

Sponsored Thesis Project Competition on
"RE-IMAGINING URBAN RIVERS"
Season- 3



Project Title: Reworking Water Connect With Urbanization: Heritage Riverfront of Kanpur
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On the very onset of this Thesis report, I would like to extent my heartfelt and sincere obligations towards all the personages who helped me in the endeavor. Without their support, guidance, encouragement and co-operation the following report would not have been a successful outcome.

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Special thanks to my parents and family members who helped me at every step in making this possible.

Any omission, in this brief acknowledgement does not mean lack of gratitude.

Abstract

Kanpur originated on the banks of Ganga and had a strong cultural linkage with the river. Today it lies on the south bank of the river Ganga, with most of the areas adjoining the banks, disconnected from the city's growth. It is the industrial capital of Uttar Pradesh. A major centre for trade and commerce since historic times, it is well-known for its leather industry, which dates back to late 18th century AD. Kanpur city, gained importance under British colonization as one of their military cantonment. The city was a major focal point during the struggle of freedom in 1857 in which the villages and settlements on the banks of Ganga participated. The southern banks of river Ganga, comprises of Ghats on which daily river-religious rituals are still alive. The main concept of this thesis is to revitalize the river path's public realm on the Heritage River connections (HRC) with River Ganga and provides a better infrastructure (landscape) for its users. The main theme is Heritage conservation, thereby reinforcing the age old value systems. It involves the selection of the HRCs through studies and exploration method. The key objectives are to understanding associations and sense of place and the built heritage structures along the river patch, lined with temples. Understanding association of heritage structure and there conservation with the ghat to help rebuilt the HRCs. The conclusion of the study comprises the master plan and demonstrating the design interventions development to ensuring and sustaining the river front limit. Being a resident of Kanpur and having worked with INTACH on Kanpur listings, I have the necessary backdrop to undertake this work.

Key Words: *Heritage river connection (HRC), infrastructure, conservation*

USEFUL DEFINITIONS-

City - An area characterised by dense human settlement, spatially concentrated economic, social and environmental interactions and an agglomeration of infrastructure including communication, service provision and housing systems.

Climate Change- Long-term, persistent change in local and/or global climatic conditions and patterns largely as a result of human activities.

Ecosystem Services- “ecosystem goods and services are the benefits that humans derive (directly and indirectly) from naturally functioning ecological systems”(Costanza et al 1997:4).

Groundwater- Groundwater is the water present beneath Earth's surface in rock and soil pore spaces and in the fractures of rock formations. Any, and all water resources below ground level.

Interdisciplinarity- The combining of two or more fields of knowledge in a collaborative manner in achieving a defined objective.

Public Participation- An approach to problem solving which facilitates the collaboration of members of the public, various originations and other stakeholders in the decision making process.

Sustainable City- A city which is designed to minimise required inputs (energy and resources) and outputs (waste) in the promotion of economic and social development which protects the natural environment.

Urban Design- The art of creating and shaping cities and towns, and making connection between people and places. It involves the arrangement and design of buildings , public spaces, transport services etc.

Urbanization- A phenomenon involving the migration of people residing in rural areas to urban areas resulting in increases in urban populations.

River Sensitive City- A city which enhances water and river security, protects the natural environment and natural urban water bodies, enhances provision of ecosystem services, builds resilience among local communities against drought and flood events and addresses numerous additional economic, social and environmental objectives through a well devised approach to urban water management or we can say that the urban river management.

List of Acronyms:

NIUA	National Institute of Urban Affairs
NMCG	National Mission for Clean Ganga
SMCG	State Mission for Clean Ganga
URMP	Urban River Management Plan
INTACH	Indian National Trust for Art and Culture Heritage
RCUP	River Centric Urban Planning
WSUDP	Water Sensitive Urban Design and Planning
WSUD	Water Sensitive Urban Design
COD	Chemical Oxygen Demand
BOD	Biological Oxygen Demand
STP	Sewage Treatment Plant
CO2	Carbon di Oxide
UN	United Nations
WHO	World Health Organization
MoHUA	Ministry of Housing and Urban Affairs

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CHAPTER-1

1.1 INTRODUCTION AND BACKGROUND

The river basin creates an ideal terrain for sustaining life since the pre-historic era. The historical evolution of Kanpur along the banks of Ganga is evident from the archaeological findings in Bithoor and Jajmau. Kanpur originated on the banks of Ganga and thus a strong cultural linkage with the river is at the heart of its customs. Today it lies on the south bank of the river Ganga, with most of the areas adjoining the banks, disconnected from the city's growth. The city was a major focal point during the struggle of freedom in 1857 in which the villages and settlements on the banks of Ganga participated. The southern banks of river Ganga, comprises of Ghats on which daily river-religious rituals are still alive. The British also built old bridges across Ganga for easy connectivity to the Awadhi territory. But there was no such Fort along the Ganga in Kanpur as can be seen in Prayagraj and Varanasi. Ganga has been an important source for the growth and evolution of communities along the river bank. This paper researches a strategy to revive Kanpur, is to conserve its link to the river, thereby reinforcing the age old values of the river and the city systems. This could involve the selection of the HRCs (Heritage River Connections) through studies and exploration method. The key objectives are to understanding associations and sense of place and the built heritage structures along the river patch, lined with temples. Understanding association of heritage structure and their conservation with the ghat to help rebuilt the HRCs. The conclusion of this research comprises a demonstration to master plan and design interventions development necessary for ensuring and sustaining the river front connection to the living customs of the people. Research believes that the unrecognized religious and heritage layers of these ghats have the capability to bring back the old rich Image of the city and hence balance history with the present.

“There is a need for new thinking for ‘River Cities’. There is need for the residents of these cities to ask, ‘What can we do for the rivers?’ There is a need for a new river centric thinking in planning for cities on the banks of rivers. The river health needs to be mainstreamed into urban planning process by developing Urban River Management Plans. Cities should be responsible for rejuvenating their rivers. It has to be done not just with the regulatory mindset but also with developmental and facilitatory outlook.”

[Hon'ble Prime Minister Mr. Narendra Modi during the first meeting of National Ganga Council held on December 14, 2019]

1.2 AIM OF THE STUDY

Re-establish the Kanpur's Lost historical character through reviving the Historical Ghats of Ganga in Kanpur.

1.3 OBJECTIVE OF THE STUDY

- To make the Ganga in Kanpur a Celebrated River from Neglected River.
- To bring back the historical Legacy into the public domain, Rejuvenate the lost Riverfront landscape of the area.
- Creating a riverfront that the people of Kanpur can celebrate.



NEGLECTED RIVER



CELEBRATED RIVER

TO

HISTORICITY AND
HISTORIC BELIEFS



ECONOMY AND
PEOPLE

1.4 SCOPE OF THE STUDY

- There are historic structures within these ghats which are under utilized due to lack of awareness.
- There are dominating layers of history not true to what all the river ghats stood for over the years. There are different time periods which needs to be addressed.

1.5 NEED OF THE STUDY

- The selected areas are at a distant from city center, therefore see way less visitors in comparison to other/important ghats.
- Be in the Ganga Belt with Prayagraj and Banaras in UttarPrdesh, Kanpur did not get his name registered for something good with River Ganga.
- There are so much heritage along the river in the city also to be looked upon and that

1.6 SIGNIFICANCE OF THE STUDY

- The city of Kanpur lies on the south bank of the river Ganges in Yamuna Gange's doab.
- The city has been witness to numerous historic events of which the major one was the Revolt of 1857.
- The city has also seen a shift from being a high ground for battles to an important industrial hub specifically for leather tanneries and cotton mills.
- The ghats illustrate aesthetic, historic, scientific, social, and spiritual value, as illustrated above, and herein lies its significance.
- The river ghats have been an essential part of this transformation of historic periods as they form one of the earliest settlements from where the expansion of the city started.
- It also reflects the political importance of capturing these ghats for dominance in battles, and the continuity of rituals and practices that takes place with a belief in the holy river Ganges by the Hindu religion.
- These river ghats are an exceptional example of sustained beliefs among a religion, post-independence military activities, and sustenance of livelihoods through rivers and floodplains.

CHAPTER-2

2. CAWANPORE (KANPUR)

2.1 INTRODUCTION OF KANPUR

Kanpur district is located in Uttar Pradesh, named after its administrative headquarters, Kanpur city. In 1981 Kanpur district was sub-divided into Kanpur Nagar and Kanpur Dehat districts. It occupies an area of 3155 sq.km. Kanpur was declared the divisional headquarters of the Allahabad Division in 1989, comprising present-day districts of Kanpur Nagar, Kanpur Dehat, Etawah, Auraiya, Farrukhabad and Kannauj. Kanpur Nagar District is divided into three tehsils - Bilhaur, Kanpur Sadar and Ghatampur. Bilhaur and Kanpur Sadar tehsils in Kanpur Nagar.

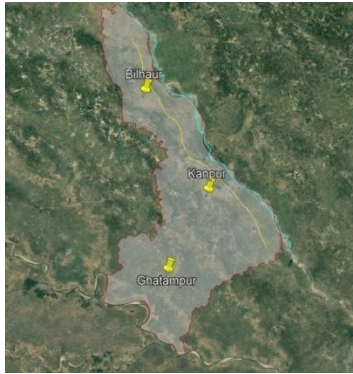


FIG-1 Kanpur district map

Generated by Author
in google earth pro

Kanpur district is renowned as the industrial capital of Uttar Pradesh. It was a major centre for trade and commerce since historic times. It is also well-known for its leather industry, dating to late 18th century AD. The city comprises one of the largest tanneries in the world. The industry continues to thrive even today. The district headquarters, Kanpur city, gained importance under British invasion. It was developed as one of their military frontiers. The city was a major focal point during the British Mutiny of 1857. The district lies along the southern banks of river Ganga, comprising ghats which witness daily religious rituals. Kanpur district comprises high historic, archaeological, cultural and religious significance.

2.2 ORIGIN OF NAME

As per mythological texts, Kanpur was named after Kunti's son, Karna, known as Karnapur. Kanpur city was founded by Hindu Singh in 1750 AD. He was the Chandel Raja of Sachendi Estate, in present-day southern suburbs of Kanpur city. It was named Kanhaiyapur, by the Raja who was a devoted follower of Lord Krishna. Over the years it came to be known as Kanhpur, which was later transformed to Kanpur. Under British rule, Kanpur was referred to as Cawnpore in 1788, after multiple derivations since 1770. Post-independence the district became a part of Uttar Pradesh state, and was renamed Kanpur. The name of the district headquarters of was changed 11 times before independence.

2.3 Geographical Setting and Boundaries

Kanpur district comprises an L-shaped footprint, with the longer leg along river Ganga towards the east. Yamuna river flows along the southern boundary of Ghatampur tehsil of the district. It lies between 25°26' and 26°58' N latitude and 79°31' and 80°84' E longitude. The footprint of the earlier district, including Kanpur Dehat district, formed a quadrilateral boundary. Presently, Kanpur Nagar district is surrounded by Kannauj district to the north, Unnao to the east across river Ganga, Fatehpur district to the south, and Hamirpur district and Kanpur Dehat district lie towards the western side. Kanpur forms the north-western region of the Allahabad division, occupying the lower doab region. It lies in the central fertile plain of the Upper Ganga Valley.¹ The topography of the terrain follows a gentle slope from the north-west to south-east. The cliffs and ravines along river Ganga are higher than those along Yamuna towards the south. The slope of the land decreases towards the centre of the doab region. The central plains are also mostly undulating, as the banks along the canals and tributaries across the district are higher

than the intermediating regions.² Thus, the terrain is sub-divided into two types - the high banks along Ganga, and the undulating alluvial plains across the district



FIG-2

Kanpur district map

(Source: Base map from
www.mapsofindia.com)

2.3.1 Administrative Boundaries

Kanpur district earlier included the present-day districts of Kanpur Dehat and Kanpur Nagar. The district boundary was defined in 1803 AD, which was named Cawnpore by the British in 1788.³ Under the British administration, Bithoor city was established as the headquarters of Kanpur district from 1811 to 1819 AD. Later it was shifted to Kanpur city which was established as the site for a trading factory and as a British military cantonment.⁴ Post the First Battle of Independence, in 1858, the province was combined with the Nawab-ruled Awadh region, across Ganga. In 1921, the region was re-organized and referred to as the United Provinces of Agra and Oudh. In 1976 Kanpur Nagar district was carved out of Kanpur district, however, a year later it was merged back. On 23rd April, 1981, Kanpur district was finally subdivided into Kanpur Nagar district and Kanpur Dehat District

2.3.2 Geographical Setting

Kanpur district is located along the southern banks of Ganga, comprising rich, alluvial plains across the region. Ganga flows for 116km along Kanpur district. It occupies the lower Ganga-Yamuna doab region, interspersed with multiple tributaries and canals. This water system creates parallel tracts of land with distinctive characteristics. The brittle soil in Bilhaur tehsil, softens towards the south of the district, in Kanpur tehsil.

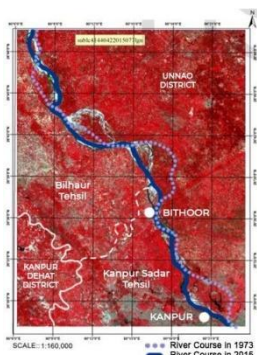


FIG-3

GIS Study of the shift in Ganga river course.

(Source:

www.ijser.org/researchpaper/Change-Detection-in-course-of-River-Ganga-near-Kanpur-using-Remote-Sensing-GIS-techniques.pdf)

The Ganga river course has gradually shifted over the years. A study conducted in 2015, revealed the change in the meandering path of the river near Kanpur city. However, the city has not faced flooding in the past years. This may be regarded to the location of the settlement on the high bank along the river.⁸ During earlier years, the width of the river measured 640m, along Kanpur, due to which the British harbored their cargo ships along the riverbank. The river also provided as a barrier between Kanpur and the northern Awadhi region which was under the Nawabs.⁹ Their capital was in present-day Lucknow. This region was commonly known as the Awadhi region, which includes most of the districts to the north of Ganga. However, over the years it has shifted towards the north, creating vast stretches of sandy land. The width of the river has also considerably decreased in the recent years.

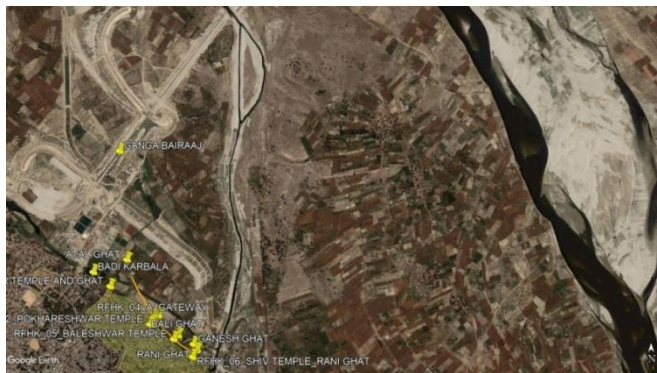


Figure-4

Course of Ganga in 2000

Generated by Author in google earth pro

2.4. RIVERS IN KANPUR

The two chief rivers of the district are the Ganga and the Yamuna. The Isan and the Non are the tributaries of the Yamuna. The river next in importance is Pandu. The Ganga enters the village of Chita Mau and flows along the north eastern and western boundaries of the district for its entire length and also skirts the Bilhaur and Kanpur *tehsils*. It has a wide and sandy bed, changing its channel almost every year as its sand-banks are formed and washed away. In the rains the Ganga is of immense breadth but during the cold weather it shrinks to much small dimensions. The river leaves the district at village *Purwa Mir* in the Kanpur *tehsil*.

The Isan a tributary of the Ganga has its origin in the south-east of Aligarh and enters the district in the extreme north, a short distance from Makanpur.

The other tributary of the Ganga is the Non. The name obviously refers to the brackish nature of its water, a phenomenon which probably arises from the prevalence of the saline efflorescence known as *reh*, which abounds in the low, swampy tract on the northern borders of the Bilhaur *tehsil*, where the river takes its rise. It joins the Ganga in the south of Bithur.

The Pandu is the third tributary of the Ganga but does not join that river till its exit from the district, the junction taking place in Fatehpur, some 5 km beyond the Kanpur border. The Pandu rises in Farrukhabad and enters the district near the village of Naila (in *tehsil* Bithur) and then flows in a tortuous course but in a direction parallel to that of the Ganga. Rind and Sengar are the two tributaries of the Yamuna particularly from the central water parting which lies between the

Pandu and the next river to the west.

The Non (southern) takes its rise in several large depressions in the low central and southern tracts of the Akbarpur tehsil and the surplus drainage find its way southwards by several channels which unite on the Ghatampur border to form this river.

The Yamuna first touches the district in the extreme west of Bhognipur and maintains a south easterly course. It makes many loops and hands and leaves the district in the extreme south west of the Ghatampur tehsil. It separates this district from the Jalaun and Hamirpur districts in the south. The bed of the river is at a considerable depth below the level of the land to the north and in places there are many fertile stretches between the river and its high banks.

2.5 AREA AND POPULATION

The district of Kanpur covers an area of 3005 sq km of which the city proper makes up 1300 sq km. It is the largest and most populous city of Uttar Pradesh and the second largest in the Hindi heartland (after Delhi

According to 2001 census, the city had a population of 41,37,489 people giving it a density of 1366 people per sq km, thereby making it one of the most thickly populated cities of India.

2.6. KANPUR AND GANGA

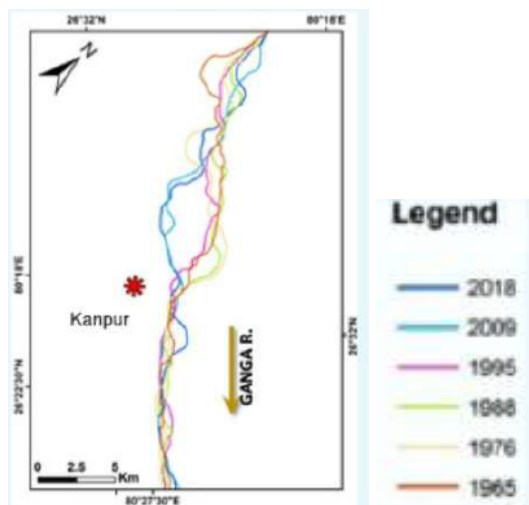
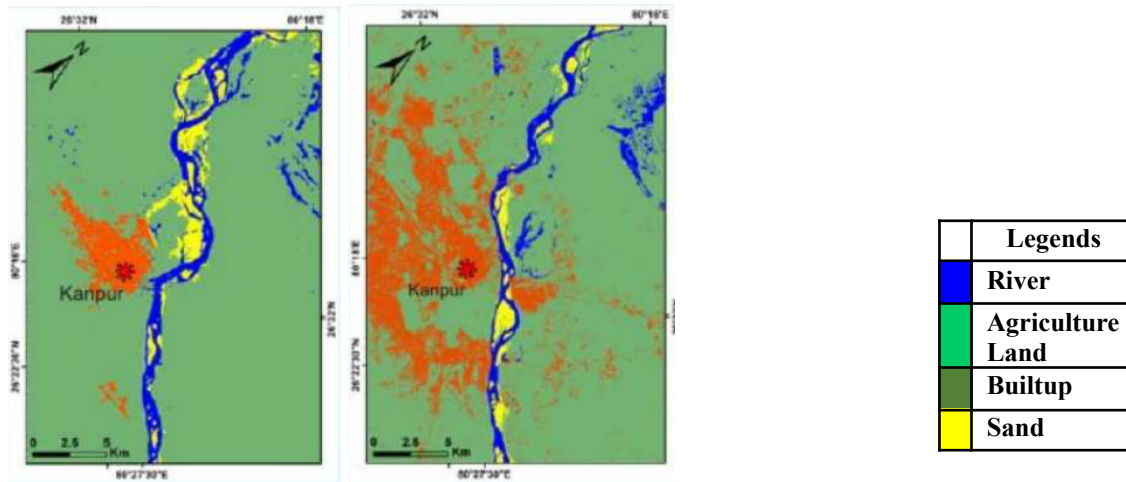


Figure 5 [Source : From the newsletter

"Ganga Of the Past" by NMCG

<https://nmcg.nic.in/Newsletter/Ganga-of-the-past/index.html>]

2.7 LAND USE AND LAND COVER CHANGE



1976 Land settlement image 2018 Land settlement Image
 [Fig.6 Source : From the newsletter “Ganga Of the Past” by NMCG
<https://nmcg.nic.in/Newsletter/Ganga-of-the-past/index.htm>

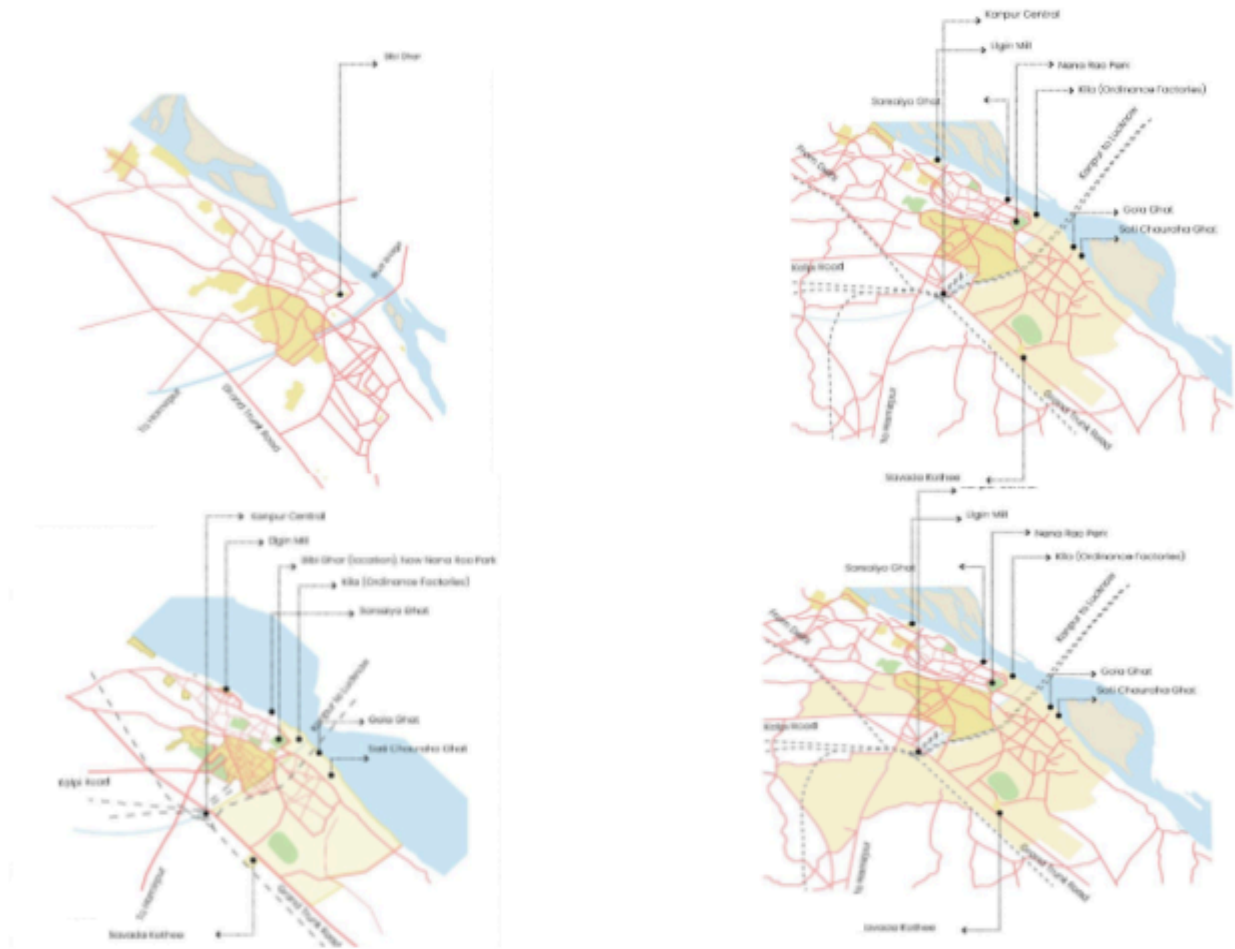
2.8 HISTORICAL TIMELINE OF KANPUR

YEAR	IMPORTANT EVENTS	CITY AND IMPORTANT STRUCTURES
1192	Beyond the myths and legends, in medieval times, ruled by king Jaichand of the Gohadovala Dynasty. King Jaichand was defeated by the Afghan in-vader Muhammad Ghani, Kannauj	The city was part of the Kannauj Region.
1778	Awadh local forces were shifted here. Also, Britishers established their camps in the city.	British Cantonment found in Kanpur.
1801	Awadh forces surrendered to East India company. 1801- Treaty signed between Soodat Ali Khan(the nowab of Awach) and the East India Company, the area covered by the present district was given to English in return for a guarantee of protection and for the extinction of the debt incurred on account of the Awadh local forces some of which had been quartered in cantonments at Kanpur since 1778.	Cownpore was made headquarters of the district for Administrative purposes Kanpur was declared as District.
1818	East India grips further tightened after third Anglo Maratha war. Bajirao II, the Peshwa surrendered to British forces.	Peshwa Bajirao II exiled to Bithoor.
1832		Construction of Grand trunk road started.
1846		Pakki road to Kalpi was finished
1851	Peshwa Bajirao died and named Nana Dhondu Pant (known as Nana Sahib Peshwa) as his successor.	
1856	Sutherland and Company, a managing enterprise was set up. It was started with the name Begg Christie and Company and became Begg Maxwell and company 1875, currently it is known as Ordinance Factory. Its work was leather related work for army. Kanpur was an important British military station.	Women took refuge in St. George's Church. Massacre at Sati chaura and Massacre Ghat. Prisoners were taken to Savada Kothi (building used by Nana Sahib)
1859	Pandurang Nana Rao and Tatya Tope were hanged at Bibi Ghar premises.	Passenger trains service was inaugurated (Prayagraj to Kanpur) Bibi Ghar was raged Sati Chaura Ghat was renamed as Massacre Ghat.
1862		The Elgin Mill started (first cotton textile mill)
1874		The Muir Mill Company was founded by Gavin Jones
1882		Muir Mill started.
1906		First time electricity came 25 December 1906.
1911		Lal Imli Mill started.
1947		Independence.
1995		The construction of Ganga Barrage started.
2000		Construction of Ganga Barrage completed.

Mughal Rule
 East India Company Rule
 British Rule

Figure. 7- Historical Timeline of kanpur

2.9 GROWTH OF KANPUR



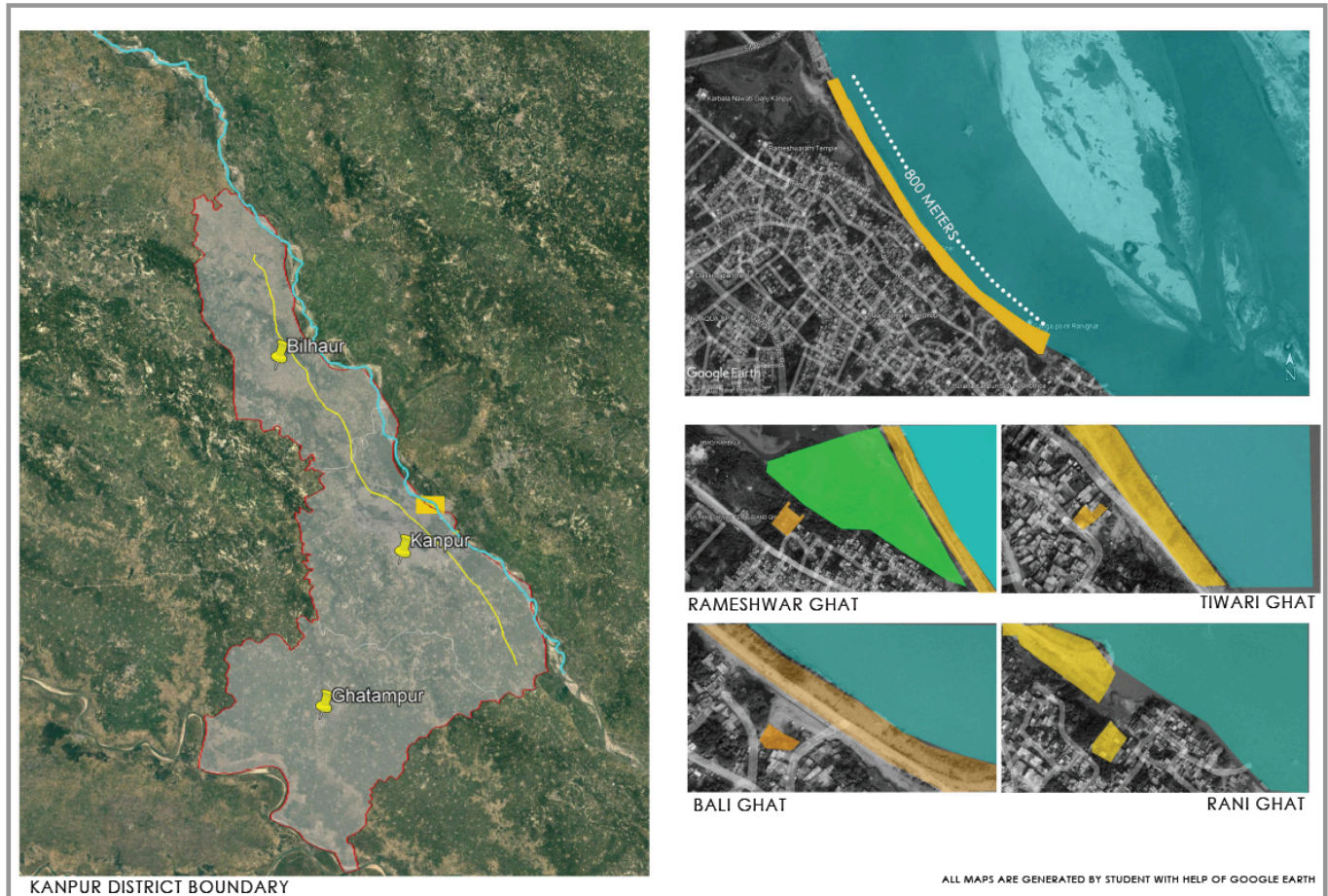
(Figure. 8 Growth of Kanpur Succession Maps Generated by Author)

CHAPTER-3

SITE

3.1 ABOUT THE SITE-

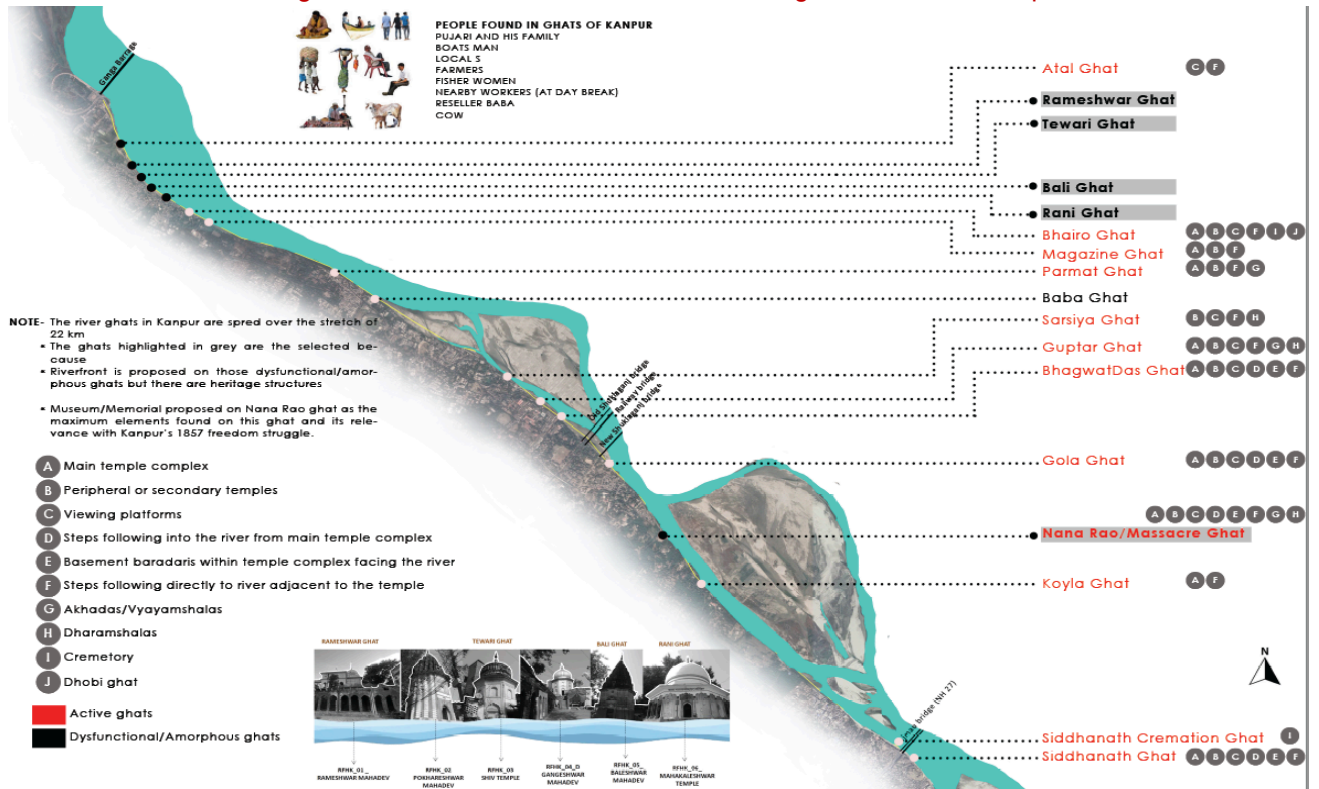
My study area is revolved around those Ghats of Kanpur that are not yet addressed, neglected by the people and the society. The area includes religious, charitable, local society, bungalows of administrative authorities and some historic alive institutions on the river bank. The intangible importance of these historic Ghats and the religious institutions along them is very high.



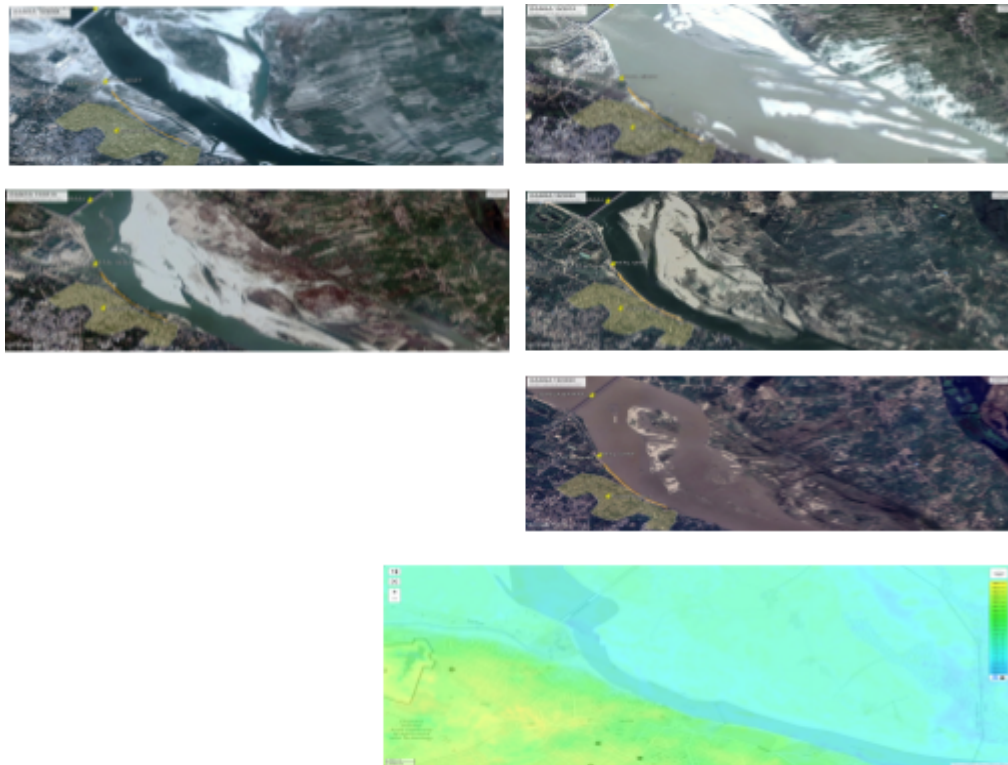
[Fig. 9 Site]

3.2 GHATS OF KANPUR WITH ACTIVITIES

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Reworking Water Connect with Urbanization: Heritage Riverfront of Kanpur



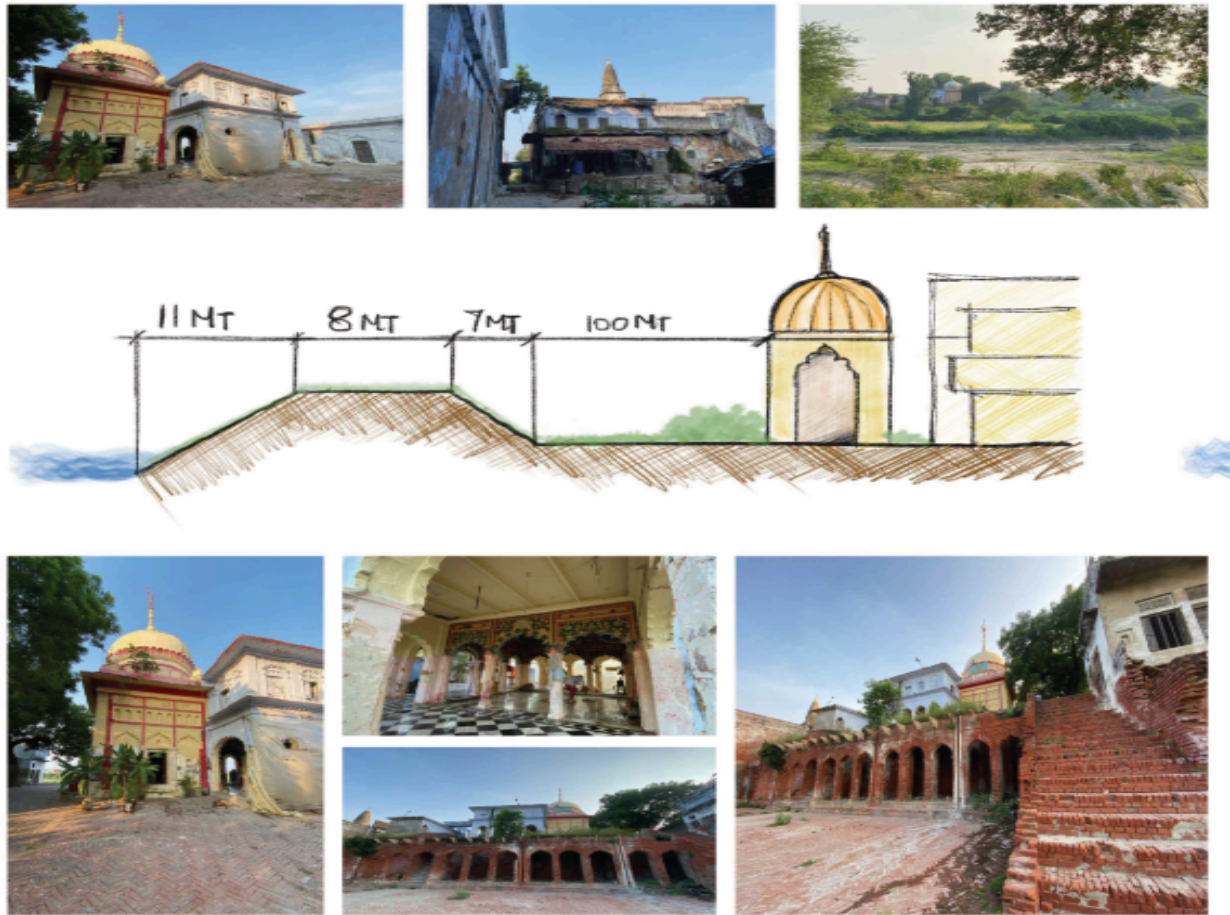
[Figure-10-key plan of Kanpur with site]



[Figure-11 to 15 –River Study throughout the years in different Months]

3.3 GHATS OF THE STUDY-

3.3.1 RAMESHWAR GHAT



[Figure-16 –Images of Ramehwar Ghat clicked by author]

Festivity/ activity- temple condition is not good and only used by the locals that too is very less

Accesssibility– temple can be approached via karbala road connecting to ganga bairage

Fabric– temple comes under the old kanpur area and has very dense low height structure with number of temples around along the river.

City vs ghat- as the city of the kanpur is very crowded and polluted but you feel just opposite at this ghat when you visit due to negligence of the locals and government

Year of construction--1849

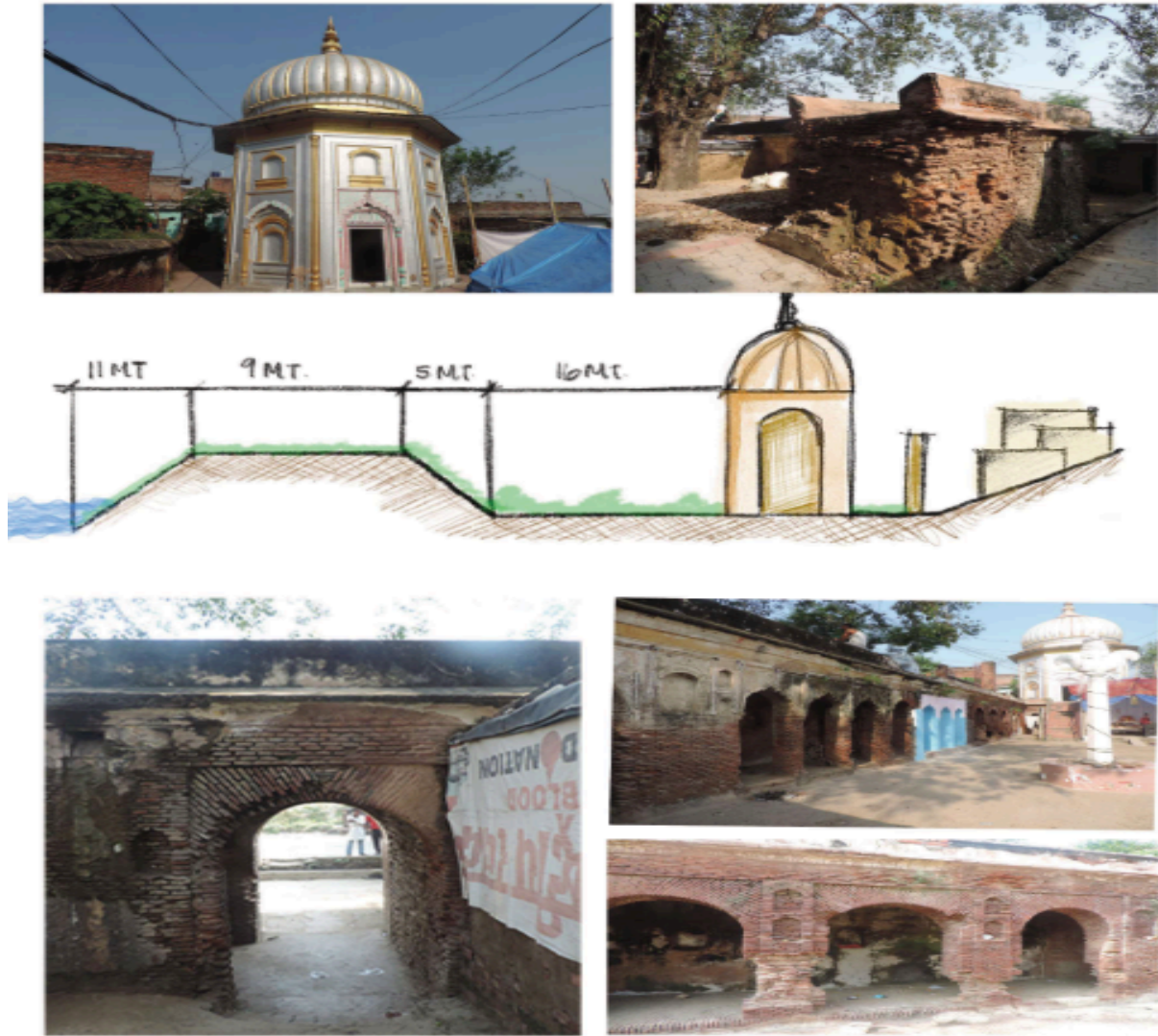
Present usage--temple , baradari, ghat

Architectural elements- lakhori brick used as prime material

Condition description—

Material deterioration,Dampness

3.3.2 TEWARI GHAT



[Figure-17 –Images of Tewari Ghat clicked by author]

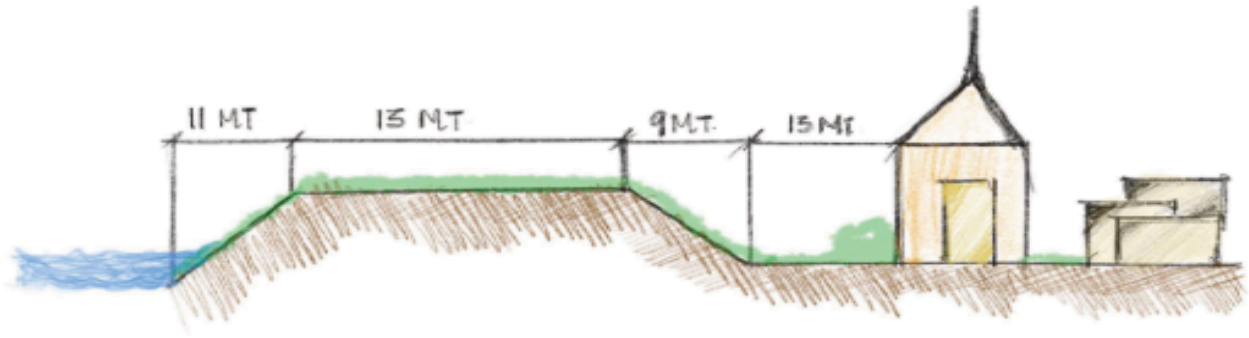
Festivity/ activity- ear piercing ceremony happen here and fair take place in shivratri and sagan.

Accessibility- temple can be approached via Karbala road connecting to ganga bairage.

Condition description-

Material deterioration, Vegetation growth, Improper addition and alteration

3.3.3 BALI GHAT



[Figure-18–Images of Bali Ghat clicked by author]

Accesssibility– temple can be approached via karbala road connecting to ganga bairage

Festivity/ activity- ear piercing ceremony happen here and fair take place i n shivratri and sagan.

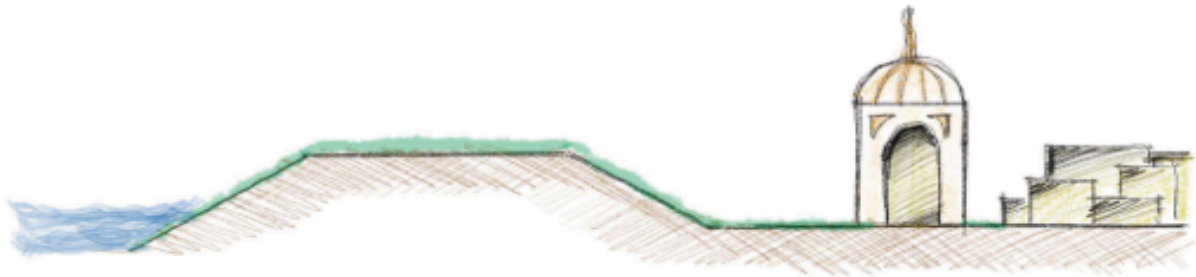
Year of construction--1869

Present usage--temple

Architectural elements-

Lakhori brick used as prime material and Multifoliated arch gateway at entrance

3.3.4 RANI GHAT



[Figure-19–Images of Rani Ghat clicked by author]

Accesssibility– temple can be approached via karbala road connecting to ganga bairage

Festivity/ activity- fair take place in shivratri and savan.

Year of construction--1940

Present usage--temple

Architectural elements-

Lakhori brick used as prime material and Multifoliated arch gateway at entrance

CHAPTER-4

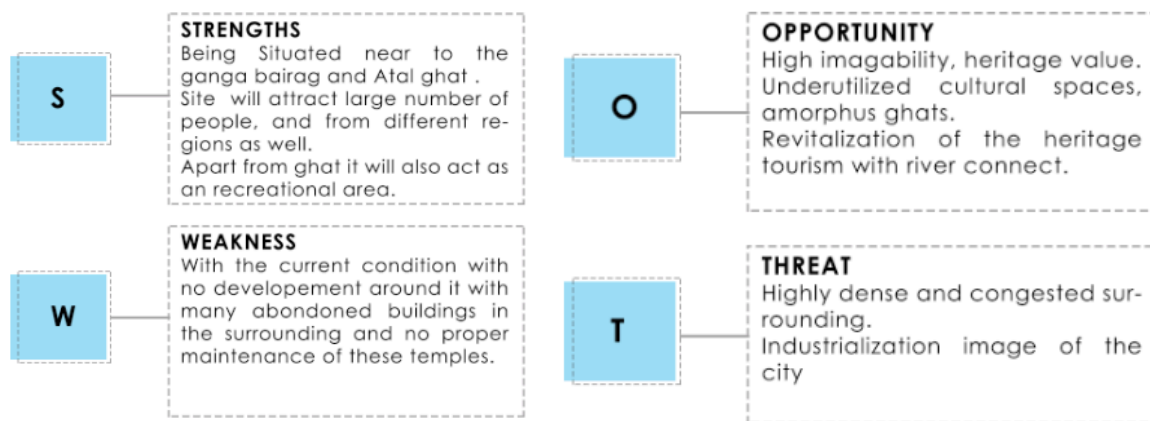
SITE ANALYSIS

4.1 WHY THIS SITE-

This site is near Atal Ghat and Ganga Bairaj which are the prominent recreational space for the people of Kanpur. The site has number of untouched heritage structures that can become the additional elements of the riverfront.

Due to increase in urbanization and industrialization, many cities/towns faces minimum avenues for recreation and open spaces. A developed waterfront provides access to new recreation opportunities and awareness of natural aspects of river life to residents.

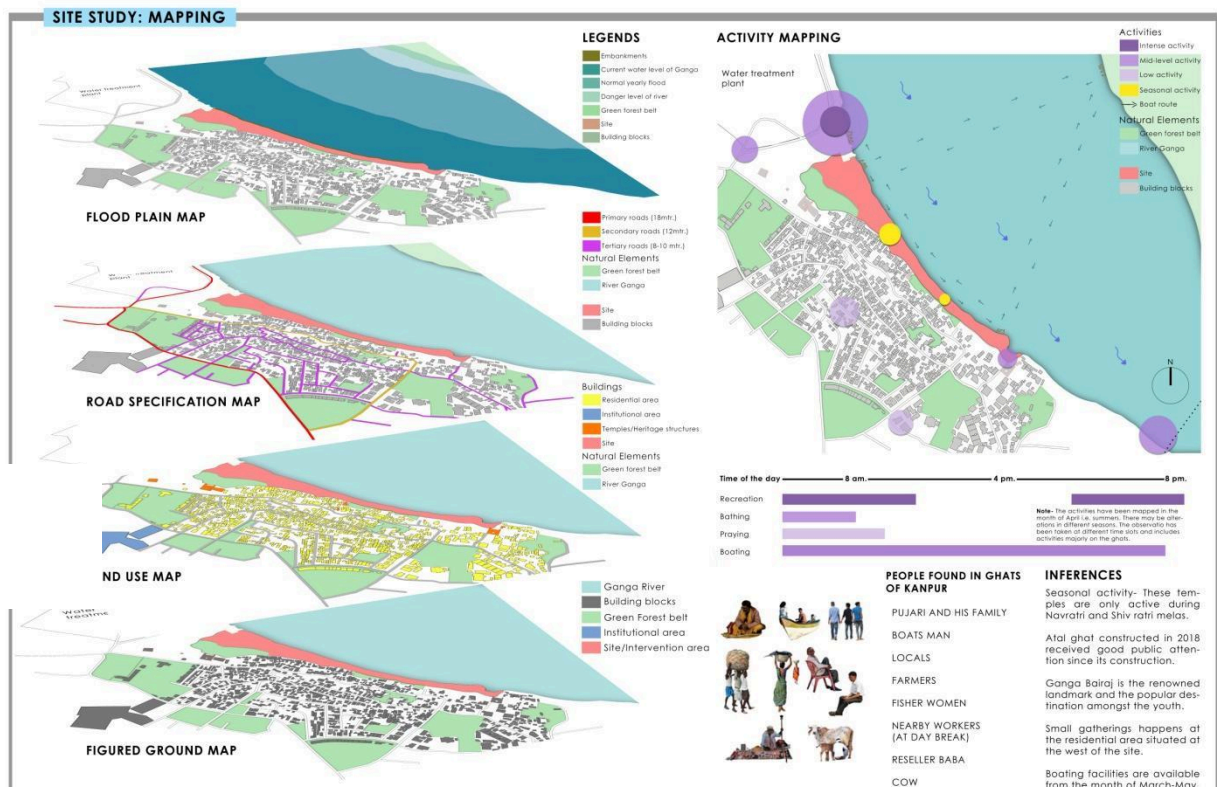
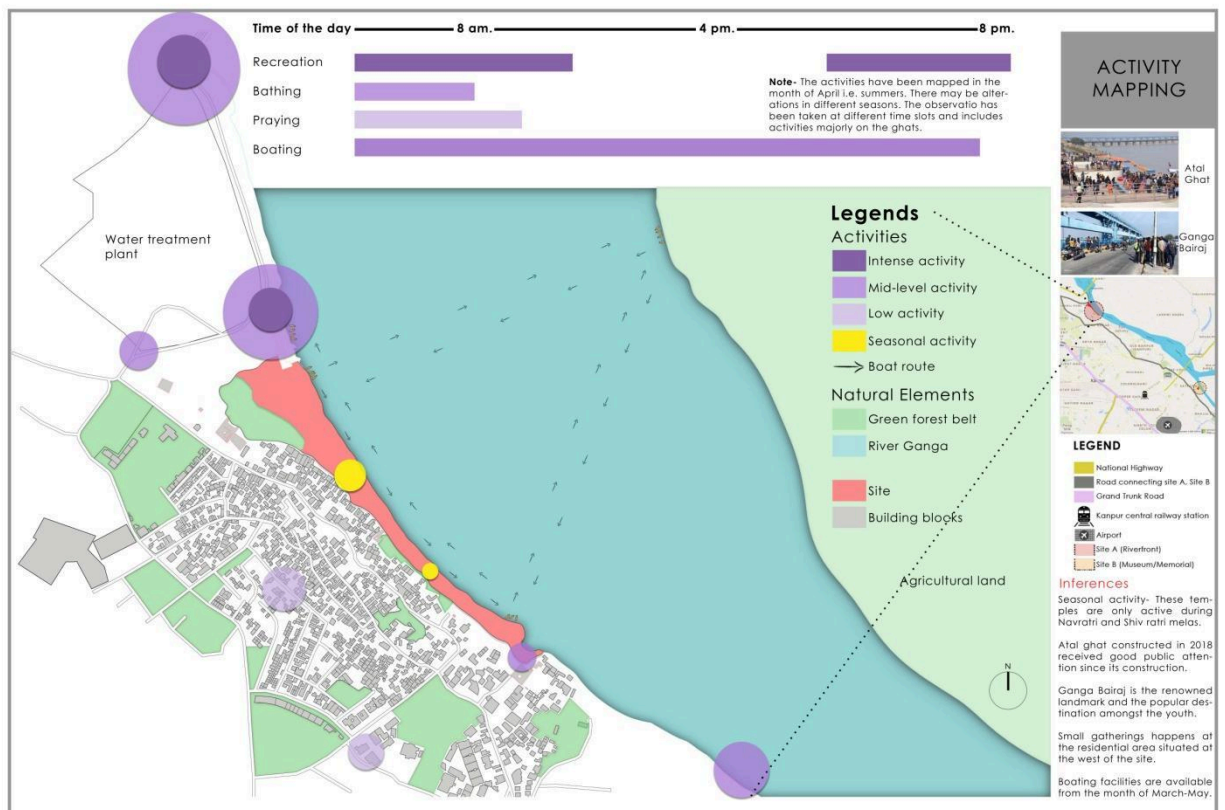
4.2 SWOT ANALYSIS-



4.3 CLIMATIC ANALYSIS-



[Figure-21–Climatic analysis of the Site]



[Figure-21—Urban Studies of the Site]

4.4 Findings-

The selected Site stretch is selected on the basis that these are important historic ghats but due to peoples negligence there is no such ghat related activities.

5. Way Forward-

Taking the main goal to re-imagine the river ganga as a public interaction and creating a riverfront with all these heritage structures along the Stretch, with some adding facilities such as- the Kanpur Museum with ganga and Kanpur in focus, a war memorial for the 1857 freedom struggle and some student Learning centre which provides the ganga Protection and Well being learnings to the younger generations.



Figure-22-Site Plan



Figure-23 Site Development

CERTIFICATE OF COMPLETION

This is to certify that this thesis project titled “**Reworking Water Connect with Urbanization :Heritage RiverFront of Kanpur**” was carried out by Sh. **Akshansh Mishra**, a student of **Bechelor of Architecture**, at the **Apeejay Institute of Technology : School of Architecture and Planning**. The research for this project was undertaken under the guidance of the afore-mentioned institute and completed during the period of **August 2022** to **May 2023**.

This project was shortlisted under the *Sponsored Thesis Project Competition on “RE-IMAGINING URBAN RIVERS” (Season- 3)* hosted by the National Institute of Urban Affairs (NIUA) and the National Mission for Clean Ganga (NMCG).

This report has been submitted by the student as a final deliverable under the competition. All parts of this research can be used by any of the undersigning parties.

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