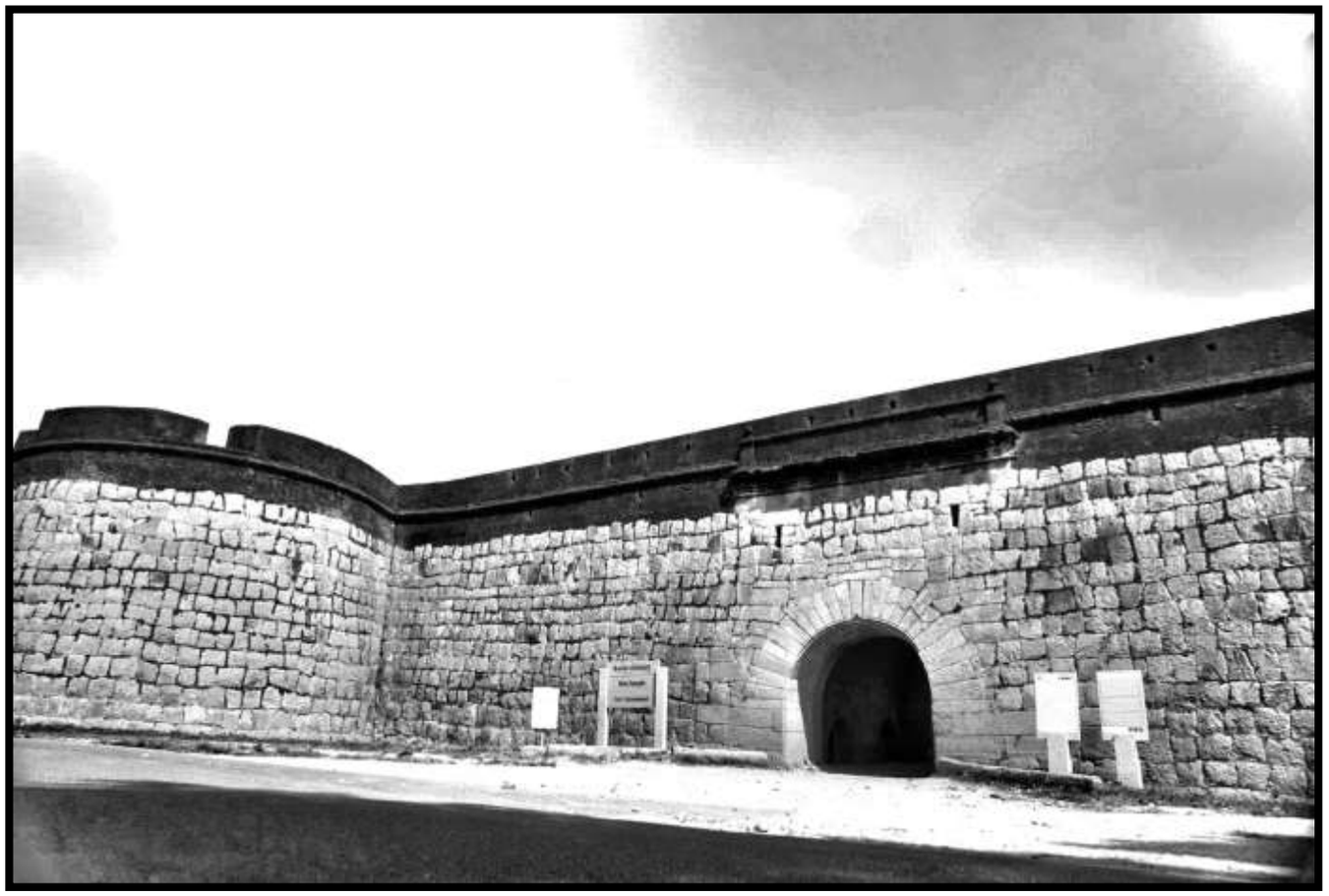
LOST HERITAGE OF FORT SETTLEMENT



-A CASE STUDY ON DEVANAHALLI FORT, BANGALORE, KARNATAKA, INDIA.

-INTERNATIONAL CONFERENCE ON SUSTAINABILITY IN BUILT ENVIRONMENT

-3RD & 4TH JANUARY 2020, ORGANISED BY AURORA GROUP OF ARCHITECTURE COLLEGES, HYDERABAD.

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INTRODUCTION:

With rapid growth in population, urbanization seems to wrap its arms around the heritage fabric, assimilating within it all its cultural charm, its traditions and its very existence. Intense vandalization of rural fabric with replacement of modern era buildings seems to supersede the cultural techniques and the sense of tradition in the settings.

In the expansive demand for jobs, opportunities, and buildings to accommodate all of it, the places which symbolize the local history and its significance becomes miniscule and nullified by the ferocious wave of urbanization. This paper is an effort to study and exhibit the potential of a victim of urbanization, Devanahalli fort and to forward few guidelines to save and retain its originality to supply it for the knowledge of future generation to understand the local history.

Devanahalli, fort is in Devanahalli-town municipal council in Bangalore rural district in the state of Karnataka, India. Devanahalli is abutting the Bangalore-Hyderabad highway at about 40 km northeast of Bangalore, close to Kempegowda International Airport. The fort is spread over an area of 20 acres. The roughly oval oriented Fortification veneered with dressed masonry has about 12 semi circular bastions a regular intervals.

Figure 2 The west entrance of the fort

Figure 1Location

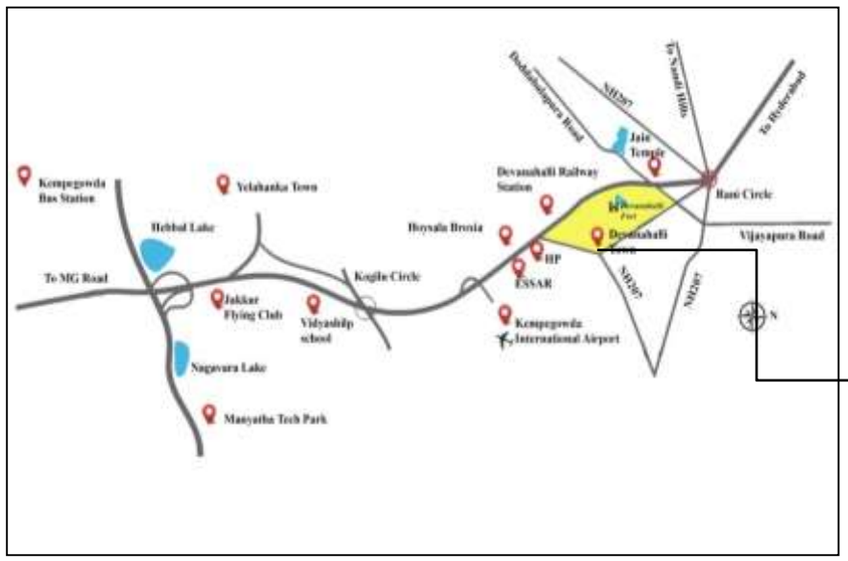


Figure 3 The Devanahalli fort

THE HISTORY AND IT'S SIGNIFICANCE:

The original name of Devanahalli is DEVANADODDI, dated back to 15th century. The fort was constructed in 1501 AD, made of mud structures. A group of refugees settled from conjeevaram (present Kanchipuram), camped near the foothills of Ramaswamy betta. The chief of the tribe Rana Baire Gowda, a heir of mosaru wokkalu community, contemplated for an harmonious settlement for his people, his son Malla-Baire Gowda during Vijayanagar Rule, identified the fort location.

The fort has navigated through several supremacy of dynasties including Rashtrakutas, Nolambas, Pallavas, Cholas, Hoysalas, the Vijayanagaras, Marathas, and Mughals.

Wodeyars of Mysore took over it after renovation (4). With all these change in dynasties the fort still secures and reserve its original fabric with enduring old building to portrait its glory. Henceforth, to protect, preserve and conserve these pearls of our heritage, significant measures are to be taken, and implemented in the course of time.

Studying the pattern of change, growth and the deviations in the multiplying economy helps us step up the chances of glorifying and protecting our long-lived heritage structures and their character.

Figure-4a) The portrait of Wodeyar (Mysore king)

Figure 4 b)Kannada inscription (1697 AD) at the Venugopalaswamy temple in the Devanahalli fortt

Figure 5 The monument marking the birthplace of Tippu Sultan (the tiger of Mysore).

Figure 6 The Venugopalaswamy temple

Figure 7 The fort wall

THE TRADITIONAL REMAINS

A) THE DEFENCE ARCHITECTURE AND CONSTRUCTION TECHNIQUES:

Devanahalli fort is a human fort, human war formation, encampment often resembled the forts with linear settlement pattern guided by the main arterial road. This settlement is fortified by the fort wall and the gateways on the east and west end. The fort settlement is traditionally seemed to be made of mud as building material, cob walled house remains in the fort area is the evidence for the same.

During the rule of Vijayanagara rule, one Malla Baire Gowda of Avati, a feudatory constructed the fort in 1501 AD with the consent of Devaraya at Devanadoddi - the earlier name of Devanahalli. Subsequently, in 1747 AD the fort passed into the hands of Wodeyars of Mysore, which was conquered many times from the Marathas and later came under the control of Haider Ali and Tipu Sultan. The present fort is ascribed to Haider Ali and Tipu Sultan, is spread over an area of 20 acres (8 ha). and it was the favorite hunting place for Tipu Sultan which incidentally was his birth place as well. The roughly oval east-oriented veneered with dressed masonary has as many as 12 semi-circular bastions at regular intervals. A spacious battlement is provided towrads the inner side of the fortification.

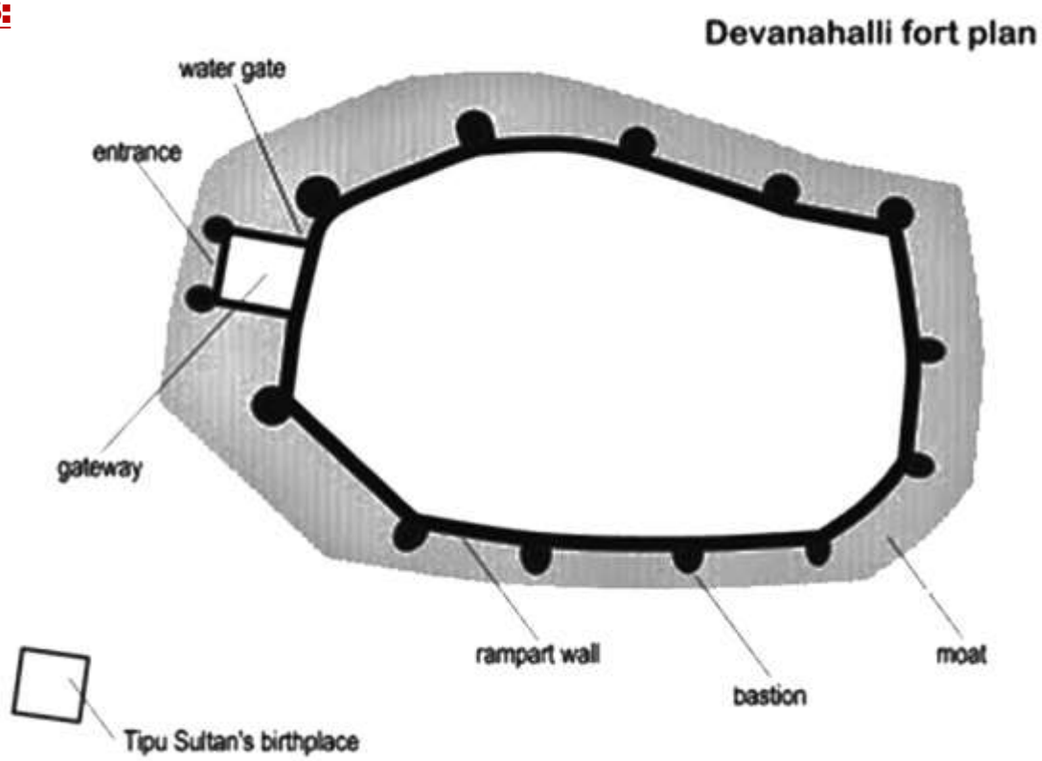


Figure 8 The Conceptual fort plan

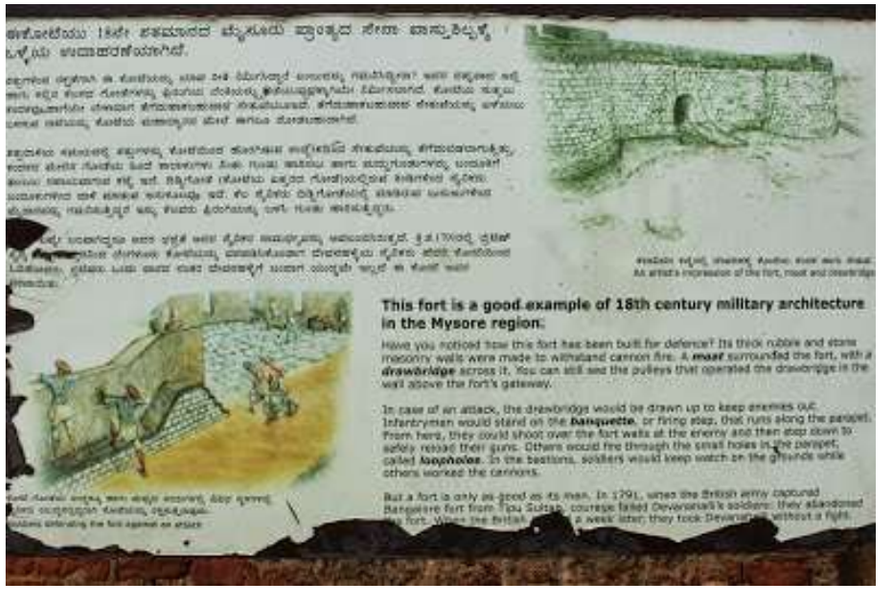


Figure 9 The signage explaining the early Defense Architecture

Figure 10 The SUKHRI masonry work over the fort wall

The fort is provided with entrances at east and west decorated with cut plaster work. The bastions are provided with gun points built in brick and lime.The *SURKHI*, a mixture of lime and soarsely powdered bricks also found it's construction In Devanahalli, this traditional material was used for water-proofing where we can refer the sam e method of construction in common with the Krishnaraja Sagar (KRS) dam at Mysore. You can still see traces of it on the floors of the bastions and ramparts.

Each successive layer underneath will have bricks placed crosswise to the layer above it another simple, traditional method of improving strength and waterproofing capacity

The small channels that you can see along the inner fort walls allowed water to drain out of the ramparts, thus reducing seepage into the structure.

Figure 11 The traces of canal emergence

Figure 12 The Rampart details

Figure 13 The walkway above the fortification

Figure 14 The Interior of the western gateway

Figure 15 The fort steps

Figure 16 The Watch tower

Figure 17 The Deliberated fort wall

B) RELIGIOUS BUILT STRUCTURES

Inside the fortification we can witness the early town settlements formation through visual observation of the built fabrics which were evident even today.

The Venugopalaswamy temple, which faces the main town road, is one of the oldest among them. The courtyard, with a Garuda Stamba, is spacious and the walls of the temple depict various scenes from Ramayana and the feats of Lord Krishna as a child, and the pillars have beautiful statues carved on them.

The sculptures in this temple is said to be comparable to the temples of Belur and Halebid. On the pillars of the main entrance stand two horsemen with swords unsheathed. The Garbhagriha has a standing Venugopala image of Vijayanagara style. There is a Dravidian style Sikhara over the temple. The Navaranga has four black-stoned pillars carved with fine relief sculptures on all sides, such as hayagriva, dancing female figures with attendant musicians, a conch blower, a kinnara with the lower portion of his body in bird form, a huntress removing a thorn from her leg, etc. A teru is the big chariot used to parade the idol of Gopalaswamy around the town once a year.

Figure 17 The traces of canal emergence

Figure 18 The Dravidian shikara

Figure 19 The Venugopala swamy temple

Figure 20 The Garuda stambha

Other Temples inside the fort

- **Siddalingeshwara temple**
- **Raghavendraswamy Math**
- **Chandramouleshwara Temple**
- **Sarovaranjaneya temple**
- **Nanjundeshwara temple**

A few yards away from the Venugopalaswamy temple is Siddalingeshwara temple. Next to this temple is a Raghavendraswamy Math. Across the street is the another age old temple, Chandramouleshwara Temple. It has a spacious inner prakara is built in Vijayanagara style. The Garbhagriha has a shivalinga, and there are two cells on either sides with images of Ganapati and Parvati enshrined respectively. On the left of the main road stands another temple dedicated to Anjaneya known as Sarovaranjaneya temple.

The Nanjundeshwara temple is a small building with two cells in a line and a common navaranga. It is said that this was earlier called Kashi Vishveshwara and is regarded as the oldest temple in the town.

Figure-21 Yalii pillars at the entrance to closed mantapa (hall) in the Venugopalaswamy temple in the Devanahalli fortt

C) HOUSE TYPOLOGY:

- Devanahalli fort area is unique since it is fortified, and the setting of these houses remains constant for study. The Devan's House is the larger quarter with other smaller quarters and Agraharam houses for priest's family who serve the temples in the complex. It is useful to examine the mechanism by which a link between the lifestyle and built form is achieved in vernacular architecture.

- The social environment shapes the typology of these house. The houses sit in a narrow lane with a Jaggali (a front porch that is elevated for sitting and conversing with people walking on the street at eye level).

Figure-22 The Courtyard space.

Figure-23 The Diwans /Devans house

Figure-24 The Front porch adorned by columns

Figure-25 The Facade of Diwans /Devans house

FAÇADE TREATMENT

- Amidst urbanization, these houses are sustainable dwelling units which stands as a live model for best vernacular and bioclimatic architecture prevailing in the suburbs of Bangalore. They also speak the local history of the place and its ancient culture and lifestyle.
- To keep the facade true to its traditional form, the use of materials like glass and metal should be minimised.
- Most houses had simple facades with wood and mud being used as primary materials. These materials can be used to retain the authenticity of the buildings.
- The facades are influenced by British and Mughal architecture. Elements from those eras can be used but with modern materials like cement to bridge the gap between that era and present day.

Figure-26 The House with madras terrace roof

- **Most of the roof structures of ground floor only houses are built with locally available granite, thatch and bamboo.**
- **Most traditional houses used wood as beams, some of them used metal I sections as the beam to hold the roofs.**
- **All the wall of the traditional houses was thicker than the current day brick wall, as they were load bearing structures.**

Figure-27 Bamboo ceiling

Figure-28 The interior well construction

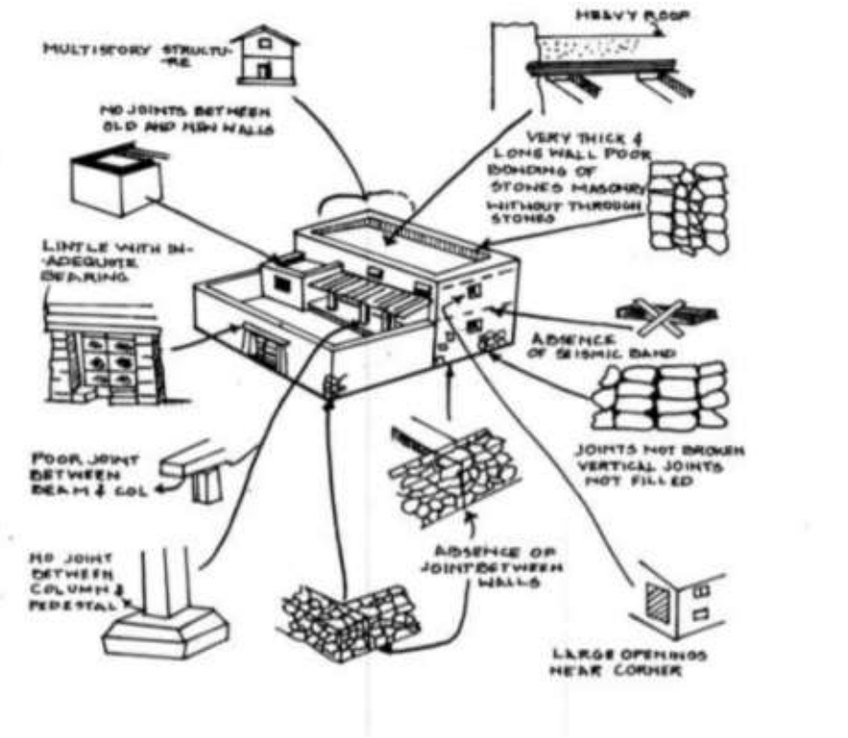


Figure-29 sketch explaining the traditional construction

Figure-29 The Façade with culural elements

Figure-30 Wooden beam constrution

Figure-31 The Mud wall

Figure-32 The Agaraharam -Interior

Figure-33 The Agaraharam -Exterior

CURRENT SCENERIO DUE TO URBANIZATION PARADIGM

THE STUDY AREA AND ANALYSIS :

The study area encompasses the main arterial street spanning between the Venugopal Swamy temple and broken gateway. Considering the arterial stretch the mapping has been made on the land-use, building height and evolution. These aspects are studied to understand the current situation of the fort taking the stretch as sample.

As per the data available, based on house listing and housing census 2011(8), the details about household is tabulated in Table 1. The house-hold condition is from good to livable and 2% of dilapidated houses with about 68% household size of 1-4, 30% of household size of 5-8

Figure 2 Household Condition

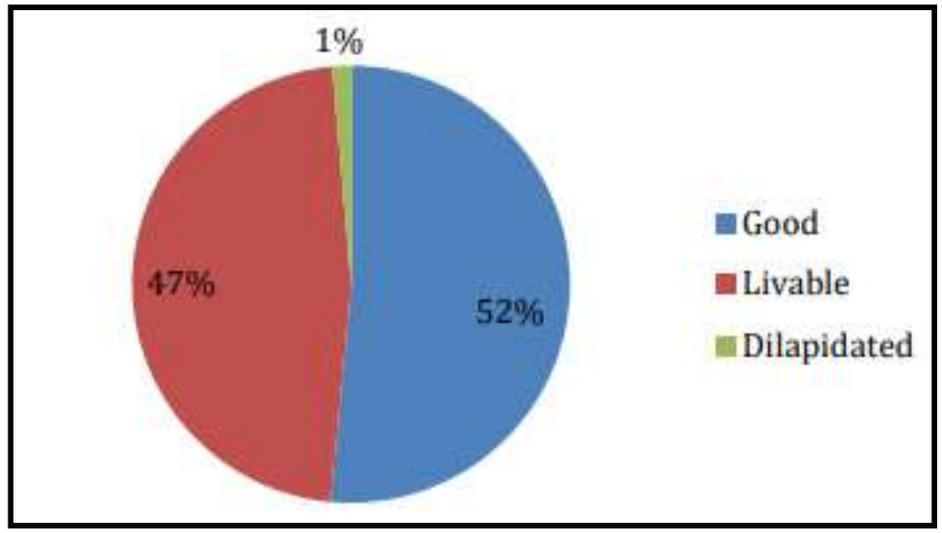


Figure 34 Household Condition

TABLE 1 HOUSEHOLD DETAILS						
Household condition		Ownership Status		Type of structures		Household size	
Good	51.5	owned	54.35	permanent	72.4	1	3.75
Livable	47.15	rental	43.85	semi- permanent	16.1	2	15.95
Dilapidated	1.35	other	1.8	temporary	11	3	18.9
				servicable	10.75	4	28.9
				non-servicable	0.25	5	15.25
				Unclassified	0.5	'6-8	14.9
						9+	2.3

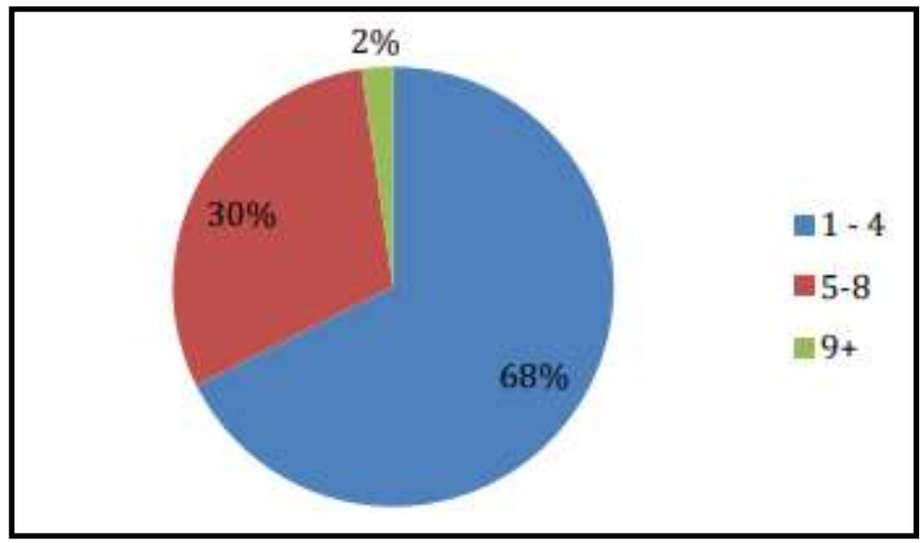


Figure 35 Household size

MATERIALS USEAGE OF BUILT STRUCTURES :

The materials used for floor is maximum of cement – 63% or mosaic or floor tiles 33%. This shows the modernization of the houses happening at the interior level. The wall material being maximum of 66% stone packed with mortar and the next highest 22% of mud and unburnt bricks confirms the evolving usage of stone masonry and existence of mud wall or traditional unburnt brick masonry to a greater extent.

The roof materials being 14% of grass/ bamboo/mud/wood, 22% of stone/ slate, 19% of GI/ metal/ asbestos sheet and 37% which is the maximum number of concrete roofs shows the raising trend of concrete usage as a result of urbanization. The data analysis from the Table 2 and charts (Fig.36, 37, 38) depicts that most of the houses are being rebuilt or modified to the current trend. It also clearly shows the urbanization effects on the fort area.

TABLE 2 Materials Used for building Envelope

Roof Material		Floor Material		Wall materials	
Grass/Thatch/Bamboo /wood/mud/etc.,	14.05	Mud	1.65	Plastic/Polythene	0.25
Plastic/Polythene	0.75	wood/Bamboo	1.1	Mud/Unburnt brick	22.2
handmade tiles	5.45	Burnt Brick	0.25	wood	0.8
Machine made tiles	0.8	Stone	0.75	Stone not packed with mortar	7.4
Burnt brick	0.55	Cement	62.95	Stone packed with mortar	65.65
Stone/slate	22.45	Mosaic/floor tiles	33.2	Burnt brick	2.85
G.I/Metal/Asbestos sheets	18.5	other	0	Concrete	0.25
Concrete	37.35			other	0.5
others	0				

Figure 36 FLOOR material

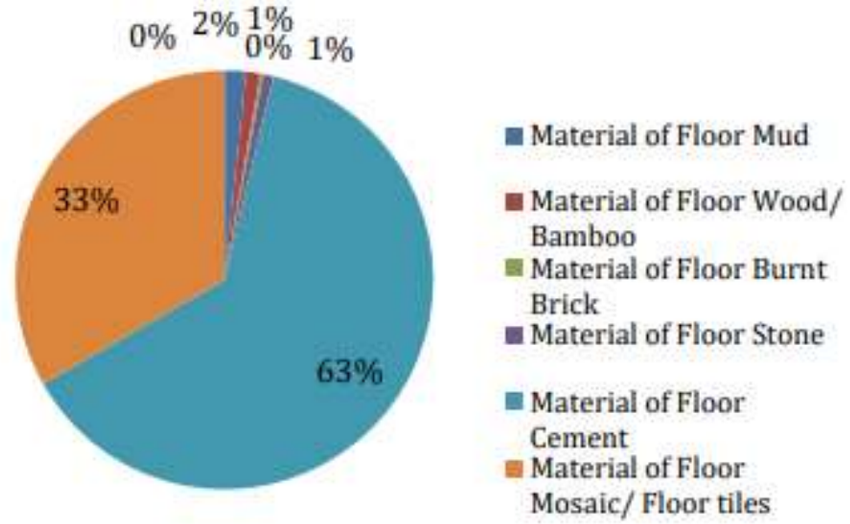


Figure 37 WALL material

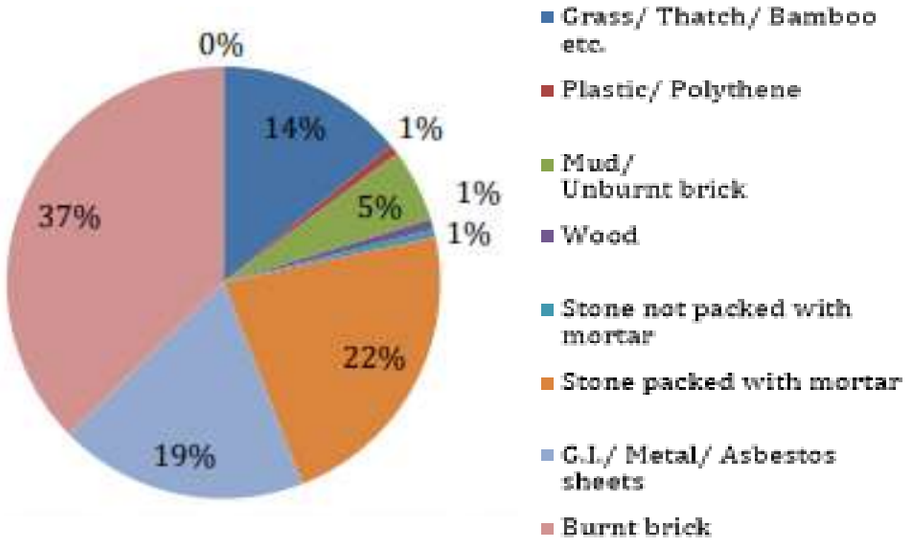
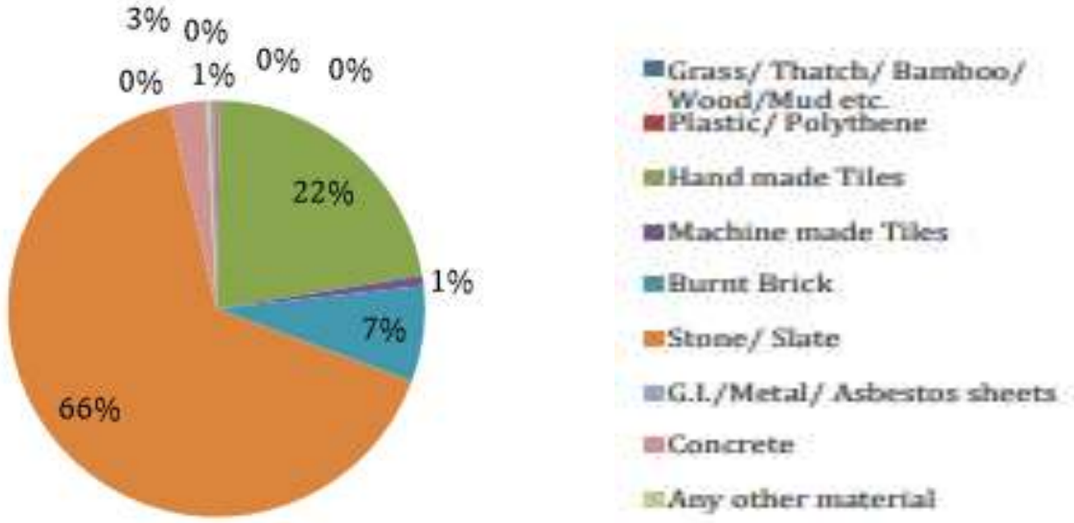


Figure 38 ROOF material



EXISTING LANDUSE :

The depiction of various fabrics of buildings in the map (Fig. 39) gives a comprehensible picture of the current land use. As a result of the analysis it was found out that most of the land was occupied by a continuous stretch of residential building. The main street ends at a point where a cluster of commercial shops, line the street. Beyond which the place acts as a market hub which accounts for around 15% of the current land use. The density of institutional building was found to occupy about 5% of the entire stretch taken into consideration. These institutions are started at recent times and one of them is a daycare/ nursery school run at a house. The temples are positioned in the initial stretch which occupies about 5% of landuse.

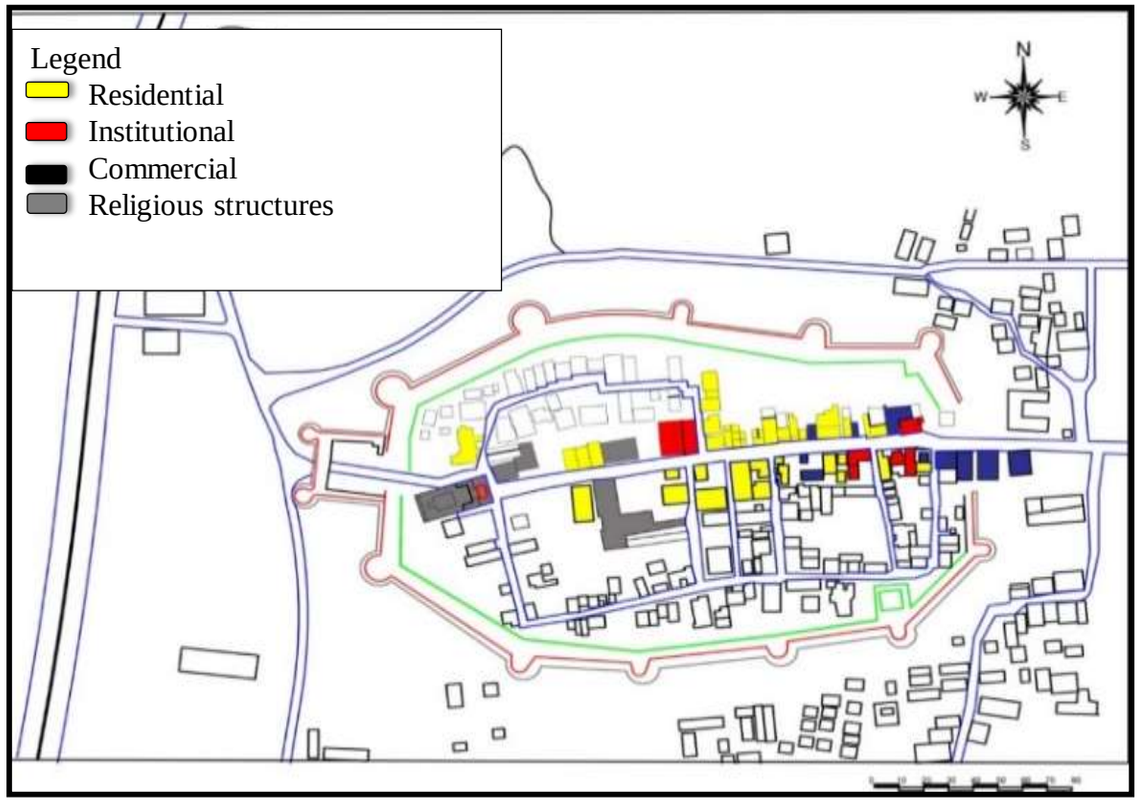


Figure 39 Land-use *Map of study area*

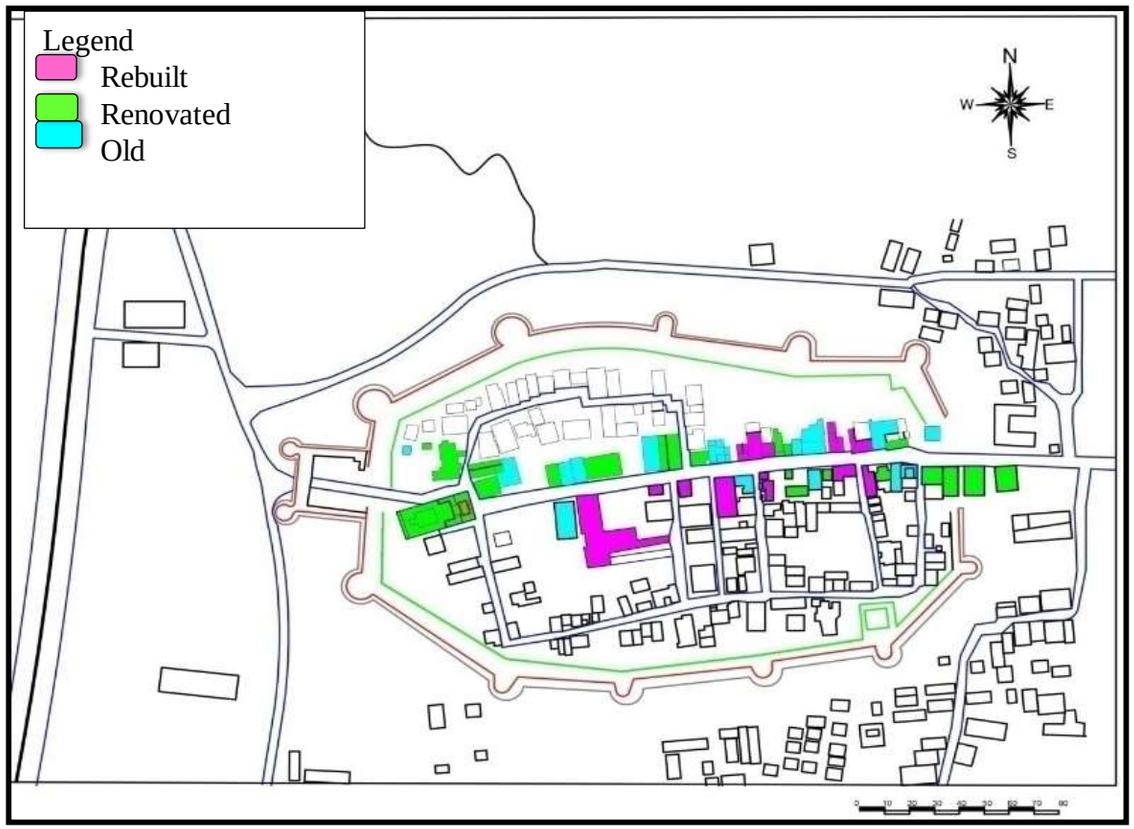


Figure 40 Evolution Map of study area

THE DEGREE OF EVOLUTION :

The degree of evolution of the study area is depicted through the map (Fig.40). It is observed that, as we progress towards the inside of the fort, the initial stretch of building possesses a very low extent of change, development or alterations. The character of the buildings is found to be maintained in the traditional fabric with the touch of heritage persisting with the presence of columns with an inviting entrance porch, overhangs and the repetitive use of bricks. Proceeding further into the street some buildings were found to have undergone a small amount of transformation visible through the evolved use of materials. After an interval of a couple of meters, the monotony of the traditional houses is broken by the line of highly developed buildings portraying modern use of materials, cladding of walls, modern materials and techniques with pleasing aesthetics. This set of buildings started dominating over the place leaving behind only a minority of them retaining its original state as a result of the impact of urbanization

EXISTING HEIGHT FACTOR :

The varying height factor of the buildings have been depicted in the map (Fig. 11) as we enter the main street, the initial stretch of building is mostly lined by one storey buildings crowed by terraces. After the continuity of the one storey buildings persists for a few meters, all the buildings beyond this stretch seem to be of two storeys with hardly few three-storey buildings beyond the fortification. However, the stretch within the fort wall is integral by having only 2 storeys which is not beyond the height of the temple tower or displacing its significance.

Figure 2 Main street view

Figure 2 Main street view

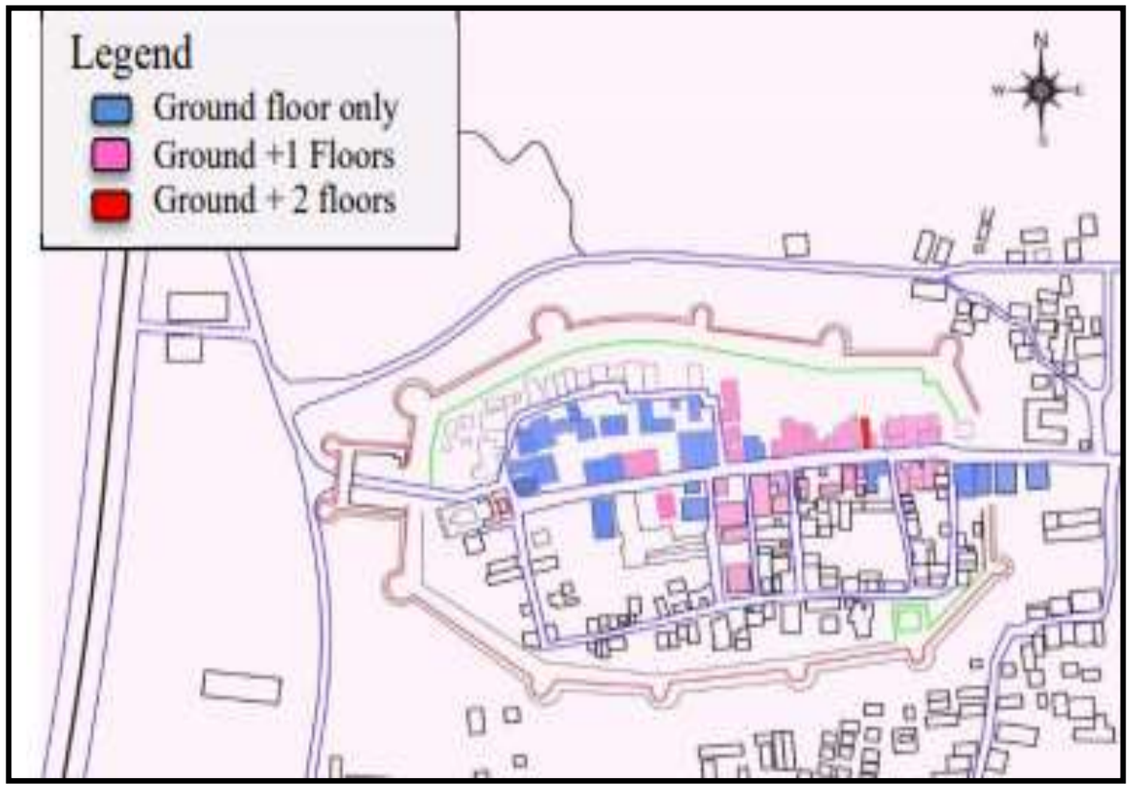


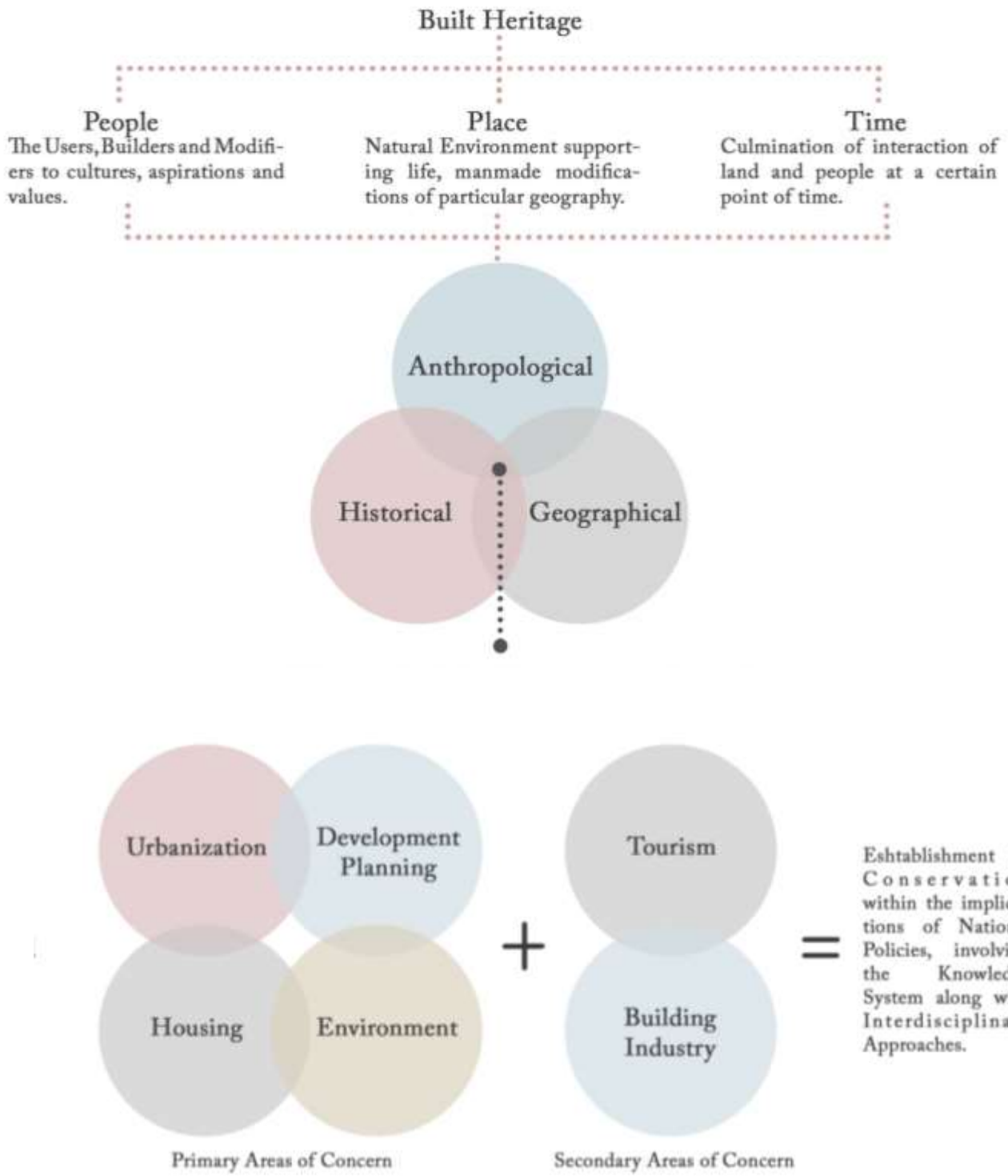
Figure 2 Height factor

Figure 2 Map of the study area

Figure 13 Street elevation 1

Figure 14 Street elevation 2

HOW TO CONSERVE? WHAT CAN BE DONE FOR BETTER FUTURE DEVELOPMENT?



Nature of Indian Built Heritage:

- Indian settlements are complex and highly developed resource entities
- Wide diversity in the morphological character, product of different geographical context , specific historic times, characteristics and function
- Embody dynamic systems and sub-systems.
- Evidences of history preserved as layers of built fabric
- Coherence added by nature of heritage components, historic building typologies and structure.

Holistic and Integrated framework approach

- Focussing on the knowledge potential of heritage and its relevance to long term benefits to create a responsive society towards it's resources
- Empowering the local community to look after resources.
- View architecture as cultural product
- Understanding traditional knowledge systems.

The Holistic and Integrated Framework works out in these kind of places in India , which being rich with surviving heritage , which need adequate protection and management over it's cultural resources.

WAYS AND MEANS

- The preservation of these local values and traditional knowledge system was very much important for the successful sustainable development of this area.

- Quality management need to be developed which improves the spatial, functional, cultural and economic values

- Proper consideration need to be given to the established traditional remains and concern need to be taken in reducing the direct impact of new urban developments over the historic elements.

- The local communities need to be educated about their local values which reduces vandalism over the built heritage and also pay way for their active participation and involvement in conserving their own heritage.

DISCUSSION:

- As the heritage of the fort is in dire need of preservation, a step towards treasuring its value and a bunch of proposals to elevate its span of existence becomes integral.

- The existing spaces possessing a traditional character can be highlighted by adding urban elements which makes the place more significant. The space abutting the fort wall can be treated by adding lamp posts and seating arrangements, when and wherever required, across the street stretch, implementing the existing use of materials in various other different ways to create a timeless feel.

- As the fort falls on the way to the airport, the rural traditional spots can be used as relaxing places of halting or sources of gaining knowledge about the heritage and the history of the fort and the local history of Bangalore. A pathway can be created for introducing a heritage walk for tourists across the fort wall, overlooking the inside. Railings can be added to enforce safety of the tourists along the stairs and heritage walk area.

- The ruined western gateway and the adjoining wall can be preserved in its state and the steps to reach the wall can be added with railing. The central spine can be enforced with several façade treatments and reducing the usage of glass and steel or other modern materials in order to maintain the traditional character of the street and to give vernacular feel to the visitors. Amidst urbanization, these houses are sustainable dwelling units which stands as a live model for best vernacular and bioclimatic architecture prevailing in the suburbs of Bangalore. They also speak the local history of the place and its ancient culture and lifestyle. It is very important to conserve/preserve these units and give an adaptive reuse to these units and keep it as a live model or exhibit for future generation.

- Utilization of heritage structures to bridge the current trends and heritage is a healthy practice, activities like exhibition area, an art gallery with photographic archive of Devanahalli transformation and history in combination with the temple visits will attract tourist around. The stretch containing the Agrahara houses can be utilized to exhibit traditional remains of buildings, display of vessels, and exhibits of paintings, elements and sculptures narrating the culture and the immemorial tales of the place. The total revenue generated can be used for maintenance of the fort. While taking steps towards preserving the fort, care should be taken so that the Indo-Saracenic tint of the place should not diminish. Devanahalli, being the forefront of the local history of Bangalore withholding within it a huge amount of heritage, tradition and culture, if not preserved well, will lead to the complete decline and wash out of the tiny amount of heritage left as a result of the surrounding walls of the fort which are currently acting as a protecting barrier.

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THANK YOU .....