

Rejuvenation of Ghats at Varanasi (India)

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Abstract—Varanasi is a city which is known for multi-cultural, multi-religious, and multi-ethics, it is mosaic of Indian art and architecture which is one of the unique example of variety and unity of India. It is world famous because of affluent culture and opulent heritage of Ghats. The city is enjoying its ultimate spirituality status due to its umbilical relationship with India's holiest of the holies at bank of river Ganga since mythological times. Now a day's Ghats area are facing multiple problem of built environment. Gradually it is declining its various religious, cultural, environmental and architectural values.

Activity on Ghats area:

There are various activities happened at Ghats area from early morning to late evening, thousands of pilgrims come and clean themselves physically, mentally, spiritually by the taking holy bath at Ganga river. The life and death can be seen at Harish Chandra Ghat and Manikarnika Ghat, Except of these activities many more are such as prayer, chanting, worship, music, sketch, writer, Sadhu etc Are enjoying their lives.

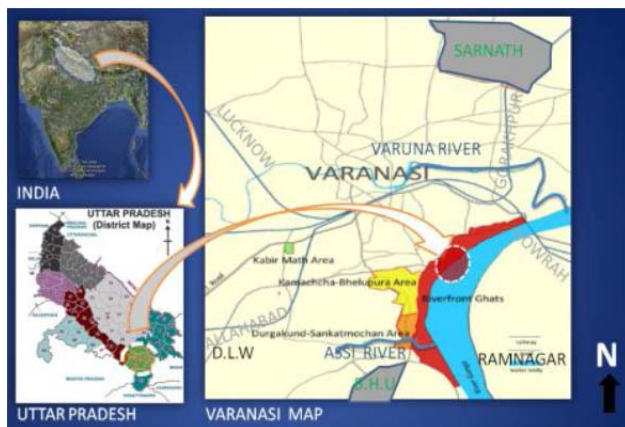


Fig. 1: Connectivity of Varanasi

This research paper will emphasis to improve built environment of Ghat area, various architecture style, current existing condition etc.

Keywords: Built environment, Ghatscape, Universal design, Access control, pedestrian friendly, Eco-friendly.

Introduction

Varanasi is the city of streets and temples here we can see various different culture, religion and architecture value. There are more than eighty Ghats, Few famous Ghats are Dashaswmech Ghat, Mankarnika Ghat, Kabir Ghat etc. The total stretch of Ghats crescent is 6.5 km, focal point of that crescent is toward east direction, which is a very important as per Hindu mythology. Which are keeping on its religion, cultural, environmental value since the time was immortal.



Fig. 2-Sadhu at Ghat

Problems of Ghatscape

- 1) **Entry:** Ghat area is directly link with small street/lane which has bottle neck entry at every Ghat because of encroachment by the local shopkeeper. No door vestibules are provided for security purpose.



Fig. 3-Narrow Entry

- 2) **Steps** : Steps at Ghats area are not in uniform its risers and treads are not regular , Now the condition of few Ghats steps are deteriorating its architectural value .



Fig. 4-Broken Ghat

- 3) **Landing**: It is very congested and has not proper access to pedestrian. Its levels are not match with each other.



Fig. 5-Congested Area

- 4) **Shops**: Road width is very less because of encroachment of local shop keeper. So it is very narrow road, hawker are open their shop on landing at Ghat area.
- 5) **Temples**: Temples are now deteriorating its religious, architectural value because of less maintenance of its structure. Cracks, shrubs etc are damaging its value day by day.



Fig. 6-Deteriorating Temple

- 6) **Railing**: Railing for Ghat to river are not constructed it may harm during summer time for the children and old people. And some places railing conditioned are not good, it is breakdown due to less maintenance.



Fig. 7: Broken Railing

- 7) **Boat voyage**: These are not in good condition, Parking of boats at Ghat area sometime it gets accident to the bath taker.
- 8) **Aarti stage (worship stage)**: Few Ghats's Aartis are very famous like Dashaswmegh Ghat, Shitla Ghat etc. But it doesn't have proper stage, For the worship stage, it is very congested during the Aarti.
- 9) **O.A.T**: Only Rajendra Ghat has O.A.T for 80-100 people which are very small in scale.
- 10) **Kiosk**: There is not a single kiosk for the any general enquiry.
- 11) **Ramps**: Now a day we generally talk about the universal access but that Ghats area are not accesses for physical handicapped at all. All Ghats are directly connected with steps and level.
- 12) **Sheds**: During summer and spring there are no sheds provided for the visitors. Only few Ghats have sheds which is not good in numbers and size.
- 13) **Chauki (platform for Brahmins)**: There are very limited chauki for Brahmins only few Ghats have proper seating arrangement rest of Ghats don't have proper chauki for religious rituals
- 14) **Lanes/streets**: Small narrow lanes are connecting to Ghats are from Malviya road. It is a very narrow, irregularly form. That are very congested to access the Ghats area.
- 15) **Changing room**: There are limited changing rooms which are not in good conditions and numbers.
- 16) **Lighting**: Only few famous Ghats like Dashaswmegh Ghat, Mankarnika Ghat have lighting system but most of Ghats don't have Ghat lighting at evening/night which may not safe and secure for the pilgrimage.
- 17) **Jetty**: Jetty that is a big issue at Ghat area because there is not proper parking for boats so Jetties are must for boats parking.

Environmental improvement

According to the Prayaschitta Tatva (1.535), a ca 9th century text,

“One should not perform fourteen acts near the holy waters of the Ganga river, i.e., **excreting in the water, brushing and gargling, removing all clothes from the body, throwing hair or dry garlands in the water, playing in the water, taking donations, performing sex, having sense of attachments to other holy places, praising other holy places, washing clothes, throwing dirty clothes, thumping water, and swimming**”.

Source- <http://www.readbag.com/sasnet-lu-se-easaspapers-46ranasingh>

The whole Ghats area are polluted because of less maintenance by the local people throwing burn/unburn humen and animals dead bodies into the river Ganga .



Fig. 10: Garbage on Ghat area

Architecture Style, form ,function and other design element

The Ghat towards the south in quest of majestic hindu and Rajasthani architecture, prominently reflected in the building (palace) along the Rana Mahal Ghat. The ghat, depicting the grandeur and glory of Rajasthan rulers, seems to be a shadow of itself.

- 1. *Grbhagriha*, i.e., sanctuary where the main deity has been kept.
- 2. *Pradakshina path*, i.e., circumambulatory path having three sides balcony bringing ventilation and light to the interior.



Fig. 8: Air Pullution



Fig. 9: Statue immersion

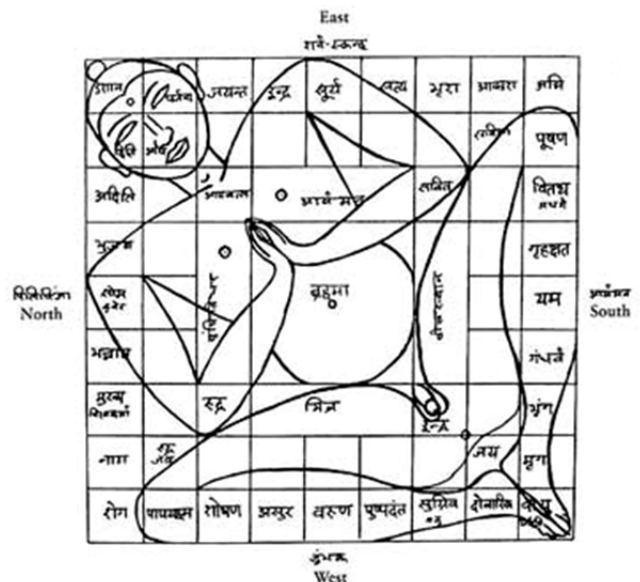


Fig. 11: Vastu Purush

3. *Mandapa*, i.e., columned assembly hall having two sides balcony.

4. *Artha mandapa*, i.e., entrance porch.

Architecture elements include:

1-*Shikhar*, 2- *Jharokha*, 3- *Chhatri*, 4-*Haveli*, 5- *Kunda*, 6- *Chauki*, 7- *Steps and landing*

It is in typically Hindu style of architecture with carved balconies, open courtyards, and scenic pavilions. At present the temples are not in a good shape. It is repository of the history of the kings of Benares.

The Structural System of the Hindu temples

The basic construction technique used in the Hindu temple was the trabeated system or the post and the beam method and which was extended by the use of corbelling techniques. This method was originally used for wooden construction in India and was later adopted for the stone structures as well.

Trabeated System

In the trabeated system only the horizontal and the vertical members are used and the stability is achieved by the massive arrangements of vertical elements such as pillars and pilasters together and heavy cross beams and lintels. The use of the spanning system to enclose the interior spaces was the most typical feature of this system. The openings in the Hindu temple have lintel made of stone or timber. The roofing system consists of horizontally laid slabs of stone spanning from one supporting beam or wall to the other.



Fig. 12: Trabeated System

Corbelling System

In the corbelling system the stones or the bricks in each horizontal courses are projected out to bridge the gap between the two walls to diminish until it can be closed with a single piece of stone or brick. The corbelling system was used to create the interiors of the temple and the stone shells of the

super structure that rise above the sanctuary. Later in the the 13th century the use of iron clamps and wedges to hold the stone slabs together, allowed the special feature of corbelling in which horizontal stone layers were projected out over large spans and cut into unusual shapes to produce highly decorative ceiling schemes.



Fig. 13: Corbelling System

The Base or the Pitha

The base of the Hindu temple consists of series of mouldings. These mouldings are horizontal bands corresponding to the courses of masonry supporting the walls and super structure of the Hindu temple. In Hindu temple architecture mouldings exists not as edgings or modulations to other elements, but as elements with larger elements. These are more similar to the architrave, frieze and cornice in a classical pediment than to mouldings within these.

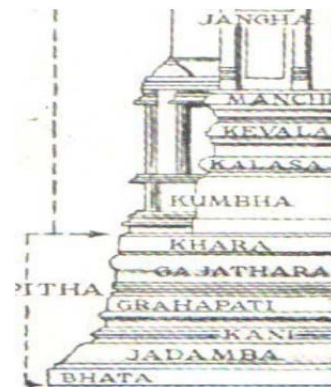


Fig. 14-Pitha

The Walls:

The zone between the superstructure and the base of the Hindu temple architecture consists of walls, pillars and pilasters. The walls in the Hindu temple architecture are constructed as composite stone masonry with an infill of stone and brick with lime and mud. The thickness of the stones varies from

300 to 4500 mm. The average thickness of the masonry wall varies from 800mm–1200mm. Through stones are provided at regular intervals to strengthen the walls.



Fig. 15: Plain wall



Fig. 16: Pillar

The Supporting Elements

The Hindu temple consists of tall, slender, free-standing, beam supporting columns, pillars and pillasters. The columns are not the defining elements of the Hindu temple architecture as that of the Western Classical architecture. It is not easy to categories the Indian columns as there are no particular design type of the column.

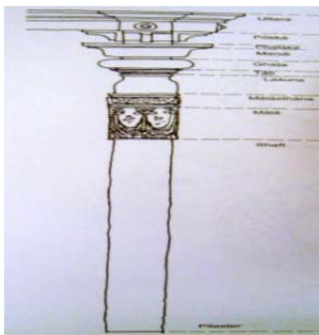


Fig. 17: Section of pillar

Step and landing, kunds

These ghats are the interface between the building edge alongside the river and the river, permitting an access to the ganga. The ghat may be pakka that is constructed with stone steps and iron clamps or kachcha that a natural bank.



Fig. 18: Kunda of Ghat

Materials

This usage of timber and bamboo governs the form of temples mostly in the Chunar and Vindyal area. The construction of temple in stone is the most distinctive expression of Hindu architecture. The highly evolved techniques of excavating and cutting blocks of stone constitute one of the major technical achievements associated with the history of the Hindu temple. The construction in stone dates back to 2nd and 3rd centuries in the form of rock cut sanctuaries and later in the form of temples with use of stones like granite, marble, soap stone, sandstone and locally available stones. The stones were used with most intricate and ornate carvings and sculptors throughout India.

Joint Details



Fig. 19-Stone layout



Fig. 20-Dowel joint



Fig. 21-Iron clamps



Fig. 22: Steps with iron clip joint



Fig. 23: Dowel and iron clamps joint

Source: Shweta Vardia Building Science of *Indian Temple Architecture*

Three bottom line of Ghat Area

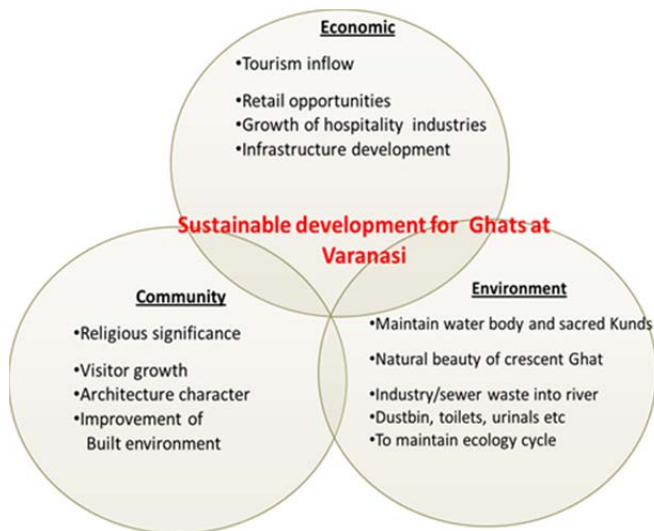


Fig. 24: Sustainable Development of Ghats

SWOT Analysis

<p>Strengths</p> <ol style="list-style-type: none"> 1-Strong heritage values 2-Natural beauty. 3-Religious potential and significance 4-Large tourist flow, domestic as well as foreign tourist. 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1-Lack of willingness 2-Poor condition of urban infrastructure 3-Traffic congestion, 4-Bottlenecks entry , 5-Roadside parking and traffic jams. 6-No proper lighting,
<p>Opportunities</p> <ol style="list-style-type: none"> 1-Development of both religious and institutional values 2-Smart city 3-Development of infrastructure 	<p>Threats</p> <ol style="list-style-type: none"> 1-Deterioration of heritage due to lack of maintenance 2- Stoppage of seepage water into the Ganga river. 3-Removal of encroached area .

Fig. 25: SWOT Analysis

Proposals

- As stated above the issues about the heritage structures like house condition, lanes, encroachment area, pedestrian environment, basic amenities, roaming of animals, electric and telephone wires,hidden facades, jetties etc .The following are the recommendations/proposal to improve the built environment of Ghat.
- The heritage structures must be retrofitted in its own character by same materials not by foreign materials like stone ,lime, Surkhi, marbles etc should be used instead of cement ,bricks etc.
- Encroached area by the vendors on both side of road should be removed ,and those vendors should be accommodate somewhere else by making some shopping etc.
- For the ceremonial/ritual purpose of Mundana(hair cutting),Pindadaan ,yajna etc proper space should be provided at Ghat area.
- Signages must be remove from the heritage façade ,so that its panoramic view will not be hamperd.
- To increase the Ghat area cutting and filling has to be done at Dashashwamedh Ghat.Due to which more space will be available for the pilgrims/visitors during festival.
- Some more point to be added in the Ghat area like polish checking kiosk, B.M.S. system, lost and found centre etc . To control the crowd in festive period and provide them temporary infrastructure like tent,sheds, drinking water etc.

hat is typical sketch plan of Dashashawamegh Ghat only for concept purpose. And following are proposals.

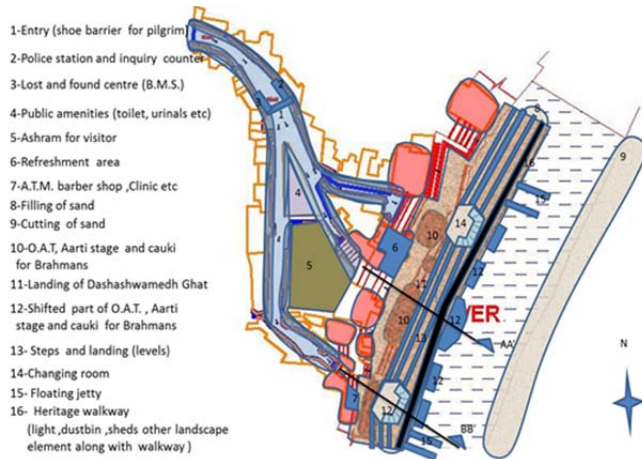


Fig. 8: Proposal

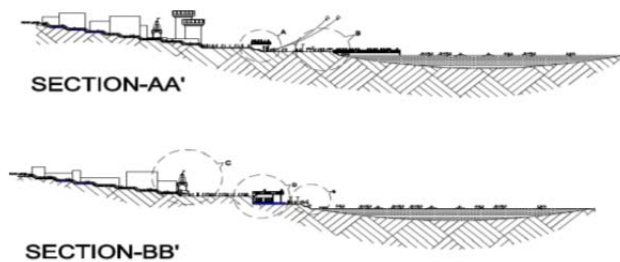


Fig. 27: Sections

Conclusion

Varanasi has been flourishing its affluent heritage and opulent cultural center since the time of immortal .But now its values and significances are degrading day by day because of infrastructure, basic amenities, various activity, tourist/visitor facility etc. If we implement these all proposal then we can bring its own original form, significant and religious value upto the ultimate. It should bring because these all are our rich culture of social, physical, spiritual, religious, art, science and architecture ,astronomy, Ayrveda, music, dance, handicraft etc. we have to bring it from den to abroad ,hollow to solidity and scorn to respect.

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