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Volume IV Issue 2 - Autumn / Winter 2007

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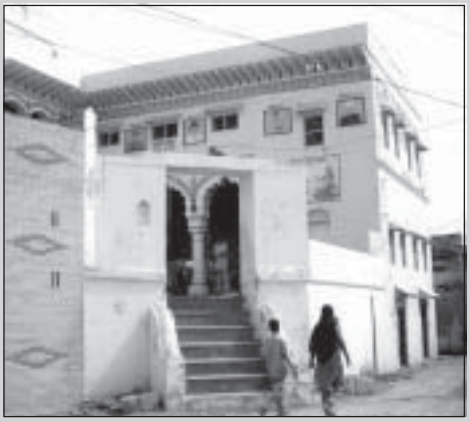

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Editorial

Simple, natural and colloquial forms are probably the ones that can withstand the test of times and are effectively sustainable. This issue discusses few such vernacular methodologies. Anshu Meshack illustrates this through the inherent local approach in dealing with the post tsunami conditions in Andaman and Nicobar. Likewise, the analysis of the traditional Himalayan house by O. C. Handa and, Ranbir Singh's observations of the localised attempts in conserving the Haryana Chaupal emphasise the need to understand the regional approach as a long-term solution.

Pencil and paper used creatively can do wonders, such is the effort by Cheenu Bhogal who has captured Shimla's rich heritage in his etchings. We also introduce a new theme on 'interpretation' from this issue onwards with Ranit Maiti's article on interpreting Indraprastha architecture.

While participatory projects such as the successful water supply programme in Indore set models for community initiatives, Yatin Pandya's Manav Sadhna building design proves the adage, 'there is no such thing as waste but a misplaced resource'.

Two years have passed since the launch of the ambitious JNNURM programme for improving the face of 63 Indian cities. Multifarious urban issues have surfaced in the wake of progressing City Development Plans (CDP) and Detailed Project Reports (DPR). All 63 cities have rightfully performed the ritual of submitting the CDP's and more than 600 DPR's for various projects have been submitted with 250 plus approved and funds disbursed. Whether the cities are actually trying to achieve the well-stated vision in their CDP's or just utilising these funds to complete a backlog of infrastructural projects is debatable. It seems the mission is plagued with its own malady though the recent emphasis on urban reforms by the Ministry of Urban Development could guide the mission in the right direction. Veena Ish's review on the required reforms, Kiran Kalamdani's perspective about Pune and Tarachu Fithu's statement about difficulties in implementation of strategies in Nagaland bring forth few insights about this ongoing NURM programme.

- Shikha Jain

Compiling Records & Interpretation

Built Heritage of Bawal

Vanicka Arora pg.7

An Architect from Sushant School of Art and Architecture, Gurgaon with a keen interest in Conservation.

Shimla Etchings

Cheenu Bhogal pg.15

Cheenu Bhogal is a great lover of nature. He has devoted himself to art, mostly pencil work and has quite a number of landmark sketches of temples and heritage buildings to his credit.

Indraprastha Architecture - An attempt at Interpretation

Ranit Maiti pg.19

Ranit Maiti is pursuing Masters in Urban Design at the Department of Architecture, Jadavpur University, Kolkata. He likes to translate pictorial descriptions into architectural expression. This exercise is the base of ‘Indraprastha’, and was part of his Bachelor’s Degree Research.

Detail carved in Dhaulpur sandstone

Built Heritage of Bawal

VANICKA ARORA

INTRODUCTION

At first glance Bawal, located some ninety kilometers from Delhi, is a fairly insignificant milestone on the National Highway 8 as a small settlement amidst the backdrop of monotonous factory buildings. In fact, this small town in the Rewari district has only these industrial monoliths as its identity. Bawal was declared a 'backward' area by the Haryana State Industrial Development Corporation (HSIDC) and 1100 acres of farm land was acquired

The Noonkaran Gate is an example of the architectural vocabulary that evolved in the early twentieth century

by the government under the scheme of industrial development for the Rewari District. Bawal is a classic example of the rural settlements of India which are disappearing into anonymity due to the indiscriminate land acquisition and development into industrial estates, Special economic zones and housing townships to meet the growing demands of urban India. The history and culture that are attached to such settlements fade away eventually as the town takes on the image of a 'faceless industrial estate'.

HISTORICAL EVOLUTION

The town of Bawal in Haryana was originally a small settlement of families belonging to the Chauhan and Thakur clans that had migrated from the neighbouring areas of Ajmer in Rajasthan around the twelfth - thirteenth centuries during the reign of Prithviraj Chauhan. Almost simultaneously, migrants of the nomadic Gujjar community also made Bawal their permanent home. The town was first consolidated in the earlier eighteenth century under Maharaja Suraj Mal, the ruler of Bharatpur. The town remained under the reign of this Jat ruler till the third battle of Panipat after which the alliance that Maharaja Suraj Mal had with Ahmed Shah Abdali came under threat. In 1761, Bawal, along with its neighbour Rewari, was taken over by Abdali. It was during this period that the *qila* of Bawal was constructed as a refuge and the city gates were erected at various strategic points. However, Abdali was unable to maintain control for long and the Jhajjar king, Abdul Rahman, established his own kingdom over a large part of Haryana. By the end of 1857, he was assassinated by the British.

Under the British rule, Bawal was designated as belonging to the state of Nabha which was the capital of the British princely state. As a reward for his loyalty to the British Empire, Bawal was gifted to Naresh Bharpur Singh. The nineteenth century saw a period of constant upheaval in Bawal as it was shunted from one province to the other.

In 1871, Bawal was finally given 'Zila' status under Naresh Hira Singh. A railway line connecting it to the towns of Alwar and Gurgaon was constructed and a road network was established. The city gates were rebuilt during this time as well.

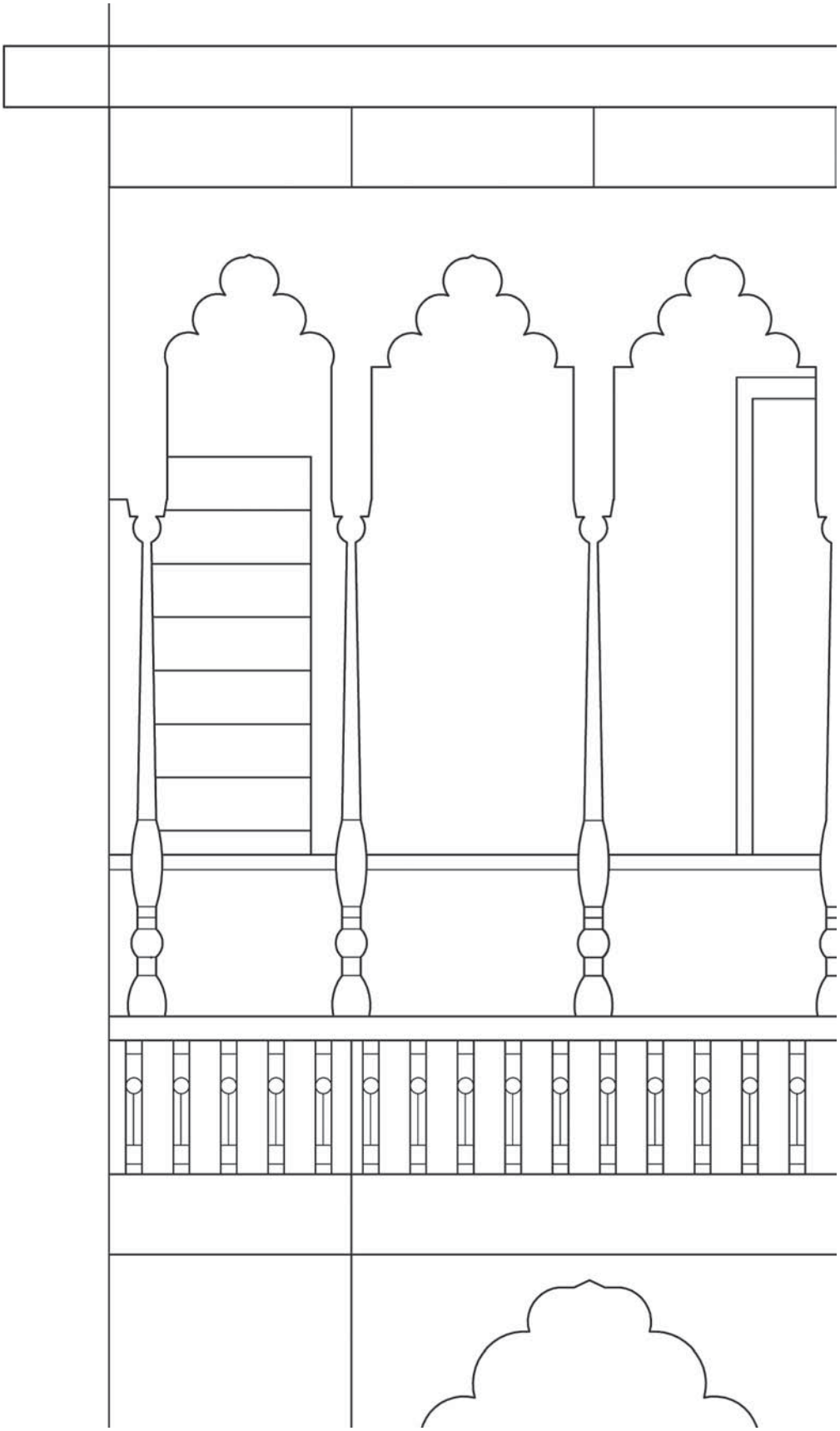
Bawal received its freedom from the British Empire in 1947 along with the rest of the nation. A large section of the Muslim population of Bawal was assassinated during this period and the remaining Muslims had little choice but to flee the country. The town became a part of the Patiala and East Punjab State Union (P.E.P.S.U). In 1950, it was transferred to Gurgaon district but soon after, in 1973 it was shifted to Mahindergarh district. In 1983, it finally got the 'Sub-Tehsil' status under the district of Rewari.

ARCHITECTURE AND TRADITIONS

Partly due to its constantly changing status and the never-ending struggle for power between its many rulers, Bawal developed as a miscellany of separate *mohullas* or neighbourhoods rather than as a singular settlement. As a result, Bawal has a diverse architectural vocabulary comprising of Rajput and Jat styles with influences ranging from Mughal to Colonial.

The most imposing structure of Bawal is the late eighteenth century *qila* which has been built along the styles of the Lohagarh fort at Bharatpur, though much smaller in scale and stature. Some parts of the structure were modified by the British and new structures have been added in the late 20th century.

Interior view of courtyard in a Haveli in Bawal



Architecture details at upper floor level

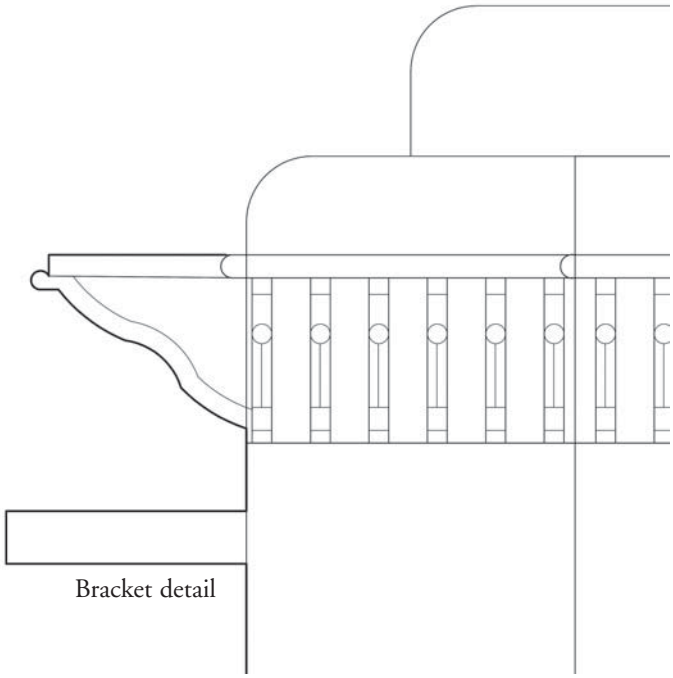
All wedding processions start near the Gopinath temple and proceed through the Noonkaran Gate

Presently, it serves the dual function of a central police station and the local fire station. The layout of the *qila* is fairly simple as it did not serve as permanent living quarters but more as a refuge area for the town. Remnants of its ornamentation are visible in the stairways and the smaller structures built within the premises. The city walls which would have once encircled the town are visible in parts next to the main structure.

The central public space of the town is popularly known as the Noonkaran Chowk and has an interesting character typical of the organic nature of built fabric found in most Indian towns. It is entered through a large gateway known as the Noonkaran Darwaza which was originally built in the eighteenth century but was later demolished and rebuilt in 1931. An amalgamation of various styles is evident in the structure. There are colonial arches on the ground floor, columns on the balconies and local stone *jaali* work and brackets ornamentation the structure. The upper storeys were originally constructed as municipal offices, though now these are used as residential quarters.

Some of the famous *havelis* (courtyard houses) in the town are Aggarwal ki haveli, Sheikh ki Haveli and Mange lal ki Haveli which are two to three storied structures with intricate ornamentation and are the pride of the residents of Bawal. The *havelis*, much like everything else in Bawal are a mixture of styles and influences. One can see multifoliated arches on the ground floor and colonial arches on the first floor, making it impossible to classify the *havelis* into any singular style. Almost every *haveli* in Bawal has stone carvings depicting Lord Ganesha or other local deities known as the 'Kul Devtas'. Even the newer structures being built within the town adhere to this tradition. Some of the *havelis* and its chaupals (community spaces) even have small temples such as the Gopinathji Temple, which is where all the local wedding processions begin. Like every small Indian town there are several temples in Bawal dedicated to the local deities as well the larger temples dedicated to Shiva or Vishnu. In fact almost every *mohulla* has its own temple.

Perhaps one of the most interesting sights in Bawal is the old *bazaar*, located just adjacent to the main *qila*



Bracket detail

The locally worshipped idols carved is stone on the front porch of 'Agarwal ki Haveli'

structure. It is a street comprising entirely of beautiful small structures, almost all of which are abandoned presently. These buildings are the typical shop cum residential units, with a long singular space on the ground floor and the residential unit on the upper floor accessed by a side staircase. Faded wall paintings may be seen in the interiors of some of the shops. The structures date back to the nineteenth century and according to the residents, the *bazaar* was famous for its iron and leather work. This street also opens out into the landmark *chaupals* of the area. This street was clearly the hub of commercial activity and on special occasions, the route for public and religious processions. However, today most of the structures lie in a state of disrepair as the owners of these structures have either shifted to Delhi, Gurgaon or Rewari or built newer homes for themselves within the town. The street appears almost haunted and locals try and avoid passing through it. A few of the older residents still live on this street, though the legality of their situation is in question as they are neither the owners nor the original tenants.

This street represents the condition of the heritage of Bawal more eloquently than any other singular structure. The town's history which is entwined with the history of many larger empires of the Jats, the Afghan kings and the Jhajjars is in the danger of being lost entirely and the unique blend of architectural styles will in all likelihood disappear as Bawal develops into an industrial township. The government has little to gain in the preservation of the town's architectural heritage as commercially such an exercise would yield low returns and does not seem to be economically viable. Perhaps such towns are destined to fade away in the face of development, and documentation such as this might be the only existing remains in the times to come.

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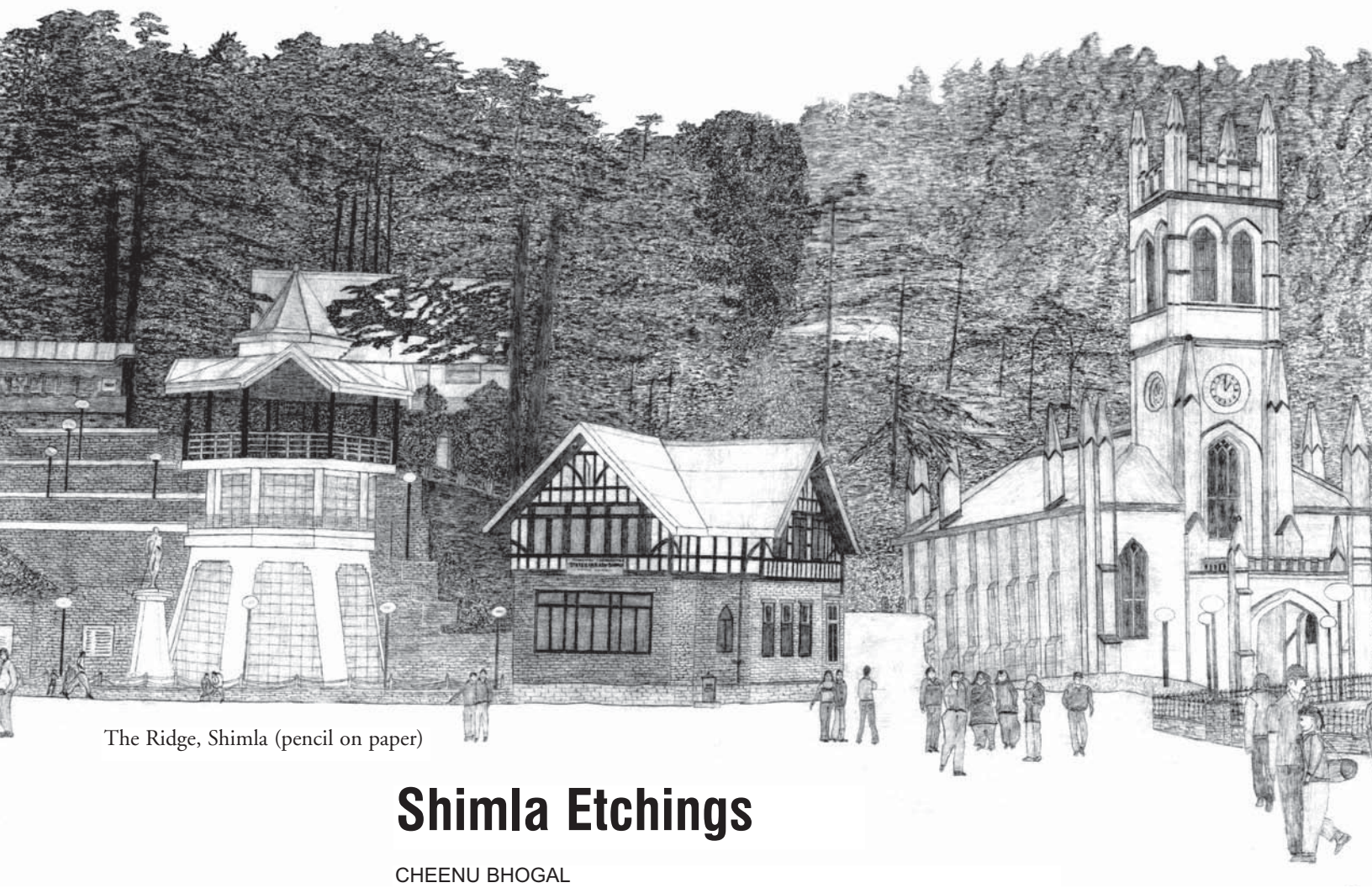


The Ridge, Shimla (pencil on paper)

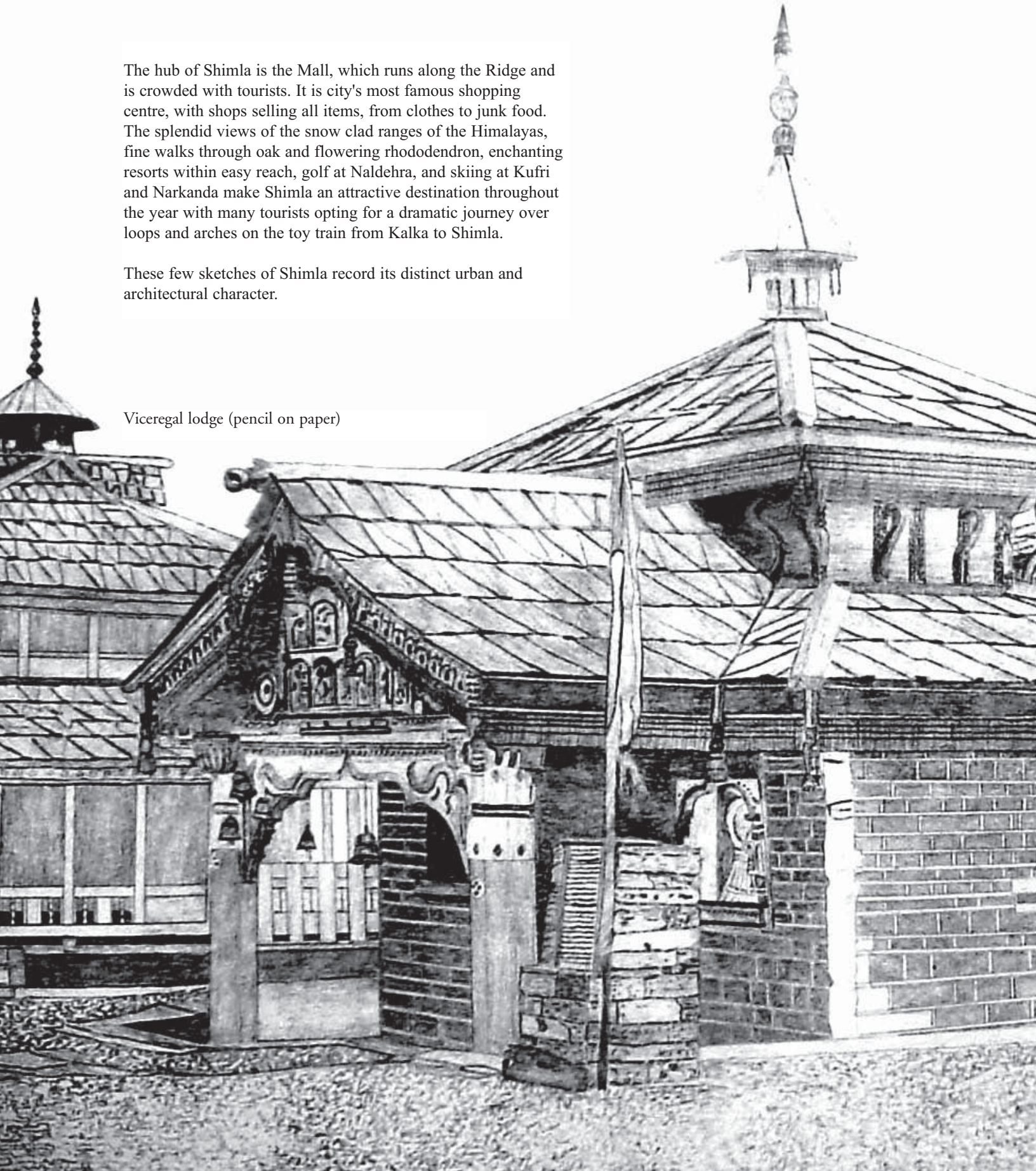
Shimla Etchings

CHEENU BHOGAL

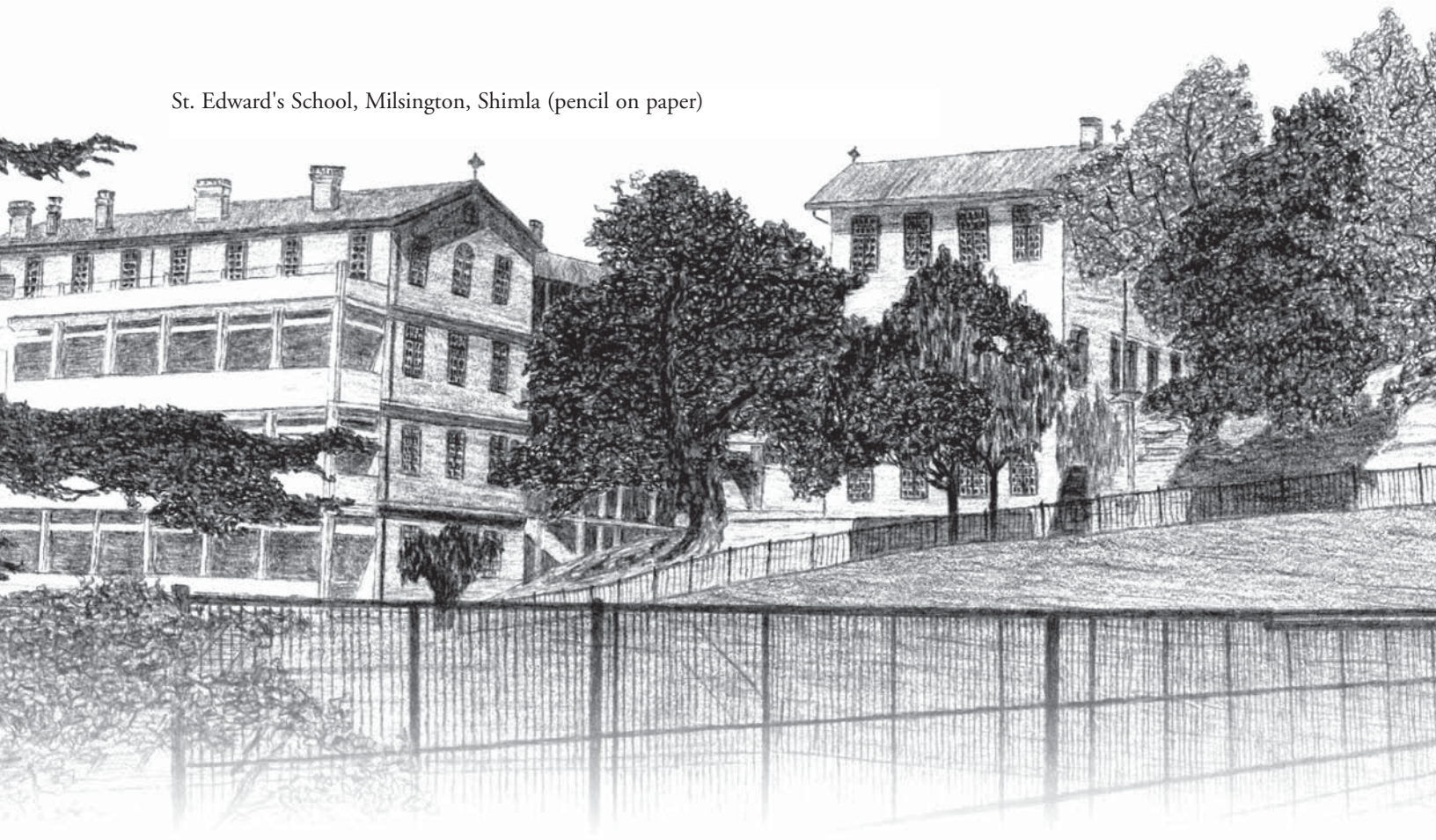
Shimla, one of India's popular hill stations, derives its name from Goddess Shayamala, an incarnation of Goddess Kali, the deity of power and wrath. However, unlike its name, Shimla is a perfect heaven for the ones in search of tranquility. Nature has blessed the capital of Himachal Pradesh with innumerable gifts and man has used them to make Shimla one of India's best locations. Blessed with some of the most spectacular and beautiful landscapes anywhere, it is a travelers' paradise - lofty snow peaks, deep gorges, lush green valleys, fast flowing rivers, enchanting mountain lakes, flower bedecked meadows, beautiful temples and monasteries are steeped in time.

The hub of Shimla is the Mall, which runs along the Ridge and is crowded with tourists. It is city's most famous shopping centre, with shops selling all items, from clothes to junk food. The splendid views of the snow clad ranges of the Himalayas, fine walks through oak and flowering rhododendron, enchanting resorts within easy reach, golf at Naldehra, and skiing at Kufri and Narkanda make Shimla an attractive destination throughout the year with many tourists opting for a dramatic journey over loops and arches on the toy train from Kalka to Shimla.

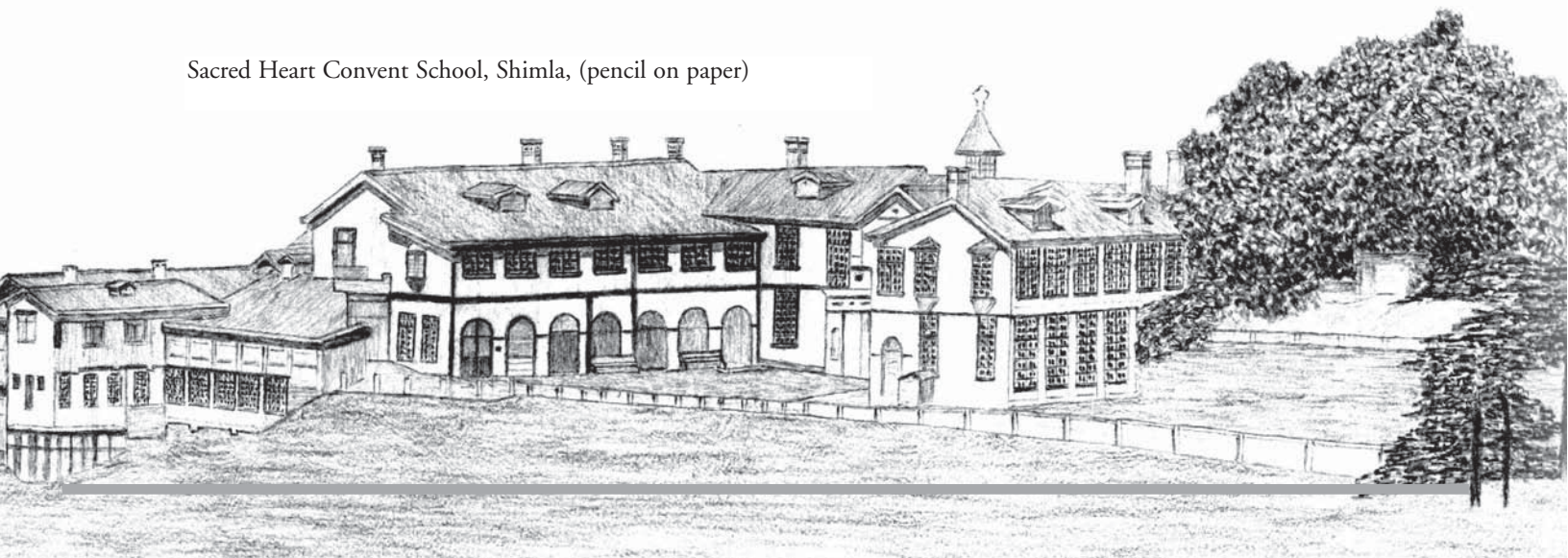
These few sketches of Shimla record its distinct urban and architectural character.



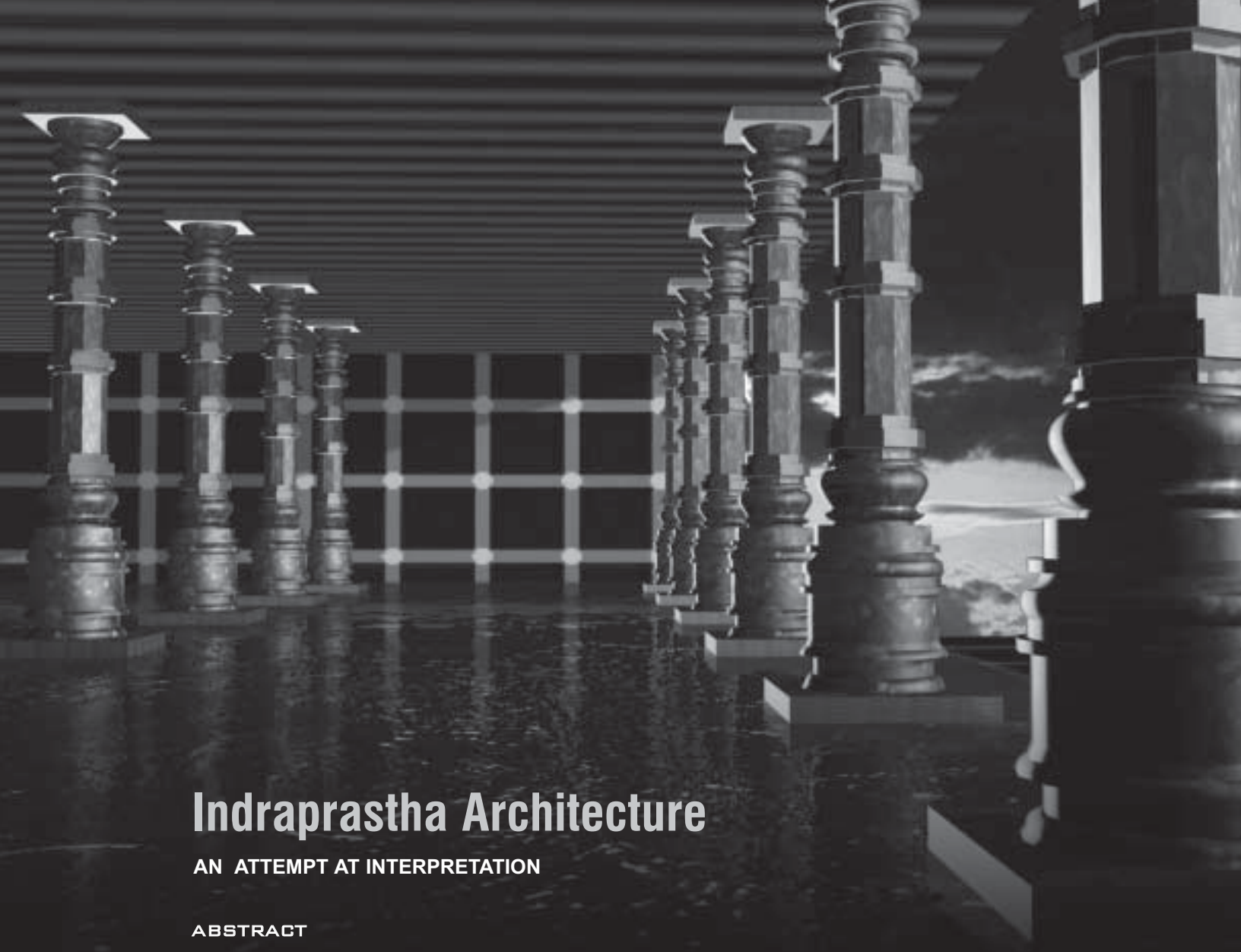
Viceregal lodge (pencil on paper)



St. Edward's School, Milsington, Shimla (pencil on paper)



Sacred Heart Convent School, Shimla, (pencil on paper)



Indraprastha Architecture

AN ATTEMPT AT INTERPRETATION

ABSTRACT

There appears to be a void in the knowledge about history of Indian of the few centuries between Harappa-Mahenjodaro and the Buddhist period. The end of Harappa Mahenjodaro was at about 1500 B.C. while 600 BC marks the beginning of the Buddhist period. Architecture This gap is possibly due to unavailability of appropriate documents from this period. Mahabharata that is dated around 1400 B.C. (the chronology and the detailed researches about the time period of Mahabharata is a separate subject altogether and hence, excluded from the scope of this paper), has detailed description of architecture that is worth analysing to get clues to the missing link of architectural evolution in India. The basic intention is to re-create and give shape to the built form of Indraprastha, which is likely to express the style and architectural typology of ancient India (specifically in the period of around 1400 -100 B.C.).

The initial research efforts had to focus on the basic architectural information related to the physical form such as: the architectural dimensions of buildings/ the structural system and construction techniques including details of foundation, the building components like columns, their shape, size and structure/ the entablatures and roofs/ joinery/ the general features of edifices/ doors/ windows/ courts, other buildings like the temples/ pavilions/ royal palaces, the royal orders & insignia, the couches, bedsteads, swings, the thrones and many more information from macro to micro level that would be needed in the process.

This paper specifically discusses the process that attempts to logically establish the possible site or location of Indraprastha.

Sabha Parva (Section 1), *Mahabharata*

CHAPTER ONE

Maya Danava erects the Imperial Court

…….Maya then began to construct the great royal assembly house. It took him a full fourteen months, but it was, indeed, magnificent. The columns were golden and radiated effulgence like the sun itself. The walls were embedded with thousands of multi-colored jewels, and the effulgence of the precious gems illuminated the entire palace. Within the palace Maya Danava placed water ponds that were lined with highly polished stone and filled with lotuses whose leaves resembled dark colored emeralds and whose stalks were made of precious jewels. There were also other flowers with golden leaves. The water was crystal clear and filled with a variety of fishes and tortoises of a golden hue. The pond was surrounded by a flight of crystal stairs, and it was difficult to understand where water was and where was land. Flowers inside and outside the palace bloomed in all seasons and were of the finest variety.

CHAPTER THREE

Lord Krishna journeys to Indraprastha City

…….The roads of Indraprastha were sprayed with fragrant water sprinkled from the trunks of intoxicated elephants, and colorful flags, golden gateways and full water pots enhanced the city's splendour. Men and young girls were beautifully arrayed in fine, new garments, adorned with flower garlands and ornaments, and anointed with aromatic sandalwood paste. Every home displayed glowing lamps and respectful offerings, and from the holes of the latticed windows drifted incense, further beautifying the city. Colorful banners waved in the breeze, and the roofs were a series of finely carved golden domes situated on broad silver bases. Thus Lord Krishna saw the royal city of the Maharaja Yudishthira.

CHAPTER SEVEN

Duryodhana embarrassed at the Palace of King Yudishthira

…….By the craftsmanship of the demon Maya, the palace was so decorated in different places that one who did not know the tricks would consider water to be land and land to be water. Duryodhana was also illusioned by this craftsmanship; and when he was crossing water thinking it to be land, he fell down. When Duryodhana, out of his foolishness, had thus fallen, Lord Krishna's queens enjoyed the incident by laughing. King Yudhisthira could understand the feelings of Duryodhana, and he tried to restrain the queens from laughing, but Lord Krishna indicated that King Yudhisthira should not restrain them from enjoying the incident. Krishna desired that Duryodhana might be fooled in that way and that all of them might enjoy his foolish behaviour. Seeing Duryodhana fallen into the lake, Bhima laughed loudly. Arjuna, Nakula, and Sahadeva also laughed at the foolishness of Duryodhana. When everyone laughed, Duryodhana felt very insulted, and his hair stood up in anger. Being thus insulted, he started to leave the palace, bowing his head. He was silent and did not protest. He again lifted up his clothes to pass over what he thought was water. Again it was only land and everyone laughed. Becoming more and more indignant, the king attempted to leave through a crystal door that he thought was open. When he bumped into the crystal door, he backed off with his brain reeling. He then went to another door and thinking it was a crystal door attempted to open it with his outstretched hands. The door was actually open and he fell down in his attempt. And coming upon another door that was really open, Duryodhana thought it was closed and went away from it.

INTRODUCTION

Indraprastha, the magnificent palace-city mentioned in the epic 'Mahabharata' belonged to the Pandavas (the five brothers Yudhishthira, Bhima, Arjun, Nakul and Sahadeva), designed and constructed by Maya Danava - the architect of the demons. This article attempts to rebuild the palace, albeit virtually, within the ambit of the author's own understanding of the practicalities and possibilities of the period, based on narrations and descriptions found in several literary sources. The palace was hailed and celebrated for its wondrous and grand architecture that is said to have mesmerized the contemporary royals including the cousin brother of Pandavas i.e. Duryodhana. The palace played a very significant role in the Mahabharata as it triggered the great war of Kurukshetra that is marked in the history of then Bharat-varsha (India).

HISTORICAL RESEARCH

Recreating the complete city of Indraprastha, based solely on the description of Mahabharata is neither enough nor justified, as there would always be the risk of subjective judgment. Hence, all relevant, credible and available documents need to be referred and linked together so that the possibility of anomaly and subjectivity is eliminated to the maximum extent. For this purpose, the documents and information have been derived from two basic sources: literary and archaeological evidences.

a. Literary sources

A rich array of literature sources were consulted that can lead to positive findings and support the whole thesis. Apart from Mahabharata, there are Puranas, Agamas, semi-Puranas and other epics of this period.

Detail architectural descriptions can be found in the Puranas. Below is the name of the seven Puranas in which the subject has been treated methodically, though other documents have references too. They all contributed to the Silpa-sastras, which is also an invaluable literary source of the period.

- The Matsya-Purana
- The Garuda-Purana
- The Agni Purana
- The Narada-Purana
- The Linga-Purana
- The Vayu-Purana
- The Bhavishya-Purana

The Brihat-samhita, usually classed under the astronomical and astrological treatise, is a semi-Purana, dealing, with heterogeneous subjects like the Puranas themselves. Its authorship is attributed to Varahamihira, who is said to be one of the nine traditional gems in the court of the legendary emperor Vikramaditya, and is thus considered to be a contemporary of Kalidasa, a poet of unrivaled fame

The term Agama generally implies a traditional doctrine or percept, a sacred writing or scripture and hence, the Vedas. But there is a special class of works inculcating the mystical worship of Siva and Sakti like the Tantras - these belong to South India and are known as the Agamas. These are encyclopedic works like the Puranas, whose ultimate object is also to discuss the worship of the holy Hindu trinity of Brahma, Vishnu and Maheshwar. The Puranas, however, deal with all the three deities; although Vishnu has received preference and fourteen of the Puranas are devoted to his worship. The Agamas, on the other hand, deal mostly with Siva. Obviously they are intended to represent the Puranas of South India. These Agamas of Dakshinatya are in fact more extensive than the Puranas of Aryavarta. There are as many as twenty-eight recognized Agamas, while the number of the great Puranas is not more than nineteen.

The epics include the Ramayana and the Mahabharata.

b. Archaeological evidences
The two significant archeological evidences researched for this purpose are

- Excavation reports of Purana Qila (Old Fort of Delhi), which is traditionally believed to be the original site of Indraprastha.
- Excavation report of Hastinapura- another ancient site from Mahabharata

Excavations at Purana Qila (1954-55, 1969-73)

"……..Purana Qila is the citadel of the sixth city of Delhi, foundations of which were laid by Mughal emperor Humayun in the second quarter of the sixteenth century. While he inhabited the city all around and called it Dinpanah. Sher Shah Suri, after his occupation of the Mughal territories, completed the fort and added his own buildings. The fort was again occupied by Humayun when he returned in 1555 AD and died here.

The fort walls were constructed on the slopes of a huge ancient mound which is traditionally believed to represent the site of Indraprastha, the capital of the

Projected simulation of column: Order 'Vishnukanta'

Pandavas'. Indraprastha as a city has been mentioned in the literary texts of the historical period and the fort area is still mentioned in the revenue records as *mauza Indrapat*. The epic Mahabharata contains vivid description of the clearing of forest Khandavaprastha and construction of the palace by the Pandavas' with the help of Maya, the demon architect." The Archaeological Survey of India does not provide much evidence beyond the above statement.

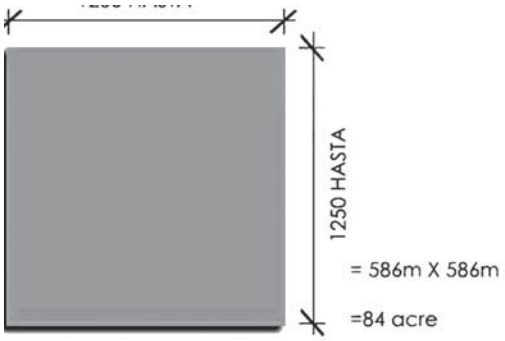
INTERPRETATION FROM ABOVE EVIDENCES

The dimensions of *Sabha-mandapa* (royal court) have been described as:-
" sabha mandap chaturdike pancha sahasra hasta bistirna hoe chhilo"[4]
[i.e the royal palace was extended till five thousand '*hastas'* on all four sides.]
At this point, it is important to understand the measurement system of ancient India.

Manopakarana-vidhana (system of measurement)

The *'paramanu'* or atom is the smallest unit of measurement.
8 *paramanu*-s = 1 *rathadhuli* (lit. car-dust).
8 *rathadhuli*-s = 1 *balagra* (lit. hair's end).
8 *balagra*-s = 1 *liksha* (lit. a nit).
8 *liksha*-s = 1 *yuka* (lit. a louse).
8 *yuka*-s = 1 *yava* (lit. a barley corn).
8 *yava*-s = 1 *angula* (lit. finger's breadth).

Three kinds of *angulas* are distinguished, the largest of which is made of 8 *yava*as, the intermediate one of 7 *yavas*, and the smallest one of 6 *yavas*.



The Interpreted site area

12 *angulas* = 1 *vitasti* (span).
2 *vitasti*s or 24 *angulas* = 1 *kishku-hasta* (small cubit).
25 *angula*s = 1 *prajapatya-hasta* (Used for palaces)
26 ”= 1 *dhanurmusti-hasta*
27” = 1 *dhanurgraha-hasta*
4 *prajapatya-hasta*s = 1 *dhanu* (bow) or *danda* (rod).
8 *dandas* = 1 *rajju* (string).

Now if,
1 Angula (finger breadth) = ¾” =18.75 mm, then
1 prajapatya hasta = 468.75 mm (1 kisku hasta = 450 mm)
And therefore,
1 danda = 1875 mm (unit for measurement)

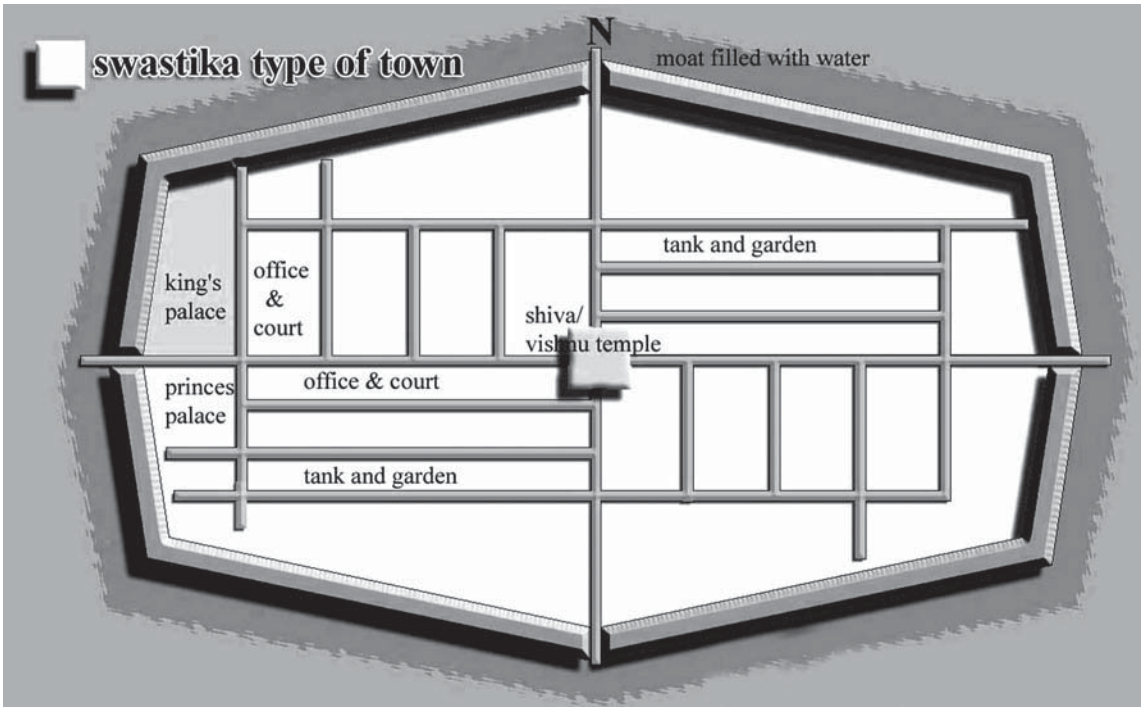
RECONSTRUCTION FROM AVAILABLE DATA

The Site

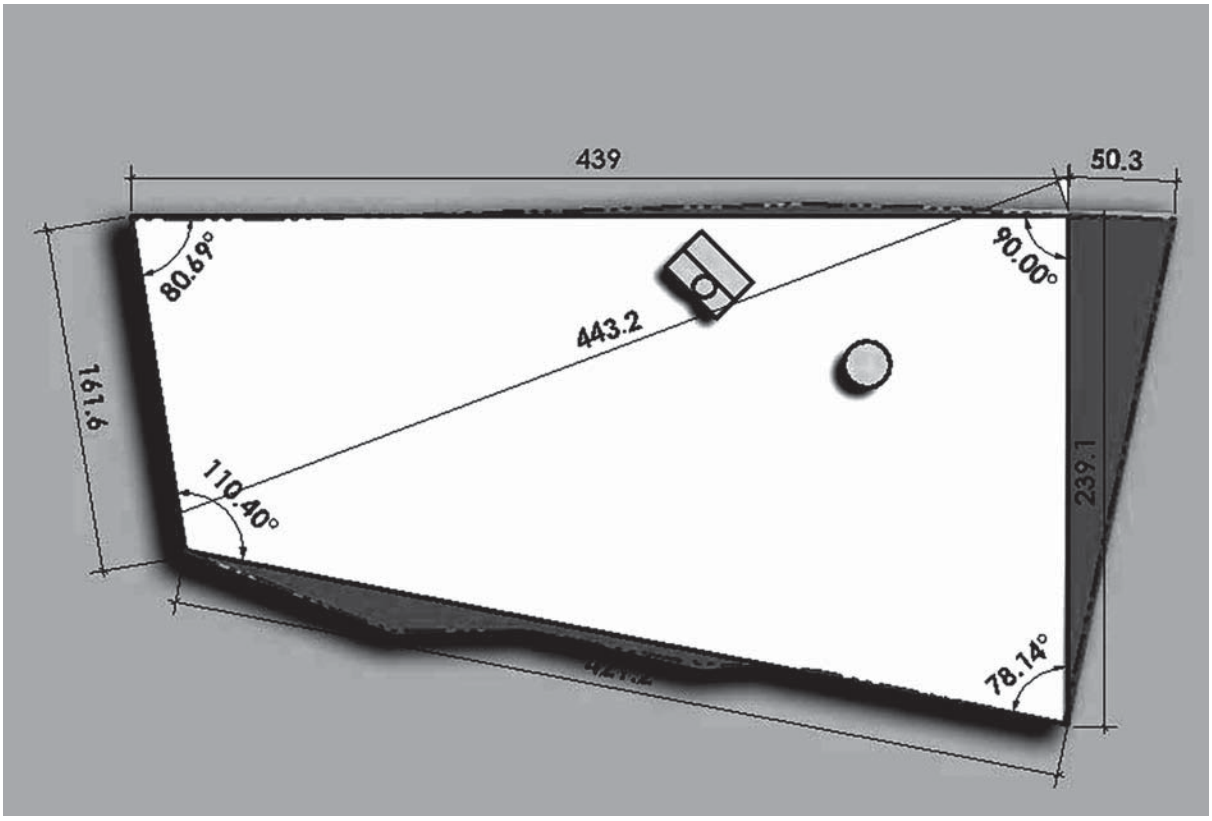
Reverting back to the narration *“sabha mandap chaturdike pancha sahasra hasta bistirna hoe chhilo”* (or ‘The royal palace was extended upto five thousand ‘*hastas’* on all four sides), can be interpreted in many ways. Five thousand *hastas* could either be the length of each side of the quadrangle or it could also be the perimeter.

Setting this clue in the context of Purana Qila, the perimetre theory fits the best. And if ‘Five thousand *hastas’* are considered to be the perimetre, the length of each side would be 1250 *hastas*.

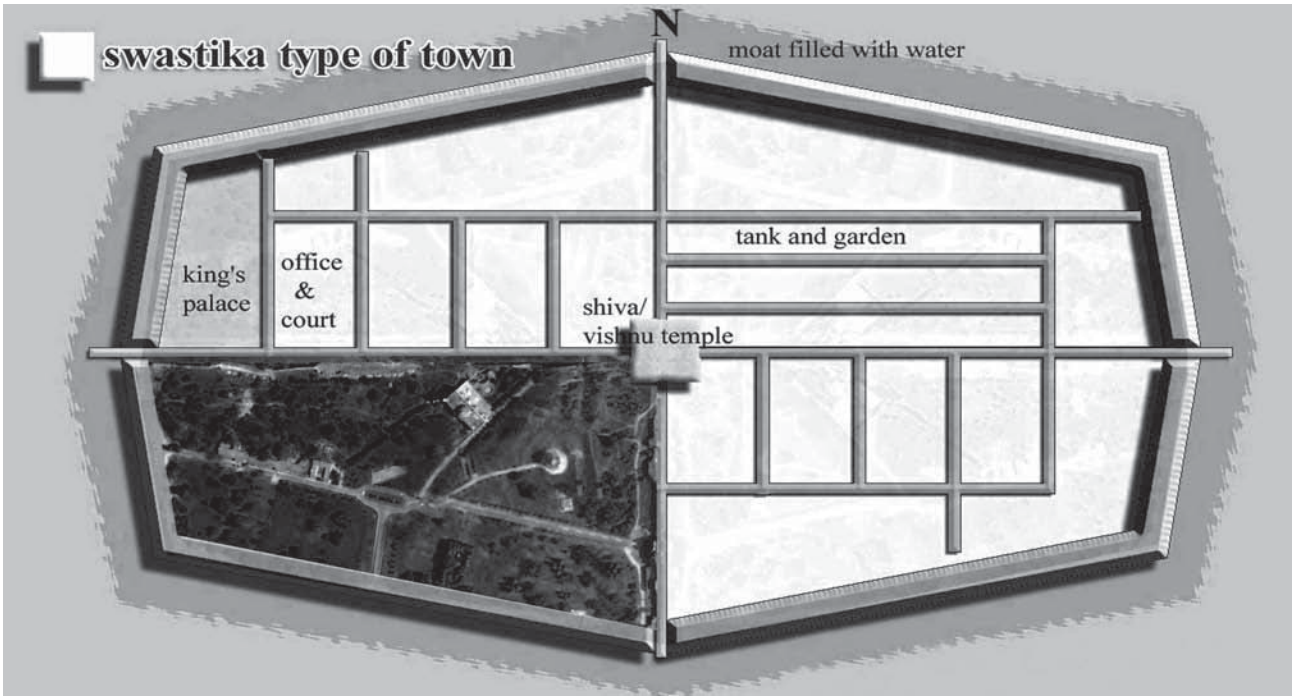
In that case, the area of the site is 84 acres. But the area of Purana Qila is only 21 acres, and hence, it is not supporting the text. However on comparing with *Swastika* type of town plan from G.K. Hiraskar’s book ‘The History of Town Planning In India’, it is found that a quadrant of which has extra-ordinary similarities with the Purana Qila. Now if one recreates the whole site it will be found the area is now 21 X 4 = 84 acres. Even the periphery in reality is exactly similar to that in the text.



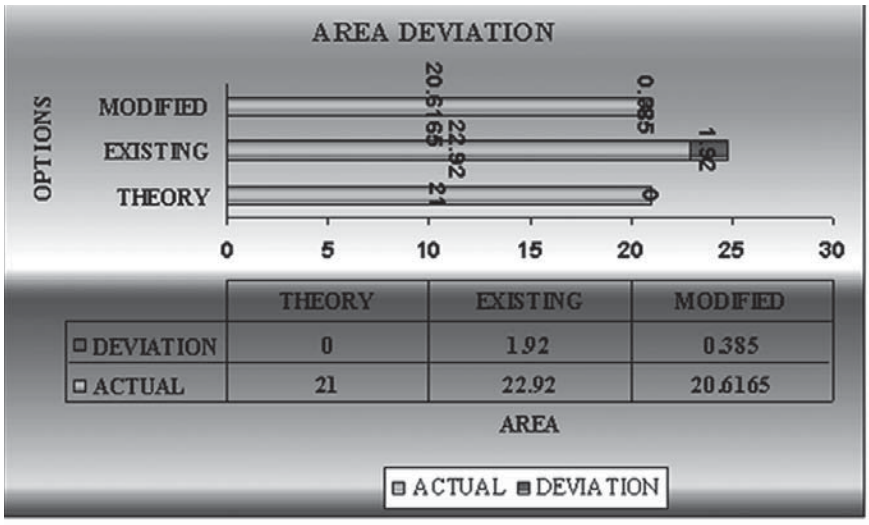
Swastika type of town according to' History of town planning in India (Hiraskar, 1989)



Outer portions in the existing site plan of Purana Qila is modified to equivalent it exactly with the theory



Superimposing the theoretical site plan, (Hiraskar, 1989)



Degree of deviation between textual and actual areas.

If one projects the Purana Qila in its pure geometric form, (the outer portions have to be omitted) the entire city in its near-exact alignment with the text is obtained, with a negligible degree of deviation.

(Note: The area calculation of the Purana Qila is based on the satellite picture available from "Google Earth" and has not been measured physically; hence minor variation is likely.)

CONCLUSION

In this academic exercise, the author has attempted to explore an alternative dimension of architecture, one that is a translation of vocabulary of one medium to the other involving interpretation and reconstruction from text.

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Methods & Approaches

A Heritage of Cultural Resilience

ANSHU MESHACK

ABSTRACT

The article highlights the nature of the subsistence economies of the Nicobar Islands that have, for centuries, sustained themselves without disturbing the fragile ecological balance. The traditional wisdom of the tribes, reflected in their activities of everyday life, offers glimpses of a truly just society based on cooperation and cohesion where people live in harmony with the environment and are finely attuned to its rhythm and vagaries. It also explores the manner in which the communities are negotiating the inevitable changes seeping in, in the form of changing aspirations influenced by the 'outside world', and how community dynamics unfold which, in some ways, threaten to destabilise the traditional norms and harmony of their society. The article argues for greater sensitivity of 'outsiders' to the indigenous systems of the tribes and for strengthening the ability of the local communities to take charge of their 'development process' so that it is in line with their own understanding of the interdependence of human beings and their environment.

INTRODUCTION

Located in the Bay of Bengal, the Andaman and Nicobar Islands (A&NI) is an archipelago of 572 pristine, emerald green islands of volcanic origin formed by a submarine mountain range, lying 193 kms away from Cape Negrais in Myanmar, 1255 kms from Kolkata, and 1190 kms from Chennai.

Anshu Meshack is a post graduate in Social Work from the Tata Institute of Social Sciences, Mumbai. Soon after the Tsunami of 2004, she undertook an in-depth research study on the outcomes of the relief and rehabilitation processes experienced by the Nicobarese communities. She is currently head of Projects and Research and Editor of Charkha Development Communication Network, New Delhi.

Extensive damage to life and property caused by the Tsunami'04

Though clubbed together and commonly referred to as a part of the Union Territory of Andaman and Nicobar Islands, the Nicobar Islands and their residents are remarkably distinct from the Andaman Islands in their cultural heritage and historical significance. The Nicobar group offers a unique and valuable contribution to India's tapestry of natural and cultural heritage.

The indigenous tribes are broadly classified into two groups - the Onge, Sentinelese, Jarawa and great Andamanese of Negroid descent living on the Andaman Islands and the Shompen and Nicobarese of Mongoloid descent in the Nicobar Islands. Except for the Nicobarese communities, the population of all the other tribes have decreased to a total of 500 in the last 150 years as a result of the outbreak of measles and other diseases brought by the infrequent interaction with non-tribals.

The Nicobarese are the only group among the six indigenous tribes whose traditional practices have been influenced to a great extent with the coming of missionaries and other non-tribals. Interestingly, these tribal communities show marked territorial distinctions across the islands. They may be plausibly divided into six groups: the people of Car Nicobar, Chowra, Teressa with Bompuka, the Central group, the Southern group and the single inland tribe of the Shompen on Great Nicobar Island. Each of these six groups has its own distinct dialect and language, making the islands a mosaic of cultures that are richly diverse yet unified by a common value system and principles of governance.

About 98 percent of the Nicobarese are Christians following the Protestant faith, while a small section of Muslims, migrants from Lakshadweep and Gujarat, and a few Nicobarese who follow the ancient practice of animism make up the remainder. While inter-island, inter-religion marriages are common and held by mutual consent of the couple and the family elders, some dissent has been observed in recent times over religious conversions.

The A&NI have one representative to the Indian Parliament. Tribal councils, comprising of elected leaders from each village and functioning like a mini-government of an island are formally recognised by the Indian government. They form the link between the local administration and the communities.

HISTORICAL SIGNIFICANCE

Contrary to the remoteness now associated with the islands, the Nicobars were a popular halt for seafaring travelers in ancient times on account of their excellent natural harbours. The inevitable barter trade between the islanders and the sailors introduced the locals to certain commodities not available on their islands, such as iron, cloth and rice as well as and exposed them to other cultures and people.

Voyagers have referred to the Nicobars as the 'land of the naked' i.e. *Nakkavar* (in Tamil) which is perhaps the direct predecessor of the current name 'Nicobar'. The islands have been mentioned in the accounts of travelers like Fahien (6th century), I-T'sing (early 7th century), Ptolemy (2nd century), Marco Polo (13th century) and Friar Oderic (early 14th century). An inscription dated 1059 AD belonging to the Chola King of Tanjore indicates that these islands were used as a base and shelter station for waging war and keeping control over Southeast Asia. The location of the islands in the vicinity of Malacca was one of the primary reasons for the frequent colonisation of the islands by European forces. The Portuguese, operating from their base in Malacca on the Malay peninsular, were the first to send Christian missionaries to the Nicobar Islands at the beginning of the sixteenth century. At present, nearly 98% of the Nicobarese tribals are Christian.

The inclusion of the islands in the Indian nation after Independence has taken from them the advantages of being strategically located in the South Asian region, and brought to a halt all forms of trade across the Indian Ocean. 1947 is thus a landmark year in the history of the islands – when 'India took over', as one elderly Nicobarese put it. With the Nicobar Islands being declared a tribal reserve with restricted access to outsiders, very limited interaction has remained feasible with the 'outside' world, either in the neighbouring islands in the Andaman Group or with the Indian mainland, and none with the South Asian islands. The local communities have been left isolated and dependent on the Indian state for all the needs that they cannot fulfil with locally available resources. A significant development has been the increasing numbers of legal and illegal non-tribal settlers on the islands. In the decades following Independence, the State brought in Tamils from Sri Lanka and tribals from Jharkhand, while ex-servicemen were encouraged to settle on some of the isolated islands. These families have stayed back and proliferated, often becoming a stronger economic force than the locals.

TSUNAMI'S EFFECT

The tsunami of 2004 brought in its wake not just the devastation of villages and ecological wealth but also changes in the cultural mosaic of the islands, that can be considered an inevitable outcome of the disaster recovery process. The struggle to find a balance between the traditional ways of life and the new-worldly aspirations of increasing material wealth has impacted the sustainable living practices of the tribal communities. This transition, if not adequately managed, can irrevocably impact the natural heritage of this global biodiversity hotspot while also placing at risk the wealth of cultural heritage that has been adapted and protected by the local tribals over the centuries.

GEOGRAPHICAL SIGNIFICANCE

Geologically speaking, these islands form the northeastern tip of the wide arc of islands stretching in the Indian Ocean from the Philippines onwards. The twenty-two Nicobar Islands, of which only twelve are inhabited, are separated from the Andaman Islands in the north by a 75-mile wide open stretch of the Indian Ocean, known as the Ten Degree Channel. The channel is characterised by a turbulent stretch of ocean, making it extremely difficult for small vessels (such as canoes and rafts) to cross over. As a result, any sort of historic relation (trade or otherwise) between the inhabitants of the Nicobars and those of the Andamans does not exist.

The northern-most island in the Nicobar group, Car Nicobar, is 143 miles from Port Blair. The southern-most point of Great Nicobar, previously known as Pygmalion Point and now famous as the southern-most tip of India, Indira Point, is barely 91 miles from the Pulo Brass of Sumatra. Chowra, Teressa, Bompoka, Katchal, Kamorta, Nancowry and Trinket form the central group of Nicobar Islands while the Southern group consists of Little Nicobar and Great Nicobar among others.

The geo-political significance of the Islands is highlighted by the fact that they offer 200 nautical miles of Exclusive Economic Zone (EEZ) all around the land mass. They also have a strategic significance from the point of view of national security.

Seismographic data indicate that the Nicobars lie directly in the local line of greatest weakness of the subduction zone where the India Plate, which lies under the Bay of Bengal, dives under the Burma Plate, which carries the Nicobar Islands. Consequently, severe earthquakes may be expected – and have already occurred over time. The islands are also prone to cyclones, heavy rainfall and strong winds, particularly during the south-west monsoons.

A TRADITION OF VALUES

The cultural heritage of the Nicobarese communities comprises of a complex whole including traditional knowledge, beliefs, laws, morals, customs, and integrating the knowledge acquired from other cultures through trade and contacts with visitors to the islands over the centuries. The resultant blend of cultures is, nevertheless, based on a system of values, the internalisation of which leads to conformity to its norms. This adapted culture, while adhering to fundamental values, has enabled the Nicobarese communities to thrive despite centuries of change, in sharp contrast to the other tribal groups on the Islands who have diminished to alarmingly low numbers bordering on extinction.

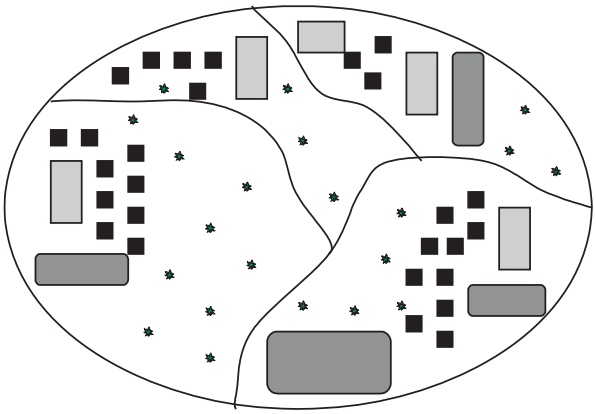
The main forms of integration in the human economy are reciprocity, redistribution and exchange. Tribal economies are often characterised by the widespread practice of reciprocity. Hence there exists an elaborate

social system to take care of aspects of economic life such as the division of labour, disposal of land, organisation of work and inheritance. The concept of a central leadership or an authority of one person over the rest in a village was absent in the traditional Nicobarese community. The *tuhet*, or extended family, is the basic unit. It is identified by a single head, often (but not always) the eldest, who is selected as head based on attributes such as good behaviour and politeness, leadership quality, intelligence and capacity for hard work. He/she takes decisions on behalf of the family in respect to all social and economic matters. Women hold an equal position in society – there are no gender-based differences in status.

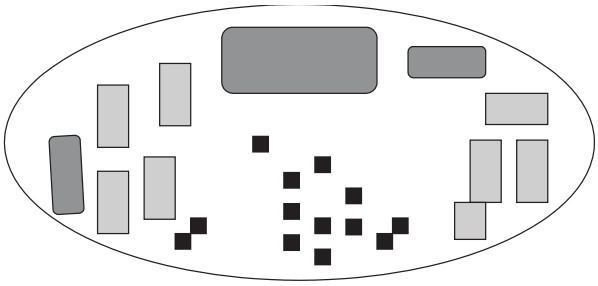
Word of mouth is the only record regarding land matters and ownership – and this '*purana niyam*' (old law) is sacrosanct, as informed by the village elders. Since there is no concept of rent or tax, possession of land has no economic advantages. Each *tuhet* has its own land where it exercises its rights to use it according to its needs. All family members work as one on the coconut plantations, which is the common resource of the *tuhet*. If the daughter inherits the property, the son-in-law moves into her parental home but if there are few sons, they stay in their own family and look after their father's plantations. This helps avoid fragmentation of landholdings within the family.

The traditional houses are often of considerable size, without divisions into rooms, where several members of the *tuhet* live together. Residential patterns are a strong reflection of social interaction and models of cooperation among individuals and households. There are two or more different residential patterns found in the different villages/islands in the Nicobars. In the first pattern, seen, for example, in Tapong Village of Nancowry Island, the basic residential units are small groupings which, though scattered, constitute homogenous neighbourhoods jointly sharing the management of their common natural resources and maintaining close cooperative links. In another pattern, in Munak Village of Kamorta Island, the village is a compact and visible physical entity. Close relatives do not necessarily live together, yet this distribution of houses allows for daily interaction and cooperative links, and may promote new forms of relations beyond kinship.

The traditional norms extend to all spheres of life, including the use of natural resources and norms regarding the conservation of the ecological balance amid human activity. The Nicobarese are



Scattered residential configuration, post-tsunami temporary settlement,Tapong village, Nancowry Island

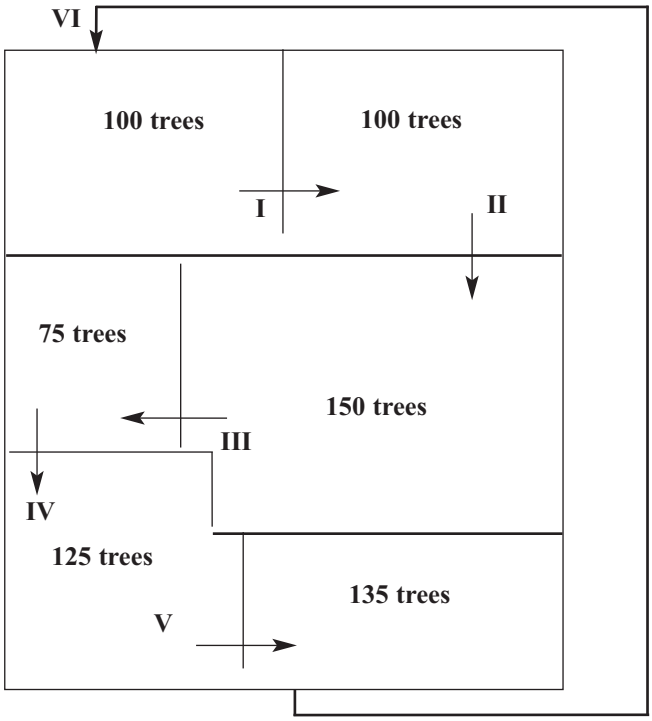


Compact residential configuration, post-tsunami temporary settlement, Munak village, Kamorta Island

Household living area *Coconut Plantation* *Forest* *Grassland*

horticulturalists and pig-herders who, till before the tsunami of 2004, inhabited large permanent villages that were largely close to the sea shore. The rich marine life in the vicinity of the traditional coastal villages was strictly a source of subsistence and not of livelihood or trade.

Coconut plantations are a renewable resource for livelihood and are traded in exchange for what are now 'essential' commodities such as rice, sugar, cloth and fossil fuels. Although the Nicobarese economy is sufficiently monetised and trade-dependent, such monetisation has not changed the subsistence basis and nature of the economy. Harvesting of coconut is a perennial activity that is in tune with the natural cycle of regeneration. Planting is done in 'sections', or small plots of trees, so that harvesting (and therefore income) is distributed throughout the year. There is about one week of work per section of plantation. Harvesting in one section is completed before moving on to the next. When old trees die/become unproductive, new saplings are inter-planted to keep the numbers constant.



Schematic diagram showing sequential harvesting plan through the year

COPING WITH DISASTER

A pragmatic outlook to life and self-dependence in all aspects enabled the communities to pick up the pieces and begin the process of reconstruction folowing the tsunami long before the state intervened with alien and non-indigenous goods and services like housing structures made of sheets and iron, blankets and cash compensations. The ingenuity of the local communities immediately after the tsunami is a brilliant display of the survival skills that have sustained them in the face of many adversities.

Many survivors immediately rebuilt their houses in safer locations, using pieces of wooden planks salvaged from the sea coast – in the traditional stilted design, with a thatched sloping roof that was sturdy and leak proof – all without *a single nail* in the entire structure, so they could subsequently return to their own villages with the housing material!

The most formidable challenges facing the communities, however, are those brought on as a result of the standardised disaster recovery processes determined by outside 'experts' without sensitivity to the cultural makeup of the communities. Large cash inflow in the hitherto subsistence economy, for instance, created rifts among families since they were paid out to nuclear families. In a culture where children are simply part of a large joint family, large cash compensations for orphans brought conflicting claims from different sources. High casualties resulted in a leadership crisis where decisions taken by young, inexperienced leaders were not always in the best interests of the people.

Most people felt the need to approach the administration officials only in matters where they themselves did not possess the capacity to fulfil their requirements, like transport and communication facilities, health and education infrastructure. These continue to remain woefully inadequate. The need for tools to reconstruct their houses was met, instead, by blueprints prepared in the mainland that advocated the use of steel and concrete. Construction of such houses, by contractors hired by the civil administration, is presently underway.

NEGOTIATING CHANGE

In a complex society with many ways of life in contact with each other, change is continual, as is cultural conflict. The distinct vulnerability of the Nicobarese communities arises from their inability to negotiate and cope with the consequences of their unnatural integration with the mainstream economy, society, cultural and political system. The kinship ties of the tribal communities do not govern the behaviour patterns of the non-tribals who have forged social relationships with the locals through marriage. Such links circumvent the restricted access to outsiders enforced by the provisions of the Andaman and Nicobar Protection of Aboriginal Tribes (Regulation) Act. of 1956.

The alien culture of the non-tribals is not based on cooperation and cohesion, resulting in changing dynamics within the tribal communities and alterations in their social and cultural identity. The traditional legal system, based on the fundamental values of the tribal culture, is now found inadequate to resolve issues in conflict with those whose values are aligned with an alien culture. This inadequacy has not yet been compensated for with an alternate system acceptable to the people, resulting in a void and simmering conflicts.

Incorporating the needs and aspirations of those who seek newer opportunities is another challenge that the tribals are yet to comprehend and address. So far, this integration has been imperfect – although aspects of trust and faith have been maintained in exchange

processes, these are threatening to change. The implications are not clear to most, and the communities tread carefully, at times, grudgingly, on the path of 'development'.

THE SEARCH FOR EQUILIBRIUM

Cultural relativism, which advocates respect for the ideals of every culture, is based on the belief that it is best to 'let everyone do his or her own thing'. This philosophy does not, however, include the effort to find ways of resolving discord that may arise from different value systems. Adopting the principles of the strengths perspective entails helping individuals and communities build something of lasting value from social wealth and human resources within and around them. Such an appreciation would involve moving away from the dominant perspective of their 'backward, primitive' status and understanding their highly-evolved traditional wisdom.

A distinction must be made here between poverty and vulnerability which, though often used interchangeably, are distinct concepts and need to be approached differently. Poverty, a static concept, refers to lack or want and is usually measured in income or consumption terms. Vulnerability, in contrast, is a dynamic concept that reflects a community's exposure to risk, shock and stress – and is hence difficult to measure. Most government policies and schemes address poverty, which make them inappropriate to meet the vulnerability of the tribal people of the Nicobar Islands.

The need of the hour is an inclusive value system encouraged by those in power, local leaders as well as the state, which work towards a conscious integration rather than a passive 'no-interference' approach. Sensitivity to the indigenous wealth of governance, knowledge and best practices must be built into a customised approach to the development on the islands, determined by the people themselves. If the local administration continues to make the locals beneficiaries of a welfare-based system, they may become dependent and take the viewpoint of weakness, problems and deficiencies, instead of self-dependent recovery.

As a result of the destruction of large sections of coconut plantations, the economy of the islands needs to be revived by exploring alternate sources of livelihood so that the natural recovery processes can follow. The locals must be empowered to resume responsibility for their islands and their natural heritage, instead of assuming responsibility through State-controlled departments. They must adapt their capabilities and address intra/inter community dynamics so that protection of their natural heritage remains in their hands, governed by a wisdom that has seen them through similar upheavals in the past.

Access to information is a vital tool in determining the nature of these change processes. Making informed choices entails availability of complete information about decisions taken on their behalf, (purportedly for their 'development') transparency in all mechanisms of implementation and capacity building of locals through education and training. How the government and the communities negotiate these challenges over the next few years will determine the course of development of the islands and the future of their heritage,both natural and cultural.

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Houses of the Gaddis of Himachal

Building Technologies of Remote Himalayan Region

O. C. HANDA

ABSTRACT

The Gaddis are the most interesting, enchanting and rustic people of the western Himalayan interiors. Their homeland, deep in the Ravi Valley of Chamba is known as the Gadderan. The traditional Gaddi house is a primitive structure that truly reflects their transhuman psychology. The one-room multipurpose dwelling unit for each household is ironically in complete contrast with the wooden and stone temples of Gadderan area that are some of the finest examples of the classical architecture in the entire Himalayan region.

One of the significant features of house construction in the Gadderan area is that no skilled or unskilled labor is employed from outside the community. Entire building construction work, including most of the woodwork, is accomplished through the customary community participation. The foundation of a house rarely goes beyond 30 centimeters in the ground even for a multi-storey house, despite the fact that it has to withstand high wind pressure, heavy snowstorms and tremors.

This article is a comprehesive study and analysis of the traditional Gaddi house, its unique structure as well as functionality.

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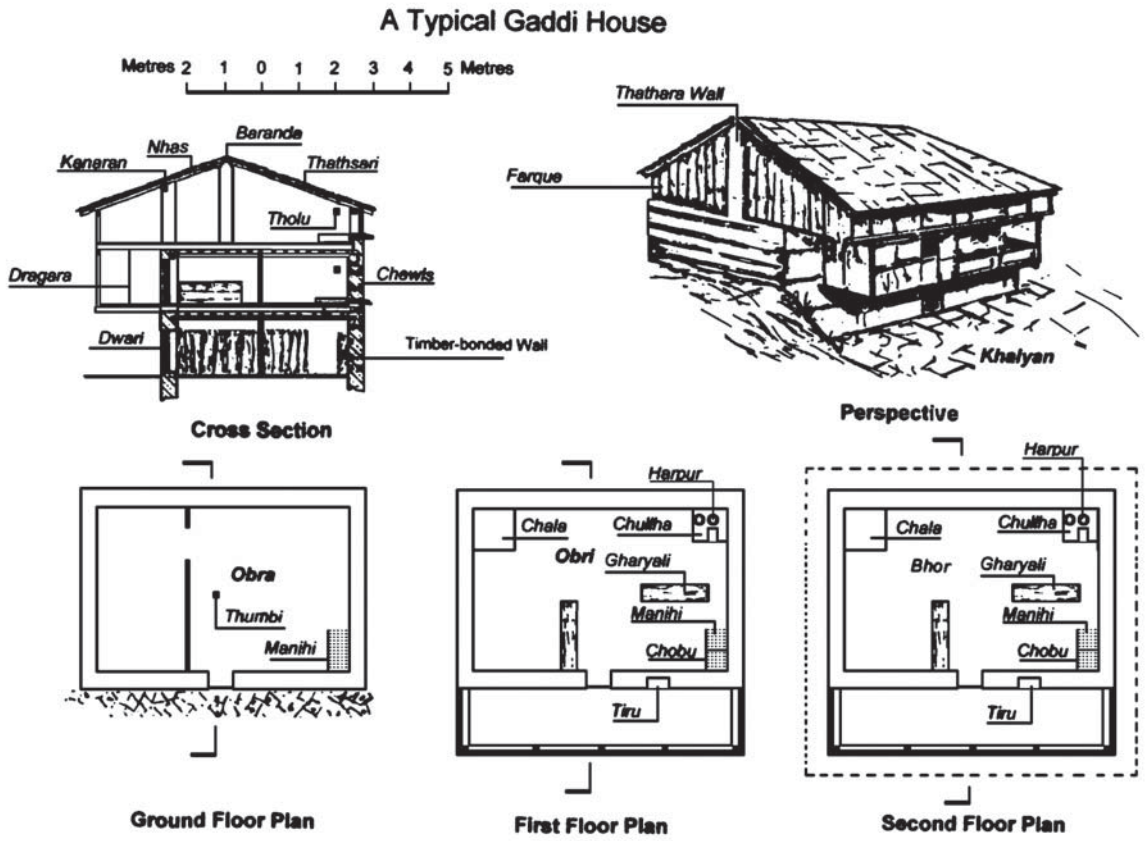


A Typical Gaddi House

INTRODUCTION

The homeland of Gaddis deep in the Ravi Valley of Chamba has popularly been known as the Gadderan. It is one of the most rugged terrains of the mountainous Western Himalayan interiors. I happened to visit this romantic land and its principal village Brahmaur (average height 2135 metres above MSL) first about forty-six years ago. Brahmaur of that period was a calm and sleepy village, unmindful of its glorious past and the magnificent wooden and stone temples of the early medieval times, when it enjoyed the reputation of being a capital town of Brahmpur kingdom. To reach Brahmaur at that time, I had to trek a distance of more than 60 kilometres from Chamba, because the road that existed then was no better than a widened footpath. Seeing the perilous condition of that road, I could well understand why a warning in the buses that "*sawari apane jan-mal ki khud zimewar hogi,"* i.e., passenger shall himself be responsible for his life and luggage, was written in the rickety buses of those good olden days. At Brahmaur, the writ of Naga Baba, the spiritual and temporal guru of the Gaddis, ran large in the entire Gadderan territory. He had settled in one of the old buildings beside the Chaurasi-complex. So powerful was his influence over the Gaddis that no outsider could get a shelter in Brahmaur without his express approval. Therefore, I also had to report to him and seek his 'grace' for my mission.

Now more than four decades later, the scenario has transformed radically. Naga Baba is no more there. His framed picture is placed where he normally used to sit. Brahmaur now is a sub-divisional headquarters and a full-fledged town of some sort, linked by a 62 kilometres long reasonably all weather blacktopped motorable road. The village has spilled over its seams, with stereotyped clumsy concrete structures popping up everywhere, dwarfing the ancient Mani Mahesh temple, the landmark of Brahmaur, and the mighty *deodar* trees around. Brahmaur today is a humming little town with quasi-cosmopolitan character. There are hotels, *dhabas*, tea-stalls lining the way to Chaurasi—the socio-religious nerve-centre of the area. In the streets, one can find video parlours, hairdresser salons and what not. Brahmaur and the entire

Gadderan area has been reaping the benefits of 'scheduled tribal' status and economic development in many ways, but the Gaddis are oblivious of what they have lost by way of moral, cultural and environmental degradation because of the so called development activities. The Gaddis seem to have lost their identity as an indigenous community. To arrest such rapidly occuring cultural erosion, it is essential to understand the layout pattern of the traditional houses in the villages and the knowledge-system of building them.

A TYPICAL GADDI HOUSE

The traditional Gaddi house is literally a primitive and rustic type of structure, which truly reflects the transhuman psychology of the Gaddis. Their one-room multipurpose dwelling-area for each household on each floor in a multi-storeyed house clearly reflects the casual manner, in which a house is raised largely by community participation, and the way it is put to use. Ironically, against such residential structures, the wooden and stone temples of Gadderan area are some of the finest and the ancient-most examples of the classical architecture in the entire Himalayan region. Surely, the architects of these magnificent wooden temples could not have been the Gaddis or their primitive predecessors, but the outsiders from Kashmir and the Gangetic plain in the mainland.

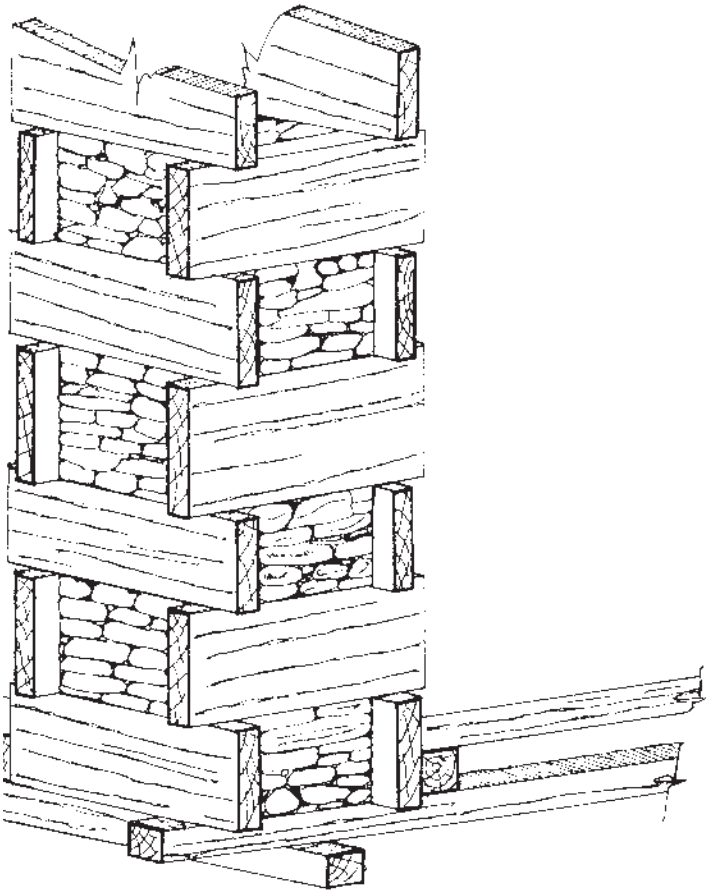
The Gadderan is a rugged and rocky mountainous tract, largely spread higher up on the mountain slopes and spurs. In the flatter locations, the houses are huddled together in the clustered formation. This holds good for most of the large villages, which in any case are only a few in number. Under the constraints of mountainous topography, most of the villages have residential houses built in the linear formation on different terraces along the contours. Such houses normally face the valley. In this mountainous interior, the orientation of a house is regulated more by the specific local site condition rather by the cardinal parameter. These houses are connected by the tortuous flagstone paved lanes, which also serve as the drains. Obviously, these are muddy and filthy. In case of larger villages, the houses of higher caste people are clustered together separately from the houses of lower castes, viz., the Aryas, Bensi, etc. Each house in the Gadderan has an open thrashing-yard, called

Brahmaur village

khalyan (Hindi: *khalihan*). The *khalyan* is neatly paved with thick slates and enclosed by a parapet wall. Although, it essentially is a grain-threshing yard, yet it serves as a multipurpose open space for the household. In the fair-weather, cattle are tethered in it and the women folk bask in the sun, while doing many domestic jobs.

The houses in Gadderan area, with only a few rare exceptions, are multi-storeyed, having two or more storeys under the stark paucity of levelled ground for them to expand horizontally. These houses form a class by themselves for their certain quintessential architectural and constructional features, which are not found elsewhere in the Himalayan interiors, not even in Chamba district outside the Gadderan territory. For instance, use of wood in the construction of *thathara*-type walls of these houses is far less in comparison to the *katth-kuni* type of construction that is so very common in the rest of Western and Central Himalayan interiors. Similarly, one may find an independent cooking place on each floor of the multi-storeyed houses in the Gadderan area, but this practice is unknown elsewhere in the region.

Brahmaur village



Thathara - A typical wood-n-rubble pillar

For such a quintessential local characteristics in the vernacular domestic architecture of Gadderan area, human factors, which may include social, cultural and economic considerations, rather than the environmental imperatives, may be responsible.

One of the significant features of house construction in the Gadderan area is that no skilled or unskilled labour is employed from outside the community. However, a professional carpenter may be engaged for the skilled woodwork, but he too is not a hereditary woodworker. In fact, a carpenter in the Gadderan territory is a skilled artisan by choice, who can even be a Brahman,[i] possibly because he earns better being a carpenter than by the Brahmanic dispensations. The absence of a hereditary professional caste of *tarkhan* in the Gadderan territory is a pointer to the fact that enough work has not been available for the professional carpenters in this area, and anyone could adopt it as a supplementary vocation. Entire building-construction work, including most of the woodwork, is accomplished through the customary community participation. That customary practice is known as the *kwer* or *saret* under the traditional *bartandari* system.

Under that system, a day or days are mutually arranged for contributing labour. Each household in the village provides one male person. All the men so engaged are treated by the host in the evening with meal and *sur*, the homemade liquor.
The Gadderan area is rich in a variety of forests, ranging from the conifers and broad-leaved trees at the lower elevation to the alpine exuberance of oaks and pines on the higher reaches, where the mountain slopes are covered with the high quality *deodar* forests. These forests have provided an inexhaustible supply of quality timber for building construction. On the other hand, good structural stone is rarely available. All that is available from the stone quarries is the mica-laden slate schist, which can only be sliced into thin slates of superior quality.

These slates have been the most common roof-covering material in the vernacular houses and temples. This schist stone is inferior for structural purpose, for neither can it be dressed or chiselled into blocks nor can it hold any type of mortar. The only way to use is to lay it flat one over the other in irregular courses without any binding mortar.

Obviously, it is unsuitable for the structural purpose. Therefore, the local people have devised an ingenious way to use it for structural purpose. They use these stones in a typical manner in the box-like wooden structural pillars, locally called *thathara*. A *thathara* is made of roughly hewn thick wooden planks.

TRADITIONAL CEREMONIES

As elsewhere in the region, three major ceremonies are involved in the construction of a house in the Gadderan territory. However, what makes these ceremonies different from the ones outside the Gadderan territory is the manner these are consummated here. The first of them, i.e., the laying of foundation is just similar to what is done elsewhere, but a goat may be sacrificed on that occasion. The family Brahman (or *chela*, i.e., a sorcerer) is invited to find out an auspicious occasion for laying the foundation stone and deciding the layout and orientation of the *dwari*, i.e., the main entrance. While, the edict of Brahman may prevail regarding the date and time for laying foundation stone, the local geo-physical condition, rather the decision of the Brahman, defines the layout and orientation. Nevertheless, the Brahman would consult astrological text from the *Bastu Sarani* to settle the orientation and layout of proposed house just to meet a ritual obligation. The house is always planned in a rectangular layout, preferably along the contours. Under the obtaining site condition, a house in the steep mountainous slope can only be built along the contours, and that consideration also settles the location of *dwari,* i.e., the main entrance.

The next and the most important ceremony related to house construction is the laying of ridgepole, locally called *baranda.* On that occasion, a goat is taken up onto the *baranda,* where it is ritually offered to the deity. The deity signals his acceptance of the offering by *bijana,* i.e., shivering of the animal on sprinkling water over it. The goat is then brought down and sacrificed. Its entrails are suspended from the *baranda* as ritual offering to the *griha-devata*, i.e., the house-god. Although, that sacrificial ritual is common in the entire Himalayan interior, yet suspending entrails from the *baranda* (ridgepole) may be typical to the Gadderan area. I have not seen it being practised elsewhere in the interiors. House is considered ritually complete after that ceremony.

The third and last ceremony is the housewarming. It is an occasion for the community feasting and rejoicing. On that occasion, blessing of Lord Shiva is invoked through an elaborate function, called *nawala.* It involves sacrificing of many goats to Shiva. The term *nawala* may be a derivative from the classical word *nav-alaya*, i.e., a new house.[ii] However, it is also regarded to mean *nav-mala*, i.e., a new garland.[iii]

A traditional way of laying foundation is very simple. The foundation rarely goes beyond thirty centimetres in the ground even for a multi-storeyed house (a Gaddi house in normally of three or more storeys), despite the fact that it has to withstand high wind pressure, heavy snowstorms and tremors. Large and heavy stone slabs are well packed together in the foundation. That process is repeated until the fill reaches a few centimetres above the surrounding ground level. That time-tested but casual style of preparing foundation is typical to the Gadderan territory. In fact, the old buildings built in the traditional style with such flexible foundations have withstood many tremors and vagaries of nature, while the modern buildings, built in formal manner of the Public Works Department (PWD) specifications, have betrayed the fallacy of rigid stone and cement structures.

On the foundation so raised, pillars are erected on the corners and in between them to form a grid, depending upon the size of proposed house. These pillars are known as *thatharas*. For making a *thathara*, thick and roughly hewn wooden planks, called *thathars*, of about 45 centimetres length, 40 centimetres width and four centimetres thickness, are placed on edge on the two sides with a gap of about 40 centimetres that defines the thickness of wall. Over it, the same arrangement is repeated, but *thatharas* are now placed across. That process is repeated until the proposed height of floor is attained. Thus, a space is formed within the box-like plank 'pillar'. The hollow space within the 'pillar' is then filled with the hand-packed stones. The *thatharas* are connected with each other by the horizontal planks, called *chewels*, spaced vertically one to one-and-half metres apart. The intervening space is packed with dry irregular stone pieces. Later, the exposed faces of walls are treated with mud and cow-dung plaster. People also use grey coloured sticky clay, called *chik*, as the colouring medium on the walls. Only a thin layer of this clay can be applied on the surface, because, when applied thick, it cracks and flakes off on being dried. This clay is found at various places in the region.

At times, the gaps between the *thatharas* are covered with the thick and roughly hewn wooden planks


An old house in Brahmaur

instead of the full-width dry stone wall. Such curtain wall is known as the *farque.* Sometimes, dhajji wall is also provided between the *thatharas*. To make a *dhajji* wall, a framework of wooden battens, braced with the wooden diagonals, is made between the *thatharas*. The space within the wooden framework is filled with the hand-packed stone chips. The sides are then finished with the mud and cow-dung plaster. The *farque* and *dhajji* types are generally preferred for the upper storeys only. The *thathara*-technique is used for the residential houses only. I have never seen such type of wall being constructed for temples, with the exception of some Naga wooden temples in the Chandrabhaga valley, Dehant Naga temple at Kilar, for instance[iv] Such walls are undoubtedly laterally much fragile and short-lived as compared to the timber-bonded *katth-kuni* wall. However, being of lightweight, the *farque* and *dhajji* walls exert much less load on the foundations. The *farque* type walls had been common in the Gadderan area of Chamba in Himachal Pradesh and in parts of Kashmir valley. Many old houses, built in that manner, may still be seen at those places, but that type of wall construction fell out of popular vogue under the modern influences.

Now coming to the flooring arrangement, the flooring of *obra*, i.e., the ground floor, is made of rough flat stones. At times, gaps between the stones are filled with mud and cow-dung mixture. All the upper floors are made by spanning joists and beams on the walls. When, the span is larger, a wooden post may be provided in the middle. This post is known as *thumbi.* Thick wooden planks are laid on the joists. Normally, no other flooring treatment is done, but in some cases, a thick layer of mud and cow-dung mixture is applied over the wooden planks. To make such mud flooring serviceable, it is occasionally treated with a flowing solution of cow-dung. That plugs cracks in the mud flooring. In the cow-dung solution, a liberal quantity of *gyontra*, i.e., *go-mutra* (the urine of cow) is added. It is believed that the *go-mutra* acts as a strong disinfesting agent.

The roofing arrangement is a simple affair, for the Gaddis do not have any idea of fabricating trusses. Possibly, they never required that elaborate contraption. They employed the age-old method of supporting the roof-rafters (the *nhas*) on the wall plates (the *kanaran*) on the sides and the ridgepole (the *baranda*), placed at the centre over the *thatharas*. Over the *nhas,* thick wooden roofing-planks (the *thathsari*) are laid. Over these roofing-planks, thick slates of irregular sizes are nailed. The roof is projected considerably beyond the supports to protect the exterior of building from the direct effect of snow and rain.

SECTIONS OF GADDI HOUSE

A traditional Gaddi house never has any window to the outside, but only a small entrance door (*dwari*) on the ground floor (*obra*). Thus, the multi-storeyed Gaddi house looks more a mini-castle than a dwelling house. However, the Gaddis are now increasingly opting for a more settled living, because of the statutory restriction imposed on the customary grazing rights for their flocks in several traditional grazing areas that has discouraged transhumance among them. That change has reflected on the style of their dwellings, which are now provided with small openings, called *tohlu,* on different floors. In most of the 'modern' Gaddi houses, now even small windows with iron gratings may also be seen.

The lowest floor of a house, called *obra*, is necessarily used as byre for the cattle and for storing fuel and fodder. Generally, it is a single large room. This room is sometimes apportioned into two functional areas by an improvised partition. The spacious half is reserved for tethering cattle and the smaller one, for storing

implements, fuel, etc. The *obra* is a dark and dingy room, with only one small door, called *dwari*, which is hardly larger than 150 x 90 centimetres. For ventilation, small holes, called *tohlu*, are left on the sidewalls. Sometimes, an improvised extra accommodation for tethering cattle may be created alongside the *obra*, which is known as the *ora*. On one corner of the *obra*, stepladder, called *manjhi*, *paran* or *sanari*, is provided to reach the upper floor through a trapdoor, called the *chobu*. A stepladder may be a single flight wooden staircase or a notched wooded log. Such stepladder and trapdoor are provided in the corner on each upper floor to provide access to the floor above.

The upper floors are generally residential. The first floor is called *obri*, the second floor is the *bhor* and the third floor is the *mandeh*. At times, the third floor is not fully enclosed, but kept open on two sides to give it a veranda-like appearance. In that case, it is called *sal,* and is used for storing grass, firewood, etc.

SOCIAL SYSTEM

According to the Gaddi social system, a bridegroom is supposed to establish his own elementary family soon after he gets married. "It is unusual for the married brothers' wives to occupy the same fireplace. Traditional joint families are unusual"[v] among the Gaddis, though the joint family has been an accepted system in the entire Himalayan interiors. Under that exigency, each upper floor of a Gaddi dwelling is a compact all purpose large room, divided into several functional areas for living, sleeping, storage, cooking, etc. In one corner of the room, a small space is paved with thick one-piece slate and an outlet is provided in the wall for draining out wastewater. It is called *chala*. Utensils are washed in the *chala* and the female inmates may also take occasional bath there. A Gaddi house does not have the luxury of an independent bathroom or lavatory. People go out in the fields to ease themselves. The *chullha*, i.e., a hearth, is made in a corner of the room. Beside the main cooking-stand, the Gaddi *chullha* has a couple of secondary stands, called *harpur.* Cooked food may be placed on the *harpur* to keep it warm. There is no provision for smoke to escape from the room in a Gaddi house. Sometimes, a *tohlu* may be left on the wall just above the *chullha*, or smoke keeps on gathering in the room itself. While, others may feel suffocation in that room, the Gaddi family, conditioned to that situation, feels just normal. However, on the top floor, a slate, called *bonti*, is loosely fixed on the roof just above the *chullha.* This slate may be pushed to the side for smoke to escape, but it is replaced at time of rain or snow. Near the *chullha* is *gharyali*, a 30 centimetres high platform, where utensils and pitchers are kept. No cupboard or cornice is provided in the room, but a small niche, called *tiru* or *khudi*, is provided for enshrining the household deity, mostly a Naga Devta.

Each floor has a cantilevered veranda, about one metre wide, running in front. This veranda is known as *dragra* or *behi*. The *dragra* is generally kept open and without railing, but at times, it may be partly enclosed with thick and rough wooden planks to create a safe storage space. It serves for the daytime household chores and for the family members to congregate, work, sit, relax and doze. It also serves as a secure area for spreading and drying grains. A loom may also be installed in one corner of this veranda.

Most of the building construction material — stone, slate, clay, etc. is locally available around the villages, which is collected by the community participation. Wood is procured from the *deodar* jungles on the customary concessional right-holder's rates, called the *bartandari* rates. That practice has been common everywhere in the Himalayan interiors. While, the use of wood has been very lavish and artistic almost in every village house in the interiors of Mandi, Kullu, Shimla and Kinnaur districts, the Gadderan territory is exception in this regard. In the Gadderan region, not only use of wood is lesser, but it is artless as well. The only plausible reason for that may be that since handling of wood involved service of a skilled artisan and lot of time, for which the Gaddis were not willing under the constraint of their agro-pastoral transhuman routine. Therefore, the Gaddis improvised in their own naïve manner the ways to use wood. The result has been, roughly hewn thick planks of irregular sizes being used artlessly in almost haphazard manner in the building, without proper joinery.

CONCLUSION

A traditional Gaddi house is not an impressive structure. Rather, it looks outlandish and rustic even in its finished condition, which reflects their naïve semi-pastoral and semi-agrarian living-style. Nevertheless, the architectural and structural aspects of these dwellings are ideally compatible with the environment of the terrain, where these are built. The tall structures are so raised on the ground that these may tilt under the uneven settlement of foundation or under tremor, but should not collapse. There is hardly any rigidly

fixed or firmly jointed structural component in it. No mortar is used in laying stones, and even the use of iron nails is minimal. For that reason, centuries old traditional residential houses may still be found standing in the habitable condition in the Gadderan territory, although many of these have suffered tilt under the natural vagaries.

On the other hand the ancient *Kardar Kothi* at Brahmaur was grievously devastated by the Kangra Earthquake of 4th April 1905.[vi] This *kothi,* ascribed to Raja Prithvi Singh (AD 1641-1664) of Chamba, was renovated by one of his successors, Umed Singh (AD 1784-1764), who provided to it carved wooden ceiling panels and a carved entranced door.[vii] The extant carved structural parts of that building, especially some of the ceiling panels and the entrance door-shutter were removed to the Bhuri Singh Museum at Chamba. These figuratively carved wooden relics clearly reflect the influence of Mughal art on the art tradition of Chamba. The woodcarvings of *Kardar Kothi* are the exclusive example of carved woodwork in a secular structure at Brahmaur, for no such tradition of woodcarving existed in Brahmaur, nor do we find any evidence of art woodwork done by a local artisan in the local residential house in the entire area. Interestingly, from the extant structural parts of that *Kothi*, it is evident that it was not built in the traditional Gaddi style by the Gaddi artisans, but on the urbane and feudal architectural style of Chamba by the imported artisans, especially the woodworkers. One of them was Chetru of Chamba.[viii] That may explain, why it fell victim to the earthquake, while apparently much older residential houses built in the traditional local style withstood that tremor.[ix]

When the superb architecture and artwork of the early wooden temples in the Gadderan territory, as at Chitrari, Brahmaur and Markul, is compared with the naïve traditional domestic architecture of the area, one striking fact emerges out. While the early wood-based architecture and artwork was highly sophisticated and classical in every sense of term, the Gaddi domestic architecture has been rustic and artless. That may give rise to a suggestion that the earlier classical art and architecture of Gaddiland was not the product of Gaddis, but of the imported artisans. Under the arduous agro-pastoral mixed economy, the Gaddis might not have been able to imbibe the finer nuances of living from their predecessors of the Brahmpur kingdom, which fact is strikingly reflected in their naïve and rustic but captivating costumes and ornaments as well. The architecture and construction technique of their dwelling houses are also influenced by the same naïve psychology. Evidently, the Gaddis never took building of their houses seriously, but they relied upon improvisation. That fact is evident not only from the way their houses are built by community participation without involving any skilled artisan, with the exception of occasional carpenter, but also from the distribution of space within. All these features indicate a sort of makeshift camping arrangement at a single floor-level, notwithstanding the fact that most of the Gaddi houses are multi-storeyed.

A housewarming ceremony is held before occupying the new house. On that occasion relatives, friends and villagers are feasted by the host. That ceremony is known as the *nayaaz.,* while the *Gaddis* call this *Pathraitna.*

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The Artistic Heritage
Can we save the Chaupal?

RANBIR SINGH

ABSTRACT

A chaupal is a decorated building, located mostly on the periphery of the village habitation, used by the village communities in Haryana for celebrations and holding meetings of public significance as well as making important announcements. Its design and embellishing features and architectural layout is conspicuous as its purpose is quite different from the dwelling units. Most chaupal buildings that were constructed in brick masonry in Haryana between the years 1840 to 1940 AD were decorated with wall paintings. Floral and geometrical design in stucco made the chaupal buildings attractive. With the discontinuation of the use of the traditional building materials, the chaupal buildings could not be repaired properly. Weathering, structural fatigue, aging and human neglect further contributed to the deterioration of chaupals. These structures of yore are either facing utter neglect or have been replaced with new structures after demolishing the old ones. As an important landmark in the art and architectural heritage and history of Haryana, these crumbling beauties need immediate attention for conservation and restoration.

INTRODUCTION

It seems that the Haryanvis have forgotten the unique grandeur and native character of architectural heritage in their rush to build new structures for public use. Until a few years ago, many streets and corners of the old parts of villages and towns of Haryana used to be a

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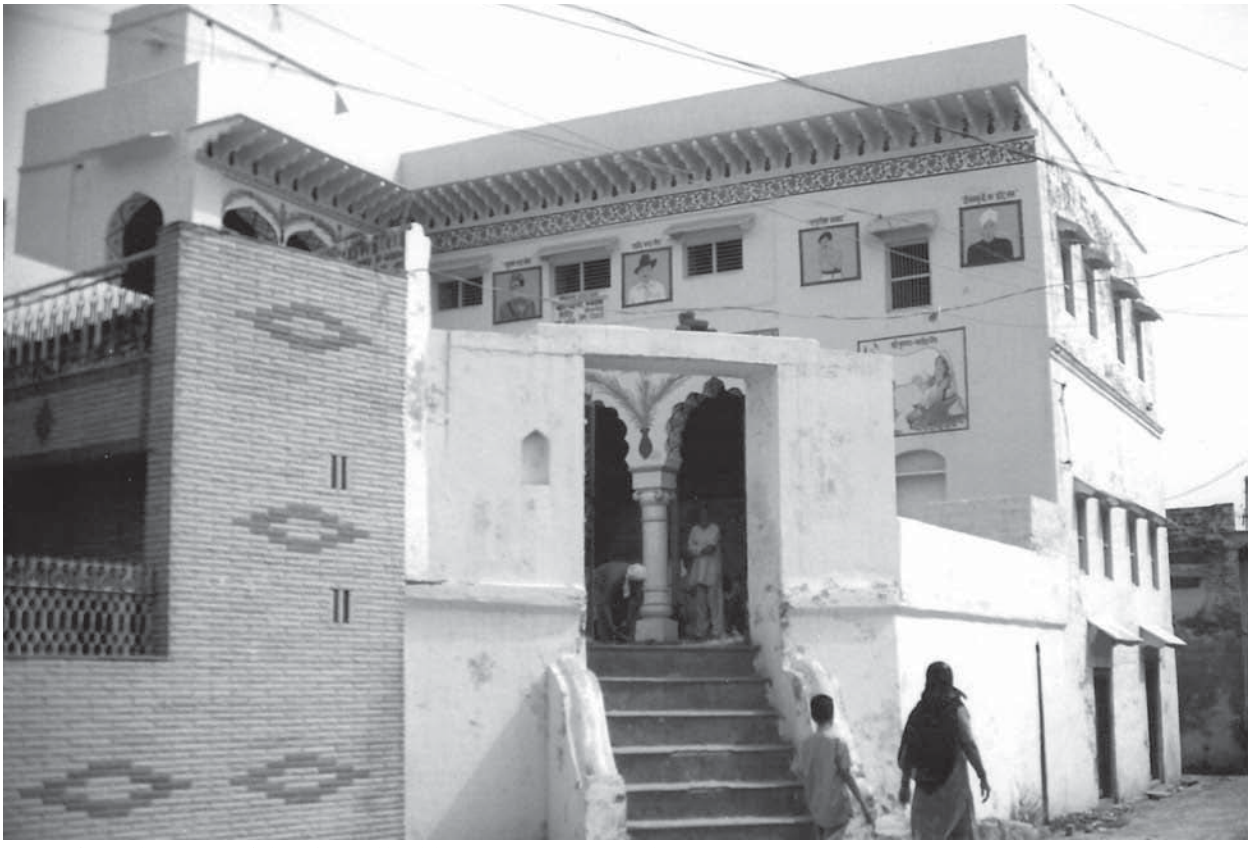
visual delight due to the presence of indigenous archeological forms such as *havelis*, *nauharas* and *chaupals* (a grand mansion or a dwelling unit built in traditional Indian architectural style, a traditional mansion-style building with a large room for the menfolk, storage cottages and sheds for animals and community buildings respectively) built in the traditional Indian style of architecture. The themes of the wall paintings that generously decorated the walls were chosen from old Hindu mythological tales and epics as well as the folk life of the people of Haryana, particularly that of rural communities. Until a few decades ago, the beauty of the old style buildings, displaying splendid architectural features,were a pride possession of the owners as well as the community. Not to mention the *havelis* or *chaupals* alone, the temples, the village masonry wells, *maths* (a monastery inhabited by mendicants and followers of Gorakh Nath, a great sage of the Hindus) of Kanphata Jogis and even the domes of *chhatris* (cenotaphs) were decorated and embellished with wall paintings depicting a wide range of subjects such as the milk maid, a king or a love-legend in addition to the gods, goddesses and prominent events from the Hindu epics such as the Mahabharata and the Ramayana.

The presence of thousands of such buildings that were constructed between the years from 1840 to 1940 AD in Haryana either for the purpose of dwelling or for community or secular use or for religious purpose convey strongly that Haryana was not devoid of art. Decades of neglect of heritage value properties, compounded by weathering, aging or structural fatigue, have caused most of these buildings to turn into ruins in Haryana. However, it should not be presumed that the concerned individuals, non-government agencies and the government of the state are not aware of the bad state of affairs in this regard. The situation becomes more deplorable when adequate, appropriate and effective steps are not taken. Vast technical and financial resources are needed for the maintenance of heritage properties that are in both the private and public domain. A few individuals with missionary spirit have documented these valuable vestiges of the glorious heritage of art and architecture in Haryana. The Haryana Chapter of the Indian National Trust for Art and Cultural Heritage (INTACH) has its own plans for the documentation, conservation and awareness about both the tangible and intangible cultural heritage of Haryana. However, INTACH also needs financial resources from the



View from the street of the *chaupal* building at Majri, currently in use

(Left) A wall mural at Majri Chaupal; (right) The wall painting depicting two wrestlers on the gate structure of Shamlo Kalan; (centre) A goddess astride a tiger depicted in the mural at the Shamlo Kalam Chaupal

public exchequer as well as the aid of philanthropic individuals to prepare plans and undertake this gigantic task. As of now, INTACH is busy listing heritage value properties in a few more districts of Haryana in continuation of their previous documentation efforts.

According to a survey being conducted by the author since 1986, at least 4000 heritage properties in Haryana, irrespective of the ownership rights, have been identified as requiring immediate attention. The level of awareness in the people of Haryana also needs to be enhanced so that such properties are neither willfully dismantled or left unattended to turn into ruins due to neglect.

VILLAGE SHAMLO KALAM

Two cases where a particular community in the village repaired and renovated these structures in absolute indifference to the previous embellishments of the building both, with regard to wall paintings and stucco work, were documented.

The first citable case relates to that of a *chaupal*, nicknamed 'Chaupal Dhaula Darwaja' (the white doorway community hall) at Shamlo Kalan village, situated about 18 kilometers towards the east from Jind town. This village was founded by Gathwala Malik Jats about 400 years ago. The chaupal was commissioned to be custom-built by a section of the village community from contributory funds and completed in 1907 AD at a time when the British Raj was at its peak in India. In the interior regions the means of transport were either draught animals or animal driven carts. Railways had just come into existence at that time. In view of this there was great stress on the community for transporting men and material for building edifices such as chaupals. The Delhi masons that were hired to plan the layout and erect this chaupal not only applied some of the fine features of traditional Indian architecture while raising the structure but also enhanced its magnificence by creating about a hundred wall paintings depicting scenes from the Hindu mythology as well as the folklore and life style of the local people. It is a significant fact that the paintings (most of them on the folk life) that exist in this chaupal were created in a particular style depicting exclusive subjects not found elsewhere. An important aspect is the specific coverage of historic legends and religious themes relevant in those times. For example, folk life at a village well, figure of a peasant tilling his fields with a pair of oxen, female folk dancers and folk instrument players accompanying her at the performance, a peasant women taking comfortable strides and carrying the morning bread and butter for her husband who is working in the fields, two wrestlers practicing their daily routine, the famous love story of the Punjab depicting Heer and Ranjha, a rider on a decorated camel, drum beaters, Sarangi (a musical string instrument) players, Pitrabhakta Shravana Kumar,

The intact arch of the collonade in Shamlo Kalan Chaupal

Narsimhavtara (one of the ten incarnations of Lord Vishnu who was half human and half lion) killing Hiranayakashyapa, the renegade king who defied the authority of the creator of the universe, Lord Rama fighting with the demon king Ravana and his sister Surpanakha, mendicants, ascetics, brahmins and Raja Harish Chandra with his queen and son standing in service before Rishi Vishwamitra were depicted with all the essential elements of village life; and imbibed with vibrant elements of the culture of Haryana. Through these paintings one can also recognise the costumes of the people that were in vogue in the late nineteenth or early twentieth centuries for both men and women as well as the various designs of the jewellery and the style of wearing it. The ramshackle condition of the chaupal, as noticed in early June 2006, called for immediate attention towards its conservation. More than half the number of wall paintings were in a damaged state either due to the chipping off pieces of plaster and color pigments from the walls or their disfigurement by village children. Lack of cleanliness and rising seepage in the walls posed a threat to the life of the brick masonry structure as well as what remained of the wall paintings.

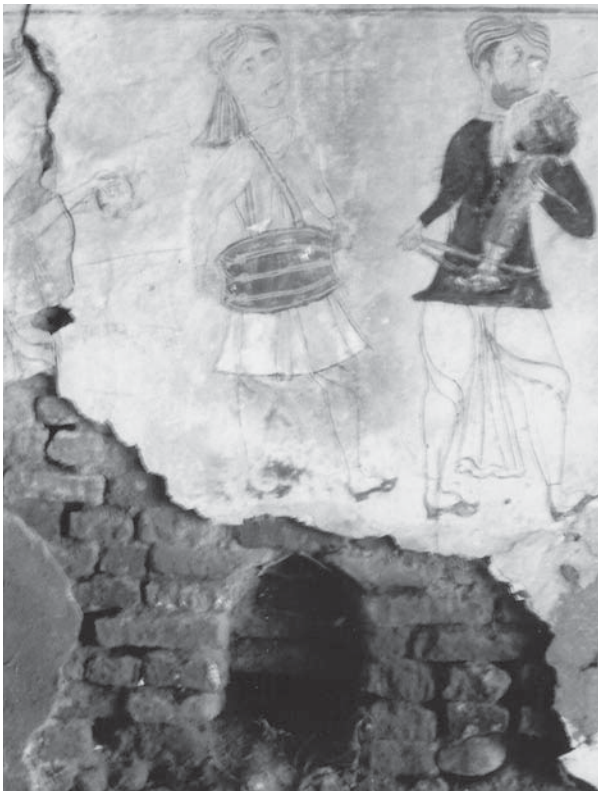
The village communities in Haryana have no practical knowledge about the conservation of local level monuments or artistically built buildings assuming heritage status. In spite of the heavy damage caused by neglect for decades and aging, the Dhaula Darwaja Chaupal building at Shamlo Kalan has survived only due to the structural strength of the brick masonry done in *chunam*, a traditional binding line material. Taking into account its overall condition it seems possible to restore this structure's former glory and magnificence for posterity. However, due to the apparent indifference and conflicting opinions among various owner groups within a small section of the village community, the conservation work in regard to the chaupal may become a challenging and formidable task. The general opinion of the village folks towards such buildings has been to demolish the old structures built in *lakhauri* bricks and replacing it with a new one, built in both large bricks and reinforced cement

A mural redone with enamel paint during repair and renovation at Majri Chaupal

concrete. In that case, the wall paintings become the heaviest and first casualty. When this attempt was made to start photo documentation of the chaupal with particular attention towards its precious heritage of folk-style wall paintings and recording its history, the first feedback that came from the community was whether this was a scheme of the State government for the consideration of a grant for renovation! Mr. Bhup Singh Gulia, from the Faculty of Fine Arts in Maharshi Dayanand University accompanied the author to the site. He asked a pointed question, "Why would the owners look for external assistance when in bygone times the village elders had built the chaupal entirely with their own resources?" But the majority of the curious villagers, who had gathered to see what was going on, did not accept this suggestion. However, it was a good case-study from two angles - firstly, the village community had not disfigured, altered or converted the basic architectural design of the building and the wall paintings were not destroyed despite the fact that the whole building faced severe neglect.The partial damage that existed was only circumstantial. Secondly, the pattern, style and design of the structure and ornamentation could be documented in its original form.

VILLAGE MAJRI

The second site was a renovated building of a *chaupal* located at Majri village, situated about 20 kilometers towards the south of Bahadur Garh town in the district of Jhajjar in Haryana. The painters had authentically depicted the events from village life. In doing so, they chose to paint womenfolk drawing water from a well, a bear keeper or a Bhalu Madari, a women spinning at the wheel and the house keeper milking his buffalo. In fact, the renovation of this chaupal completed sometime in the year 2004 ruined its original paintings that were most significant and precious relic of art heritage of the people of Haryana. These were rare and unique subjects. For example, the depiction of Basti Ram, a celebrated folk singer and Pirthi Singh Bedharak was unique to this building. While Basti Ram was blind from birth and sang devotional or



Extensive damage to the wall and the mural depicting musicians with their instruments

Village elders in a discussion in the central hall of renovated *chaupal* at Majri

reformist songs using a single string instrument called the *iktara*, Prithi Singh was an Aryasamaji Bhajnopdeshak (a reformist of the Arya Samaj, one of the most powerful sects of the mission of social reform that Swami Dayanand had launched in the late nineteenth century).

The chaupal building was designed and constructed in 1930 AD by masons of the Majri village and painted by Jailal, the head painter assisted by his colleague Banwari Lal, both from the village of Lova Majra. After removing the old *chunam* plaster on which the wall paintings were originally created, the building was repaired by applying a new coat of cement plaster. It seems as the original wall paintings must have been very impressive in terms of their colour scheme, style and the selection of topics / subjects. Fortunately, the basic structure and layout of the building was retained in the previous form. The wall paintings were re-drawn in enamel paint (by intervention of certain old men from the village) over the originals by a young Nepali painter who had no idea of the folk life of a village in Haryana. More surprising was the fact that instead of normal water-soluble acrylic paint or vegetable dyers, enamel paint was preferred for applying a coat on the plastered surface of the walls over which the new work of re-creating the figures was done. Thus the antiquated look and former grandeur of the *c*haupal was ruined in this case. Moreover, there was a marked difference between the scale, proportion and aesthetics in the old and new style in spite of the fact that same subjects were preserved during the re-creation of the wall paintings. The funding for repairs and renovation received as a liberal government grant was spent without giving due consideration to the art-style, heritage etc. Had the village community sought expert advice from conservation agencies, the magnificence of their built environment could have been retained.

CONCLUSION

These above two examples amply indicate the treatment that cultural properties, particularly chaupals have received in Haryana. In the period between 1986 to 2006, 450 chaupal buildings were located in villages and surveyed for their decorative features and possibility of conservation. It looks as though the absence of an effective policy- document containing guidelines for protection, conservation and restoration of the cultural properties or a state appointed agency to look after this important aspect has lead to the loss of heritage properties. At the speed with which the old buildings are being dismantled or renovated, precious vestiges of Haryana's art heritage is getting lost that will be hard to retrieve.

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Sustainable Solutions

Unique Initiatives with Community Participation - Pro-poor, Demand-responsive

PRADIP KUMAR NANDI

ABSTRACT

With rapid urban development, the gap between the demand and supply of water in urban areas is widening, imposing stress on the basic infrastructure facilities of the local bodies, which often fails to address the growing demand. This project was initiated with a vision to demonstrate that it is possible to quickly improve the lives of the urban poor and the disadvantaged by connecting them to safe drinking water. This initiative had a pro-poor approach where the cost of construction of the system was met upfront from the revolving fund, specially created for the project implementation.

Initiated in Indore, Madhya Pradesh targeting 1200 households, this project was implemented in partnership with UN-HABITAT, the District Urban Development Agency (DUDA) and the Community Water and Sanitation Committee (CWASC). The approach adopted in the implementation included the waiving of upfront deposition of connection charges in favour of easy installments. A remarkable improvement in the communities' financial management has been achieved through their capacity building. The implementation of the initiative also enhanced the capacity of the local community and other stakeholders on taking up the projects on community participation. This project has potential for managing sustainable drinking water supply at affordable costs.

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SITUATION BEFORE THE INITIATIVE BEGAN

The notified slums of Shiv Nagar, Shahin Nagar, Pawan Putra Nagar, Kamal Nagar and Chowdhary Park Colony are situated in ward No. 64 of Indore city and contain 1200 households almost below poverty line. Presently, there are no dug wells or hand pumps available in the locality and the households are dependent on private tube-well owners for their water requirements. The poor also fetch water from the nearby Lakhani factory, which is located at a distance of three kilometers from the colony. During summer time people get water from the tankers of Indore Municipal Corporation and in other months they buy it from private tube-wells.

The priority of the Community Managed Water Supply Scheme (CMWSS) was to provide water quickly to improve the lives of the urban poor and the disadvantaged by connecting them to safe drinking water. It is expected that the users do not have to travel long distances or waste time in queuing for water. The consumers are also assured of continuous service or, if not continuous, on a regular basis (same time every day) and are provided with enough water to cover their daily needs, thus facilitating proper housekeeping. Providing water to those living on upper reaches of hilly areas was the immediate task.

OBJECTIVES AND STRATEGIES

The objective of the initiative was to begin a demand-responsive approach, full ownership of the assets and responsibility of operation and maintenance by the community including loan recovery. The scheme was undertaken in the participatory mode involving the DUDA (Indore) and the community. Under this scheme, the community was converted into a legal entity to carry out the responsibilities of planning, design, implementation, operation, maintenance and management. The DUDA entered into a Memoranda of Understanding with the community (CWASC) for institutionalisation of arrangements.

Vivek Aggarwal, Collector is interacting with the community

MOBILISATION OF RESOURCES AND THE PROCESS

The total capital investment for the operation of the system was estimated to be Rs 30,24,000. The DUDA, Indore has contributed Rs 10.00 lacs and the balance amount was funded by UN-HABITAT under its Water for Asian Cities (WAC) programme. A Revolving Water Fund (RWF) has been created with the money provided by UN-HABITAT under its WAC programme to facilitate the implementation of this initiative. The Revolving Fund is being managed by the DUDA, Indore. The community was provided a loan equal to the capital cost of the scheme from the fund to meet the infrastructure development cost, which is being paid back by the community to the DUDA (Indore) in installments.

The poverty pockets were selected after a series of consultations with the stakeholders. The body of the Community Water and Sanitation Committee (CWASC) has an adequate representation of women. The Committee based the planning and design of scheme on affordability and technical feasibility. This project involved the construction of an elevated reservoir and the laying of pipelines. The training activities of record keeping, procurement and contracting procedures, and operation and maintenance were conducted for the CWASC.

IMPLICATIONS

Addressing all the concerns and unheard voices by a consultative process with the community proved an effective tool for the participation of community. The CWASC could work as a participatory institutional device for target oriented association with the community.

The implementation of the scheme in the participatory mode proved that even the poor in the community are willing to pay for the basic service. Another outcome

Uma Sashi Sharma, Mayor of Indore inaugurating the scheme at Shiv Nagar, Indore

is the demonstration of a workable partnership between local government and community, setting the ground for scaling up / ensuring provision of other civic facilities. Such partnerships are capable of recognising and addressing local opportunities and constraints.

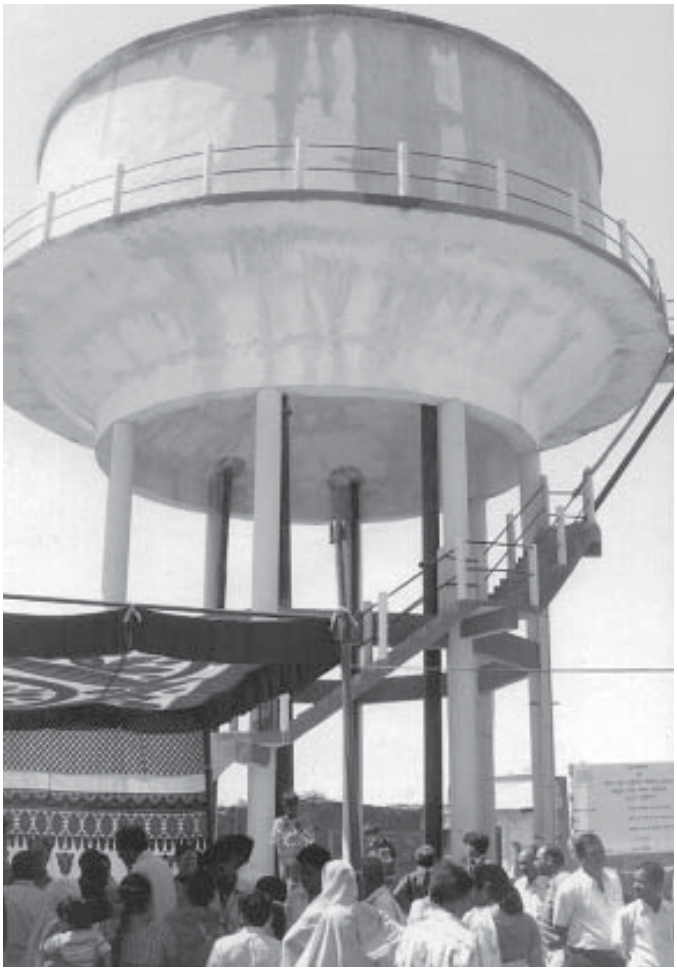
The involvement of the community in the operation and maintenance of the scheme will relieve the human resources of the Municipal Corporation, thus making them available for other projects. The participatory decision-making in the CWASC could resolve the conflicting views and synergise opinions, aiding the formation of a common approach in addressing the similar problems.

With the implementation of the Community Managed Water Supply System, the health conditions of people (including women and children) have been improving as they had started getting quality water. The methodology applied in the process of project implementation was able to establish better coordination and integration between community members, CWASC, and DUDA. In a way the initiative improved the capacity of DUDA to take up community participation based projects. It has brought visible changes in people's attitudes, behavior and in the respective roles of women and men in meeting their water needs.

SUSTAINABILITY

As is evident, the poor are unable to get piped water supply in their homes on account of high connection charges that have to be paid at the very onset to the Municipal Corporation. Under this scheme, a new payment schedule has been introduced which has a pro-poor approach specifically created for the residents of slums to ensure economic sustainability of the scheme. After extensive consultation with the community, it has been agreed that in Indore the connection charges will be recovered in five monthly installments of Rs. 200 along with user charges of Rs. 60 till the full connection charges are recovered.

The residents will also have the flexibility of weekly or fortnightly payments. Fixed installments have been proposed as it does not appear to be practically feasible to meter the consumption of each household in this below poverty line area. The entire capital



Overhead service reservoir at Shiv Nagar, Indore

investment would be recovered in 46 months in Indore for executing a similar piped water supply scheme.

On completion of the pay back-period the CWASC may resolve to hand over the scheme to the Municipal Corporation for operation and maintenance leading to the ultimate integration with the municipal supply and the residents only paying for the water charges as per the prevailing rate at that time. The initiative was successful in the leveraging of resources from the community, including cost recovery through pro-poor user charges and pay-back of loans taken up from the revolving fund to meet the cost of capital works up front. It is sustainable as the men and women are equally involved and due consideration is given to community's attitudes, behaviour patterns and heritage.

LESSONS LEARNED

The CMWSS approach established substantially that they can execute and manage drinking water supply scheme as per their needs and affordability. A remarkable improvement in community's financial management can be achieved through their capacity building with the result that the CWASC opened a bank account and carried out all the transaction relating to project execution and operation and maintenance. The participation of women is crucial for the success of CMWSS, since women are the main collectors and users of water, as well as the main sufferers if the system does not function. The implementation of the initiative enhanced the capacity of the DUDA, the local community and other stakeholders to take up other projects on a community participation basis. Where in communities are empowered with informed choices and mobilised.

CONCLUSION

The government of Madhya Pradesh issued guidelines for the implementation of CMWSS in urban areas in partnership with the community, community based organisations and the urban local body. Since the CMWSS is a process project designed to enable the community to have access to acceptable, adaptable, sustainable and affordable safe drinking water system, the reform process does not end with the physical completion of water supply schemes. In several ways, it marks the beginning of a new and more challenging phase in the process where the local community has to shoulder the responsibility of the operation and maintenance of the system. This entails putting into operation the decisions taken by the community with regard to the tariff structure, collection of monthly water charges from the users, ensuring proper maintenance of the system so as to create a reliable and regular supply of safe drinking water. The community will have to arrange for periodic quality checks of water being supplied as well as ensure sustainability of sources. All these activities would require a high degree of community mobilisation and awareness. The local action taken by this organisation has established prospects for managing sustainable drinking water supply at affordable costs through the empowerment of the communities and their capacity building, which can be replicable and adaptable in other cities and towns.

Recycling Domestic Waste as Building Components

An Environmental, Economic and Aesthetic Imperative

YATIN PANDYA

ABSTRACT

Manav Sadhna Activity Centre at Ramapir Tekra squatter settlement is an effective demonstration of recycling domestic/municipal waste into building components and applying them to create durable, sustainable and affordable building. The Activity Centre's walls are made up of fly - ash bricks, bricks made from municipal dump fill site waste residue, stabilised soil blocks, empty glass bottles, plastic water bottles filled with waste as well as wooden crate planks. The roof demonstrates the innovative application of glass bottle, plastic bottle and brick filler slab, cement bounded board and stone slabs. The door applications include crate wood frames with oil tin container panelling, packing wrapper reinforced fibre reinforced plastic (F.R.P) panelling, oil tin container blade louvres etc. The floor tiles have also been made from municipal waste residue and ceramic tile waste mosaic.

This approach helps reduce pollution and thereby provides environmental advantage. Secondly, it empowers the poor by providing economic activity of value addition through recycling; Finally, it provides cheaper, durable buildings through used and wasted products.

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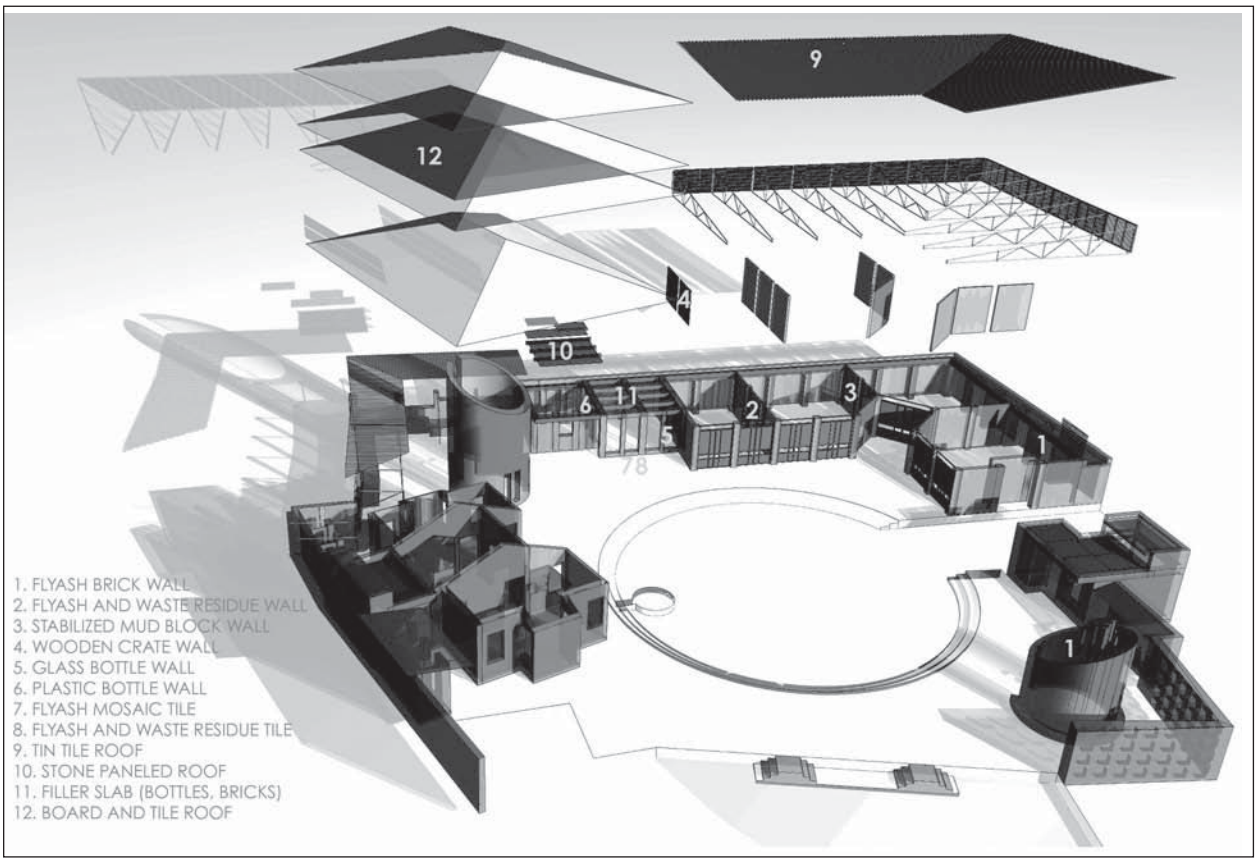


Axonometric view of the building

INTRODUCTION

Nearly 27.4 million tonnes of waste is produced daily in the urban centres of India. Cities like Ahmedabad alone produce 2750 metric tonnes. Unfortunately nothing of this really gets processed. This waste is simply dumped openly in the landfill sites, which use enormous volumes of fossil fuel, creating an altered, polluted, unsafe and unhealthy landscape. Thankfully India has a well-established tradition of waste recycling which is clearly demonstrated in the nation's daily practices and lifestyle. By giving waste or surplus food to beggars and animals, the leftover food waste goes beyond its primary life cycle. Food along with many other objects are given added value for their multiple uses and diverse applications. Can the building industry not learn from these applications? An activity centre at Rama Pir Tekra, at Wadaj in Ahmedabad has been one small attempt in the direction of recycling municipal/domestic waste into building materials.

The activity centre is located amidst the largest squatter settlement of Ahmedabad, and was created under the initiative of the social NGO, Manav Sadhna. The multi-purpose activity centre serves as an informal school for young children, provides evening education for adults and serves as a training centre and activity workshop for the manufacturing of craft - based products by women and elderly. The campus also includes a dormitory, an administrative unit and an all-religion meditation unit.

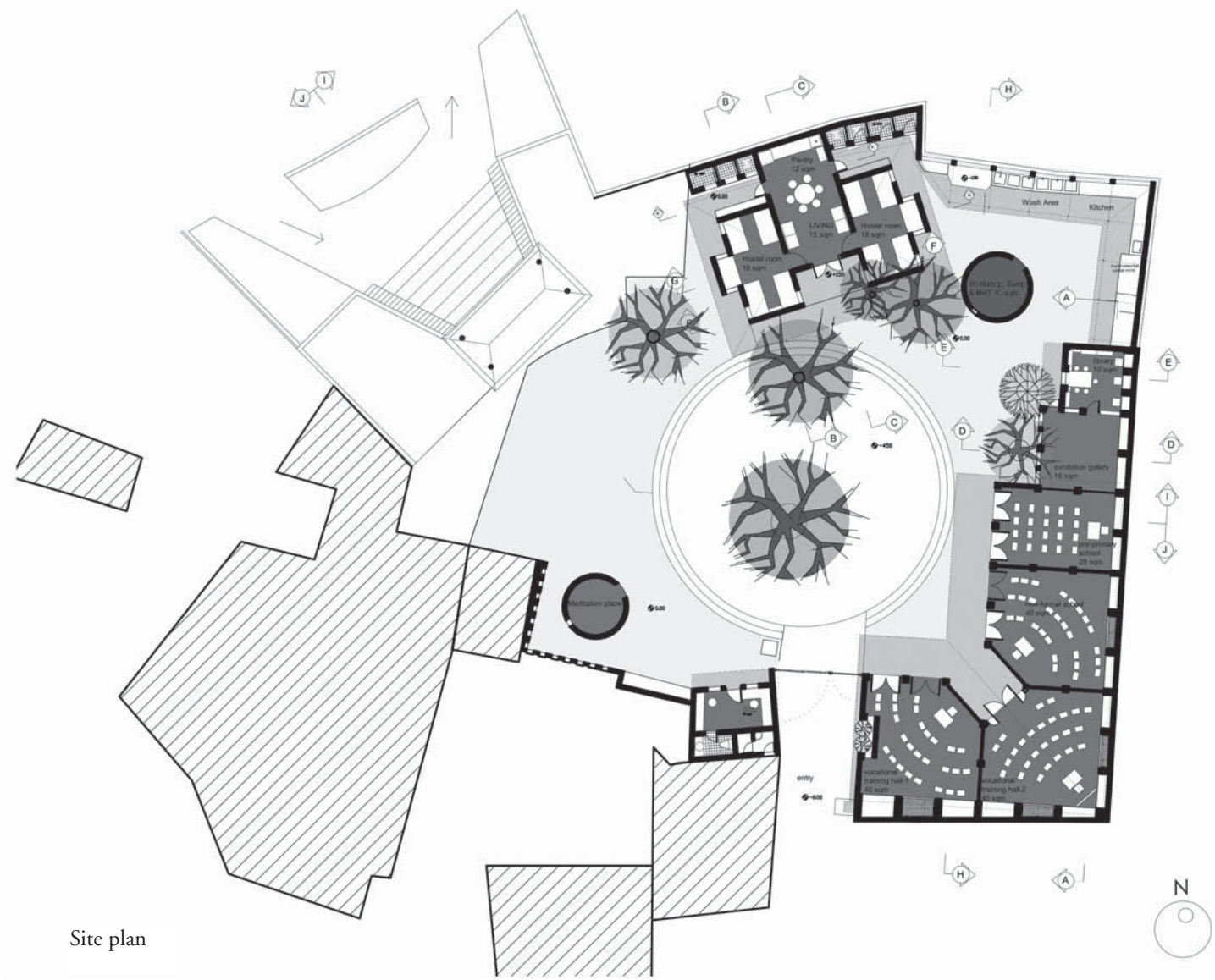
The campus is built using components prepared through recycling municipal/domestic waste. This process simultaneously addresses environmental concerns, economic issues and affordable housing. As municipal waste from the domestic sector is used for producing building components, it helps to reduce waste and pollution. Through value addition processes of recycling the waste, it provides a means of economic activity for the poor as well as a sense of empowerment. Finally, as the recycled building components are cheaper and of higher quality than the conventional materials, they provide affordable and superior quality building alternatives for the urban poor.

CONCERNS

Non-polluting environment, economic empowerment and affordable built forms are the three key dimensions of this initiative. The project is an outcome of over three years of empirical research at the Vastu Shilpa Foundation for Studies and Research in environmental design, with the goal of converting municipal waste from the domestic sector into building components. First hand experiments and on site explorations have led to the development of innovative building components that use waste, simple hand - operated tools, local resources and know-how. The project also demonstrates that building can become an economic activity, empowering the poor. It shows the potential of building as a cottage industry for economic self-reliance and the possibilities of improving the quality of homes using affordable alternative building components.

CONSTRUCTION

The campus is built as a live demonstration of the application of recycled waste as affordable, aesthetically pleasing and efficient building components. The products developed for this project, which incorporate municipal/domestic waste and are prepared with simple hand - operated tools, are demonstrated in the walls, roofs/slabs, doors and windows. There are six types of materials and techniques used in the making of the walls. These include cement bonded fly-ash bricks, mould-



Site plan


Flyash brick wall


Fly - ash wall


Wooden crate wall


Flyash and waste residue wall


Waste fly - ash wall


Wood partition

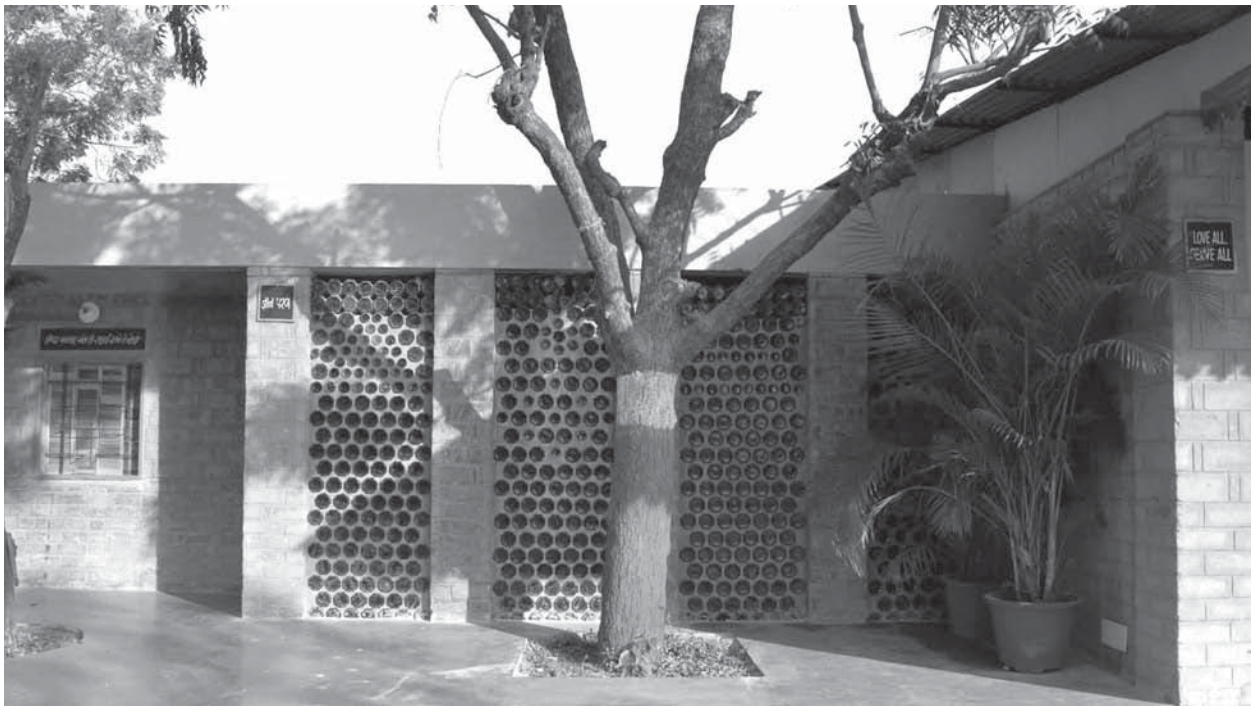

The new structure is designed to accommodate the existing tree

compressed bricks made from landfill site waste residue, stabilised soil blocks, recycled glass bottles, recycled plastic bottles filled with ash and waste residue, and vegetable crate wood paneling in the inner partition walls.

Similarly, the floor and roof slabs as applied in the activity centre include filler slab with glass bottles, plastic bottles and bricks, stone slab, cement bonded particle board with clay tile cover, as well as light conduit pipe truss with galvanised iron (G.I.) sheet with clay tile roof.

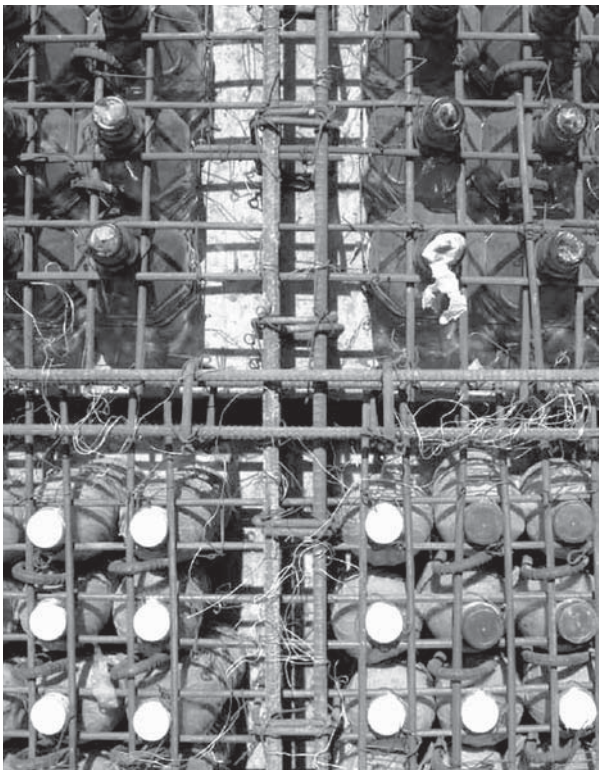
The door paneling uses shredded packaging wrapper and coated paper waste as a reinforcement substitute for fiber reinforced plastic (FRP). Vegetable crate wood was used for a frame and an oil tin container blades to make the ventilation louvres in the toilets. A paneled door using vegetable crate wood and oil tin containers for the frame and cladding respectively is also provided in the administrative block office toilet. Flyash and waste residue moulded tiles with inlaid ceramic industry waste as china mosaic (applied during tile moulding itself) is also applied in patches for the purpose of demonstration.

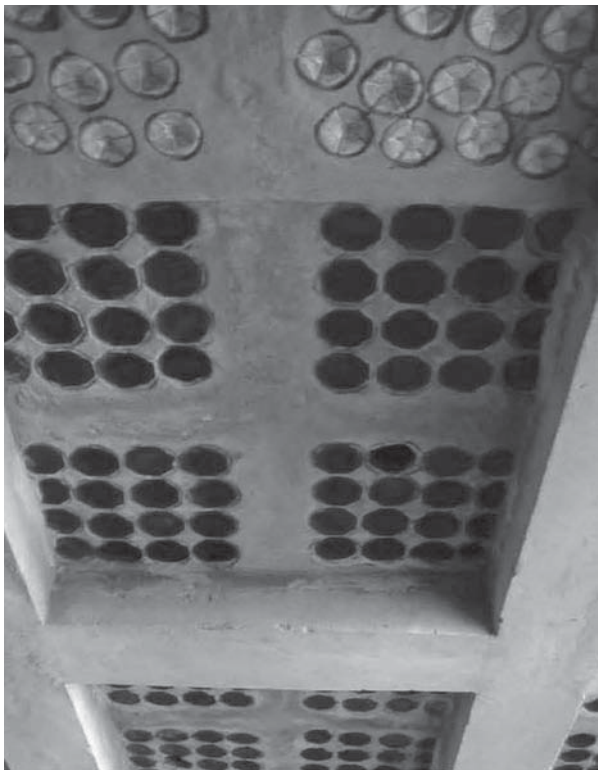
All of these products are developed and produced first hand. The products have been lab tested for their engineered performance and they prove to be economical, environmentally friendly, participatory and aesthetically pleasing solutions and express alternatives to contemporary practices.



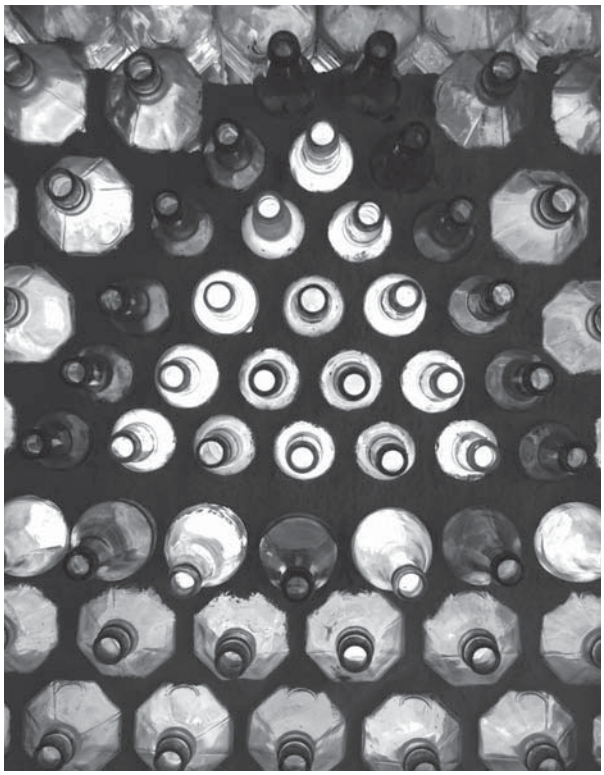
Library block

Classrooms block

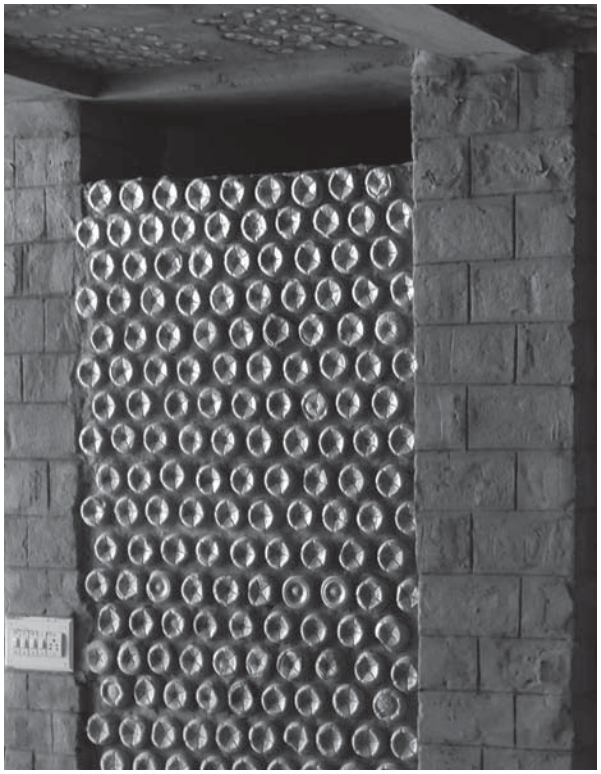




The glassbottle roof



View of roof /wall



Detail of the wall

Assembly in the front of the main building

View of the school bell and classrooms

Special Section - JNNURM

Urban Governance - JNNURM Reforms: A Critical Look

VEENA ISH & SUMITA DAWRA

ABSTRACT

India is fast urbansing The needs of urban infrastructure are growing. The existing facilities of water supply, drainage, roads, footpaths, public transport are clearly inadequate to meet these needs. In this context, what difference does JNNURM make to development of required urban infrastructure and to the lives of the common citizens, is the moot question. How JNNURM can achieve the desired outcomes of improved infrastructure within an overall framework of the good governance, conditions that facilitate reforms, particularly better financial management of funds of the urban bodies and being able to leverage capital from the market?

Also, effective completion of the works already sanctioned, within an overall approach of community involvement and participation is critical to the success of the programme.

INTRODUCTION

India is fast urbanising. The percentage of urban population has grown from 20.22% in 1971 to 28.22% in 2001 and it is growing with an annual exponential growth rate of 2.73%, in the decade 1991-2001 (Census of India, 2001). The urban sector is today growing at a faster rate than the rural sector of the country. In fact, the urban population in India is projected to accrue to 47.5% of the total population in 2051 (Source: Ribeiro, 2003), thus putting increased pressure and

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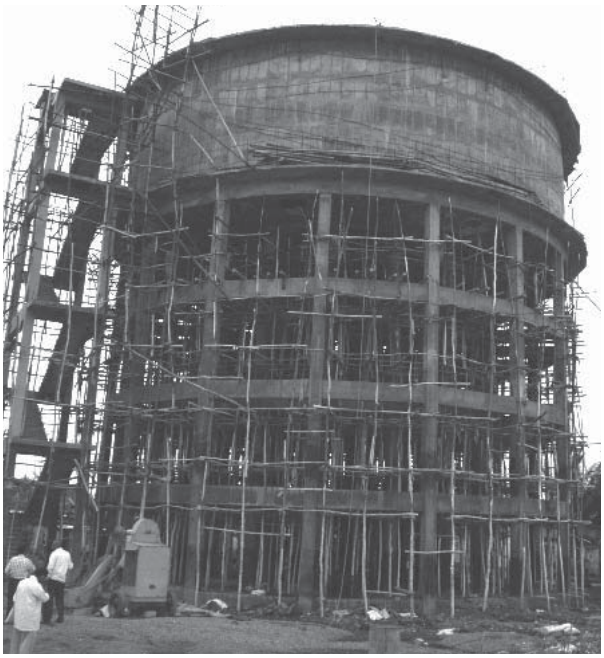

Water tank construction

responsibilities on the urban infrastructure. Cities are thus expected to step up efficiency in urban governance today in order to meet their goals of 24x7 water supply, efficient sewerage systems, effective storm water drainage, higher order of transport infrastructure in terms of easy flow of road traffic increase, availability of efficient public transport etc. In addition, our cities are expected to have appropriate patterns of growth and development with respect to commercial and residential areas, such that the commercial areas grow without adversely affecting the standard of living in residential zones.

To achieve these goals, urban areas need to urgently step up efficiency of internal resource generation, and improve access to civic amenities by citizens through innovations in governance. In this context, the Government of India launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in December 2005, with an allocation of reform driven Rs.50,000 crores, spread over a period of seven years to achieve the Mission objectives of development of infrastructure services and institutionalisation of governance reforms in urban local bodies of the country.

CURRENT SCENARIO

As on 31st May 2007, the Government of India (GoI) sanctioned 215 projects worth Rs.18,465.33 in Mission cities. GoI has also sanctioned 403 projects worth Rs. 6,071 crores in 321 medium and small towns. These projects cover major infrastructure sectors including water supply, sewerage, roads, transport, etc. With a sizeable amount of projects now sanctioned, the question is of outcomes of the projects being in synchronisation with objectives of the programme. It remains to be seen how the urban local bodies will be able to bring about the desired outcomes in the cities and towns using this investment. Government of India expects 'prompt implementation and visibility of results at the ground level'. The moot question that arises is: What difference is the programme going to make to the lives of the common citizens?

AN OVERALL FRAMEWORK FOR GOOD GOVERNANCE[i]

Good governance is difficult to achieve at the ULB (Urban Local Bodies) level without similar initiatives being taken at the National and State levels. In order to achieve the desired outcomes of the JNNURM programme, there has to be an overall framework in the government, at all levels, to effectively involve all stakeholders as well as to bring about convergence of all relevant departments in implementation. The basic principles of Good Governance to be followed by the government at every level are transparency, accountability and predictability. Besides, the process of governanace has to be participatory by involving all sections of society, particularly the marginalised and the poor in policy planning.

The government has to be:

- Responsive to the needs of the public and ensure timely delivery of services. It has to be effective and efficient by utilising its resources for the purpose for which they are meant in a cost effective manner
- Equitable and inclusive by promoting equity among all sections and by including all sections of society in growth outcomes
- Follow the rule of the law, establishing justice in all spheres of public and economic life

The principles of good governance; as discussed must be adopted everywhere. It is imperative to accept methods of performance measurement, accountability, transparency, a participatory approach, in all departments, e.g. education, health, urban development, etc., at both the National and State level. This will certainly create an enabling environment for the effective adoption of reforms at the local body level. Within this framework, the urban bodies also

Nagarjuna Nagar Sump cum Pump (UGD) Vijaywada Municipal Corporation

have to adopt efficient service delivery in water, sanitation, garbage disposal, transportation, etc. In brief, the agenda for good governance in the ULBs will be to have a transparent budgeting and accounting system and at the same time to hear the 'voice' of the poor and ensure competition in provision of services for its citizens, so as to provide every urban citizen with a choice of service delivery systems.

CONDITIONS FOR REFORMS TO SUCCEED

Financial management:

There is no doubt that the municipal bodies need to generate increased revenue. It is interesting to note that the current level of municipal expenditure per capita in 2001-02 is Rs. 577, which, when compared with Zakaria Committee norms, is about 130% lower than required. It is a wonder that the level of civic services in Indian towns and cities is pathetic. Urban bodies need money for water supply, sewerage, storm water drainage, roads, footpaths, solid waste management, development of parks and recreation facilities, maintenance of street lights, etc. Unless creativity and innovation is applied in augmentation of municipal revenues, it is difficult to imagine the urban bodies providing world class amenities to citizens even in the next three decades.

Innovation and efficiency can be brought about in two ways:
a. Broadening the revenue base and increasing the revenue collection efficiently within the urban body: Presently, most local bodies depend on the property tax to earn revenue. They neglect the expansion of the resource base by including many other sources of revenue, including vacant land tax, profession tax, entertainment tax, motor vehicle tax, betterment levies, planning permission tax, polluter tax, use of land, ULB as a resource, and productive utilisation of assets.

A well-designed tariff schedule can regulate demand and simultaneously ensure equity and provision of adequate water supply to the poorer sections. With

respect to water user charges, most cities have not evolved a differential system of tariff whereby water rates are charged keeping in view usage and payment capacity of the citizen. The basic concept is to charge higher rates to the better off and to those who consume more quantity (like the industrial units) and provide cross subsidies to the poorer sections.

A volumetric tariff structure is proposed, after fixing a slab for usage of a minimum quantity of water for the poorer families. For instance, for a family with five persons 40 LPCD per month can be fixed as a daily provision (as per WHO norms), which comes to six kilo liters per month, at a minimum fixed price. Thereafter, there can be an increasing tariff structure[ii] for quantities exceeding the minimum provision. The principle of differential tariff charges can be extended to other civic utilities and services like sewerage, garbage disposal, pollution taxation, etc.

Similarly, the ULBs need to collect their revenues more efficiently. The JNNURM reforms indicate 85% coverage and 90% collection of property tax. However, if ULBs examine the collection of their revenues, they will find a number of cases of wrong assessments and misclassification. Correction of the under assessments and collection of payments from willful defaulters can send their revenues soaring!

An examination of the electricity billing may also reveal irregularities of ULBs being over charged or charged under wrong categories. There are instances of ULBs receiving billing for street lighting that exceeds the capacity of the transformer installed in that area because transmission losses are perhaps passed on to them.

To recall the experience of Surat in the 1990s, in the post-plague period, the ULB took into account under assessments in water charges collection and initiated a drive of collecting from willful defaulters by deploying mobile teams. The strategy worked and, as a result, revenues increased by 60%. The ULB also tapped new sources of revenue, like charging rentals from cable companies using ULB land for the cables to run through.

All this is possible when stakeholders are convinced that their interests would be protected and it will be a win-win situation for all. A lot of effort needs to be put in to create public awareness and win the confidence of the people.

b. Accessing more funds from the market: Statistics show that private companies are able to leverage huge amounts of money from the capital market through issue of equities or mutual funds that grant access to thousands of crores of public money. Compare this with a rupees fifty thousand crores investment under JNNURM, over a period of seven years, for all the urban bodies of the country and one realises the limited resources available under JNNURM for the daunting task of the development of the urban bodies. But, the idea is to, with so much money available in the capital market, encourage ULBs to utilise the JNNURM funds to leverage more money from the capital markets.

For this, the State Level Nodal Agency (SLNA) of each State needs to recover part of the Central and State grants as a loan and keep it in a corpus fund and also undertake facilities like pooled finance for ULBs wishing to leverage funds from the market. Here also, until and unless the ULB has the capacity to repay the loan, there is a limit on this option. Bigger ULBs having strong financial base can utilise this option but smaller ULBs having a weak financial base need financial support from the government. Perhaps, governments can think of a rational structure of devolution of funds.

Considering the limited capacities of the SLNAs in terms of technical know how and human resources, one realises the difficulty of implementing these mechanisms. Not only do they not have the required permanent staff but the contract staff, who are hired on lower than the market rates, have a high attrition rate. Such a PPP model for the SLNA is feasible on the lines of the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), where the Government of Tamil Nadu has 49% partnership, with the financial institutions of ICICI, HDFC and IL&FS holding the remaining 51%. Many similar States like Kerala, Karnataka, Rajasthan and Madhya Pradesh are also now looking at a PPP models to infuse professionalism into their respective SLNAs and to access increased capital from the market for infrastructure development of the ULBs .

Such an arrangement will infuse more financial discipline in the ULBs because only the financially viable projects will be picked up for JNNURM and only the financially stronger ULBs will qualify for loans under the pooled finance facility. For the weaker ULBs, a case by case analysis could be done for considering extension of subsidies from State funds.

Flyover Punjagutta - GHMC

EFFECTIVE IMPLEMENTATION OF WORKS

Implementation of works under JNNURM is a challenge. The implementation has to be cost effective, economical and efficient, i.e., the work has to be done in the best and cheapest way possible within the available resources, and at the same time, in a qualitative manner that fulfils community needs in the long run.

Community participation in design and implementation of works, if done representatively and not as mere 'tokenism', can bring about a qualitative dimension to the works. For this, it is proposed that social audit has to be done so that the communities are able to ensure proper design of the works and are able to monitor and evaluate the implementation of works. Information such as the estimated value of the work and detailed estimates should be put up at the work site for all to see. Also, the ULB has to facilitate discussions in community meetings on the market value of the rates being quoted and whether there can be any improvement in any aspect. People's estimates can be encouraged, in order to compare the stipulated cost prepared by the engineers. The community can contribute to estimating quantity and cost of the materials used in the works, for example, cement, bricks, sand, iron and steel. This will enable improved accountability of the works.

The implementation of the works can be on a turnkey basis by contracting the work out on a tender basis or on an Engineering Procurement Contractor (EPC) basis, specifying only the deliverable contracts out of the entire package. The EPC mode is useful in cases of execution of large projects like Integrated Housing Colonies under BSUP, where different technologies and cost-saving methodologies have to converge and the presence of a single big technically advanced agency may be useful. On the other hand, for underground drainage works, the EPC may be difficult within the present conditions of the contracting on SSR basis due to the possibility of increasing, additional unanticipated costs. The turnkey method of work implementation is more practical for most of the JNNURM works since anticipatory risks for the contractor are less as the detailed work specifications are given, as per existing SSRs that are annually revised. An added advantage of turnkey mode is that

Flyover Greenland - Greater Hyderabad Municipal Corporation

works can be contracted out on a specialisation basis.

With companies specialising in different aspects of infrastructure works, it is more efficient in terms of time and costs to directly contract out works to these specialised agencies rather than going in for a single turnkey contractor who may further sub-contract the work to other specific companies.[iii] Through a special condition being used for works being executed under the World Bank project of the Andhra Pradesh Urban Reforms and Municipal Services Project (APURMSP), it is seen that 5% -10% excess costs are allowed depending on the justification being given by the contractor and provided it is approved by the accepting authority. Accordingly, tenders are called by the ULB and accepted by the World Bank. This method of implementation brings flexibility to the implementing agency and may be considered in JNNURM works of a difficult nature where tendering has not been finalised and the works are repeatedly undergoing re-tendering. For instance, in the drainage works of Greater Visakhapatnam Municipal Corporation (GVMC), some drainage works have undergone repeated re-tendering since these are major outfall drains and the works have to be executed under difficult circumstances and many times, even under water.

Irrespective of the mode of implementation, quality control should be the main focus. Clear responsibility has to be fixed on the Investors, construction companies, concerned enterprises and the government departments to ensure quality and safety of works and the strict adherence to the regulations in this regard.

COMMUNITY PARTICIPATION

Community participation is one among several State Level Mandatory Reforms. In order to improve the quality and optimum supply of water, to maintain sanitation, proper maintenance of roads, street lights, development of parks and even for proper revenue collections, community involvement and participation in ULB governance is necessary. This needs several preconditions such as mobilising citizens, making them aware of their role and responsibilities, giving

them confidence that their voice will be heard, creating mechanisms for discussion with the citizens and involving them in the qualitative delivery of basic services as well as in infrastructure works design, implementation, monitoring and evaluation. To make this workable, capacity building of the citizens is required. NGOs and other civil society organisations can be identified and areas of the ULB tagged to them, with a senior officer of the ULB in charge of the area to oversee the sensitisation meets where the citizens will be prepared for their larger responsibilities. In this context, greater convergences among different functions of the ULBs at the area levels by making the a senior officer the head for all municipal services for that area. This will lead to greater efficiency in service delivery.

Assigning duties to suitably composed Area and Ward Sabhas is necessary and needs to be examined if true community participation is to be promoted[iv].

PROGRAMME APPROACH VS PROCESS APPROACH

The JNNURM is a top-down approach. The government of India sanctions projects based on the DPRs (Detailed Project Report) and insists on implementation of the reform agenda. It may be argued that it is a participative and consultative process because CDPs of the Mission cities are expected to be developed through a process of public participation, the DPRs are prepared from the ULBs, following council approval of the project. However, many aspects of the participative and consultative approach at the grass root level are compromised. The technical nature of DPR preparation ensures the work is outsourced to consultants who may not however take a participative approach with stakeholders in designing projects. Also, during the implementation of the project, mechanisms like social audit are seldom followed. If social audit is followed, the stakeholders will be expected to monitor the progress of the work in *'Basti*' meetings, review the work and its progress and determine whether it is going in the direction of fulfilling the community needs. Also there will be a transparency in preparation of estimates, the material being used, etc. This will give rise to participative monitoring and evaluation by the community.
In one work, for instance, the sewer channels were not allowed to pass through the adjoining areas since they originated from a slum and as a result the sewerage stagnated at a low point of the slum colony, leading to a failure in achieving the desired outcome of improved sanitation. Community involvement can take care of such issues and help resolve them.

There are many instances of useful processes in governance that must accompany reforms if these are to succeed. For instance, in the towns of the Andhra Pradesh Urban Services for the Poor Project (APUSP), energy savings worth lakhs of rupees were effected in the urban bodies through a process of simple interventions like sun synchronisation of street lighting, verification of different items in electricity bills using a check list, installation of energy efficient appliances for street lighting, replacement of old water pumping motors and conversion of LT (low tension) to HT (high tension) and HT to LT category in the water pumping stations to avoid excess charges due to inappropriate power connection category etc.

Similarly in Indore city in Madhya Pradesh, urban transportation underwent a transformation through processes designed to encourage Public Private Partnerships (PPP) in public transport. It is such process based interventions where the emphasis is on building up processes pertaining to community involvement, savings in functioning of the ULBs, capacity building of staff to gear towards better efficiency in revenue collections, developing PPP that will deliver results rather than a simple 'work sanctions and works implementation' approach most of us adopt, that will help achieve outcomes defined under JNNURM.

CONCLUSION

The expected outcomes of JNNURM for ULBs and the parastatal agencies are not very far from being achieved. Reforms envisaged under JNNURM are a good beginning to provide city wide frameworks for planning and governance and to provide local services in a transparent and accountable manner to the citizens. The strategy of implementing JNNURM is based on the principles of good governance. Involving the stakeholders right from the initial stages of planning and prioritisation, funding to the final implementation has given much strength to the programme. The Community Participation Law and the Public Disclosure Law provide the commitment on the part of ULBs and the Government to involve the people at every stage of the implementation of various programmes taken up by the government and ULBs thus provideing the institutional arrangements to ensure involvement of the people to improve delivery systems.

JNNURM has provided a wonderful opportunity for all the ULBs to access funds for basic civic facilities like water, drainage, roads and affordable housing. Public awareness and greater involvement of people will certainly aid ULBs to improve service delivery and turn them into viable and financially self-sustaining agencies. With the participatory exercises, constraints are being identified and solutions are being worked out. The competitive spirit among the cities to become Class I cities and destinations for investments have made these cities compete for embracing reforms as everyone has realised now that there is no other alternative but to improve governance. While JNNURM has triggered the reform process and has thrown open various issues to resolve in order to make the ULBs affordable and comfortable places to live, it cannot be seen in isolation. The expected outcomes under this programme are achievable only under the overall framework of good governance at the National, State and ULB levels.

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i. To quote the UNESCAP website, 'Good Governance assures corruption is minimized, views of minorities and voices of the most vulnerable are heard in decision making. It is responsive to present and future needs of society.'

ii. In a workshop with the Mayors/Municipal Chairpersons of A.P., held in November, 2005, and in a Joint Conference of Collectors and Municipal Commissioners of A.P. earlier, in January, 2005, the general opinion was in favour of a telescopic tariff policy for domestic connections, as follows:

Units	**Tariff**
- Upto 6 KL per month	Rs 50.00 per month
- For each KL after 6 KL per month.	Rs.50/- + Rs.5/- per each KL thereof after 6 KL.

iii. For instance, in water supply works, there are contractor specialisations in reservoir construction, filtration plant, pumping mains, distribution network, etc. Contracting out the works on a turnkey basis, simultaneously, to these four types of contractors will speed up the work and reduce the extra cost of sub-contracting under single agency EPC or turn key contract.

iv. In this context, the following recommendations on composition and functions of Area Sabhas and Ward Committees of a National Workshop, held in Hyderabad on 26.02.2007, offers some solutions:

1. Area Sabha:

- May be constituted in all ULBs whose population is one lakh and above;
- Area Sabha Representative shall be a member of the Ward Committee;
- Ward Sabha may meet atleast once in three months;
- All electors in the ward shall be members of the Ward Sabha;

2. Ward Committee:

- Ward Committee may be constituted for each ward in all ULBs;
- Composition of the Ward Committee may be adopted with a provision for the following groups.
  - a) Residents Welfare Associations
  - b) Community Based Organisations
  - c) Educational Institutions
  - d) NGOs
  - e) Other Stakeholders

Following functions may be entrusted to the Ward Committee:

a) Supervision over sanitation work, distribution of water supply, working of the street lights, minor repair of roads, poverty alleviation programmes and maintenance of parks;

b) Monitoring the functioning of schools, maternity centres, dispensaries and health centres under the control of the Municipality;

c) Facilitation in the in the collection of taxes and non-taxes;

d) Preparation of list of beneficiaries for beneficiary oriented schemes, pensions and subsidies;

e) Any other function as prescribed.

- 20% of the budget earmarked for maintenance of services in the Municipality may be allotted to all Ward Committees.
- The duties proposed to be entrusted to the Ward Committee may be integrated with functions as mentioned hereunder:
  - (i) Preparation of Ward Development Plan
  - (ii) Map the Ward Infrastructure Index
  - (iii) Preparation of Inventory of Municipal Assets
  - (iv) Assistance in the implementation of all Government Schemes

Pune Urban Area and the Progress of CDP under JNNURM

KIRAN KALAMDANI

ABSTRACT

Pune represents the second line of 28 metropolitan cities of India that are on the threshold of rapid and far-reaching changes in the wake of globalisation as well as migration from small towns, villages and other countries. While the JNNURM promises to be a major catalyst in this course, there are several other processes that have been set in motion which will ultimately decide the fate of the cities. Here, conflicting jurisdictions, authority and hierarchy will be stiffly contested as will those in political, communal and religious arenas. To aid the city fathers, NGO's and other stakeholders now have a wealth of information as well as access which opens greater possibilities and creates competition. For the first time the financial implications and the dynamics of basic delivery systems are being taken into account as essentials of urban management. Despite the late wakening India seems to be finally taking stock of its urban population. Shaking off a legacy of the great Indian bureaucracy will however, be a formidable task.

Similarly, the feudal and dynastic format of Indian politics will be a major deciding force to shape the Indian cities. Whether the gifts of think-tanks like 'sustainability' 'eco-friendliness' are used towards their true results or and for the personal ends of a select few, only test of time will reveal.

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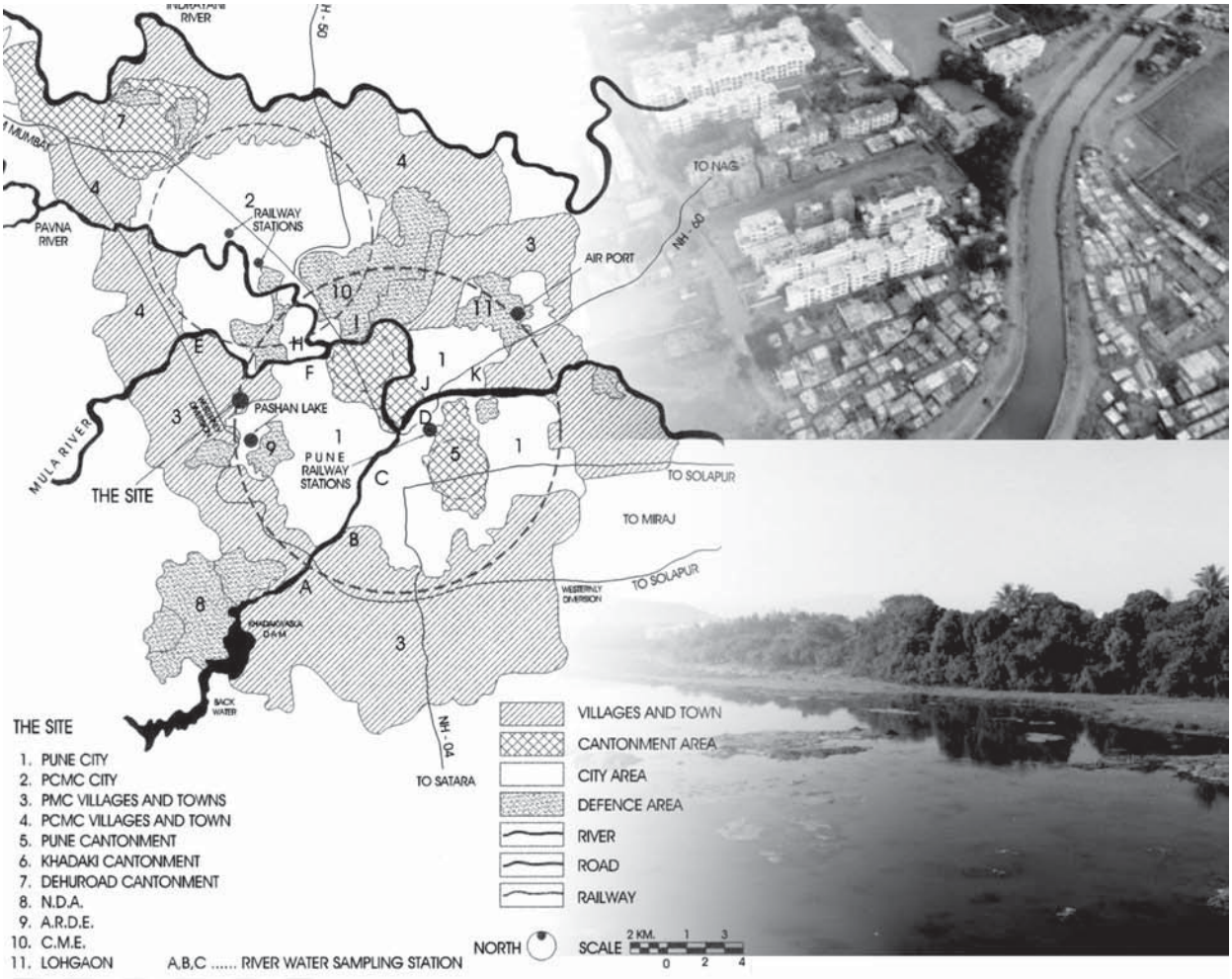


Map of Pune's Urban area; Aerial view of housing: Scenic riverfront in Pune city

INTRODUCTION

A few years ago while speaking on the occasion of the release of the book 'Pune, Queen of the Deccan' the noted architect Christopher Beninger said that if instead of playing god to the city, the city fathers listed the ten most important things that are good about the city and ensure that they stay that way, they would have achieved a great deal. In another forum on the emergence of indian traditions held in New Delhi in February 2007, a large group of architects from across the world wanted to know why India has been unable to come out with a concerted urban policy despite 60 years having passed since its independence. The answer lies in a report by the National Institute of Urban Affairs (NIUA) which put the onus of urban development on India's elected class who hailed from rural backgrounds and the prevalence of Gandhian anti-urban (anything that is related to the urban is evil) sentiments.

Pune belongs to the second line of emerging metropolitan cities in India, that are neither state nor financial capitals. These cities are important regional and international centres that are vital to the regions and states. In the eighteenth century Pune was the virtual capital of the country. Today it is the eighth largest urban centre in India. (Mumbai , Delhi, Kolkata, Chennai, Bangalore, Hyderabad, and Ahmedabad are the seven cities bigger than Pune in terms of population).

PREVIOUS ATTEMPTS AT PLANNING

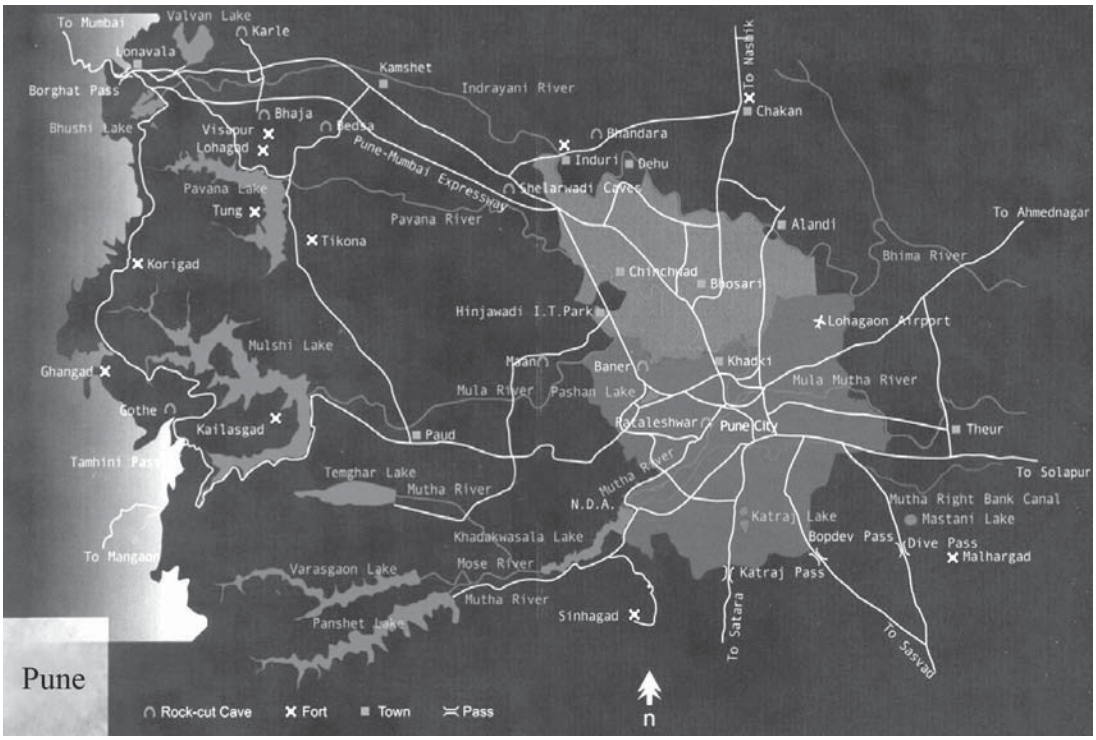
While the early attempts at urban planning such as theTown Planning Schemes of the colonial period were comprehensive and paid great attention to detail, the post independence era has seen a complete lack of control on urban development. The Pune Municipal Corporation (PMC) Master Plan prepared for 1981-2001, sanctioned by the State Government in 1987,

had been ripe for renewal in 2001. Yet, bureaucratic procedures continue to delay the processes of control, allowing market forces to dictate the development. Less than 10% of the proposals mentioned in the Development Plan were ever implemented. Most of the 'reservations' made for playgrounds, hospitals, schools and housing for economically weaker sections were 'dereserved' and included in residential zones. The 'minor modifications under section 37 of the Maharshtra Regional Town Planning Act (MRTPA) 1961' allow such changes. A private agency was given the task of completing the survey and preparation of the Master Plan in 2001. But the 13 of the 36 villages that were to be included in the city limits were de-linked leading to a complete revision of the entire attempt. An inquiry was initiated to look into matters related to the leaking of information before the plan was released for public consultation and the entire effort is now being taken up by the Municipal Corporation itself. Two years and seven months after submitting the Urban Development Plan to the State Government in 2005, the plan is finally being sanctioned. A list of reservations was being finalised at the time of the writing of this article. The present City Development Plan is dogged by several controversies of not maintaining sufficient transparency, inadequate user participation, lack of ward-wise collection and monitoring of data etc. The official presentation of the CDP by PMC enlists the PCMC and the MIDC as 'threats'! While the city is known for hundreds of service oriented NGO's working towards the eradication of urban poverty, education, helping AIDS affected persons and myriad other causes; few have been brought into the fold of development as a part of the CDP. A comprehensive Traffic and Transportation Plan was prepared by the Town Planning and Valuation Department in 1987 but was not taken up for implementation. While the final version of the CDP is yet to be seen, there is a flurry of activity in the PMC which is gearing up to deliver on many fronts, including the river, slums, roads, markets, community centres etc.

PIMPRI CHINCHWAD MUNICIPAL CORPORATION, PCMC

The case with the PCMC is less controversial as the 1996-2016 Master Plan is still in force and the newly added 15 villages were planned for by the Tata Management Development Centre (TMDC) in 2001. However, the City Development Plan (CDP) prepared by CRISIL in consultation with the PCMC is

Slums along riverfront in Pimpri-Chinchwad



Regional level plan

quite exhaustive though it misses the woods for the trees. If only good urban services meant great cities, the CDP for PCMC could have been rated as one of the greatest! However the voluminous text makes salient points about urban delivery systems and promises a glowing future in the next five to ten years for this group of villages in search of a town.

THE RECENT PAST

Some of the glaring faults that have been at the root of the early decisions, have obviously been avoided. As an inmate of the town for the last 40 years the author has been at the receiving end and has experienced several lapses in management and conception of the city. Initially the city was a group of villages and small towns near the rivers in the 1960s. At that time a large industrial area, the Maharashtra Industrial Development Corporation (MIDC), and a planned housing area, the Pimpri Chinchwad New Town Development Authority (PCNTDA), were conceived by the State Town Planning Authorities. These have now been classified as 'Parastatal' bodies by the JNNURM. The Hindustan Antibiotics (penicillin factory) was set up in 1954 by the Central Government. One of the greatest mistakes in its planning was that its residential colony, which was larger than the industrial area and was complete with every conceivable amenity from tennis courts to welfare centres and open air cinema hall, was planned on the leeward side of the factory. The pollution of this pharmaceutical industry would get blown over its own residential area! Like so many other central government undertakings this establishment faced losses and after coming a full circle is now struggling to work out a retrenchment package for workers. Over the years, 1200 odd industries have been established in this belt, including the Tatas, Bajaj, Thermax, Garware and several multinationals like Alfa Laval, SKF, Sandvik etc. Unfortunately, the residential areas form a horse shoe belt around the factories, bringing the industrial belt into the centre of the city! Commuting from one point in the residential area to another is an unpleasant task as one has to cross through an industrial area. The success rate between planning and implementation of this new town is about 60 percent. Several sector-based areas have now emerged as prime residential areas with typically low densities. However, in several parts the acquisition of land could not be effectively undertaken, thus leading to unauthorised settlements. The resultant image of the city is that of a highway and railway that cuts through the centre of the city, flanked by industries, defence establishments or large institutional users.

MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION

This is perhaps the only State Government Undertaking that is not in the red and has been consistently delivering for the last four decades. There are at least 10 areas around Pune ranging from 200 acres to 500 acres where the MIDC has been able to acquire land and develop it with roads, water supply, sewage, electricity and optic fibre cables to meet the demands of growing industry. No wonder the PMC CDP has termed the MIDC as a potential threat to their interests.

There have been recent altercations with farmers during the fourth phase of development in the northwest corner of the city, but these have been agreeably settled after the intervention by political agencies.

CITY SIZE AND URBAN AGGLOMERATION

There have been prior attempts at planning the region - the Pune district does have a Regional Plan (1970-1991) sanctioned in 1976 and a revised plan (1990-2011) sanctioned in 1996. The central Urban Area comprises of two Municipal Corporations – Pune (PMC) and Pimpri Chinchwad (PCMC), three Cantonments – Pune, Khadki and Dehu Road, and several towns and villages that are a part of the urban footprint and are under the control of the District Collector. In addition, there also exist several Central and State Government organisations, such as the National Defence Academy (NDA), College of Military Engineering (CME), The Armament Research and Development Establishment (ARDE), Maharashtra Industrial Development Corporation (MIDC), and the Pimpri Chinchwad New Town Development Authority (PCNTDA), that are independent of the Municipal and Cantonment control. The early attempts at controlling and organising urban development in the region, were undertaken through statutory tools such as the Cantonment Laws, the Bombay Provincial Municipalities Act and the Maharashtra Regional and the Town Planning Act 1961. The principal issue with such a complicated and multifarious patchwork of authorities is that it defies unified and comprehensive planning and implementation. There is no single statutory authority whose work is to coordinate the development, management and maintenance. Clearly the onus is on the State Ministry for Urban Development to constitute such an authority as has been done in other cities.

The infosys building at Hanjawadi phase II in MIDC area

A typical IT complex at Hinjawdi by MIDC, the shape of things to come

INERTIA AT THE STATE GOVERNMENT LEVEL

While the JNNURM effort at the centre has been laudable, there remains a lot to be done at the level of the Maharashtra State. Despite the fact that the Chief Ministers has held the Urban Development portfolio for several terms in the recent past, a concerted policy and action for urban development is conspicuous by its absence. The pathetic state of urban infrastructure during the Mumbai floods or the delays in delivery on projects in every city by State led agencies is a testimony to this problem. The inordinate delays in sanctioning development plans, minor modifications or the repealment of the ULCR Act 1976 are examples of the lack of commitment or inability on the part of the State Government towards these issues. There was a time when Maharashtra had enacted the first piece of legislation (Maharashtra Regional and Town Planning Act 1966) and several Town Planning Schemes were implemented thereafter, yet there has been no effort in this direction in the recent past. The other piece of legislation that governs most actions at the ULB level is the BPMC Act of 1949 (Bombay Provincial Municipalities Act). Conceived in a period when the size of cities and its related problems were much smaller, the present complexity and scale find this act to be woefully inadequate and in need of revision. In addition, the Rent Control Act also needs serious review and updating. There is a grave need to look into these aspects at the State Level and deliver these in order to ensure the success of the JNNURM .

INTERMEDIATE CITIES AND WORLD URBANISATION

For over quarter of a century, Pune has been a part of the sister cities programme initiated by Dwight Eisenhower from the USA. The Pune San-Jose Sister Cities programme, a part of this initiative, has led to a continued and lively cultural exchange. Similarly, the Pune Bremen Sister City programme has shared ideas, concepts, and university projects for a similar period. A square in Aundh at Pune is named after the Pune Bremen partnership with a sculpture to commemorate the 25 years long association. Pune's social fabric has seen considerable diversity as a result of such city-based exchanges. A recent development of such co-operation is the Pune-Okayama Garden. Since 1999, a group of urban geographers, architects and planners from across the world over have been working towards evolving a strategy for intermediate cities. Their hypothesis is based on the fact that in the 21st century urbanisation will occur in small towns and cities that are not state or financial capitals but are none the less major centres for employment, markets, education and production. More than 60% of the world's population will live in such cities by the end of the 21st century. It is therefore imminent that these cities form a network across the globe and share experiences, problems and solutions. So far, this network comprises about 95 cities share information. Lucknow, Suriapet and Pune are the Indian cities that are a part of this growing network. It is extremely important to benchmark development and indicators on quality of life and compare global standards if we are to emerge as a nation with comparable intermediate world cities. Being open-ended and sharing such experiences is a key activity that will ensure this occurs.

ISLANDS OF AFFLUENCE

The last few years have seen the rise of the urban elite and education barons in Maharashtra with corresponding islands of affluence on the fringes of the city. The few names that are the talk of the town in Pune, are Magarpatta, DSK Vishwa, Nyati Enclaves, Bramha City, Pride and Purple, Amanora, Lavasa and Blue Ridge. There are several others that can easily join the list of these select few. While these have been offering the safe amenity rich environment of gated communities, service accommodation for the people who service these estates are largely absent. Though there is a recent move to include service accommodation to these enclaves by the law, its implementation remains doubtful. Many developments by private developers have disregarded environmental aspects (recent controversies relating to the Ram River are examples to be stated in this regard). Much of this growth is speculative and controls the supply and demand of the land market which is hand in glove with politicians. In case of the educational institutions that become almost mini-cities on the fringes, they are created more for commercial gains than the need to impart quality education, the resultant urban form or the environmental and social concerns are often at odds with the requirement. While the city was noted at one time for its educationists whose primary purpose in establishing institutions was social change, the new emerging institutions are more of an industry with little or no quality control. A more stringent policy to control these factors is imminent under the CDP at least as far as the physical parameters of the islands of affluence are concerned.

CONCLUSION

The need of the hour is the preparation of programmes for the conservation of inner cities with an emphasis on housing, decongestion, pedestrianisation and environmental improvement. Pune's inner city, developed during the pre-colonial era, has seen continuous renewal that largely relies on private enterprise with increased floor space. This has led to further congestion of traffic, drastic modification in the urban character and the loss of its heritage values. While there have been half-hearted efforts in the direction of heritage conservation through listings created by NGO's, appointing of the heritage committees, yet the results are not evident. The new CDP should recognise the potential offered by the old fabric of this part of the city, as well as the problems related to high densities, old rents and obsolescence. There is an urgent need for equal emphasis on traffic management as well as on the development of physical infrastructure. Traffic calming exercises in central areas, disciplining of the automobile drivers, stricter regulation of parking and above all an emphasis on public transport systems is an essential component of the CDP. It also outght tp discourage the private vehicle in central areas of the city rather than encourage it by providing more parking. Otherwise the present trends that point towards growing car ownership and increased reliance on private vehicles will only lead to a more polluted and congested city. Though there are efforts at promoting CNG for para transit vehicles, they pale away in comparison to the promotion of private petrol and diesel powered vehicles. Introducing mechanisms to ensure that the

massive economic inputs of the JNNURM are not usurped by parasitic agents and agencies that prevent realisation of the true objectives of the mission remains one of the most elusive aspects. In the current political atmosphere where opportunism rather than ideology is the rule, many good programmes, projects and ideas will be sacrificed at the altar of democracy. Though there are efforts at increasing transparency such as the RTI Act, there are still enough gray areas in the working systems of our ULBs that foster corruption and abuse. Repeated and open evaluations followed by the punishment of the guilty is an exercise that will alone lead to the achievement of the above objective. Besides, it is necessary that the JNNURM and its associate programmes emphasise reducing the urban-rural divide and reduce disparities between the rich and poor in the urban areas. Keeping the process of city development free of political interference and vested interests remains a challenge of the JNNURM. The top down approach to development that relies on expert-led perceptions of problems and solutions is now being complimented by the bottom up approach. Local representatives and stakeholders are being asked to evolve and propose projects and programmes for urban renewal. There has arisen a dire need to inform local representatives regarding tools for comprehending problems and potential, envisioning a better tomorrow with a down-to-earth understanding of the milestones along the path to urban reform. A mechanism is needed in the CDP that is dynamic and addresses the changing realities while simultaneously recognising the constants and anchoring them firmly in the minds of the receivers.

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Implementation of JNNURM in Kohima, Nagaland

TARACHU FITHU

ABSTRACT

Since 2001, there has been a significant increase in the urban population in the state of Nagaland. Kohima, the capital of Nagaland has also been identified as one of the 63 cities to be covered under JNNURM. However, despite several initiatives, Nagaland is still struggling to achieve the targets under JNNURM and has yet to recieve the allocated funds that will transform its urban environment.

This article describes the status of the JNNURM reports for Nagaland and discussess the specific urban issues in realtion to this northeastern state of India.

INTRODUCTION

According to the Census of India (2001), there was only one town in Nagaland in the years from 1901 to 1951. By 1961, the number rose to three and remained at that till 1980. However, in1981, the number of towns increased to seven and became nine by 1991. There was again an increase in the number of towns in 2001 and as per the municipal election held in 2004 there are now 19 recognised towns. Considering the total population of all the 19 towns, the total urban population of Nagaland is about 36% of its total population. In 1901, the total urban population was only 3,093 which comprised just 3.05% of the total population of the state. Following the declaration of Nagaland as a State in 1963, the total population had increased by 5.3 times in terms of

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absolute number while the urban population increased by a remarkable 18.4 times. The urban population of the state has been rising steadily, a phenomenon which is rather alarming considering the deficits in the existing urban infrastructure.

The last censes also states that the urban population of Nagaland was a total of 3,52,821 persons who accounted for 17.74% of the total population of the state. Although it may appear only marginal, the decadal growth rate of the urban population in Nagaland is 69.44%, a figure that is much higher than the national average. At this rate, it is expected that in the next 20 years or so, half the population of Nagaland will be living in towns and cities. Most of the urban population is concentrated in larger towns such as Kohima and Dimapur. Apart from these recognised towns, there are many smaller settlements in Nagaland in the process of transition from a rural to urban character that require immediate planning intervention.

One of the main problems of the larger towns such as Kohima and Dimapur is the traffic congestion. This sector of infrastructure assumes high priority in developmental needs as traffic congestions have become a daily feature that has created serious inconveniences to urban settlers. The other major issue confronting the inhabitants of this region is that of landslides and soil erosion often triggered by the absence of a proper drainage system. A major part of Kohima and its roads have been seriously affected by landslides in the recent past.

KOHIMA UNDER JNNURM

Kohima, the capital of Nagaland, has been identified as one of the towns to be covered under JNNURM. Accordingly, the CDP (City Development Plan) for Kohima city was initiated by the Government of Nagaland with the objective to improve the economic and physical infrastructure for the rapidly increasing urban population as well as to provide essential facilities and services. The City Development Plan of Kohima was among the first CDPs to be completed and submitted to the Ministry. Signed and submitted on the March 29 2007, it envisaged an ambitious investment plan of Rs. 1,869.63 crores covering various sectors such as road and transport, water supply, sewerage, sanitation, drainage and landslip protection, solid waste management, street lighting and urban poor housing. However, due to factors such as delays in the signing of MOA (Memorandum of Association), the DPR (Detailed Project Report) preparation, appraisal, and necessary correspondence, the state is yet to receive any substantial funding.

The State Level Sanctioning Committee (SLSC) was constituted on January 12 2006 with the Chief Minister as the Chairman. The Urban Development Department has been assigned the responsibility of acting as a Nodal Department and four other departments are to serve as stakeholder departments. Extensive public consultations across different sections of people ranging from policy makers, high-ranking bureaucrats, technocrats, NGOs and Municipal Councillors were carried out so as to prioritise the projects. Prioritisation of interventions and projects for the entire infrastructure issues was created based on these consultations with numerous stakeholders. For instance, analysis of the consultation revealed that transportation issues had received the maximum response and transportation was therefore given top priority under the development scheme. Improvement of drainage and landslip areas was Kohima's next priority. Solid waste management is also a major concern and infrastructure for the same needs to be improved in terms of its coverage and disposal. Water supply is another infrastructure issue that needs to be addressed in terms of quality, quantity, and frequency of supply.

VISION STATEMENTS EMERGING FROM CONSULTATIONS

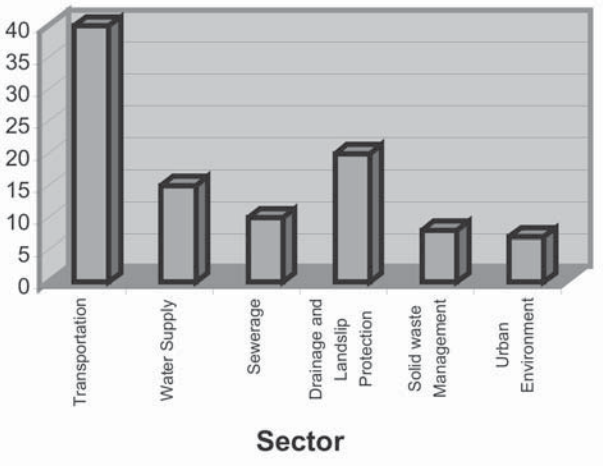
"Making Kohima City a well governed, economically vibrant and environmentally sustainable city with access to basic services to all by 2021" through:

- Provision of basic infrastructure and urban services for all, towards achieving safer living conditions and an improved quality of life;
- Development of Kohima as a sought after tourist destination showcasing Naga culture; and
- Planned phased community building in urban governance and maintenance of urban infrastructure.

This was the collective vision that the various stakeholders, the elected representatives, and the local communities had for the city of Kohima. The improved quality of life also meant the protection of the city residents from the imminent threats due to the vulnerability to recurrent landslides. The consultations clearly indicate that any major infrastructure investments in the city shall be sustained only after the safety of the city is ensured through appropriate protection measures. The following are some of the

other vision statements put forth by the stakeholders:

- A capital city which is clean and stable, and where people can have easy access to safe drinking water, health care, and education.
- A cleaner, greener city in the next five years time.
- A city with all modern facilities and amenities.
- A city with improved safety and security, to form a base for Kohima to develop as a sought after tourist destination showcasing Naga culture.
- A congestion free city, created through development of alternate diversion roads and parking facilities.
- A garbage free, pollution free city with committed efforts from residents, ULB, and the government.



PRIORITIES

The overall priority ranking for the community has been worked out on the basis of assigned weightage. The transportation sector has got the top most responses for interventions needed. In transportation sector the stakeholders have asked for the improvement of footpaths, steps and street lighting as improvements rather than for larger measures such as the widening of roads. The quality of the present service delivery and significance of the service can be adjudged from the prioritisation of issues and the responses accorded to each sector by the stakeholders. Based on the final scores, the overall priority ranking from the consultations is as follows:

- Transportation
- Drainage and Landslides
- Solid Waste Management
- Water Supply
- Sewerage

CITY INVESTMENT NEEDS

The total investment required would be nearly Rs 1,869 crores. *See table below.*

FINANCING STRATEGIES

As per Toolkit 1 of the JNNURM process, the funding pattern, sanction and disbursement of assistance for a

Estimated investment requirements under the two Sub-Missions of JNNURM

I	Sub-Mission 1: Urban infrastructure and governance	Investment Needs (@ 2005 prices) Rs (in lakhs)
A	Water supply	8,551.88
B	Sewerage and sanitation	6,433.00
C	Solid waste management	621.93
D	Drainage	47,500.00
E	Traffic, transportation and street lighting	72,762.17
F	Park development	3,273.97
G	Other development projects	17,702.16
H	Tourism	6,835.72
I	Heritage and conservation	2,000.00
J	Urban governance	12,000.00
K	Land cost	6,700.00
	Sub Total of I	**184,380.84**
II	Sub-Mission 2: Basic services for the urban poor	
A	Slum area improvement	2,583.15
	Total Investment Needs	**186,963.99**

population size of 115,000, the Kohima Planning Area comes under category C for the rationale of funding. Accordingly, for the purpose of the Sub-Mission on urban infrastructure and governance projects, Kohima is eligible for a grant from the Central government covering 90 percent of the cost while the remaining 10 percent is to be raised by the Nagaland government, from either their own sources or from borrowings. As regards the Sub-Mission for basic services for the urban poor, 90 percent of the cost will be met by the Central government and the remaining 10 percent needs to be raised by the State government. The total share of the Central government would be Rs 1682.67 crores (90% of the total requirement) while that of the State government of Nagaland would be Rs 186.96 crores (10% of the total requirement).

THE CONSTRAINTS THAT ARE FACED

While the Government of India is extending such generous assistance to the States, experience has shown that for the Northeast States in general and for Nagaland in particular, developmental initiatives are not really progressing as intended. This may be due to the following reasons:

- The existence of a tribal land ownership system.
- The ULBs and State Government have no land.
- The ULBs which are at an infancy stage are plagued by constraints of manpower and resources, thus limiting their absorption capacity.
- Difficulties faced by the ULBs as well as the State government in raising funds from market borrowings, financial Institutions and private participants to meet their shares.
- Difficulties in fulfilling timeline-bound reforms.

It is felt that with the different context existing in the Northeastern States, adopting a blanket guideline for the country as a whole has slowed down the process of availing resources under the JNNURM.

CONCLUSION

Nagaland has submitted five Detailed Project Reports (DPRs) amounting to Rs. 227.56 crores as envisaged in the City Development Plan (CDP). The DPRs have been submitted for sectors such as housing for the urban poor (BSUP), road improvement, drainage, landslip protection and street lighting. Necessary clarifications have also been furnished to the Ministry. However, except for a project under the BSUP from the Ministry of Urban Employment and Poverty Alleviation, no funding has been received so far from the Ministry of Urban Development. It may be mentioned that the DPR for housing for the urban poor of Kohima amounted to Rs. 155.03 crores was subsequently approved. Till date, Nagaland has received an amount of Rs. 26.17 crores under this particular scheme that is already under implementation.

The other DPRs under preparation for submission include:

- Comprehensive drainage system for Kohima
- Solid waste management
- Multi-level parking at two locations
- City centre
- Improvement of three playgrounds
- Construction of bypass to alleviate congestion

These DPRs are on the verge of completion and shall be submitted to the Ministry after observing and fulfilling the necessary formalities.

Events & Conferences

CAPACITY BUILDING WORKSHOP ON URBAN CONSERVATION
Dates: December 18 – 21, 2007
Location: Chandigarh, India
Description: the workshop is being organized jointly by UNESCO's World Heritage Centre, UNESCO-New Delhi, the Archaeological Survey of India (ASI) and Chandigarh Administration.
Chandigarh is a city of Modern Heritage, and the first instance of an Indian city being nominated for inscription on the World Heritage List. The workshop, therefore would be extremely useful for the stakeholders from Chandigarh and other parts of India to interact and exchange ideas/ information between themselves as well as the international experts on Urban Conservation, including site managers from the Le Havre, Brasilia and Tel Aviv, the other 20th Century cities on the World Heritage List.
Contact Information:
Prof. Kiran Joshi, Nodal Officer, Chandigarh
Email: kiranjoshi2020@yahoo.com

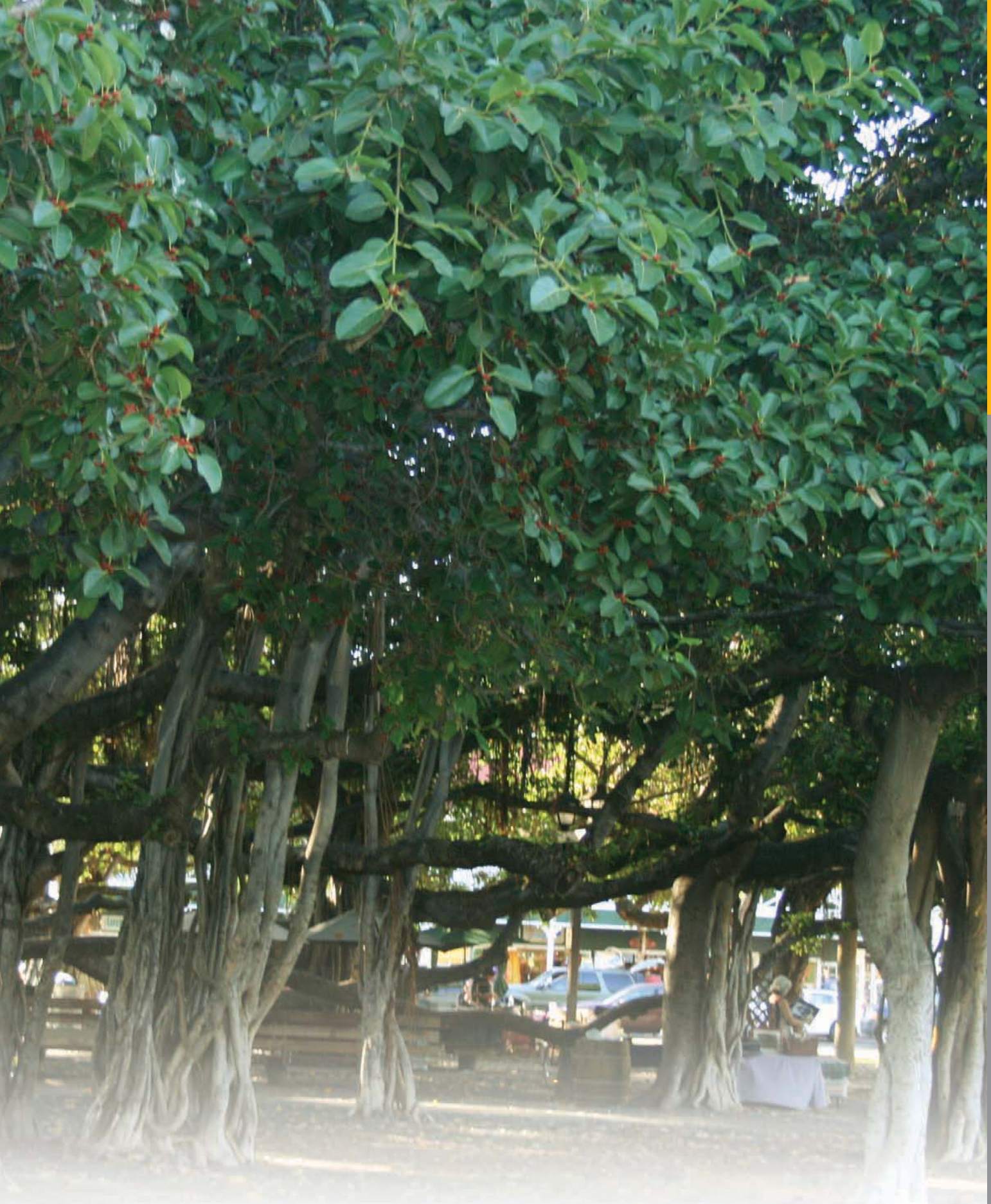
PREVENTIVE CONSERVATION Workshop on Risk Management. Applying Risk Management to Museums, Collections and Monuments
Dates: January 23-25, 2008
Location: Berlin, Germany

Description: The programme will include the concept of risk management and assessment for museums and cultural heritage. Teachers will introduce methods and instruments of risk management, explain how to identify types of risks and show options to minimize them (decision making). During exercises in various museums around Berlin/Brandenburg participants will learn how to apply the concept.
Theme:
Organizers: University of Applied Sciences
Contact information
Alexandra Jeberien M.A., Wilhelminenhofstrasse 75a
BERLIN 12459, jeberien@fhtw-berlin.de

TERRA 2008
10th international conference on the study and conservation of earthen architectural heritage
Date: February 01 – 05, 2008
Location: Bamako, Mali
This is the tenth conference to be organized by the earthen architecture community under the aegis of ICOMOS since 1972, and the first to be held in Africa. It provides a unique opportunity to discuss and observe firsthand conservation issues particular to sub-Saharan Africa, a region rich in earthen architecture. During this conference, specialists will present papers and posters that reflect the latest research and practices in the study and conservation of earthen architecture worldwide.
Theme: The eight themes follow: Earthen architecture in Mali; Conservation and management of archaeological sites; Conservation of living sites (Cities, settlements, cultural landscapes); Challenges and opportunities of conservation and development; Local knowledge systems and intangible aspects of earthen architecture; Standards and guidelines for new and existing structures; Seismic and other natural forces; Advances in research.
Organizers: The Getty Conservation Institute; Ministry of Culture of Mali; Africa 2009;CRATerre;ICOMOS South Africa; World Heritage Centre
Endorsements: ICOMOS International Scientific Committee for Earthen Architectural Heritage
Contact information:
Katleen Louw, The Getty Conservation Institute, 1200 Getty Center Drive, Suite 700, LOS ANGELES, CA 90049
www.getty.edu/conservation/field_projects/earthen/index.htm
klouw@getty.edu

GLOBALIZATION AND RURAL REFORMS- RECENT ISSUES AND CHALLENGES
Date: February 11 – 12 February 2008
ICGRD (International Convention on Globalization and Rural Development) is an annual event that brings together rural development functionaries from all over the world for open deliberations on issues and questions in rural development. ICGRD 2008 is the third link in the chain after the 2006 and 2007 convention.
ICGRD 2008 is an attempt to bring social and development functionaries working in different capacities (NGOs, academicians, policy makers and implementers) from all over the world. The purpose is to identify through mutual experience sharing such challenges in rural development that some practitioners face (especially in the background of the changing economic scenario), and solutions that some others might have come across. The deliberations would help incubate ideas and identify areas that need research and action. Ultimately our purpose is to facilitate judicious rural decision making through concrete policy and implementation suggestions.
Organized by: Protsahan Building Confidence India
Contact: 201, 2nd Floor Haakim Arcade, Coffee House Sq. Dharampeth, Nagpur, Email: icgrd123@gmail.com
Website: www.icgrd.org.in

CONSERVATION OF PAPER MANUSCRIPTS AND DOCUMENTS INTERNATIONAL CONFERENCE
Date: February 18 – 21, 2008
Location: New Delhi, India
New Directions in: Documentation and examination of paper manuscripts and documents; Paper technology pertaining to typology and methods of preparation of paper; Bio-deterioration of paper manuscripts and documents; Fumigation of paper manuscripts and documents; De-acidification (aqueous, non-aqueous and gaseous) of paper manuscripts and documents; Display and storage of paper manuscripts, documents and books; Pest management in paper repositories; Restoration of illustrated paper manuscripts; Preventive conservation and curative conservation related to iron gall ink deterioration; Restoration of illustrated paper manuscripts.
Organizers: National Mission for Manuscripts
Contact information
Vaibhav Chauhan, 16-A, Ashoka Appartments Devli
NEW DELHI 110062, Tel: 09868936158
www.namami.org/confconservation.htm
vaibhav.chauhan@namami.org



Heritage Album

THE BENGAL BANYAN IN HAWAII

Dronah Archives

Species: Ficus Bengalensis

HISTORIC FACTS

Planted on: April 24, 1873
Planted by: William Owen Smith, the Sheriff of old Lahaina town

ASSOCIATED EVENTS

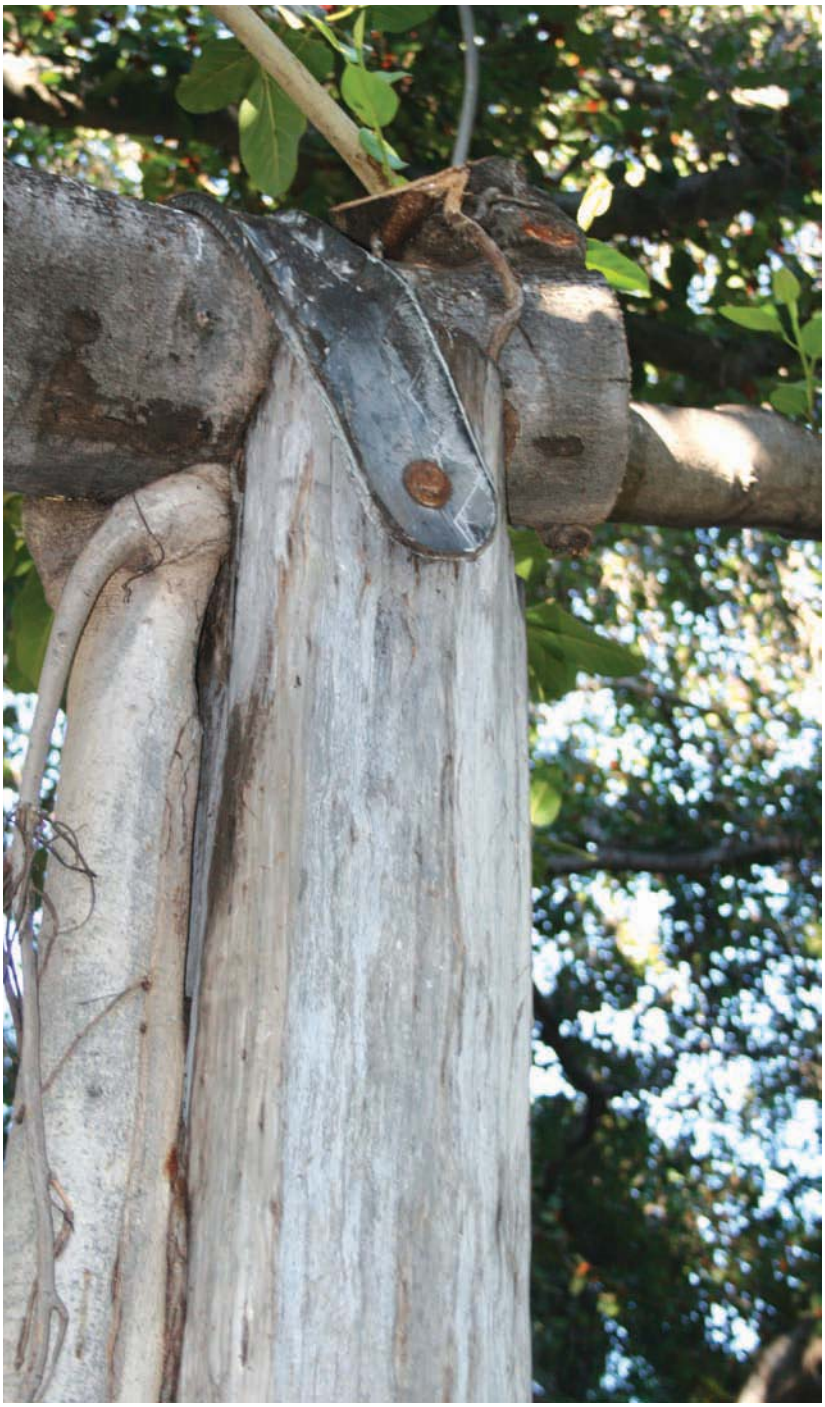
- the commemoration of the 50th anniversary of protestant missionaries arriving in Lahaina
- the royal ball of 1886 under the tree to celebrate King Kamehameha III's birthday.

PRESENT STATISTICS

Height: 60 Feet
Circumference: A quarter mile
Covered Area: 2/3rd of an acre

HORTICULTURE METHOD

In the 19th century, the Japanese gardeners nurtured this eight feet tall tree from India by hanging large pickle jars filled with water, beneath the aerial roots sprouting from the banyan trees. These aerial roots grew downwards and rooted themselves in the earth bed. They subsequently thickened and eventually resulted in



a series of supporting columns (trunks) for the branches of this widespread banyan tree.

THREATS

The tree is suffering from scars on the trunks, broken barks, excessive foot traffic, tree climbing and ground compaction. It also suffered from drying leaves during drought conditions and excessive pruning, a few years back. Maui County's arborist committee has recently taken actions for the long term conservation of the tree. Prohibitions regarding the tree's growth, limited use of area under the tree and a regular watering programme to counter drought conditions are now implemented.

NOTES AND REFERENCES

Kubota, Gary T. (October 2001). "Lahaina's famed banyan tree gets a rest" *Star- Bulletin*. Honolulu.
"The Great Maui Banyan"http://www.arboresque.com/Tree_stories_banyan.htm

Heritage Album

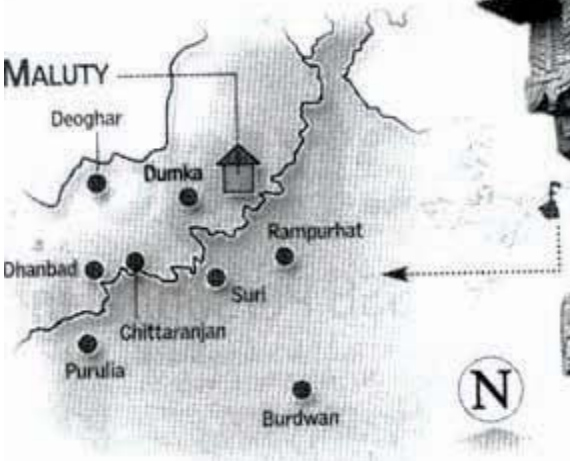
Bulu Imam is the Convenor of Hazaribagh Chapter, The Indian National Trust for Art & Cultural Heritage (INTACH), Hazaribagh, Jharkhand.

MALUTY TEMPLES

INTRODUCTION

Maluty is a small temple village in Pakur district in the northeastern corner of Jharkhand on the border with West Bengal. About 108 terracotta temples of the seventeenth century, a national heritage, are presently being destroyed by illegal stone mining, which is rampant throughout the Dumka hill range in which it falls. The village is about twenty kilometers to the east of Dumka town, sixteen kilometers north of Rampurhat in West Bengal. Thousands of illegal stone crushing units have ravaged the Dumka hill range and destroyed the forests in the full gaze of the government agencies that are perhaps unable to stop it. The terracotta temples of Bengal are a unique Heritage that deserve immediate attention and protection. The site had been surveyed by Satish Kumar Tyagi, Deputy Director of Archaeology in Jharkhand and declared as a national heritage under threat.

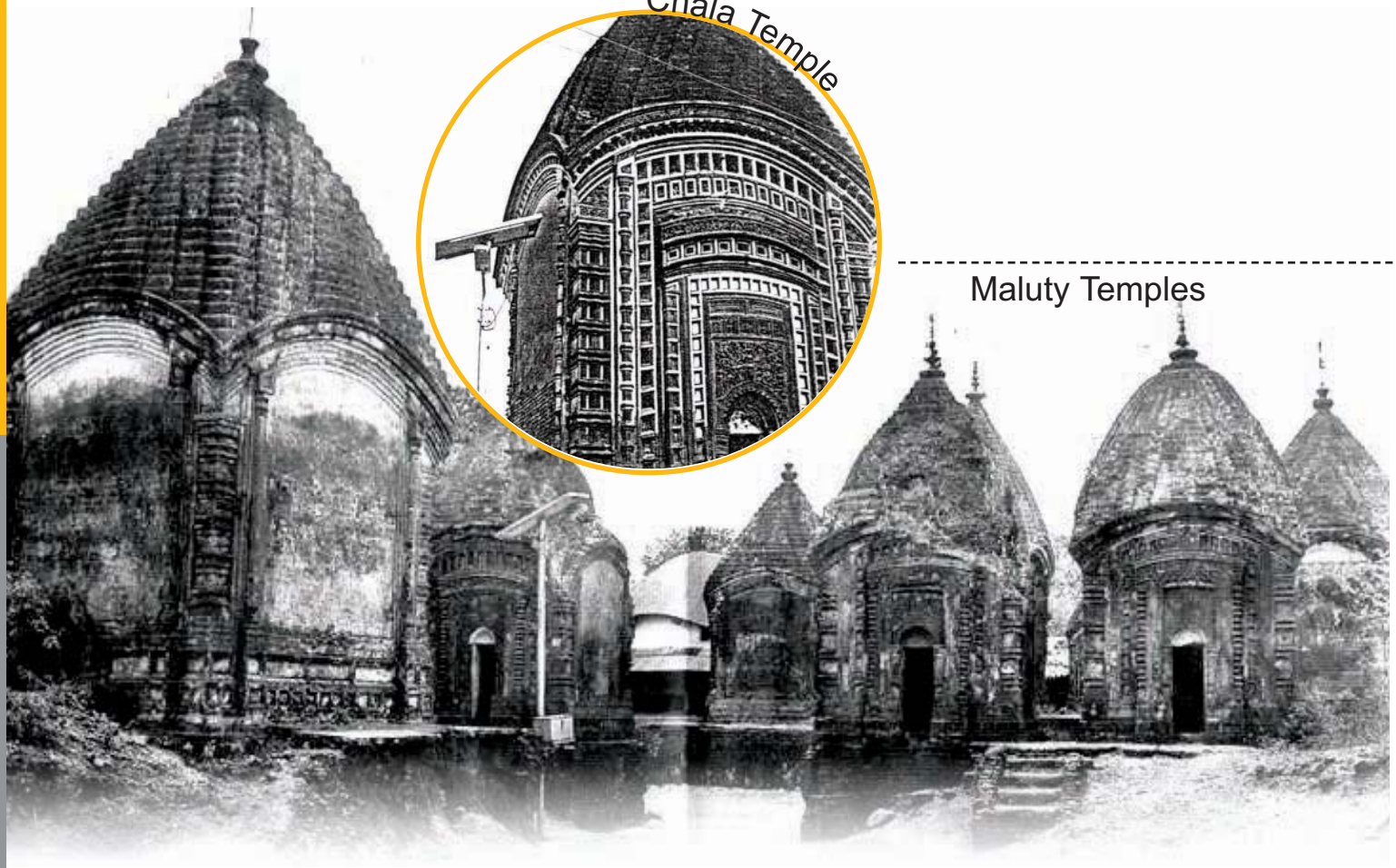
Maluty is locally known as the temple village. It has a rich historical association. It was referred to as *Gupta Kashi* in ancient times. Mention of the place is made as far back as 75 - 185 B.C. It is mentioned that the great horse sacrifice or Aswamedha was once upon a time carried out at this location by Raja Pushyamitra Sunga. Later on Bajrayani Buddhists propagated *Tantrik* rituals at the location. The matriarchal deity Mauluiksha-ma is worshipped, giving Maluty its name. It is also said that Adi Shankaracharya went there and started the Vedic upheaval against the Buddhists. In the present time, the *Dandiswami* of Varanasi's Sumeru Math visit regularly on an annual pilgrimage.



Three domes representing the temple, church and the mosque

BACKGROUND

According to a legend; Sultan Alauddin Hussain, the Shah of Gaur (1495 -1525) lost his pet hawk or *Baaj,* and Basanta Roy the son of a poor farmer caught the bird and gave it to him. In gratitude, the Shah of Gaur, gave him Maluty and named him the king after the event, i.e. Baj Basanta Raja.



The story of the terracotta temples traces back to the time of the shifting from Damra in Birbhum of Raja Baj Basanta Roy's family. Raja Baj Basanta's great grandsons Ramachandra and Mahadev Chandra shifted to Maluty in 1680. Before that they had begun construction of terracotta temples at the site. Maluty is the capital of the Baj Basanti Raj, which had a tradition of building temples instead of palaces. Inscriptions in the temples of Maluty depict that each temple was dedicated to a woman and is revered as a *Tantrik* centre. The temples it is said were built by expert terracotta artists and craftsmen from Bishunpur in Bengal. Their construction is dated back to the 17th century. Their style may be compared to the scores of temples of somewhat similar design in the temple village of Ichak in the Hazaribagh district.

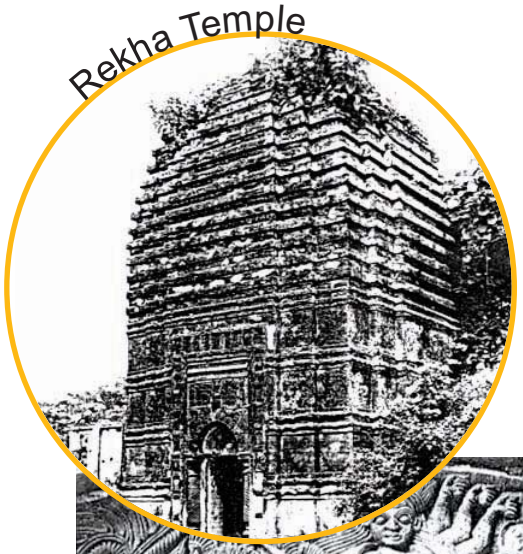
PRESENT STATUS

Currently, Maluty has neither electricity nor public transport. The place is thick with the dust of the stone quarries. The village population has dwindled from three thousand to a little over one thousand. The Jharkhand archaeology department is silent. While over one and a half crore rupees are being spent by the Jharkhand government in building a new inspection bungalow in Maluty, nothing is being done to protect the temples. Gopaldas Mukherjee, an ex-Air Force service man has campaigned to safeguard the threatened temples but his efforts have yielded no results. In order to increase awareness of the issue, he has written two books; *Deb Bhumi Maluty* and *Bajer Badale Raj.* He was inspired by the stories his grandmother Narbala Devi used to tell him about the place, when he was growing up.

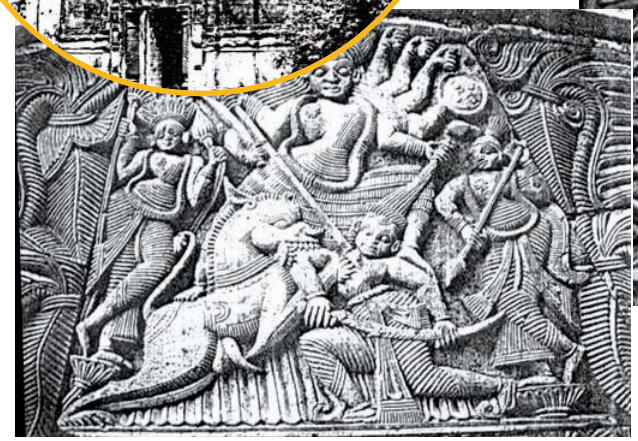
Maluty has yielded palaeolithic stone tools in the bed of the nearby Shiruli stream, which runs close to the village. It is another example of continuing at archaeological levels and cultural traditions so typical of the Jharkhand region. It is up to the State Archaeology Department of Jharkhand and the Archaeological Survey of India (ASI) to try and save the terracotta temples of Maluty from certain destruction.

THREATS

The problem with Maluty, as with hundreds of other archaeological sites of great importance is that they come under the State control and are hence subject to the State government and these departments do not have either the funding or expertise, or full control over the sites to deal with their problems. In the specific case of Maluty temples a public interest case was filed by concerned individuals in Ranchi High Court against the government of Jharkhand, on negligence to protect the ancient monuments of Maluty. In response to that case, the Archaeological Survey of India staff reached Maluty from Ranchi to take up conservation work. Originally there were 108 terracotta temples in good condition of which 72 had been protected by the previous government of Bihar vide its Gazette No.1182 dated 1.12.1983. The Department of Archaeology Bihar stopped conservation work as far back as 1992, and since then the temples had been lying uncared for. In the case of Maluty, rampant destruction has occurred and has been adversely affected by stone mining activities in the immediate region. It has also resulted in the loss of dozens of precious temples

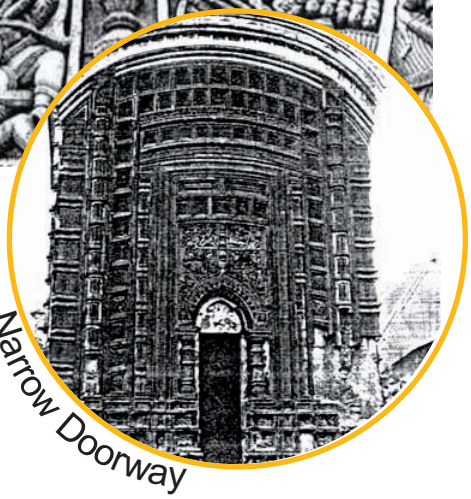


Rekha Temple



Mahishasuramardini (Durga)

Ravana on chariot and
Rama on the back of Hanuman



Narrow Doorway

Collage of Stone Carvings

and surroundings through avoidable negligence. In general, in Jharkhand large funds for conservation work at archaeological sites end up with local administrations or tourism departments. The local contractors destroy valuable archaeological sites with haphazard work such as has been seen at Isco rock art and Itkhouri Buddhist site in Hazaribagh. It is a case of failure by the relevant authorities, to manage the competent protection of archaeological sites.

The importance of an archaeological site of such great eminence needs to be seen in its overall context. In the case of Maluty, the *Chilha Nala* is a small stream flowing by the temple site which has yielded middle and upper Palaeolithic stone tools including blades and microliths which can be traced to an up-stream source at Sadarghat. The stream forms the boundary between Jharkhand and West Bengal and such places are notoriously uncontrollable by administrative resources since the responsibility vests on either side of the boundary line. Such a site requires proper investigation and development apart from the conservation of the temples. The greatest threat to Maluty apart from neglect is the operation of stone quarrying, which is in the immediate precincts and not conducive either to archaeology or tourism. The stone mines require to be closed down.

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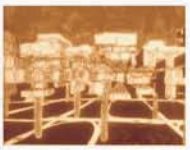
WHAT LINKS COW DUNG IN INDIA WITH THE 2006 FIFA WORLD CUP?



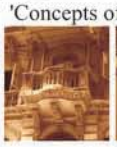



"What links cow dung in India with the 2006 FIFA World Cup?" Believe it or not!, Indian cow dung is helping the 2006 FIFA World Cup go Green.

INHERENT VIRTUES, UNIVERSAL DICTUMS

'Concepts of Space in Traditional Indian Architecture'



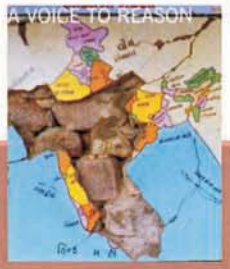



MAPS AND MOTIFS

Architectural decoration for long, has been denied due credit. It is time we recognise its potential as a component essential to architectural and social history. Re-working with Architectural History


A SILENT REVOLUTION…

Bright and tempting breeze, flow across the island, separating past from future… I cannot leave the island , I was born here and belong.



ON THE EDGE

Suddenly sustainability is everywhere! In parts to whole, it seems to be on everyone's agenda, at a point where assumptions merge with reality. In this confused matrix, 'SBE (Sustainable Built Environment): An Indian Perspective', a conference series held as a part of the Be!Sharp* programme work as a dipstick to guage the concerns facing the Indian professional today.

AWARD FOR DISTINCTION

MEHRANGARH FORT, INDIA

We live in a world of duality and contradictions, a world shaped by the individual spirit and the collective psyche, a world governed by perceptions and opinions. The human race, at large, is always struggling with issues, both trivial and phenomenal. One such issue of our times, which has been quite the bone of contention, is 'Conservation'.

THE CELESTIAL *DEVIS* DESCEND

CITY URBAN RENAISSANCE

As new cities dawn, there is a necessity for greater awareness towards urban principles for Ecologically Sustainable Development (ESD), energy consumption, global warming, urban density and other medium for Eco-Buildings.

ECOLOGY AND INNER-

MAHATO BUILD …

From building the house, in this second part of the story of Sukkar Mahato's house, Peeyush Sekhsaria narrates the role of women in construction. Final finishes are given to the walls and they become the canvas for their fascinating age-o,d art pf wall painting.

ON THE HOUSE OF SUKKAR

If the world population is adding a small city to itself everyday, with an already pressured infrastructure and environment, what choices do we have? How are we going to house this burgeoning population?

LIVES TO

KNOWLEDGE CULTURES

Reconstruction Development Campaign is an initiative to document and disseminate traditional building knowledge systems. The past is important, it tells us where we have come from, it shapes who we are, and influences what we will become.

The author reiterates that information dissemination is a critical factor in post-disaster management. The reconstruction processes is more than building the faster or the largest settlement pushed by government deadlines and NGO's agendas; it should be based on real needs and experience from the past, but not on speculative interests, false assumptions or propaganda for donors abroad.

BUILDING BACK BETTER?

PERIPHERY OF THE HEART

Prof. Percy Adil Pithawala addresses concerns and contexts with regard to issues of Contemporary Urbanism.



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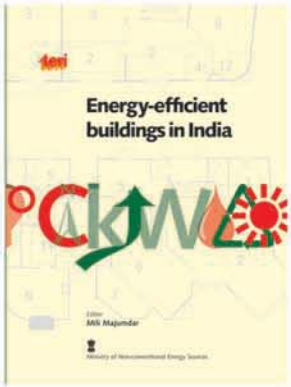
ENERGY-EFFICIENT BUILDINGS IN INDIA



The resource crunch confronting energy supplies due to accelerated urbanization can be alleviated by designing and developing future buildings by incorporating sound concepts of energy efficiency and sustainability. Covering 41 projects from India's various climatic zones, this book provides thorough insights into the context, techniques, and benefits of energy-efficient buildings. It highlights design responses to varied climatic conditions, appropriate materials and construction methods, implementation of energy- efficient systems, and effective utilization of renewable energy to reduce pressure on grid power. A must for architects, designers, urban planners, engineers, and students to build for a better tomorrow.

Softbound; 252 pages; 22 × 28 cm; Reprint 2002; Rs 860/US $80
ISBN 81-85419-82-5

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This volume proposes an approach based on policy strands, to be applied in tandem, with good practices and regulatory controls that can be easily implemented in Gurgaon. It provides a set of international real-time case studies as well as self-reinforcing policy tools.

Softbound; Pages 160; Size 21 × 30 cm; Published in 2004
(ISBN 81-7993-052-1)

Volume 2

This volume targets practitioners and focuses on an integrated approach to the sustainable building design process. It serves as the technical base for assessing building performance and meeting sustainability goals through appropriate strategies.

Softbound; 21 × 30 cm; 314 pages; Published in 2004
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Price: Rs 1002 / US $80 (for both volumes)

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Dronah is an interdisciplinary organisation consisting of highly motivated professionals from various fields who share a vision for a better quality of life – one that is sustainable, environmentally sensitive and draws on the contemporary without foregoing the strengths of the traditional. It is our aim to actively promote sustainable development through conservation, utilisation of traditional practices and modern technologies, knowledge sharing and mutual interaction. The organisation is focussed on conservation and development of the built heritage, environment; and art and crafts with the involvement of local community, in addition to being engaged in documentation and educational activities.

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