem to be fast transforming into ecologies of discontent.

RISING SOON: THE CITY'S TALLEST TOWER

At 450 metres, World One coming up at Lower Parel will compete with the world's highest buildings, say the developers



MUMBAI MIRROR BUREAU

Mumbai's tallest residential building is set to come up by 2014. Ambitiously titled World One, the 117-storeyed residential tower will be built on 17 acre plot - Lodha Place - at Lower Parel, rechristened Upper Worli, on what used to be Srinivas Mills.

Designed by Pei Cobb Freed, whose credits include United States Holocaust Memorial Museum in Washington, the contentious modernisation of the Louvre Museum in Paris and The Four Seasons Hotel in New York - World One is said to be one of the tallest residential towers in the world at over 450 metres. As of now, Mumbai's tallest residential building is Imperial Tower at Taneer with a height of 253 metres.

Abhishek Lodha, managing director, Lodha Group, said, "Our objective since the time of the project's conception a year back has been to create a great quality product, whether it is the tallest or not. The height is just a by-product of the design."

In fact the building is consuming a Floor Space Index of only 3.7. "Because we left a lot of open spaces in the building, we've had to go higher," Lodha added. Apart from around 2,00,000 sq ft of landscaped gardens for residents, the project will have a sizable spaces for common gardens, coffee shops and other retail spaces, which, on the lines of the Rockefeller Centre in New York City, will be open to the public as an exercise of integrating the building into the community fabric.

However, for those wanting to enjoy a bird's-eye-view of the city from the giddy heights, there's bad news. Unlike Burj Khalifa, the recently unveiled 828 metre mixed use tower in Dubai, there isn't any arrangement for tourists to whisk up to one of the high-rise floors for a better view. Access to the observation deck at 1,000 ft (300-metres) will be a privilege of the residents only.

The entire development will have three residential towers, a high-end shopping avenue and an office building, creating around 3.5 million sq ft of space, one million of which will come from World One. It will have about 300 apartments, including three and four-BHKs, villas and mansions, priced between Rs 7.5 crore to Rs 45 crore. Pre-launch of the project for investors has already been done and sources say around 45 flats have already been booked. Official bookings are expected to start by June-end.

A computer generated model of World One. The building is expected to come up by 2014

Central Mumbai's luxury overdose

With an additional one crore square feet of high-end residential spaces to be readied in just three years, property experts can't help but wonder if supply will exceed demand



Between Elphinstone and Worli alone, at least 55 residential towers are under construction

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Finding a one-km stretch in central Mumbai without an under-construction building is a tough task. Lower Parel, Mahalaxmi west, Worli and Elphinstone west alone have at least 55 under-construction residential projects - all falling within a 2.5 km radius. The belt is set to see 7-10,000 houses in the next two to three years. That's one crore square feet of residential space.

For starters, there's Lodha's recently announced 117-storey World One on the erstwhile Srinivas Mills in Lower Parel accounting for about 300 units, while the costliest Mumbai Textile Mills has been razed for three towers by DLE, one of which will be 90 storeys.

Across the street is Orbit Terraces, while Grand - another project by the same developer - is just a stone's throw away. Together, they will add an approximate four lakh sq ft.

IndiaInflu's two 65-storey towers as part of its Sky Project are underway at Jupiter and Elphinstone Mills.

While the 88 lakh sq ft Palais Royale at Shree Ram Mills compound in Lower Parel, its neighbour is Lodha Bellissimo, another high-end project at Apollo Mills. Other big projects include Piramal's Ashoka Towers in Parel, The Residences from Unitech Omkar in Worli, Baheja Viverra, Lodha Primero and DH Realty's Orchid Turf View in Mahalaxmi.

However, real estate experts are weary about



The 88 lakh sq ft Palais Royale at Shree Ram Mills compound in Lower Parel is among the new projects

the market response. Pointing out that most of these projects have apartments that cost more than Rs 5 crore, Pankaj Kapoor, managing director of property research firm Liasas Foras, said, "That's where the problem lies. Seven thousand houses in that range will lead to a glut in the luxury segment. I don't see enough demand there."

LACK OF DEMAND TO AFFECT PRICES?

At present, the projects are quoting anywhere between Rs 18,000 and Rs 26,000 per sq ft. If there is over-supply with many projects nearing completion around the same time, it could have an impact on prices.

"The price quoted by two neighbouring projects could have a noticeable variation," said Pranay Vakil, chairman of Knight Frank India.

"Since some of these projects are being jointly developed with the land owner, who acquired it at a nominal rate years ago, they may prefer slowing down the project instead of reducing prices. But the ones who have incurred a high land cost will be ready to negotiate," he added.

CIVIC IMPACT

Assuming that 70 per cent houses are taken up in the next three years, the area could see 4,500-5,000 families moving in, increasing the population by 20,000. The population density in many parts of central Mumbai is already above 60,000 per sq km. In the wake of acute water shortage, BMC has already decided against providing water supply to all new buildings till 2012.

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