

INFRASTRUCTURE PLANNING & MANAGEMENT PLAN FOR KARDAM KUND REGION, KANDWA- VARANASI

A Project Submitted

In Partial Fulfillment of the Requirements
for the Degree of

MASTER IN URBAN AND REGIONAL PLANNING

By

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**TO THE
SCHOOL OF ARCHITECTURE & PLANNING**

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LUCKNOW
JUNE-2022**

Declaration

I **PRIYANKA SHARMA** , University roll No. **1200106003** hereby declare that the thesis titled “**INFRASTRUCTURE PLANNING & MANAGEMENT PLAN FOR KARDAM KUND REGION ,KANDWA- VARANASI**” submitted by me in partial fulfilment for the award of **Masters in Urban and Regional Planning**, at School of Planning and Architecture, Bhopal,India, is a record of bonafide work carried out by me. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

Signature of the
Student

Date: 29 JUNE,2022

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This is to certify that the declaration of **PRIYANKA SHARMA** is true to the best of my knowledge and that the student has worked under my guidance for one semester in preparing this thesis.

RECOMMENDED

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(Mr. Saurabh Verma Ms. Shalini Diwaker)

ACCEPTED

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Head, Department of Planning

Date:_____ Place:_____

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Date:_____ Place:_____

Acknowledgment

Above all, I wish to express my sincere appreciation and thanks to my Guide Asst. Prof. Mr. Saurabh Verma and Ms. Shalini Diwaker. For her continuous support over these 6 months, whose support has helped me a lot to complete this thesis. I am extremely grateful to Asst. Prof. Mr. Lariab Ahmand for their reviews and for effective suggestion, ideas to complete this research. A special thankyou to all the School of Architecture, BBDU planning faculty for their enormous support and guidance.

I would like to thank every one of my colleagues, senior and friends, “Tejshree Rade, Shreya Gaur, Avesh Shrivastava”, for all the difficulties and funny moments at SAP, BBDU, Lucknow, being there to stand with me. Thanks to all of my BBDU, Lucknow friends for spending time with them allalong the course. I don't have any worthy words to express my thanks, but my heart is still full of the favors that every person has received.

Ultimately, I would like to thank the Almighty God, the eternal authority who is clearly the one who has always driven me to work on the right direction of life. This Master's thesis project couldn't become a reality without his goodness. Next to him are members of my family, whom I am so deeply indebted to have brought up to this stagewith love and encouragement.

ABSTRACT

Banaras (Varanasi), known as the cultural capital of India, enriched by more than three thousand temples; most of them praised in the puranic literature and are linked by the pilgrimage routes. Among several of such pilgrimage routes Panchakroshi is the most popular and well documented too. This route is divided into five parts symbolised with night halt stations; the first one is Kardameshvara, recording continuity since CE 10th century. This is the only surviving and functional temple with architectural grandeur and cultural expression with variety of images, viz. Hindus, Tantrics, Jains, Primordial, and auxiliaries. Notable heritage values of images are described and their landscape links are explained. The architectural and landscape characteristics, heritage values and related festivities make the temple of Kardameshvara as an example of mosaicism of culture and heritages (tangible, intangible, mixed). Taking in view the inclusive heritage development on the line of cultural sustainability, selected attributes are documented in terms of architecture and the surrounding landscapes. It is expected that this will help in preparation of overall development plan where heritage be taken as basic resource. A system of surveys were set and deployment schedule was created to record data for infrastructure planning . The data is then further organized and analyzed based on primary survey. A methodology is developed to unify the steps of my work done this topic. The inference will guide us to understand the currentstate of infrastructure and the need to intervene and to optimize its operations.

Keywords: Infrastructure, Solid waste, Water supply.

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CHAPTER – 1 INTRODUCTION

Infrastructure is the reason behind the continuity and flourishing of the cities or any settlement. In fact, every city has come up near a water source. These water bodies can be natural or man-made structures. They are the major asset for the continuity of religious and cultural practices. In India, manmade water structures like Kunds, are mostly linked with a temple and religious activities due to its architecture. It plays an important role towards the quality of life of inhabitants as they promote social, cultural and economic aspects. Such kunds and temples are usually found in the medieval cities like Varanasi city where the association of people with their water structures are a part of their daily life activity. The city is surrounded by three rivers the Ganga, Varuna and the Asi on its three sides. Due to the presence of rivers, it is blessed with the unique water system in the city. Presently, the city has a dense urban fabric that results in the limited “open community spaces”. The continuity of these spaces is due to the cultural practices or vice versa. Varanasi has significant yatra routes, like Panchkroshi yatra is one of the significant yatra of Varanasi city which includes 108 historic temples and 24 kunds along the route. Kardam kund, being a part of the first halt of panchkroshi yatra and a part of lost Asi River is connected to the 12th -century old temple in Varanasi city. Therefore, this area in Kandwa village with its high historical and architectural significance needs to be conserved and managed.

1.1-Rationale

In the Hindu pilgrimage tradition, tirtha yatra and parikrama are interlinked concepts. Tirtha yatra refers to undertaking a pilgrimage to sacred places whereas parikrama (or pradakshina) means circling the sacred object. In geographic literature, pilgrim circulation has been used to describe pilgrimage flows, but circumambulation has been given little attention since it has been accepted as a purely ritual activity in the general process of pilgrimage. Pilgrimage, however, has a deeper meaning in the religious space, connecting the pilgrim to the cosmos (Bhardwaj). Panchkroshi yatra in Varanasi is one of the examples of parikrama route covered in five days in which there are five major halts or the resting place for pilgrims. These major halts are the most important and significant part of the yatra. The city, Varanasi has gone through many destructions and the city was rebuilt in the 18th century. The oldest temple of the 12th century and the largest kund in the city is found at the first halt of Panchkroshi yatra. However, due to the rapid development affects such ritual sites and setting. The cultural heritage and spaces can't survive if they are not preserved.

The authenticity and integrity and spiritual significance of cultural heritage can be protected by sharing of its historical, cultural, religious, and landscape values in order to build a respect and dialogue among communities.

1.2-AIM

To develop infrastructure planning and management Plan for Kardam Kund region and its surrounding area in Varanasi.

1.3 OBJECTIVE

1. Understanding the existing scenario of Kardameshvara Kund and its vicinity as the Panchakroshi Yatra.
2. To understanding the issues and challenges infrastructure of the site.
3. To understanding the value of the site and its surrounding area.
4. To identifying loopholes or problems in infrastructure scope

1.4-SCOPE

Detailed analysis of Kardameshvar Kund & it' surrounding area

This study focused on physical & social infrastructure

This study provide strategies and guideline for the development of Kandwa Village.

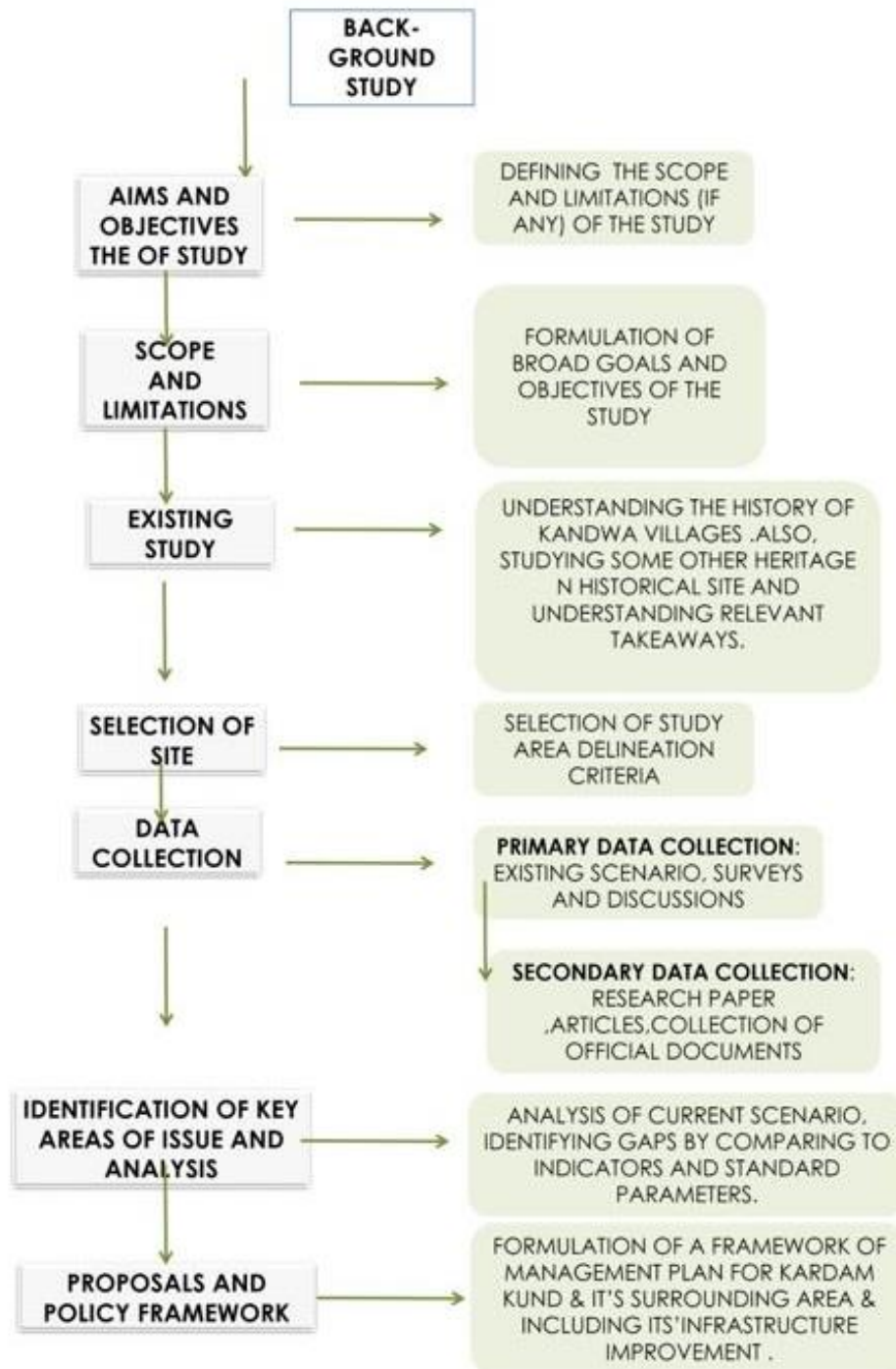
1.5-LIMITATION

- 1 study of Panchakroshi yatra will be only to establish the Context and significance of the site.
- 2) Documentation of the site will be limited to its precinct Level.
- (3) Analysis of water system will be limited to the site and it's Surrounding through secondary sources.
- 4) Study of historical monument & infrastructure will be Limited to the site.

1.6-DATA COLLECTION

Secondary sources: published and unpublished literature Documents, etc., pertaining to this investigation. Primary sources: conducting surveys at various levels for obtaining the requisite data.

1.7-METHODOLOGY



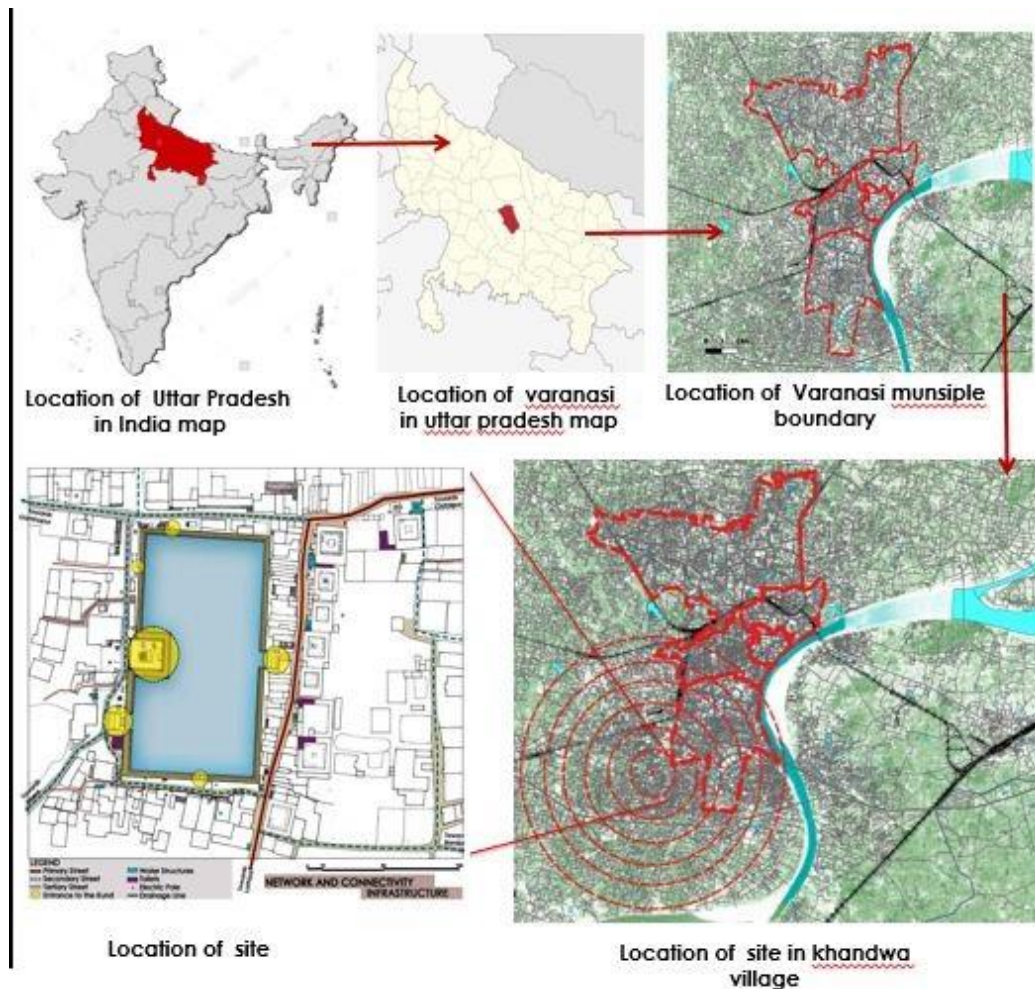
1.8-Expected Outcome

Infrastructure planning & management plan for kardam kund and its surrounding as the 1 st halt of Panchkroshi Yatra in Varanasi.

CHAPTER 2- AREA OF STUDY

2.1-Introduction

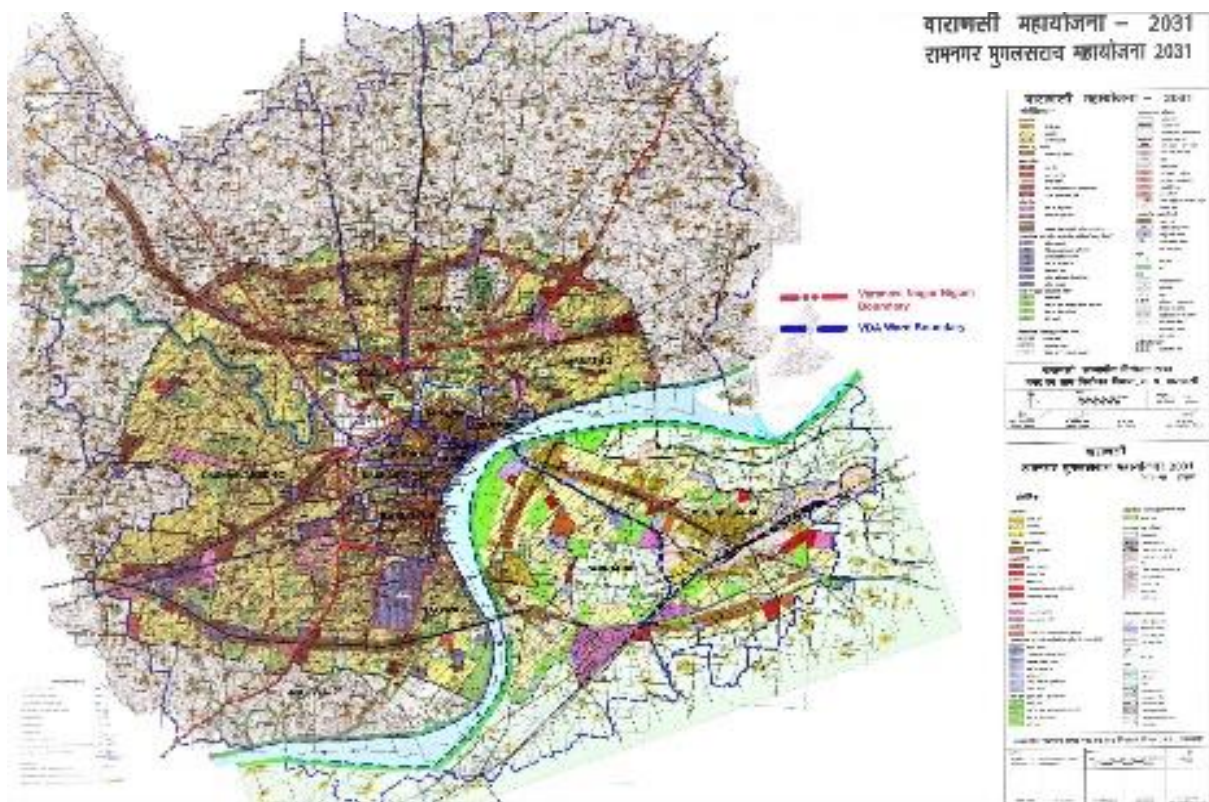
Varanasi, or benaras, (also known as kashi) is one of the oldest living cities in the world. Varanasi`s prominence in hindu mythology is virtually unrevealed. Mark twain, the english author and literature, who was enthralled by the legend and sanctity of benaras, once wrote : “benaras is older than history, older than tradition, older even than legend and looks twice as old as all of them put together. ”



- In the kandwa village where a stone temple of lord shiva resides on the western bank of a large rectangular kund. The temple is called as kardameshwar temple which is the first halt of panchkroshi yatra.
- The temple faces the east.
- Since most of the city was reconstructed after 18th century, it is one of the oldest temple of varanasi city which is still remaining showing its presence.

2.2-Historic structures present in the precinct are:

- The main temple shrine,
- Dharamshalas,
- Kund
- Virupaksh temple
- Neelkantheshwar mahadev temple
- Someshwar mahadev temple
- A katha sthal”



2.3-Role of master plan

The varanasi development authority is responsible for the planning and integrated development of the region. It is responsible for identifying the future area of development and identifying the potential and need of the area. Also, it gives the proposal for future development of the area on a large scale of city level. According to the master plan of 2031 of Varanasi, Kandwa village is taken in the city limits. However, in the area around Kardam kund, masterplan has proposed a 24m Panchkroshi road and other roads to be of 18m. The area needs to be declared as the religious cultural heritage in order to preserve its authenticity and integrity.

CHAPTER -3 LITERATURE REVIEW

The religious and cultural practices in Varanasi City marks for its uniqueness as it consists of the replicas or symbolic indications of many tirth sthal situated in India, hence known as the “The cultural capital of India”. These are also associated with the pilgrim yatras that are being performed for years. One of them is Panchkroshi Yatra, firstly mentioned in the 16th century. The literature study of Kardama Kund and surrounding is more concerned about the significance in terms of people place, time and natural system. The literature study helps to understand the background of the city, history, and culture of people that may have changed over time. Also, it helps to understand the whole context, happenings, and character of the place in the present situation. Following parameters are taken for the literature study of the site:

1.9.1 About the Place: 1.9.1.1 Uttar Pradesh District Gazetteers, Varanasi The Gazetteer of Varanasi district gives a brief idea of the administration, agriculture, trade and commerce, and social life in the past. It has helped to understand the scenario during the golden era of Varanasi i.e. 11th and 12th AD during Gaharvaha dynasty and also about the time period of Hindu revival that was during the 18th century. 1.9.1.2 Benares an Architectural Voyage This book gives a good understanding of the concepts of mohalla in Banaras, Havelis, Water structures etc. This is one of the books on Varanasi that talks about architecture and it also mentions about the panchkroshi yatra and its halts. However, the details of panchkroshi yatra have some gaps. But overall, the book holds a strong understanding of architecture and elements of Varanasi.

3.1-About Panchkroshi Yatra and its first halt

3.1.1-Benares:

The Sacred Landscape of Varanasi by Neil Gutschow. This book is like a compiled data on the sacredness of Varanasi city which includes all the picture maps like kashicitra, kasha darpana etc. of 18th and 19th centuries. These maps help to understand the actual image of the city few 1000 years back. The book talks about different shivlingas in Varanasi and important places and temples of the panchkroshi yatra starting from Manikarnika ghat and including other shrines and kunds. It is one of the best books that explains about the city and its panorama from 1911 AD and how it has been perceived.

3.1.2-Towards the Pilgrimage Archetype.

Panchkroshi Yatra of Banaras. This book contains the details of panchkroshi yatra including the number of 108 shrines, their location, and few maps. The author has elaborated about the process of yatra and the sacred time when the yatra is to be performed. The survey of a number of pilgrims and seasons of performing the yatra. The qualitative and quantitative data about the halts and the yatra are mentioned here.

3.1.3-Desai, M., n.d. Banaras Reconstructed. Delhi:

Orient Blackswan Private Limited. The book talks about the pilgrimage landscape between 12th -16th centuries AD. Further, it explains the exploration of Banaras in terms of urban growth and architectural aesthetics during Mughal era. It also talks about the change of scenario in the 18th century by Marathas, Rani Bhawani, Ahilya Bai Holker and East India Company. The revival of Hindu era in 18th century marks to the revival of Panchkroshi and antargriha yatras also. The changes of the 18th century also demarcate the shift of religious practices and

their physical manifestation. It has a mention about the oldest existing temple of Varanasi i.e. Kardameshvara Mahadev Temple. The author also explains the emergence of civic sphere and association with Hindu identity. 1.9.3 Water System of Varanasi

3.1.4-Varanasi Vaibhav

According to the book Varanasi Vaibhav by Ku-Bernath sukul, Asi River has always been a neglected river. Although there are believes and myths associated with the river. Not only it defines Varanasi boundary but also considered as a sacred river once. However, past many years, it has turned into a Nala and most of the drainage are linked directly to it. As per the primary survey, some people said that the river used to pass through eighty ponds and therefore it is called Assi River. Kardameshvara kund is a part of asi river and the overflow of the kund goes to twenty other waterbodies then gets merged with the asi river. In the present condition, due to change in contours and construction of new buildings have caused the loss of connections and linkages of this river which is now polluted.

3.2-Water Symbolism and sacred landscape in Hinduism: A study on Benares (Varanasi) by Rana P B Singh

This research paper focuses on the importance of water and explains the water bodies of Varanasi and its association with mythology. It consists of a brief description of rivers and sacred kunds that has high significance and religious values. It further explains the significant Ghats that have high historical, religious and cultural values. The paper has a graphical explanation of the overflow and connection of water bodies during heavy rains through a map of 1822.

3.3-CONTEXTUAL FRAMEWORK

3.3.1-Pilgrimage Yatras (Parikrama)

In the Hindu pilgrimage tradition, tirtha yatra and parikrama are interlinked concepts. Tirtha yatra refers to undertaking a pilgrimage to sacred places whereas parikrama (or pradakshina) means circling the sacred object. In geographic literature, pilgrim circulation has been used to describe pilgrimage flows, but circumambulation has been given little attention since it has been subsumed as a purely ritual activity in the general process of pilgrimage. Circumambulation, however, has a deeper meaning in the religious space, connecting the pilgrim to the cosmos (Bhardwaj).

3.3.2-Panchkroshi Yatra (Parikrama)

The sacred land of kasha has been demarcated by a circular periphery that defines the kasha kshetra. This circular periphery is the yatra route that consists of 108 temples along the journey and 5 halts. It forms a circular loop starting and ending at Manikarnika temple at the ghat. Panchkroshi Yatra is a 5-day pilgrimage performed by local and national pilgrims. This yatra is performed in the adhikmas, that occurs at every three years. Adhimas is an extra month added as per Hindu calendar. The 108 temple/shrines and water tanks/kunds on the yatra route are located on the right side when the yatra is taken in a clockwise direction whereas the resting place, dharamshalas are on left side. Dharamshalas, wells etc. are on the one side, especially for sanitary purposes. Yatra is covered by walking or through the vehicle.

Halts

There are total 5 halts on the yatra route at every 5 krosh i.e. 17.5 km.

No. of temples along the route:

- From Manikarnika to first halt i.e. Kandwa= 21 temples
- From Manikarnika to first halt i.e. Kandwa= 21 temples
- From Kandawa to Bhimchandi= 28 Temples
- Bhimchandi to Rameshwara= 25 Temples
- Rameshwara to Shivpur= 7 Temples
- Shivpur to Kapildhara= 7 Temples
- Kapildhara to Manikarnika= 20 Temples The process of attending Panchkroshi Yatra
- “Sankalpa” taken by a pilgrim to start and complete the journey at Dhundiraj, Manikarnika ghat. Followed by taking a dip in the water.
- There are total 108 temples on the yatra route which is located on the right side whereas the dharamshalas on the left side. Pilgrim can stay in Dharamshala for night halt.
- After completing the journey, one has to end it at Manikarnika Ghat by doing hawan.

3.4-Kunds Kund:

A tank or small reservoir in which rainwater is collected for drinking (dictionary, oxford). Ancient kunds are water ponds and vavs are step wells, which used to perform a double function as suppliers of harvested rainwater to communities and as drainage systems. (Abakerli, Stefania. Inclusive Heritage based development in India. s.l. : world bank) The kund is a reservoir with steps leading down, replicating typical ghat architecture, associated with sacred rituals. (Thapar, Bindia. Introduction to Indian Architecture. Singapore: Periplus editions, 2004.) In Gujarati and Sanskrit the stepped pond is a kund, or great pit and consists of ghat like stairs wrapped around a pool. The English ‘stepwell’ lacks the poetry of the Hindi word baori and only weakly conveys the Gujarati word vav, or vavdi, which, like the Sanskrit Vapi, means a ‘well approached by steps’. (Livingston, Morna. Steps to Water: The Ancient Stepwells of India.)

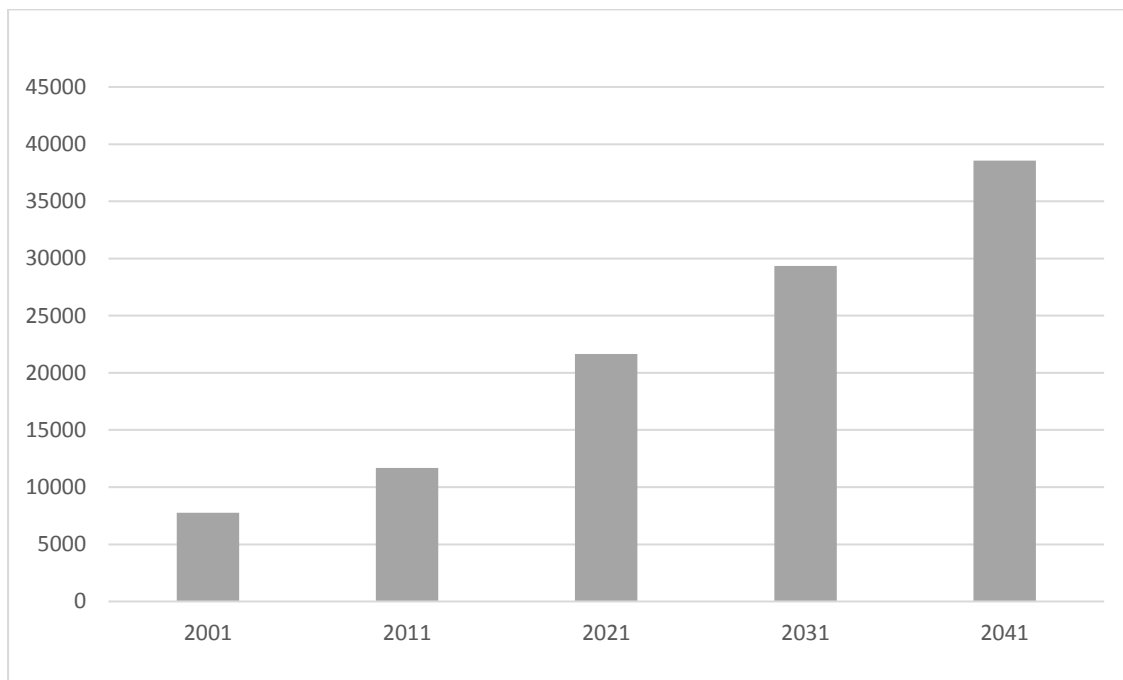
3.5-Historical significance of Varanasi in context to Panchkroshi yatra

The first mention of Panchkroshi Yatra was found in Kashi Khand: a text of the 16th century. The route, temples, kunds and other religious places were revived in 18th century AD. A major contribution was made by Rani Bhawani, the queen of Bengal who lived in Varanasi for 8 years and contributed to the reconstruction of Varanasi and kasha kshetra.

CHAPTER – 4 DEMOGRAPHIC

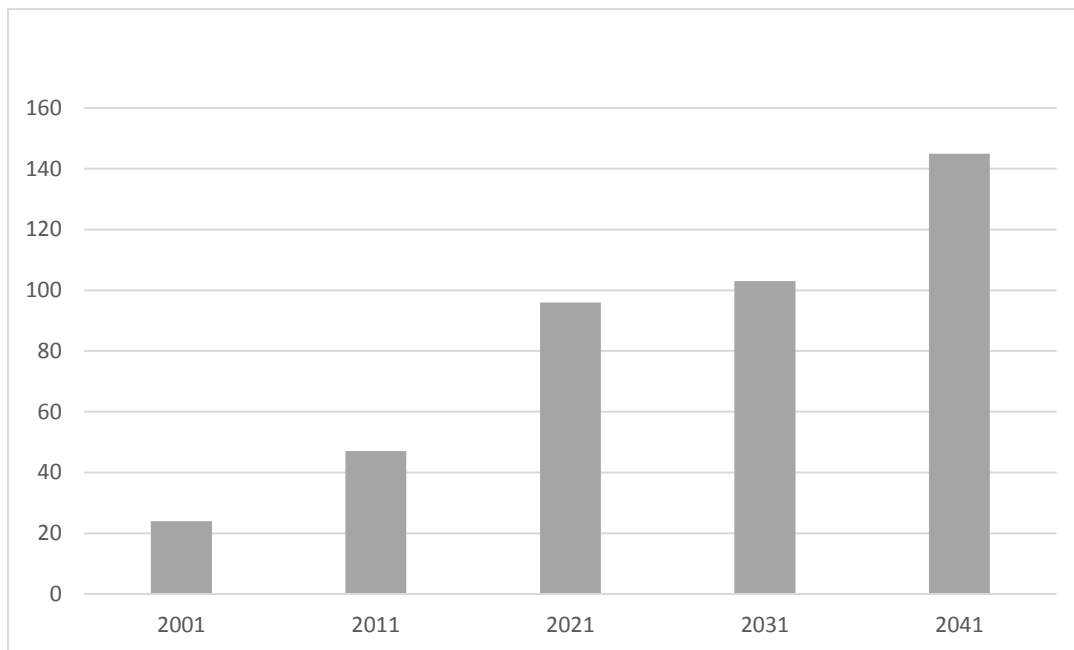
4.1-Population growth Kandwa village

Population Growth (Khandawa)	
2001	7762
2011	11685
2021	21653
2031	29354
2041	38563

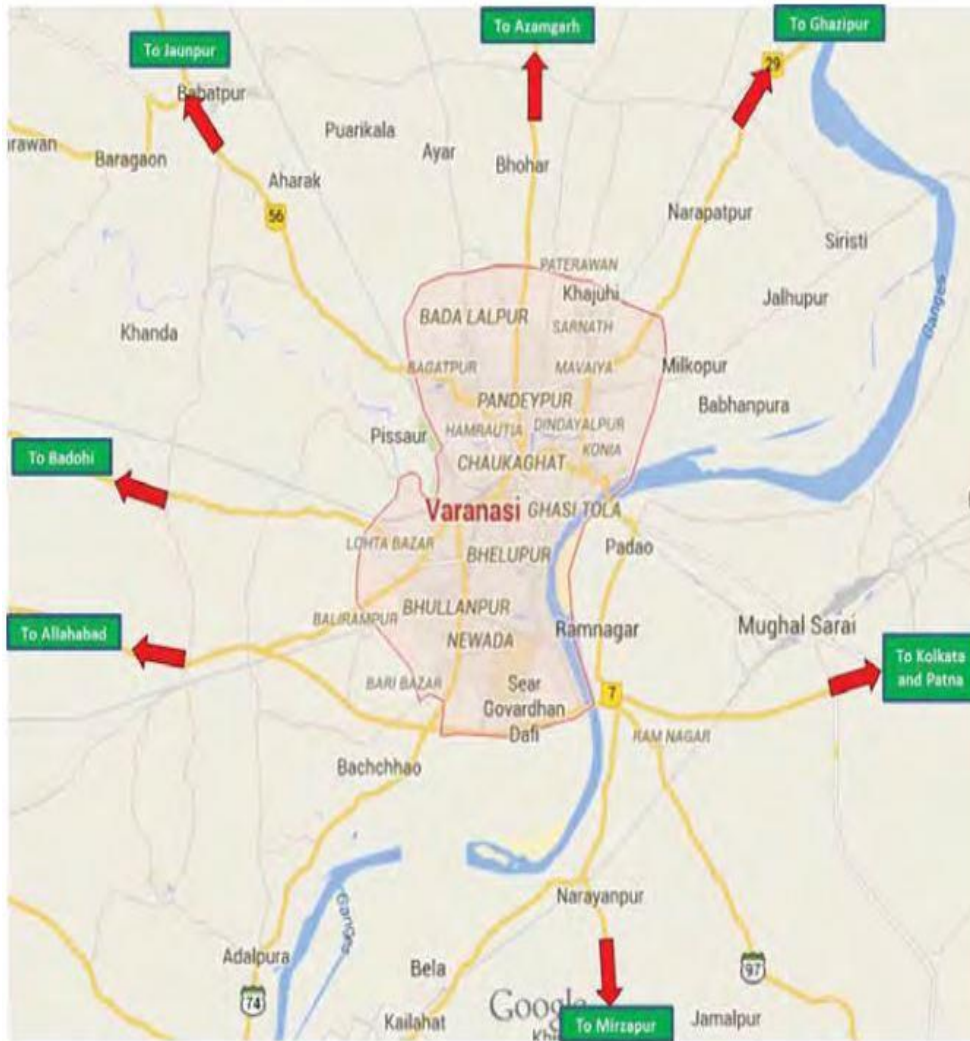


4.2-Tourist growth (In lakhs)

Tourist Growth (In Lakhs)	
2001	24
2011	47.1
2021	96
2031	103
2041	145

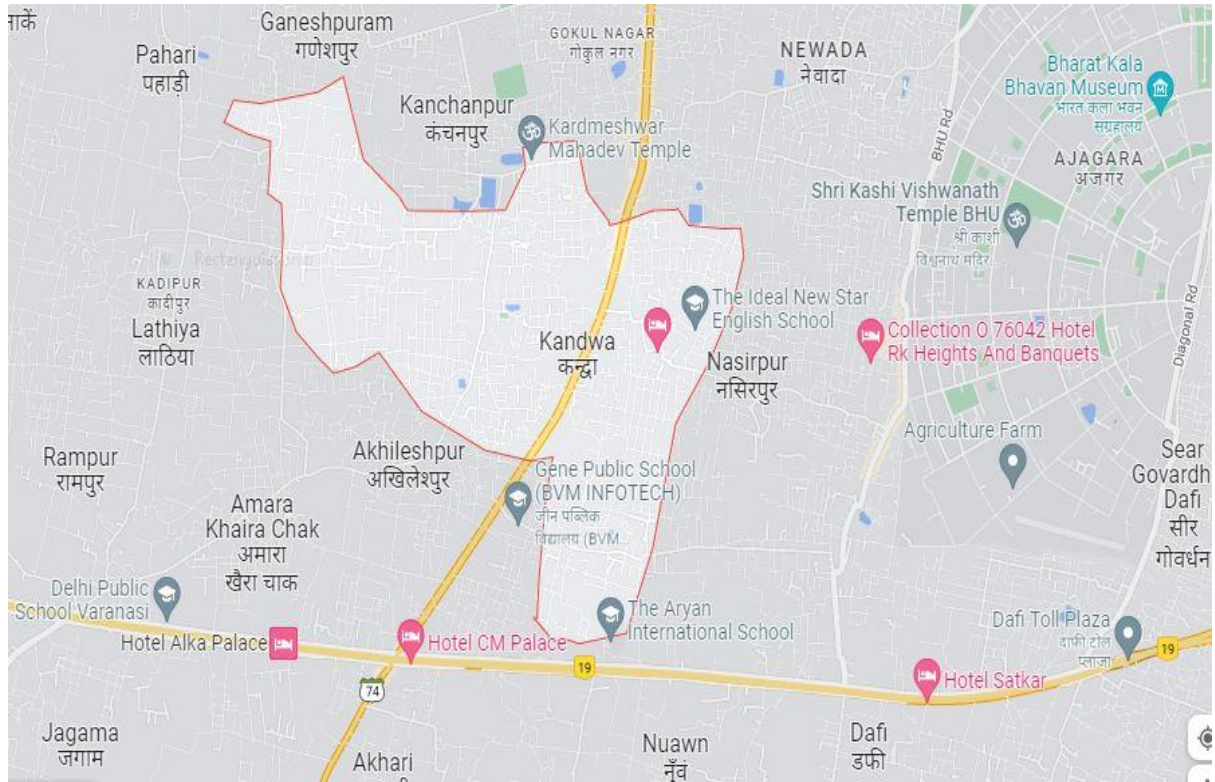


4.3-CONNECTIVITY



Map Source: Google Maps

- The road distance from major cities is Delhi-820 km, Lucknow-286 km and 122 km from Allahabad. There are three national highways i.e. NH-2, NH-56 and NH-29 and four state highways i.e. SH-87, SH-73, SH-74 and SH-98 passing through the heart of the city. The linkages provided by the national highways include:
 - NH-2- g.t. road from Mughal Sarai to Allahabad;
 - NH-29- Varanasi to Gorakhpur, Kushinagar; and
 - NH-56- Varanasi to Jaunpur Lucknow.



- Sarnath : 9 km from varanasi rly station
- Shri kashi vishwanath temple : 5.0 km from varanasi railway station
- Assi ghat : 9 km from varanasi rly station
- Manikarnika ghat : 5.9 km from varanasi railway station
- New vishwanath temple : 11.8 km from varanasi railway station

CHAPTER – 5 THEORETICAL FRAMEWORK

5.1 Religious Cultural Heritage

There are a great variety of religious and cultural sites that represents its uniqueness of traditions and practices around the world. An initiative by UNESCO in 2016 talks about the “Heritage of Religious interest”. There are many recommendations and conclusions that talks about the religious sites for e.g. 2011 ICOMOS General Assembly resolution on Protection and enhancement of sacred heritage site. The spirit of the place talks about the character of the place through its tangible and intangible elements which contribute to the making of the place. It talks about the multidisciplinary team and involvement of all stakeholders. The character of a place is built or made due to the change and continuity of the communities. Since the urban growth leads to the challenges and transformation of the society, the threat needs to be understood and preventive measures and actions to be taken accordingly in order to preserve the spirit of the place.

5.2 People, Place and Time

In conservation, the concept of people, place and time plays an important role because of the interconnection of such happenings as the people living at a place not only depend on the tangible aspects but also social interactions and cultural practices. The identity of a place depends on the people’s way of living that has a constant change but the cultural practices enhance it throughout. Every place has a legacy of historical events and its association with the people. People, place and time have a constant change on regional as well as the area level. Therefore, it became important to understand the past events and relate them with the present situations.

5.3 Pilgrimage as a tool for Conservation

Pilgrimage or sacred sites are generally defined by a Sanskrit term “tirth sthalam”. The place is located near the catchment of Asi river. The nature of parikrama routes are very dynamic, people move either individuals or in a groups of 2 to 40 people. On the route, there are many temples or shrines and at the major halts there are more than one shrine which encourage the movement pattern and involvement of people at the site. During the adhikmas, the flow of traffic is if mainly focused on a particular route around the the kund. The pilgrims who are not much aware about the belief systems takes any route to approach the main shrine at first halt but other take a particular lane. There are increase in the development growth causing the encroachments around the kund. The best way to preserve a living religious site is to associate

the development and conservation goals with the people by generating awareness and awakening.

5.4 Role of Master Plan

The Varanasi development authority is responsible for the planning and integrated development of the region. It is responsible for identifying the future area of development and identifying the potential and need of the area. Also, it gives the proposal for future development of the area on a large scale of city level. According to the masterplan of 2031 of Varanasi, kandwa village is taken in the city limits. However, in the area around kardam kund, masterplan has proposed a 24m panchkroshi road and other roads to be of 18m. The area needs to be declared as the religious cultural heritage in order to preserve its authenticity and integrity.

5.5 Role of the Local authorities and people

To implement the development plans for any area, the involvement of local authorities and communities are required. The local authority is also responsible for the conservation of cultural heritage in their areas and appropriate management of physical resources. Whereas the communities living there should understand the importance of existence of such quantum of heritage that helps in the generation of not only income but also provides the livelihood.

CHAPTER - 6 SITE STUDY AND DOCUMENTATION

6.1 Documentation Techniques

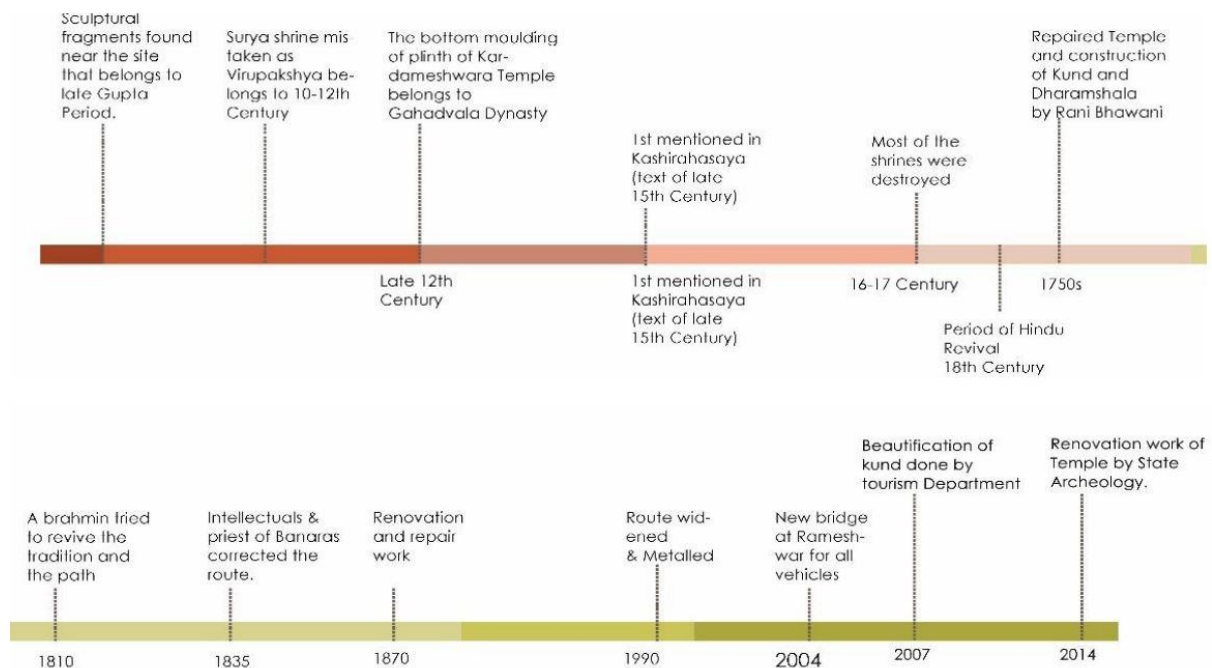
- Documentation of structures and site using a Measuring tape, distrometer and using the knowledge of proportions.
- Preparation of a detailed Site plan (refer 4.2)
- Inventory (refer Annexures)
- Photo Documentation
- Mapping the activity pattern
- Interviews
- Sketching
- Collecting information from the resource persons 4.2 Preparation of Site Plan Steps followed:
- Locating the site on the plan followed by identification of site area to be taken for study.
- Preparing the site plan through secondary sources.
- Onsite measurement of heritage components, streets, and other components on site.
- Preparation of site plan as per site survey and measurements.

6.2 Documentation of Heritage Components

Heritage Resources on the site

1. Temple
2. Kund and its structures
3. Dharamshala
4. Wells
5. Pilgrim Route
6. Historic Housing
7. Natural Water Body Refer

Timeline of Panchkroshi Yatra and Kardameshwar Mahadev



Timeline of Varanasi City with important dates related to Parikrama



temple to built large mosques

Vishveshvara Temple by
James Prinsep



18th Century AD

Period of Revival

Many political and cultural activities continued.
1738: Balwant Singh (Kashi Naresh) established at Banaras as feudal subordinate of Nawab of Awadh.

1750: Ramnagar Fort was built

1752-1758: Rani Bhawani lived in Varanasi. She has seen the reshaping of large water tanks along the Panchkroshi Yatra route.

1774: Maharaja power surrendered to the emerging power of East India Company.

1777: Reconstruction of Vishveshvara Temple by Ahilyabai Holker

1781: East India Company took direct control of the City

19th Century AD

Reconstruction of Varanasi's Sacred Landscape

Reconstruction of many temple at old sites appeared.

Queens college established :1852
:1862

Railway line between Varanasi and Mughalsarai

Town Hall on the visit of Prince Alfred :1870

Mirror of Kashi, a map by Kailash nath Sukul :1876



Ramnagar Fort

20th Century AD

Many Palaces, temples and gardens were made.

1916: Establishment of Banaras Hindu University

1958: Sanskrit College converted into University.

6.2.1-Some significant dates:

- Kashi Rahasya: written in the 18th Century which also demarcates the period of Hindu revival.
- 1752-1758: Rani Bhawani lived in Varanasi who contributed to the revival of the place by making kunds and temples and restoring pilgrim places.
- 19th century demarcates the reconstruction era of Varanasi.

6.2.2 Component 2: Kund and its structure

Size of the kund is approx. 86x 145m. The other structures attached to it are a chatri over a bridge and the corner chatri structures at four corners.

The connections of water bodies are noted on site and the issues related to it are identified.

6.3 Documentation of other Structures

The documentation of all the structures on the streets around the kund is done by the use of google earth, photo documentation, and inventories. With the help of elevations and edge analysis, a detailed site plan and documentation of each structure could be made possible. The major area of study taken here are the building use, building height, type of shops (if any) and the location of structures are noted. This primary data helped in the proposals in order to restore, retain and remove the structures.

6.4 Site Records

Saturday: Site Visit Key Happenings: Visited the site i.e. Kardameshvara temple, Kandwa.

- Understanding the setting followed by photo documentation of elevations of structures around the kund.
- Talking to the locals gave an idea of the association of people with the mythological stories and beliefs.

6.4.1-Sunday: Visited Kapildhara for attending a heritage walk.

- The heritage walk was conducted by Intach, Varanasi chapter and the key speaker was Prof. Rana P.B Singh. The purpose of attending this heritage was to understand the similar setting of heritage components at the fifth halt and to get major contacts of resource persons.

6.4.2 Monday: Visited Geography Department, BHU

- The purpose of visiting geography department was to collect data and information regarding water bodies of Varanasi, especially kund. Since geography department has been working on kunds of Varanasi which is not yet published but they helped in referring sources to collect the information. A further visit to geology and civil department for the same.

6.4.3 Tuesday: Visited Bharat Kala Bhawan library and central library

- Visit library helped in collecting information related to the site and its background. • Type of book referred/ collected: Major books about the Varanasi city, Panchkroshi Yatra, and architecture and culture of Varanasi.
- Some thesis and dissertations were referred related to waterbodies and pilgrimage of Varanasi City.

6.4.4 Wednesday: Visit the site

- Documentation of temple and other temple components including kund.
- Photo documentation of surrounding areas.
- Interaction with the local people living there like Brahmins and other people.

6.4.5 Thursday: Visit to collect official documents

- Below is the table showing the official department visited and the required data collected.

<i>Departments</i>	<i>Resource Person</i>	<i>Information Collected</i>
VDA Town Planning department	Mr. Prabhakar	To collect the information related to Master Plan.
Central Water Commission	Kendria Jal Ayukt: Rajendra Prasad Yadav (JE)	To collect high flood level and year of high floods.
Central Bhu Jal, CGWB	A K Singh (JE)	To collect ground water level in kandwa village area.
State Archeology	Mr. Subhash Chandra Yadav	Collection of Data on Kardameshvara Temple
Tourism Department		To collect data about the influx of tourist in the city of Varanasi and information about the pilgrims coming to the city.

6.4.6-Friday: Documentation of the site

- Documentation of Dharamshalas and their condition through inventories and photo documentation.
- Interacting with people using the Dharamshala for daily life activity

6.4.7 Saturday: Continued the documentation of the site

- Documentation of infrastructures including road widths and other heritage components like chatri structures.
- Visiting other kunds in Varanasi city and analyzing the connection and association with the people including the activities.

6.4.8-Sunday: Visit the 2nd halt of Panchkroshi Yatra.

- The purpose of the visit was to understand the similar setting of heritage components at the fifth halt and to observe the distance and number of the shrines.

6.4.9 Monday: Meeting with an official person of State Archeology and library visit.

- Interview with an archeologist, Subhash Chandra Yadav and data collected about the state protected Kardameshvara Temple, Varanasi.
- The information helped in the understanding and analysis of the temple component.
- Visit the BHU library to collect information related to Kardameshvara Temple and kund.

6.4.10 Monday: Meeting with an official person of State Archeology and library visit.

- Interview with an archeologist, Subhash Chandra Yadav and data collected about the state protected Kardameshvara Temple, Varanasi.
- The information helped in the understanding and analysis of the temple component.
- Visit the BHU library to collect information related to Kardameshvara Temple and kund.

Date: 27th April 2018 Friday: Site visit

- After the preparation of detailed site plan and documentation of all heritage components, a layer of maps was prepared for the analysis of the urban fabric in the area.
- Collection of information about the ownership status through Khasra of Kandwa Village. This information was gathered from the Pradhan and Nekpal the area.

6.5 List of Resource Persons:

1. Prof. Rana P. B. Singh
2. Mr. Subhash Chandra Yadav, State Archeology
3. Mallikarjun, PhD Scholar, BHU
4. Sunil, architect (working on Smart city, Varanasi)
5. Prof. KNP Raju, HOD Geography Department, BHU
6. Mr. Gopal, pradhan of Kandwa Village
7. Bablu Kesari, local resident 8. Ram Krishna Giri, pujari

CHAPTER 7-OBSERVATIONS ANALYSIS AND CONCLUSION

7.1 Significance of the Site

7.1.1 Values Historic Value:

Being the oldest living temple in the city of Varanasi, the Kardameshvara temple is an outstanding example of the temple architecture that belongs to nearly 12th-18th century. Though the temple was built in phases, it also marks the first halt of Panchkroshi yatra. According to an inscription, the ghats were built by Rani Bhawani in 1751 or 1757 A.D. The site has high historical value because of its rich heritage stock. Architectural Value: Each heritage component in the precinct shows its architectural importance. The 86x145m (approx) kund along with steps at the edge and a circular well in the center speaks about the traditional water structures built in India during the 13th-18th century. The temple architecture is unique because of its richness of sculptures that belongs to many religions also adds to its significance. Also, the Dharamshala that have courtyard planning built with stone and brick materials, a typical style of architecture i.e. followed in Varanasi region due to the climate. Religious Value: It has high religious value because of it's being a part of the pilgrimage route which gets highly activated during adhikmas and other festivals. Also, due to its religious value, it gets regular footfall. Cultural Value: It is the only community gathering space in Kandwa village where people come together during festivals or occasions to celebrate and encourage the cultural activities. For example; during Devdeepawali and Shivratri. Economic Value: The economy of the site depends on the donations by devotees in the form of money or any other social work. Also during Panchkroshi Yatra, Varanasi development authority works on its infrastructure and provide water tankers.

Landscape Value:

Since the soil is fertile due to the part of the Ganga basin, there were many mango and musadi trees in the surrounding that is being lost. But the trees around temple and kund adds to the natural beauty of the place. A series of trees also shows the path of old Asi River that has lost its connection over years.

7.1.2 Authenticity and Integrity

The Kardameshvara Mahadev temple has a high level of authenticity in material, substance, design, workmanship, use, and function. However, it cannot retain authenticity in location and setting because of the loss of water connections and the various addition to the site.

Kardameshvara temple and kund area are preserved with its key architectural component and despite missing pavilion/chatra on the eastern side of the kund and the outlet of the kund, the original setting of this religious site can be easily determined. All components including the immediate surrounding are included in the property i.e. public land.

7.1.3 Statement of Significance

The Kardameshvara Mahadev, Kandwa is one of the most important pilgrimage sites. The kardameshvara temple acts as a focal point at the site that connects all living in the surrounding villages and it illustrates the artistic value of temple architecture. It has been decorated with different mythological and religious sculptures. The large kund represents an architectural technique of making water structures that are connected to a river. The whole setting in which all heritage components are inter related to each other shows a unique testimony as the first halt of Panchkroshi Yatra. Therefore, the heritage components at the site illustrate a unique example of a religious setting where Dharamshala and other sanitary activities are on the left side of the parikrama route and the temples and shrines are on the right-hand side. Landscape elements give the trace of the lost Asi river connection on the site. 5.2 Water system and connections around the Site According to a book Varanasi Vaibhav by Kubernath sukul, Asi River has always been a neglected river. Although there are believes and myths associated with the river. Not only it defines Varanasi boundary but also considered as a sacred river once.

However, past many years, it has turned into a Nala and most of the drainage are linked directly to it. As per the survey, some people said that the river used to pass through eighty ponds and there-fore it is called Assi River.

7.3 Analysis of Site

The site survey is done in different copies of maps that showcase layer of information about the connectivity, pilgrim yatra route, heritage resources, built use, building heights, and the ownership status.

Network, connectivity, and infrastructure:

The roads surrounding the kunds are of 3m (brick on edge) whereas the ROW differs on all sides. Panchkroshi road is the most used road that connects villages to the city. Its width is 4-7m only as per current situation which acts as the primary road of the site whereas the other connected roads are secondary in nature. The kund has boundary walls and five entrances that lead to the steps. Exposed drainage line on the south side that has its outlet in the nearby water body. There are many toilet blocks but only toilets in the Dharamshala 7, 8 are usable.

Pilgrim Yatra Route:

Yatra route is starting from the northern side and ending to the southern side. It is believed that the kardameshwar temple has to be in the right-hand side of the pilgrim. Therefore, the aware pilgrim always takes the longer route to reach the temple whereas many people also consider the shorter route. There are three other temples and a well that is considered sacred and after worshipping at the kardameshwar temple and the kardam kund, devotee worship in the other temples named: Neelkantheshwar, Somnath, Veerupakshya and Kardam koop.

Heritage stock

Mostly the historic stock can be found in this area of kandwa village. Such locations were made as per the yatra route. Apart from these nine Dharamshala, there is one more towards south that has been used by a school and is in good condition as well. The importance of kund is not only due to its religious value but also natural value as it is the part of Asi River

Building Height

Most of the houses are either of one or two storey. These houses have come up within last 60 years (approx) after the coming of Diesel Locomotive works area nearby. Many historic houses were there in the precinct. However, the urban fabric has been changed over time. The skyline around the kund changes from a high rise in the east to limited structures in the west. Mostly, the residential/mixed use structures are G+1 and G+2 which are along the primary route.

Ownership

This area is a part of Kandwa village and therefore according to khasra of this village, areas around the kund comes under public land i.e. Abadi. Whereas, the area marked in brown are private land. Dharamshala belongs to a trust that takes care of it and looks after its maintenance. The ownership map is an important part of conservation management plan in order to regulate and manage the activities happening in the area.

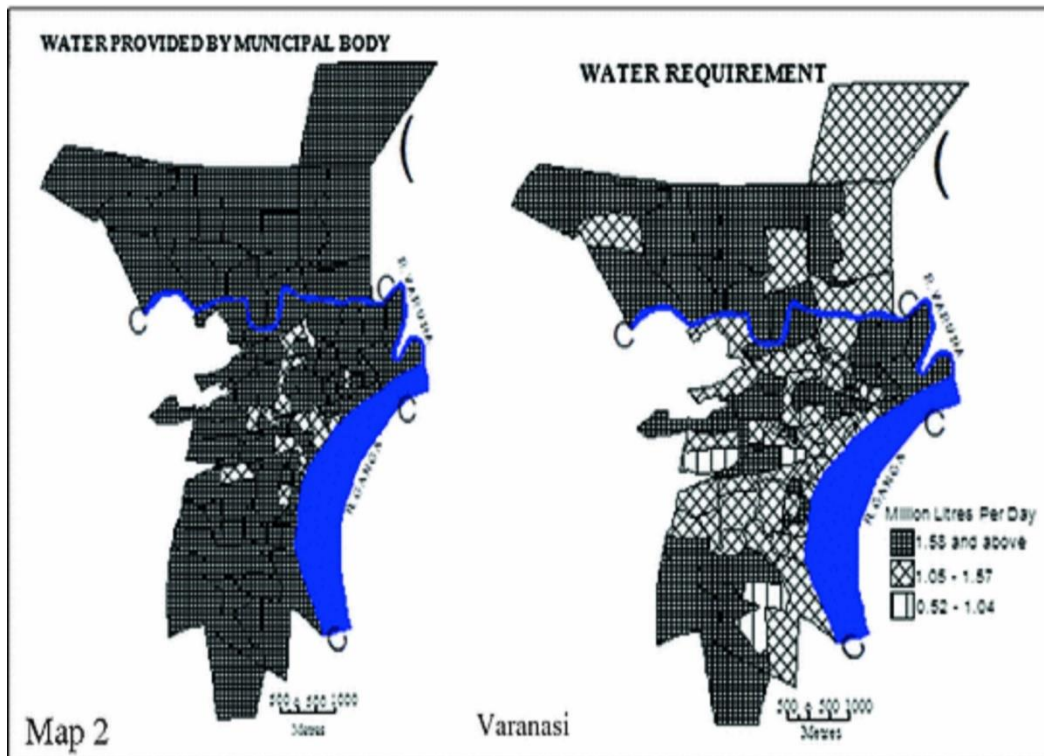
CHAPTER – 8 DATA ANALYSIS

INFRASTRUCTURE

8.1 WATER RESOURCES

- Water supply system for varanasi is as old as 125 years when it was introduced in year 1892.
- It was designed for the population of 2 lakhs with a treatment plant of 33mld constructed at bhelupur.
- At present, the jal nigam, which is the supply agency, supplies 170lcpd but the users receive only 70-80lcpd.
- .the lifeline of the town is river ganga, which takes care of approximately 45% of the water supplied of the town.50% of the water supplied is met out of 112 deep tube wells operated by jal sansthan and remaining 5% is supplied by publicly and privately owned 1559 hand pumps.
- The length of the distribution network as of now is 590km.

8.2-WATER REQUIRED IN VARANASI

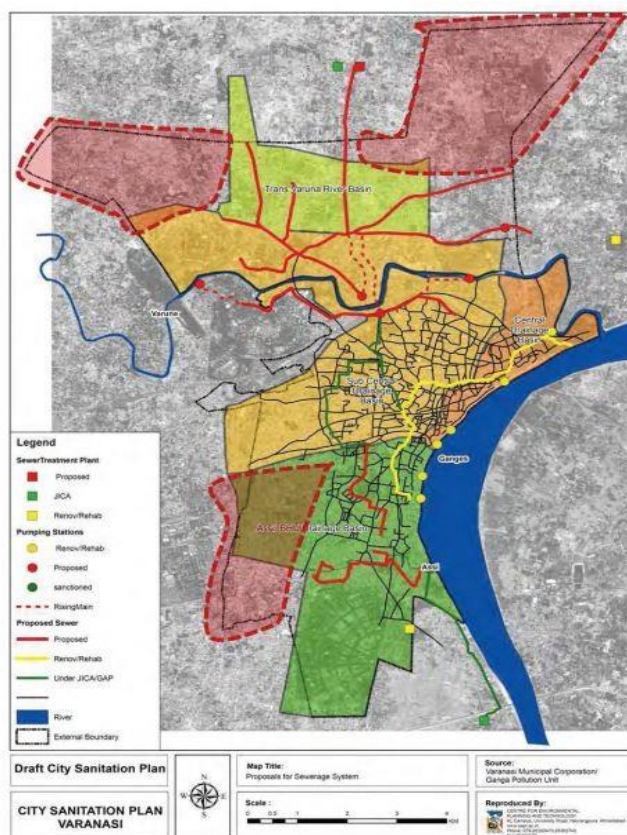


8.3-SOLID WASTE FUTURE DEMAND

Year	2013 (Current)	2021	2031	2041
Waste generation (TPD)	600	777	966	1206
Waste Generation per Capita	400	406	414	420

8.4-WASTE WATER TREATMENT

- There are 91 wards in the varanasi city under varanasi nagar nigram.
- Total available water supply system capacity for the city is 310 mld and per capita demand is 150 lpcd.
- Varanasi city is divided into 3 sewerage districts.
- District 1 is central city including the core old city.
- District 2 is sub divided into zone 2a (cis varuna) and zone 2b & 2c are trans varuna area.
- District 3 is bhui/ assi district. Total capacity of the sewage treatment (existing and under execution) is 410 mld as against the estimated capacity of 390 mld for the year 2035.
- The map indicating the location of various sewage treatment plant is depicted below:-

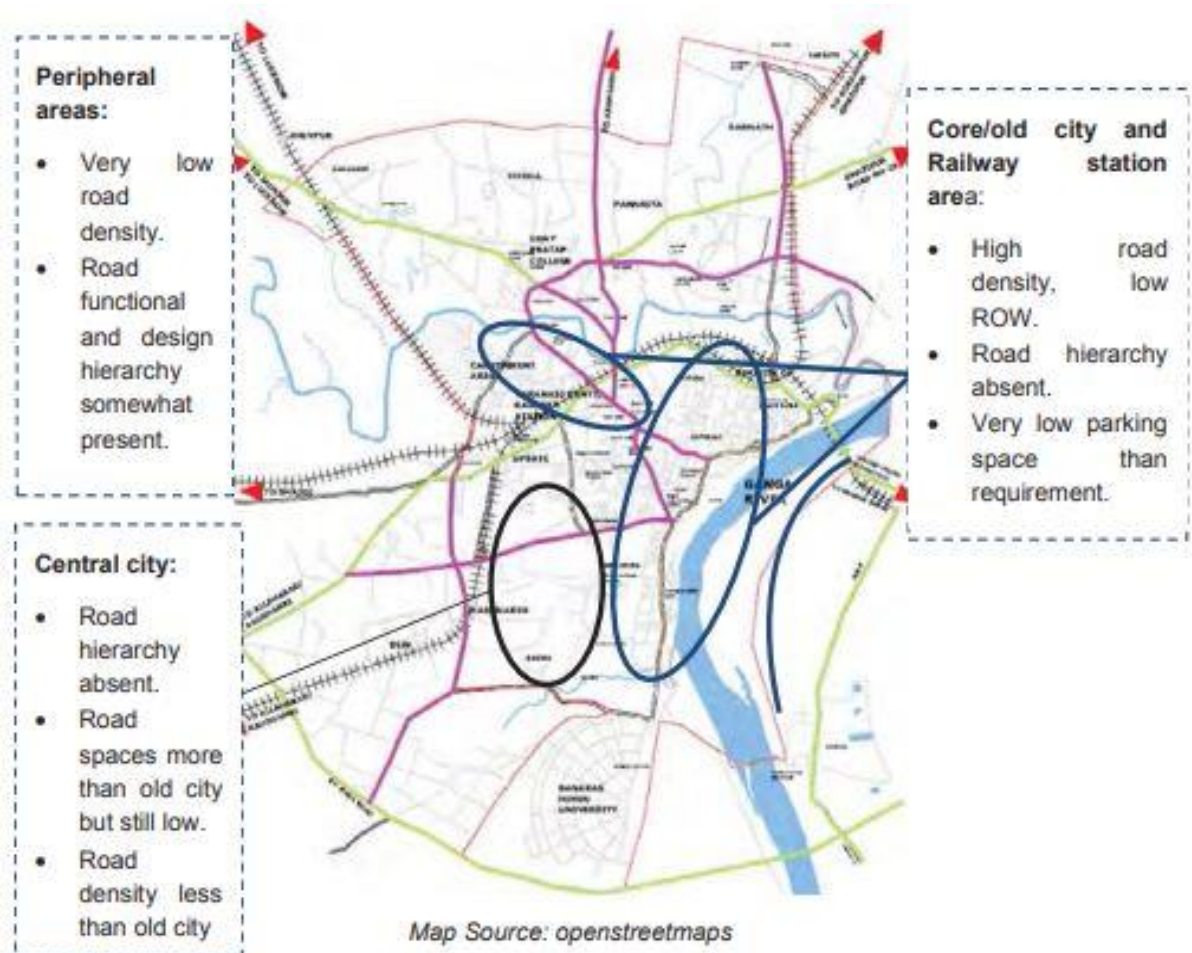


Source: City Sanitation, CEPT University, 2011

City Development Plan for Varanasi

8.5-TRAFFIC AND TRANSPORTATION

- The transport infrastructure (road quality, depots, etc.) And others. The city of varanasi has grown outwards towards the west using the crescent shape of the river ganga. This growth was facilitated by the growing transport network in this direction. As we move outwards it is observed that road spaces and their hierarchy with respect to road design and function starts to emerge.



8.6-ROAD HIERARCHY

Indicator	Value (KM)
Total length of city roads in VMC area	1180
WBM	362
Paved tar roads	724
Unpaved roads	94
Road area per capita	1 m

Source: Engineering Department, VMC, Varanasi

8.7-NON-MOTORISED TRANSPORT

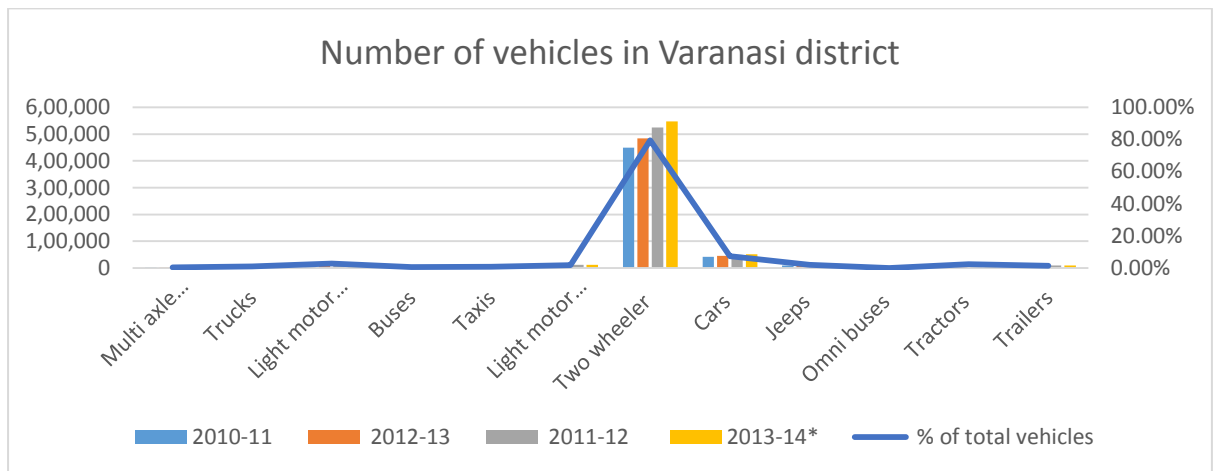
- Given the particular case of varanasi, where the old city and adjoining areas have a compact urban form and shorter travel distances walking, cycling could prove to be economical and sustainable form of transport. Nmt like bicycles and cycle-rickshaws have been a major mode of travel in these areas hence a policy to safeguard their interest should be formulated

8.8-TRAFFIC VOLUMES

- Total number of vehicles in the district is 6.89 lakhs. Of this, 79% of the vehicles are two-wheelers and cars constitute only 7% of the total vehicles.
- Hence, two-wheeler is the predominant mode of private transport. Since 2004, there has been a growth of 81% in number of vehicles.
- Although the number of vehicles has increased, the road length in the city has remained the same. This has led to choking of the road network across the city.

Number of vehicles in Varanasi district						
Sr. No.	Type of vehicles	2010-11	2012-13	2011-12	2013-14*	% of total vehicles
1	Multi axle vehicles	1,866	2,131	2,783	3,169	0.50%
2	Trucks	6,939	7,166	7,307	7,362	1.10%
3	Light motor vehicles (Goods)	15,551	16,266	17,699	18,423	2.70%
4	Buses	3,823	4,068	4,483	4,721	0.70%
5	Taxis	4,631	5,191	5,877	6,306	0.90%
6	Light motor vehicles (Passenger)	11,408	11,411	12,566	12,570	1.80%
7	Two wheeler	4,49,586	4,84,198	5,24,727	5,47,409	79.40%
8	Cars	42,143	45,319	49,220	51,023	7.40%
9	Jeeps	9,725	10,522	12,034	12,845	1.90%
10	Omni buses	346	354	379	423	0.10%
11	Tractors	14,222	14,696	15,419	15,814	2.30%
12	Trailers	9,315	9,326	9,345	9,354	1.40%

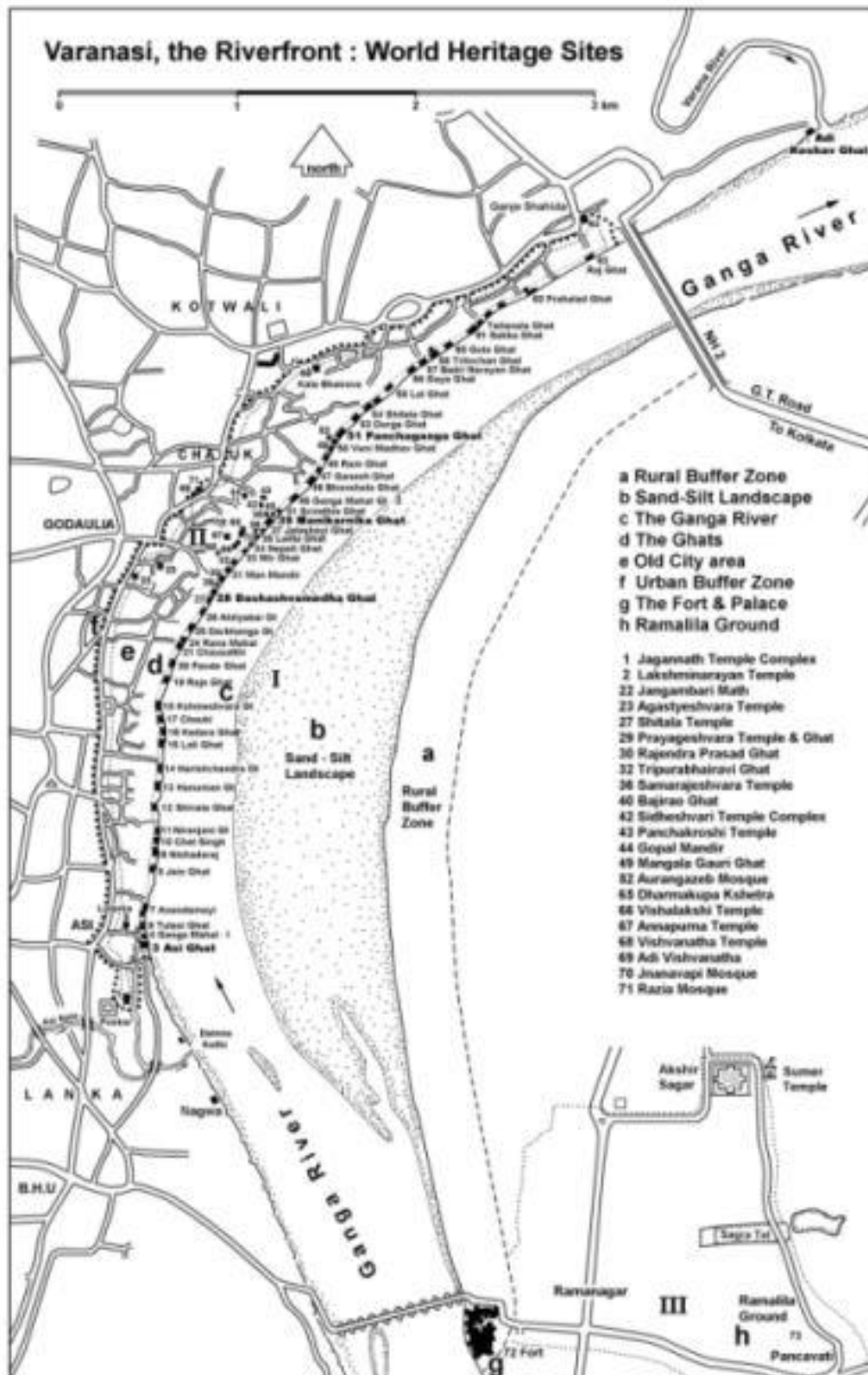
	Total vehicles	5,69,555	6,10,648	6,61,839	6,89,419	
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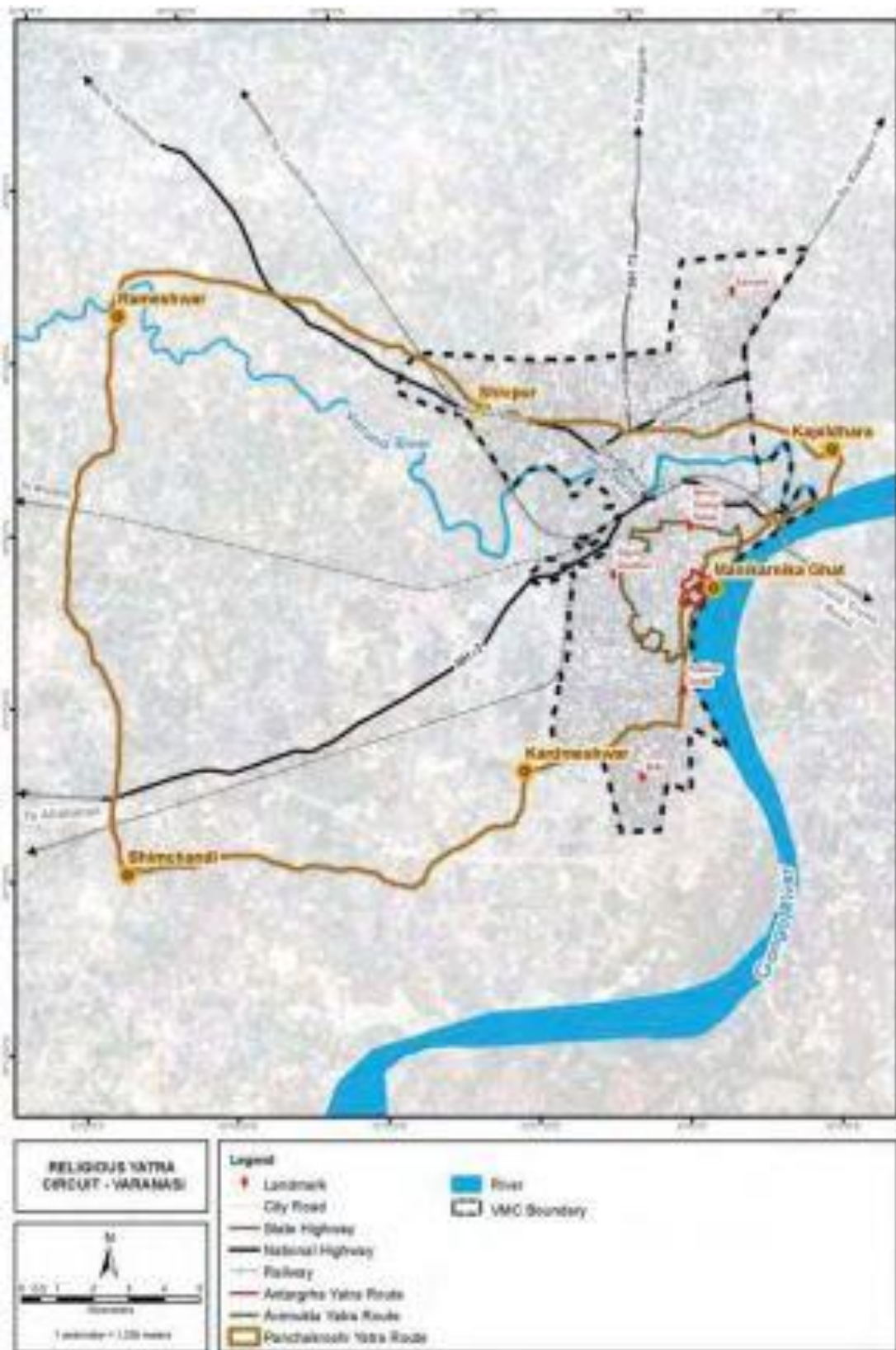
8.9-TOURISM

- Considered to be the most holy river for the hindu people and especially sacred in varanasi where its course towards the bay of bengal suddenly turns north. Symbolically, the flow from south to north refers to the life cycle from death (south, the realm of death, yama) to life (north, the realm of life, shiva, i.e. kailash).
- The ghats have been witness, through the centuries, to great saints like the buddha and mahavira, to poets like kabir and tulsidas, to religious philosophers like the sankracharya and to millions of pilgrims who still carry the light of faith through generations and who make banaras so special.

8.10-VARANASI GHATS ON THE RIVER FRONT



PANCHAKOSI YATRA

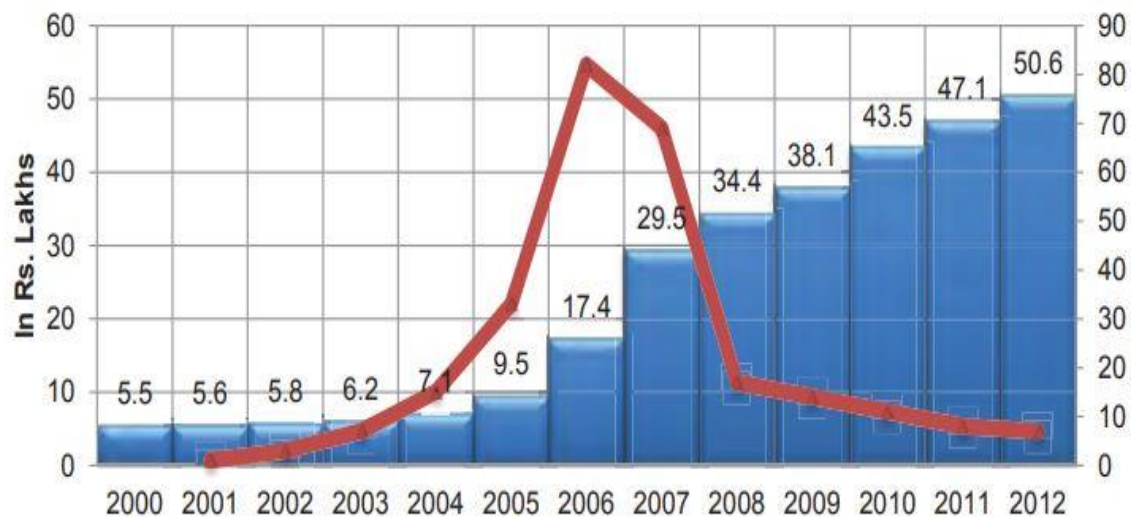


8.11 TOURIST ARRIVALS

Sr. No.	Year	Number of tourist visiting Varanasi excluding Sarnath (in lakhs)	Number of tourist visiting Sarnath (in lakhs)	Total number of tourists	Growth (%)	Number of tourist visiting Uttar Pradesh (in Lakhs)	Growth (%)	% share of tourists visiting Varanasi
1	2002	26.8	5.8	32.7	-	-	-	
2	2003	28.1	6.2	34.3	5	808.3	-	4.2
3	2004	29.5	7.0	36.5	7	894.0	11	4.1
4	2005	31.9	9.5	39.7	9	966.1	8	4.1
5	2006	33.5	17.4	41.7	5	1068.7	11	3.9
6	2007	36.7	29.5	45.7	9	1177.3	10	3.9
7	2008	38.9	34.4	48.5	6	1177.6	0	4.1
8	2009	40.8	38.1	50.9	5	1264.5	7	4.0
9	2010	43.5	43.5	54.3	7	1363.6	8	4.0
10	2011	47.1	47.1	58.6	8	1464.3	7	4.0
11	2012	50.6	50.6	62.5	7	1703.7	16	3.7
12	2013	52.5	22.8	64.5	3	2285.9	34	2.8

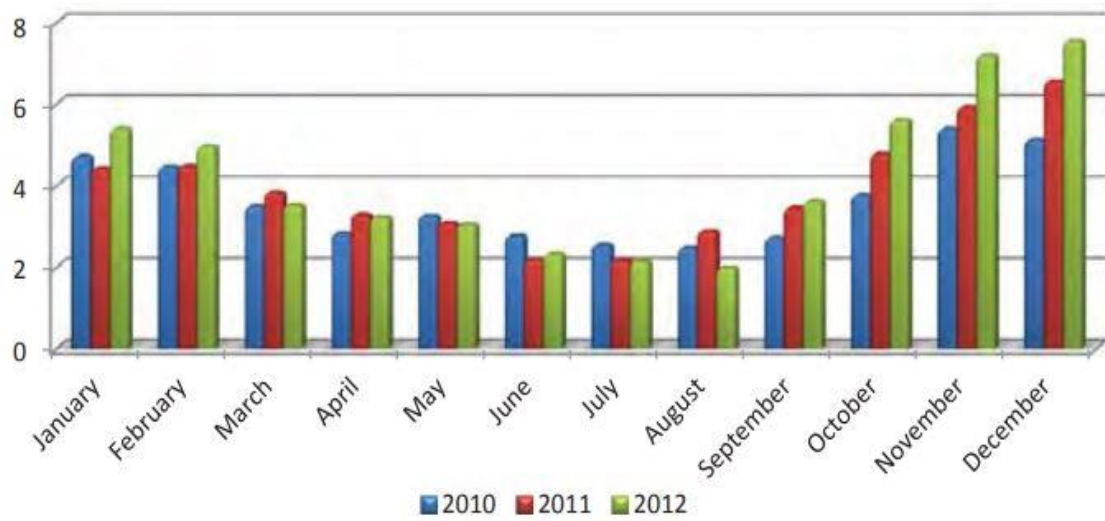
Source – UP Tourism Department, Varanasi and Ministry of Tourism, Government of India

8.12. TOURIST INFLOW NUMBER AND GROWTH



Source – UP Tourism Department, Varanasi and Ministry of Tourism, Government of India

8.13 MONTH WISE TOURIST INFLOW



Source – UP Tourism Department, Varanasi and Ministry of Tourism, Government of India

CHAPTER -9 PROPOSAL

9.1 CLASSIFICATION OF URBAN SETTLEMENTS

S.No.	Classification	Sub-category	Population Range	Governing Local Authority	Number of Cities as per Census of India, 2011
1	Small Town*	Small Town I	5,000 - 20,000	Nagar Panchayat	7467
		Small Town II	20,000- 50,000	Nagar Panchayat/ Municipal Council	
2	Medium Town	Medium Town I	50,000 to 1,00,000	Municipal Council	372
		Medium Town II	1 lakh to 5 lakh	Municipal Council	
3	Large City	--	5 lakh to 10 lakh	Municipal Corporation	43
4	Metropolitan City	Metropolitan City I	10 lakh to 50 lakh	Municipal Corporation/ Metropolitan Planning Committee	45
		Metropolitan City II	50 lakh to 1 Crore	- Same -	5
5	Megapolis	--	More than 1 Crore	- Same -	3

9.2 INFERENCES

- **The urban growth leads to the challenges and transformation of the society, the threat needs to be understood and preventive measures and actions to be taken accordingly in order to preserve the spirit of the place.**
- **Currently kandawa village comes under small town according to urdpfi guideline.**

9.3- THE PLANNING OF INFRASTRUCTURE SHALL BE BASED ON THE HIERARCHY OF URBAN DEVELOPMENT.

Sr.No.	Planning Unit	Population
1	Housing Cluster/ Neighbourhood	5000
2	Neighbourhood	5000-15,000
3	Community	Up to 100,000
4	District*	5 Lakh
5	Zonal	10 lakh
6	Sub city centre	25 Lakh - 50 Lakh
7	City	50 Lakh +

9.4 Inferences

The planning of infrastructure shall be based on the hierarchy of urban development.

According to urdpfi guidelines suggest the infrastructure planning norms for an urban/ regional space; the norms are suggested under five categories:

1. transportation planning

2. Physical infrastructure

3. Social infrastructure

4. Commercial infrastructure

5. Miscellaneous infrastructure

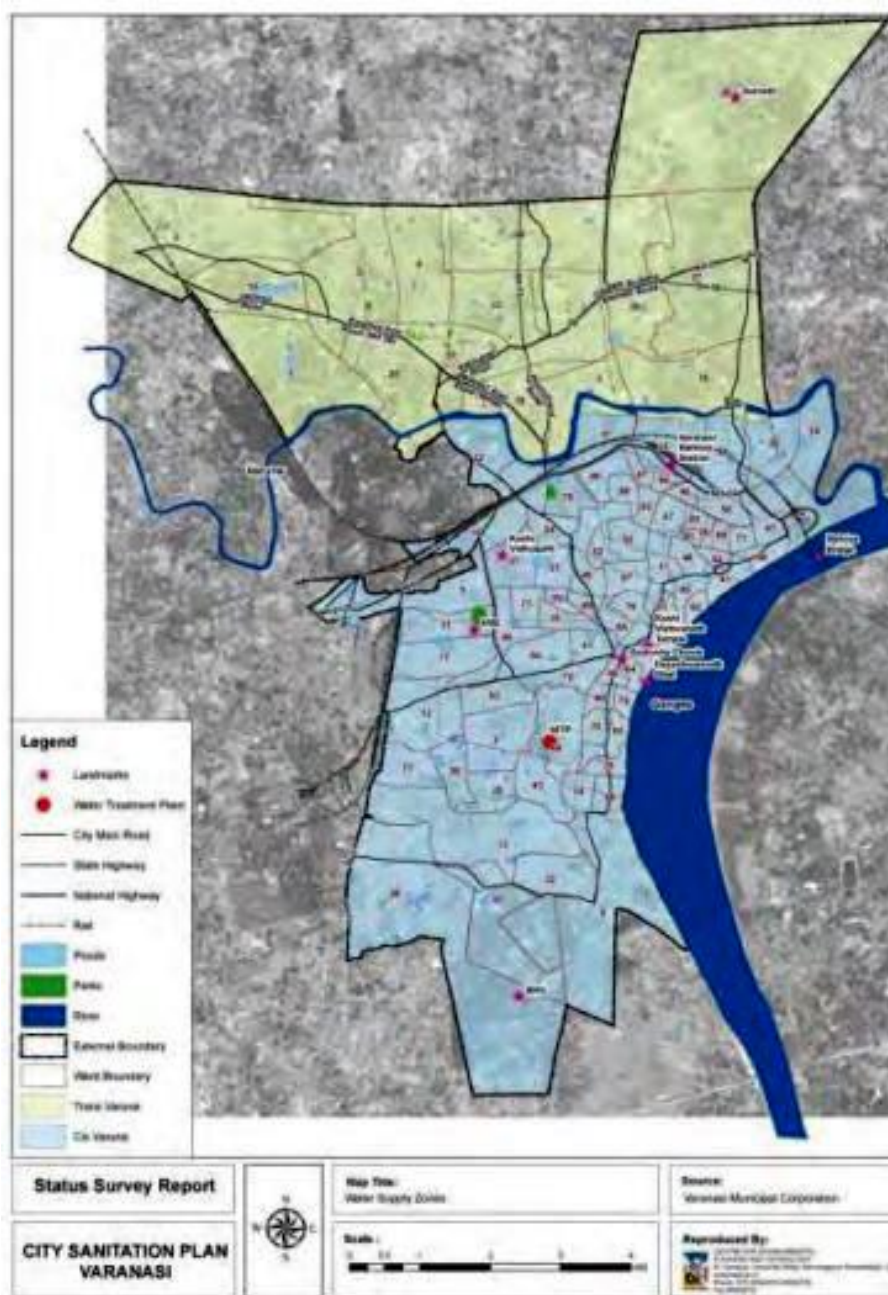
9.5-PHYSICAL INFRASTRUCTURE

WATER SUPPLY

	Size of town				
Aspect	Small	Medium	Large and Metro	Kandwa	
Domestic				Population 2041	Water requirement (ltr)
1. Absolute Min	70 lpcd	70-100 lpcd	135 lpcd	38563	2699410
2. Desirable	100 lpcd	135-150 lpcd	135-150 lpcd		3856300
Non-Domestic					
Fire fighting	1% of total demand				38563
Public Purpose	10-15 lpcd	20-25 lpcd	30-35 lpcd		578445

				Total water requirement	4473308
--	--	--	--	--------------------------------	----------------

There are 91 wards in the varanasi city under varanasi nagar nigam. Total wards area is 76.78 sq.km with a projected population of 2,794,580, 4,102,974, 5,750,697 for the year 2020, 2035 & 2050. Total available water supply system capacity for the city is 310 mld and per capita demand is 150 lpcd. Main source of water supply is river ganga and ground water sources.





9.6-RECOMMENDED

- As per jal kal, the water supply distribution network is 1,500 km long
- The water demand of 276 mld for the city is met by the surface flow of ganga river and the underground sources.
- The distribution system is provided to new extension areas under different development programs.
- We also care for the quality of the water.
- Due to the city settlement established on the bay of the river, the shortage of water will not be faced in the near future.

9.7-PHYSICAL INFRASTRUCTURE

9.7.1 SEWERAGE & DRAINAGE

Sewerage estimate based on water supply (80%)	
Total water requirement	4473308
Sewerage estimate	3578646.4

9.7.2- RECOMMENDED

SEWERAGE & DRAINAGE

- The drainage system for any city/town is governed mainly by natural course and topography. The discharge is calculated that guides the requirements for provision of additional drain as well as upgradation of existing drains.
- The treatment of sewerage is essential to provide hygienic conditions. The sewerage is estimated at the rate of 80% of the water supply demand.
- The large & metro cities shall be provided with regular sewerage treatment facilities at zonal/city level.
- The newly developed areas shall have community level septic tanks based on economic & environmental considerations.
- The squatter settlements may be provided with a facility of 1 toilet for 4 to 5 families on the concept of low cost and low water consumption .based

9.7.3 Comment

In case of developing cities the treatment plant shall be planned with possible future expansion including biogas plant, energy conservation environment considerations

9.8-SOLID WASTE DISPOSAL

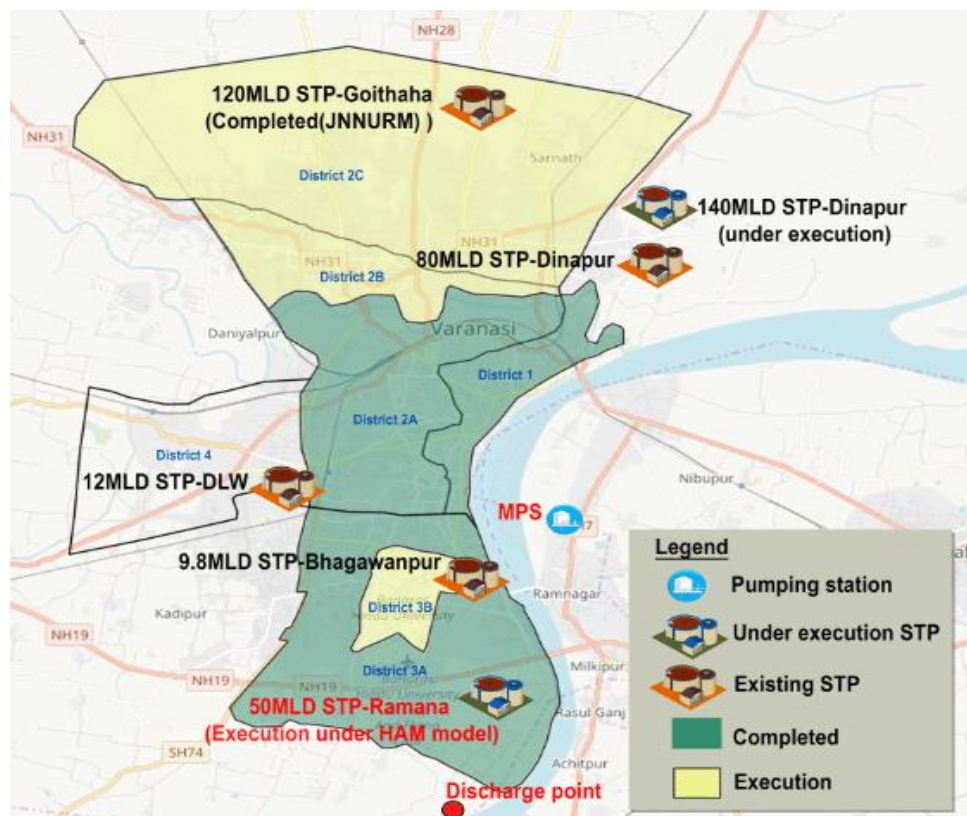
9.8.1-RECOMMENDED

- **The garbage is removed and dumped at the sanitary landfill or in some cases it is converted to composted specially in small towns.**
- **The generation of waste varies from a quarter of kg in small towns to about half a kg per capita in large and metro cities.**

9.8.2-COMMENT

- **Garbage separation of dry, wet garbage s recyclable material to achieve efficient method of disposal shall be encouraged by educating people.**

Varanasi city is divided into 3 sewerage districts. District 1 is central city including the core old city. District 2 is sub divided into zone 2a (cis varuna) and zone 2b & 2c are trans varuna area. District 3 is bhu/ assi district. Total capacity of the sewage treatment (existing and under execution) is 410 mld as against the estimated capacity of 390 mld for the year 2035.



9.8.3 RECOMMENDED

Established a new stp of 4 to 5 mld or merge with the Existing stp with increase there capacity.

Which easily and successfully carrying the future demand Of the stp due to population increase via domestic and Tourism both.

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