



CHANGING SACRED SCAPES

A cultural approach for a
sustainable Varanasi

वाराणसी

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Graduation Report
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Colophon

Changing Sacredscapes:
A cultural approach for a sustainable Varanasi

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Cover picture: Author

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Glossary

The glossary is intended as an aid to the reader and includes words from Hindi and Sanskrit languages that occur several times in the report. The glossary also explains certain words and their meaning which is important to understand the book. Source: (Parry,1994)

<i>Antagriha</i>	<i>pilgrimage path that circumambulates the city core</i>
<i>Benaras</i>	<i>popular name for Varanasi</i>
<i>Deepavali</i>	<i>festival of lights</i>
<i>Dharamshala</i>	<i>building devoted to religious shelter</i>
<i>Ghat</i>	<i>segment of river frontage</i>
<i>Kashi</i>	<i>religious name for Varanasi</i>
<i>Kashi Khanda</i>	<i>popular eulogistic text on Varanasi</i>
<i>Kumbh</i>	<i>sanskrit word for pitcher</i>
<i>Kund</i>	<i>a water tank or sacred pool</i>
<i>Mahant</i>	<i>head priest</i>
<i>Mandala</i>	<i>geometric configuration of symbols</i>
<i>Mantra</i>	<i>sacred verbal formula repeated in prayer</i>
<i>Mela</i>	<i>festival or fair</i>
<i>Moksha</i>	<i>liberation from cycle of rebirth</i>
<i>Nalah</i>	<i>water stream</i>
<i>Panchakrosh</i>	<i>pilgrimage path that circumambulates Varanasi region</i>
<i>Panchayat</i>	<i>village/local government body in India</i>
<i>Parikrama</i>	<i>circumambulation of a sacred place</i>
<i>Puja</i>	<i>worship</i>
<i>Ram Leela</i>	<i>festival that enacts the life of Lord Ram</i>
<i>Sadhu</i>	<i>hindu monk</i>
<i>Sati</i>	<i>a Hindu practice whereby a widow immolates herself on the funeral pyre of her husband</i>
<i>Talab</i>	<i>rain water pool</i>
<i>Thirtha</i>	<i>pilgrimage</i>

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Kashi Temple Corridor Development Project in Varanasi, India
Source: Author

Abstract

Nature is unique on earth. Civilizations over time have defined various landscapes, some of which have been changed and some are in the process. Sacredscapes are one among those that have sustained over many centuries. The urbanization is in the process of transforming this sacred identity of many cities. But what is forgotten is beyond religion, there is a strong socio-ecological balance that has kept this landscape resilient. Is there a need to preserve this identity? If so why and how?

This graduation project explores the opportunities on the planning of sacredscapes, focussing on Varanasi in India. Following a cultural approach, the research proposes a regional design and strategic framework, which further shows transferability to other sacredscapes.

Keywords

sacredscapes, Varanasi, Hinduism, culture, pilgrimage, socio-ecological systems



1

Introduction

India is a large country with a vast diversity of religions and cultures. According to Census of India, 80.5% per cent of the Indian population are Hindus. Hinduism is a religion that has been existing for centuries that holds a deep connection to different holy sites in the country. Some of these sites have marked religious territories through sacred paths and temples translating the landscape into sacredscape in which religion defines the extent.

Hinduism is not only regarded as a religion, but also as a way of living. This inherited religious culture amongst the Hindu people scales from everyday life to annual pilgrimages and festivals. Hindu religion is closely related to nature and hence these sacredscapes used to possess a synergy between man and nature which existed as a culture over generations. The Hindu scriptures depict the visualizations of a world in which the humans lived harmoniously with nature and its biodiversity.

But, this image has been constantly changing over the years and with rapid urbanization process happening around the country, the identity of these sacred landscapes has been damaged. Not only that these development process has caused harm to the ecology, but the religious considerations have also drastically shifted from nature conservative perspective to economic exploitation of the religious concepts.

The graduation project, ‘Changing sacredscapes - a cultural approach for a sustainable Varanasi’ aims to explore the concepts of sacredscape in India, focusing on Varanasi. This section will explain briefly the methodology and the narrative of the entire report. The report is divided into 12 chapters through which Varanasi is mapped, analyzed and re-imagined. Chapter 2, **problem field** tries to understand the depth and impact of problems that are growing in India. The chapter looks into urbanization impacts and the conflicting realities existing in sacred cities in India.

Chapter 3, **problem focus** narrows down the problems to the context of Varanasi. In this chapter, the research finds the three variants, namely **land**, **water** and **religion** that defines Varanasi sacredscape. The chapter investigates the overall changes that are happening to the three variants. It is found that these changes have a high impact on the **socio-ecological systems** of Varanasi. The finding leads to the main research question of this project on *how to formulate a strategic spatial framework in enhancing the socio-ecological synergies to promote a culturally sustainable Varanasi*. The section also develops sub research questions relating to various aspects of planning and designing.

For finding answers to the research questions, Chapter 4 develops a **framework** that is built on theories and previous studies. The chapter consists of a theoretical and planning framework mainly based on theories which relates to **culture as an approach** and strategic planning processes. The chapter develops a conceptual framework which is further detailed in the methodology chapter that follows. In Chapter 5, the project formulates a research **methodology** for analyzing and researching further on the changes that are happening to this sacred landscape. The methodology is phased in 4 sections as shown below which streamlines the focus of the project.

Varanasi as a Sacredscape

Varanasi - A cultural resource

Changing Varanasi

REimagining the Cultural Landscape

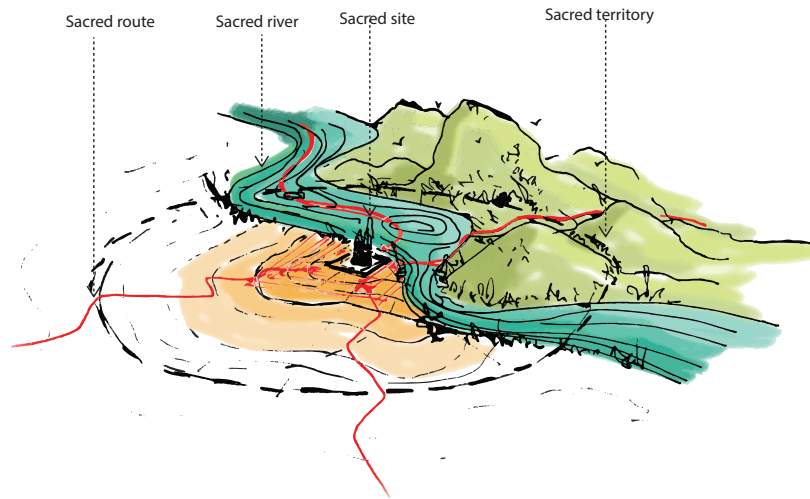
Through chapter 6, the project analyses in detail the changing conditions in Varanasi. Using methods of mapping, literature studies, case studies, literature reviews and fieldwork, the chapter follows the analytical framework that guides in finding answers to the research question. The **analysis** chapter looks into the best practices around the world to understand the favourable outcomes and strategies. The analysis on Varanasi is divided into two parts where the first part study on the practical applicability of culture as an approach. The socio-spatial analysis of Varanasi looking at the changes to the three variants, land, water and religion forms the second part of the analysis. The outcomes lead to SWOT mapping and then to TOWS matrix which forms the base for forming the vision of Varanasi.

Chapter 7 presents the **vision** for Varanasi where the 4 main strategies are introduced along with the projects derived from the TOWS matrix. The vision chapter visualizes the cultural map of Varanasi. Projects in various strategies and policies that need to be adapted are explained in detail in the later sections. Chapter 8 adapts the vision to **regional design** where the pilgrimage path is transformed into a cultural corridor for Varanasi region. Chapter 9 forms the **strategic framework** for Varanasi city following the 4 strategies derived from the vision. The framework comprises of strategic design, stakeholder engagement and phasing of the projects.

Further on, chapter 10 details these strategies in 2 locations chosen near the Varuna and Assi river to test the design. The design scales down from city to a strategic location, which is again scaled-down as strategic zoom-ins, where the holistic layered approach in the vision is explained. Events and phasing of projects are explained in chapter 11 where specific engagement strategies are proposed to trigger the development process. Chapter 12 is about conclusions, where the focus is laid on transferring this research approach to other sacredscapes. Reflections on the project process and ethical considerations are also explained. The contributions of the project into science and society is also reflected in this chapter.

‘Changing **Sacredscapes**’

Culture as a vector for enhancing **socio-ecological** systems of **Varanasi**



‘**Sacredscapes**’ are one of the representations of lived Earth, that features reflecting the embodied human and his/her wholes (eg. Cultural landscapes) and to be in between the environment and space as an indissoluble process (Singh, 2011). Each of these sacredscapes, according to Hindu mythology is related to specific gods and to specific events as described in the scriptures. But the idea is that these are living landscapes that have the power to bridge the humans with god in a sacred setting. To understand the basic spatial concept of a sacredscape, the sketch above explains it abstractly. The focus of a sacredscape will have a deity which is normally a temple which is believed to have the power to connect to the sacred territory as defined by the religion. The water body which flows through this sacred territory is considered holy and completes the sacredness to this landscape. Taking baths in this holy water is considered to be religiously auspicious. Over the years, people have settled in these landscapes by understanding this sacred relationship.

Social-ecological systems are complex, integrated systems in which humans are part of nature (Berkes & Folke 1998). There exist a reciprocal relationship between humans and nature in which human actions affect the ecosystems and the resulting state of ecosystem affect further actions of humans on the nature. According to Chrisna, socio-ecological systems in cities should be considered as complex adaptive systems that are integrated across spheres of matter, life and human social and cultural phenomena (Du Plessis, 2008). Understanding this system will help in sustainable construction of a city which allows novelty and expression of identity across time and space.



Fig 1.1: Lithograph of Kupuldhara Tulao, Varanasi by Prinsep in 1834
Source: oldindianphotos.in

Varanasi (Banaras/Kashi) has a unique identity as the most sacred city for Hindus (Hindu religion). The holy city with Kashi at its sacred center has been the land of mythology and earliest civilization. A recent analysis of phosphates in the soils of Varanasi suggests an age of 2800 years, which makes it one of the most ancient and continuously occupied cities of the world (Singh et al, 2005). The symbolic expression of place and its relationship with nature makes the pilgrims absorb its life-ways and spirit that the people become impartial part of its landscape and culture (Singh, 2014). The uniqueness of a sacred place is the special aspect of Varanasi where the spirit of the place and the valuation of the human environment are deeply rooted and maintained by means of sacred ways which are reflected in layers and varieties of religious practices and spatial use. The quality of the sacred city is defined by the human context that has shaped the city through beliefs, memories, experiences and expectations (Singh, 2014).

2

Problem Field

Rapid urbanization process with unplanned growth and sprawling of cities has become a paradigm to all the major cities in India. This process has not left out sacred cities as these cities have become economic and commercial centres over time as religion took a major role in shifting this identity into religious tourism and contemporary religious practices which has provided the cities great economic boom. This chapter gives an overview of pressure that these sacred landscapes are undergoing.

- 2.1. Urbanizing India
- 2.2. Defiling the Sacred
- 2.3. Conflicting Realities

2.1 Urbanizing India

The hallmark of Indian society has been the differences created by religion, caste, culture, language and region over long and complex historical process over years (Xaxa 2008). It was a nation in which practices like child marriage, sati, dowry fitted well amongst the society until a colonial period. 15th of August 1947 was not only a success story of freedom from the British, but it came with bigger challenges for an Independent India. Poverty, inequalities, racism, communal atrocities, religious violence etc were few of the top listings. But the nation has thrived over the years and has positioned itself as a developing nation in the world map after 73 years of Independence. Indian society has been successful in eradicating social evil and has taken a path towards urbanization within the global scenario. But this process in India has grown way too far that urban development has slowly engulfed the culture of this nation in many cities.

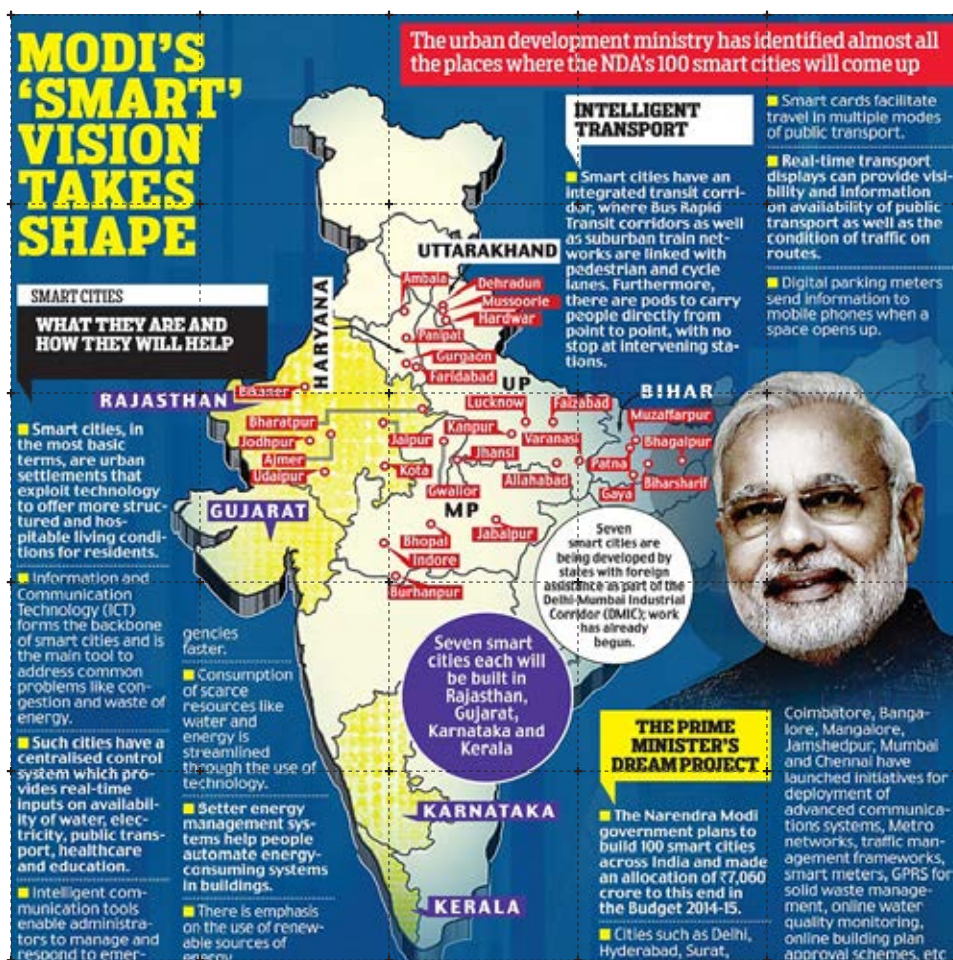


Fig 2.1: Poster showing showcasing smart city projects of Government of India. The newly selected cities include Varanasi, Gaya, Allahabad and Haridwar which are sacred cities and occupies a stronger position in the cultural map of India.
Source : dailymail.co.uk/ Kumar Vikram

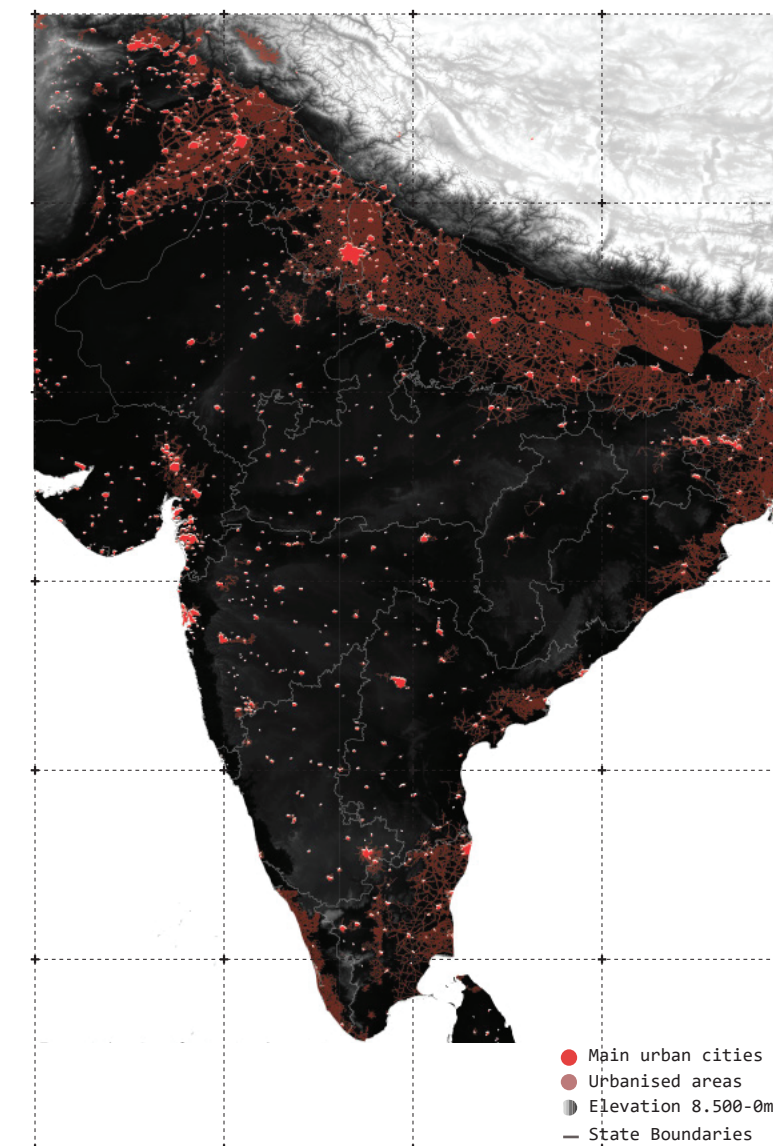


Fig 2.2: Map showing the network of urbanization growth happening in India where agglomeration of major cities is leading to urban sprawls.
Source: Maharaaj, 2016

The urbanization process has created slums, polluted rivers, densely polluted air in cities where living qualities have dropped so low that cities like Delhi and Mumbai will need immediate solutions for keeping the millions of population health. The migration of rural population to the urban cities has led the population growth of all the major cities in India to grow drastically over the past few decades. Uncontrolled urban sprawling and slum population is draining the resources of the city to its core. Proposals by the Government for the development and creating smart cities are failing to understand the basic issues of the city. Lack of coordination between different levels of government bodies and underlying political agendas has been creating blockages for sustainable development. This growing condition of unplanned urbanization has hit the cultural and religious cities also by creating stress on the fragile ecosystems and cultural societies of these cities that have been existing in balance for centuries.

2.2 Defiling the Sacred

80% of Indian population are Hindus

The secular nature of India has remained intact over the years with scattered and minimal conflicts compared to its population and diversity. Hinduism has remained as the major religion with sources dating to a 4000-year-old history. Hindu religion can be debated as henotheistic, polytheistic and monotheistic referring to different concepts from Hindu mythology. The content of Hinduism has also been age to age and from the various communities (Radhakrishnan, 1926). But the practical fact remains that Hindus worship all forms of nature from trees to cows to stones as the sacred text Bhagavath Geetha says that God is existent in all forms of matter. Beyond the spectrum of religion, Hinduism is seen as 'a way of living'. People have been practising Hinduism in their everyday life which was a part of a culture that worshipped nature as a supreme creation of God. In sacred lands of India, different regions have been mentioned in Hindu scriptures of importance that are closely related to various Gods with numerous versions of stories associated with it.

reincarnation- the soul is immortal but takes on the form of many bodies until they achieve enlightenment(moksha)

Hindu religious practices are known for its ability to evolve amongst the changes that have been happening around it. It has always been a dynamic and expressive religion which involved immense community participation. But what happens to these sacredscapes when thousands of people flow in every day due to its religious identity and the city struggles to meet the basic infrastructure needs even though the Government ambitiously looks at a smart urban development of this sacred land. Does that even sound a little weird and scary? Now, these have been the changing paradigm shift in these sacred cities which have been urbanizing for the past decade where the religious imprint on the city has been defiled by economic development and urbanization process. Hindus beliefs on reincarnation and prosperity by visiting these sacred locations have led to massive pollutions of water that they are in a vulnerable state for animals and humans. Hinduism, preached about tolerance and protecting nature is leading a paradigm where religious activities have become one of the major causes of pollution.



Fig 2.3: Kumbh Mela gathering by the banks of river Ganga
Image Source: (thehinduportal.com)

The image above is from the Hindu festival known as KUMBH MELA, which attracted 50 million people at Allahabad in India. The Kumbh Mela celebrations are also popular in other locations such as Ujjain, Varanasi, Haridwar and Nasik where pilgrims gather to take a religious dip in the Holy river Ganga. The significance of sacredscapes to Hinduism can be deciphered by referring to pictures of the Kumbh Mela festival.

2.3 Conflicting realities



Fig 2.4: Severely drought affected areas in the country during the years 2014-17. Source:(selflearn.co)

Motivation for the Graduation research

The water crisis in India has been severe in recent years. Rural India struggles with water scarcity during the hot months as accessibility to water sources is difficult due to poor infrastructure. The growing population in urban areas have also created stress on the water resources of the cities and is one of the major concerns for any government. Having said about this context, it is heartbreaking to see religious activities creating pollution on perennial rivers like Ganga, Yamuna etc. The religious scriptures and ideologies have attempted to promote ideas of preserving the nature but in the efforts of adding glamour, the modern religious festivals and activities have left behind the true spirit of Hinduism eventually stressing the natural ecosystem. Idol immersion, human bathing, cremations etc are some of those religious activities performed in rivers which have transformed the water bodies into polluted rivers that are way beyond drinking standards. Although these are not only the reasons for the pollution of these rivers, the contribution cannot be neglected. The Hindu way of living respects nature and the traditional concepts believe the existence of deep synergy between humans and nature. The motivation for this project derives from these conflicting realities where a positive impact by religion could make in the sustainable development of these sacredscapes.



Fig 2.4 (above): Image of a girl collecting water from a drained well during the drought season in India. Source(mediaindia.eu)
Fig 2.5 (below): Polluted river with idols of God Ganesh in rivers after Ganesh Chaturthi festival in India. Source(hindutimes.com/rajkrj)



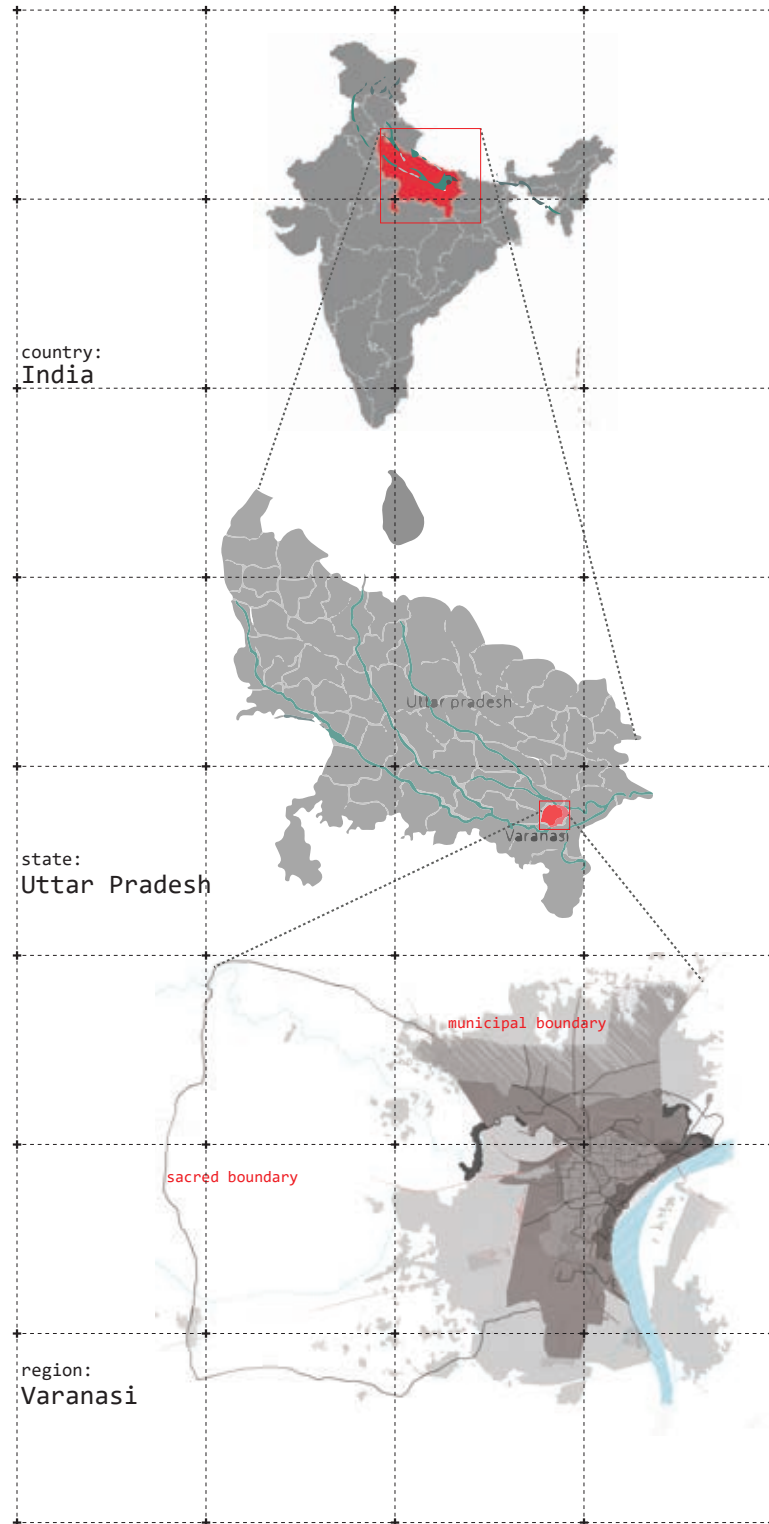
3

Problem Focus

This chapter gives an overview of the context of Varanasi, the elements of a sacred landscape and the changes happening to it due to the urbanization process. The chapter studies the changes in accordance to 3 variants of this research project; Religion, Land and Water. The chapter concludes with problem focus and research questions.

- 3.1. Context: Varanasi
- 3.2. Changing Impressions
- 3.3. Religion Vs Urbanization
- 3.4. Land Vs Urbanization
- 3.5. Water Vs Urbanization
- 3.6. Problem Focus and Research Qns.

3.1 Context: Varanasi



Varanasi, located on the banks of the holy river of Hindus, the Ganga at a distance of 800km from New Delhi sits as the cultural capital of India. A city that has is said to have been inhabited for more than seven thousand years where culture, education and religion were the backbones of this sacred city.

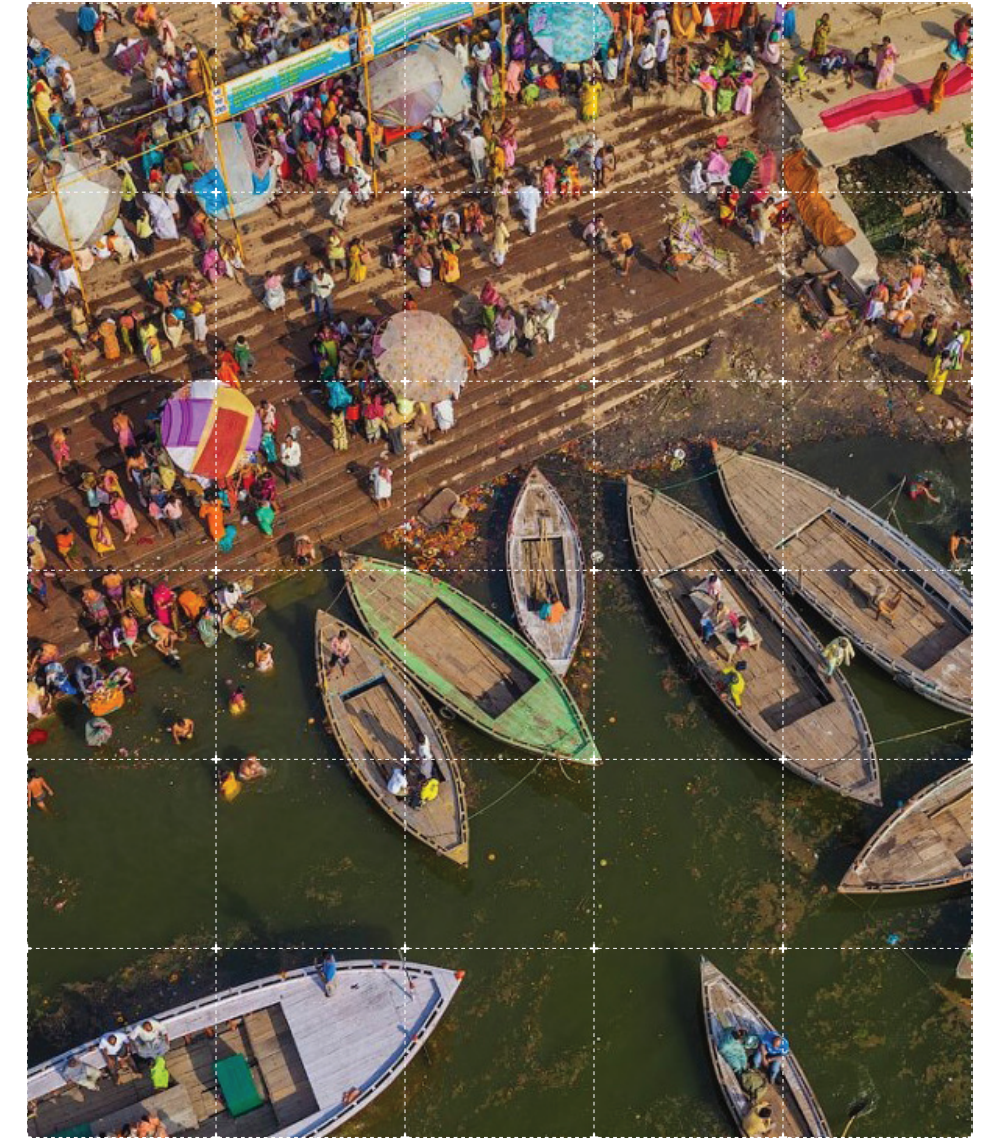


Fig 3.1: Top view of Ghats along River Ganga
Source: airpano.com

Varanasi has been the spiritual hub of sacredness over centuries and now it's a rapidly growing urban city with enormous pressure on its infrastructure. Once a holy city, located between the Assi river and Varuna river is facing all problems like any other Indian urban city, in fact even more. The city had inherited a strong relationship with nature and humans where traditional water management system and religious ethics on ecology had kept the socio-ecological systems intact over centuries. Rapid urbanization which is resulting in urban sprawl and slums, neglecting kunds (ponds), mass deforestation, development focused on Ghats (riverfront), pollution and growing industries have completely changed the identity of the sacred city. Varanasi has now become a large city with a population of more than 1.5 million people and millions of pilgrims and tourists visiting annually. The city has now become a complex web of old and new, stability and change, industry and agriculture, business and spirituality (Singh,2018).



Fig 3.2: Map showing the sacred and temple cities in India. The cities shown in white highlight the Saptapuri cities in Hindu mythology. Source: Author

India is a nation that has deep rooted history relating to religion and mythology. All around the country, there are temples that are centuries old and have associated old fashioned and interesting festivals and rituals related to it. Out of these sacred cities, pilgrimage (tirthas) through the ‘Sapta puri’ is considered highly auspicious. The Sapta puri sacred sites are Varanasi, Dwarka, Ujjain, Kanchipuram, Haridwar, Ayodhya and Madhura. These sacred sites are places where the Hindu Gods have taken births and have descended to the earth as incarnations (avatars). These sacred cities have impressions that are highly unique and attracts all camera lenses to capture every part of the city. The sacred impressions of these cities are world famous that people admire to become a part of this spiritual setting where nature and its elements are worshiped as God.

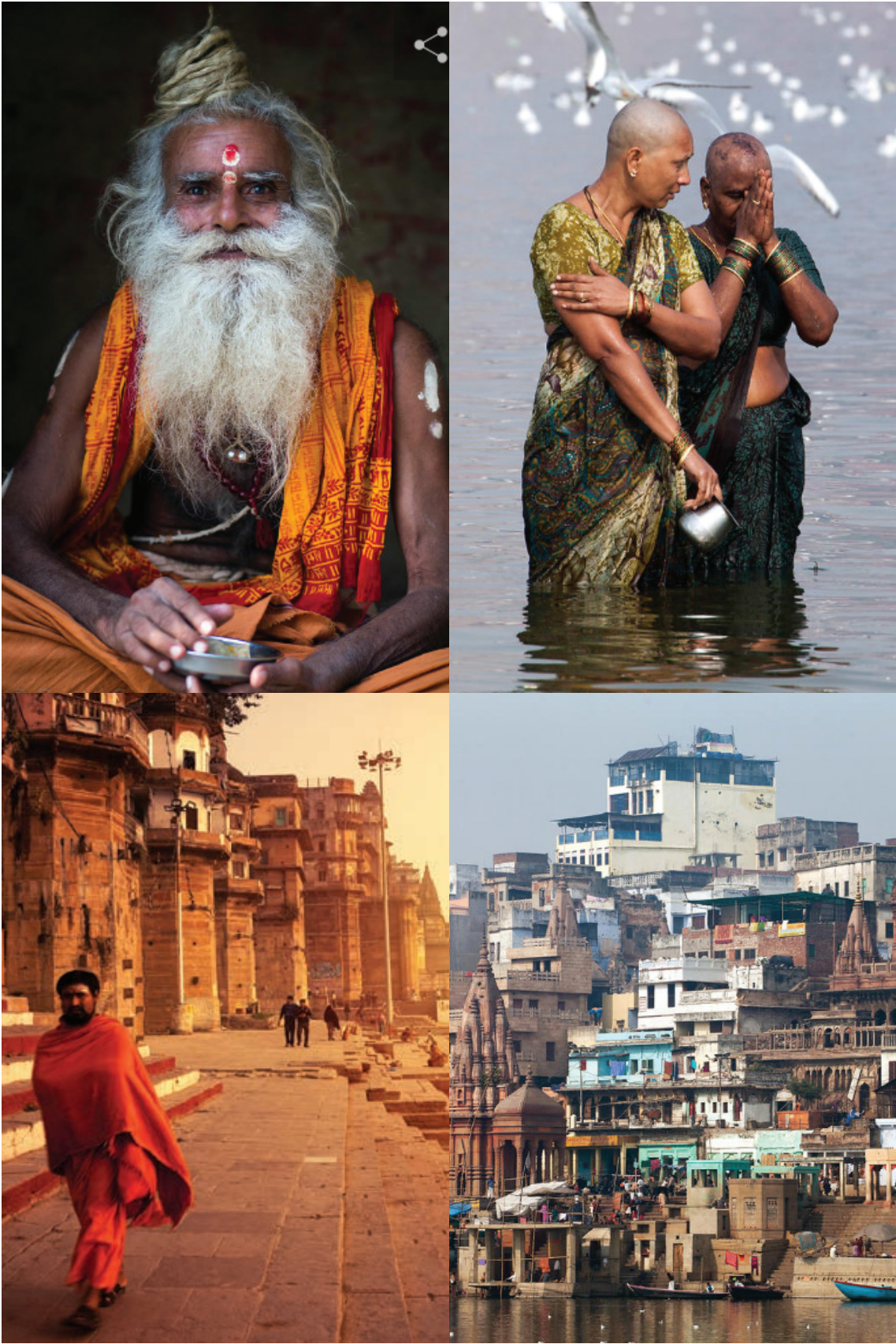


Fig 3.3 (Top left): Portrait of a Sadhu or holy man, Varanasi
Source: brettcolephotography.com

Fig 3.4 (Top right): Two Hindu women with shaved heads bathe in the Ganges River as part of a religious ritual
Source: brettcolephotography.com

Fig 3.5 (Bottom Left): Hindu Monk walking through the Ghats
Source: travelandleisureindia.in

Fig 3.6 (Bottom Right): Manikarnika Ghat
Source: brettcolephotography.com

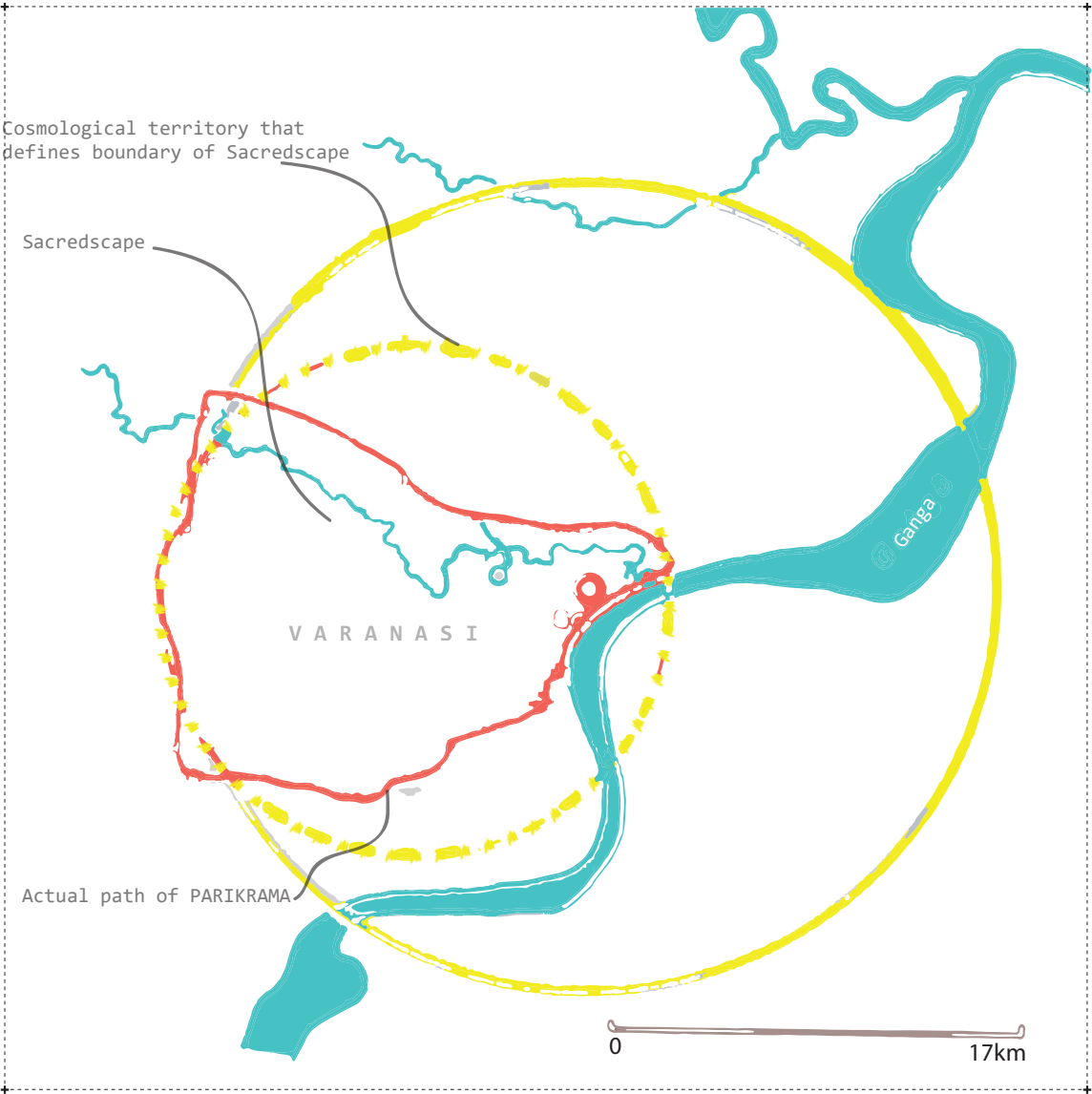


Fig 3.7: Diagram showing the relationship between land, water and religion that defines the meaning of a sacredscape
Source: Author adapted from Singh,1987.

Sacredsapes are defined as the landscape (nature, built, unbuilt etc) with the moral meaning of religion and mythology forming a layer of imaginary territory around the scape (Singh,1995). The relationships between nature and humans are what is more sacred about any sacredscape. In Hindu mythology, for eg. River Ganga is seen as a goddess who is powerful enough to cleanse your impurities. Hence, the river and its territory are not only spatial, but it has a social identity which is defined by the religion and its beliefs which links it to the humans. Humans inhabited these lands with sacred identities, sometimes defined by nature or shrines or temples or even some auspicious trees. The land use and the lifestyle of people on these lands were defined by the morals and beliefs of these sacred lands. There even existed a strong relationship between adjacent land use and water quality of river Ganga in Varanasi (Sharma, 2016).



Fig 3.8: Woman completing the Panchkrosh parikrama (circumambulation) along the Ghats.
Source: wits end photography/ Jennifer Mishra

Although the landscape provided a religious dimension, the city had spatial connectivity to the nature in which it grew over centuries. The pilgrimage path following the Kashi Mandala with various stops at different sacred places explains the deep understanding of humans over nature. The corpus beliefs about cosmogony, the cycle of life and death, pure and impure, sacred and profane are all linked about nature (land and water) which are still enacted by humans through rituals, activities and pilgrimages (Singh,1995). Through sacred shrines and temples across these landscapes, Hindus believe the living presence of God in Varanasi. The dynamics of nature are seen as the actions of God. This belief is what defines the power of the religion amongst people about nature.

Although religion is an intangible aspect, the Fig 3.7 shows the territorial marking of the path to be followed for the Panchakroshi Parikrama, the pilgrimage that is composed in a landscape connecting the path, water and temples with the pilgrims. This relationship between nature and God defined by the religious beliefs formulated a socio-ecological balance in Varanasi over these years. According to Knott, the religion has its spatial attributes which define the dimensions, aspects and dynamics of space (Knott, 2011). Any development without understanding these attributes will cause impacts on this sensitive landscape harming the socio-ecological systems. A resilient approach with a proper understanding of the interrelationships of the land, water and religion can only help in keeping the spatial attributes if this unique landscape.

3.2 Changing Impressions



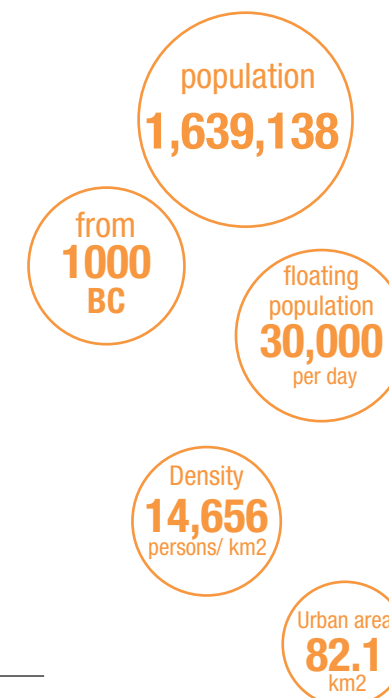
Source: airpano.com



Fig 3.9: Collage of news from different websites showcasing the hazardous pollution in Varanasi

The loss of a distinct culture means a loss of 'place identity' as well as 'people identity'. Urban sprawls, less livable urban patterns and loss of green-blue structure are all results of unsustainable and unprepared urbanization (Cohen,2009).

Varanasi, the sacredscape has now become one of the most polluted city in the country housing almost a quarter of its population in slums (Census,2011). The intact socio-ecological system has been put to risk with more layers of conflicting scenarios piling over this less resilient sacred city. The implications have grown beyond the city limits that Varanasi is now looked upon as a major contributor to river pollution and climate change in India.



Varanasi City Figures
Source: Census,2011

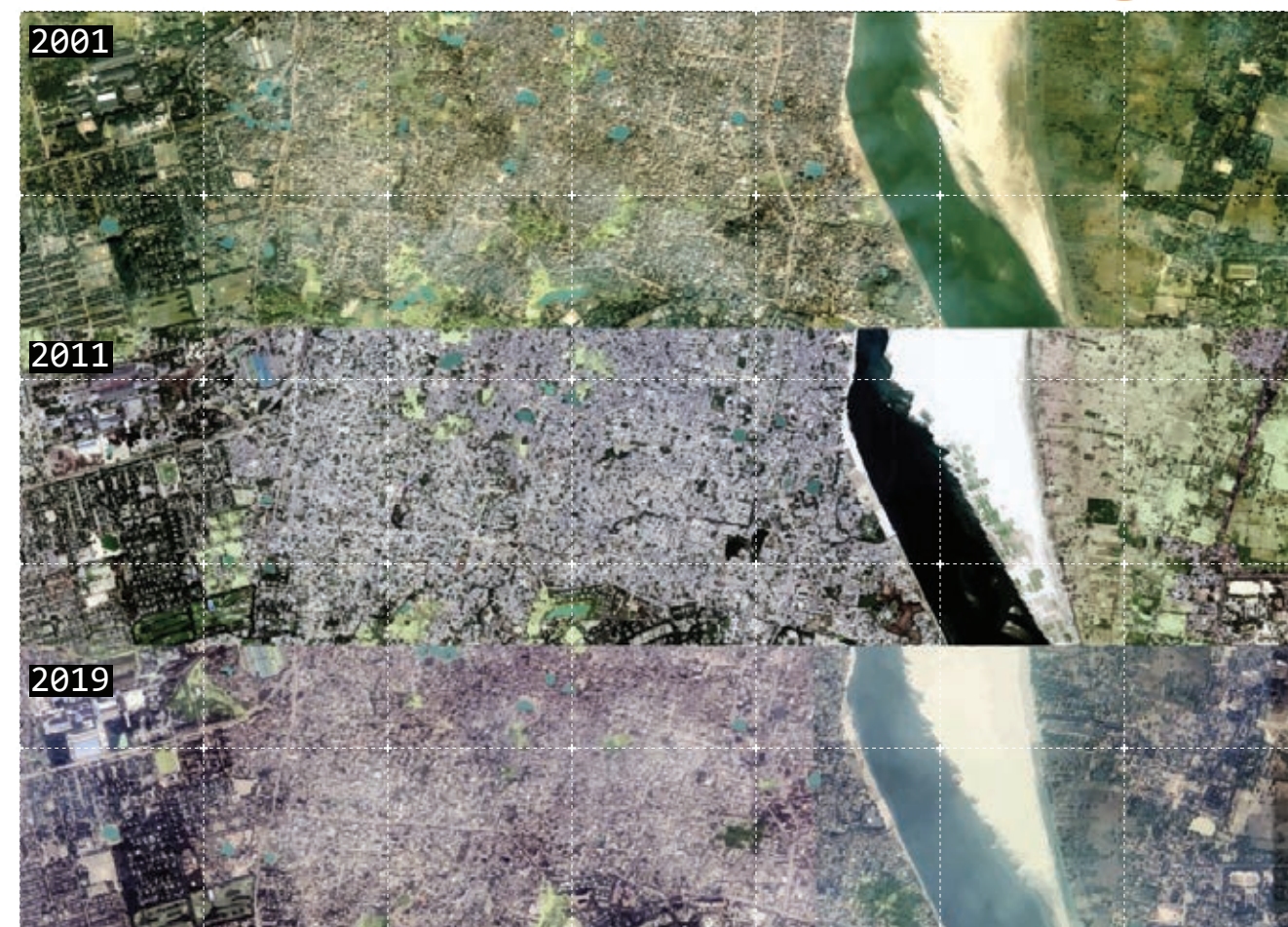


Fig 3.10: Google earth maps showing the growth of city in 20 years. The agglomeration of nearby villages and growing population in Varanasi has led to urban sprawling. The image of 2011 also shows the colour of River Ganga that was seen as brackish brown due to increased waste effluents into the river
Source: Google earth

VARANASI
411 MLD
9607 BOD LOAD (kg/day)
 NAGWA DRAIN
 VARUNA DRAIN
 RAMNAGAR DRAIN

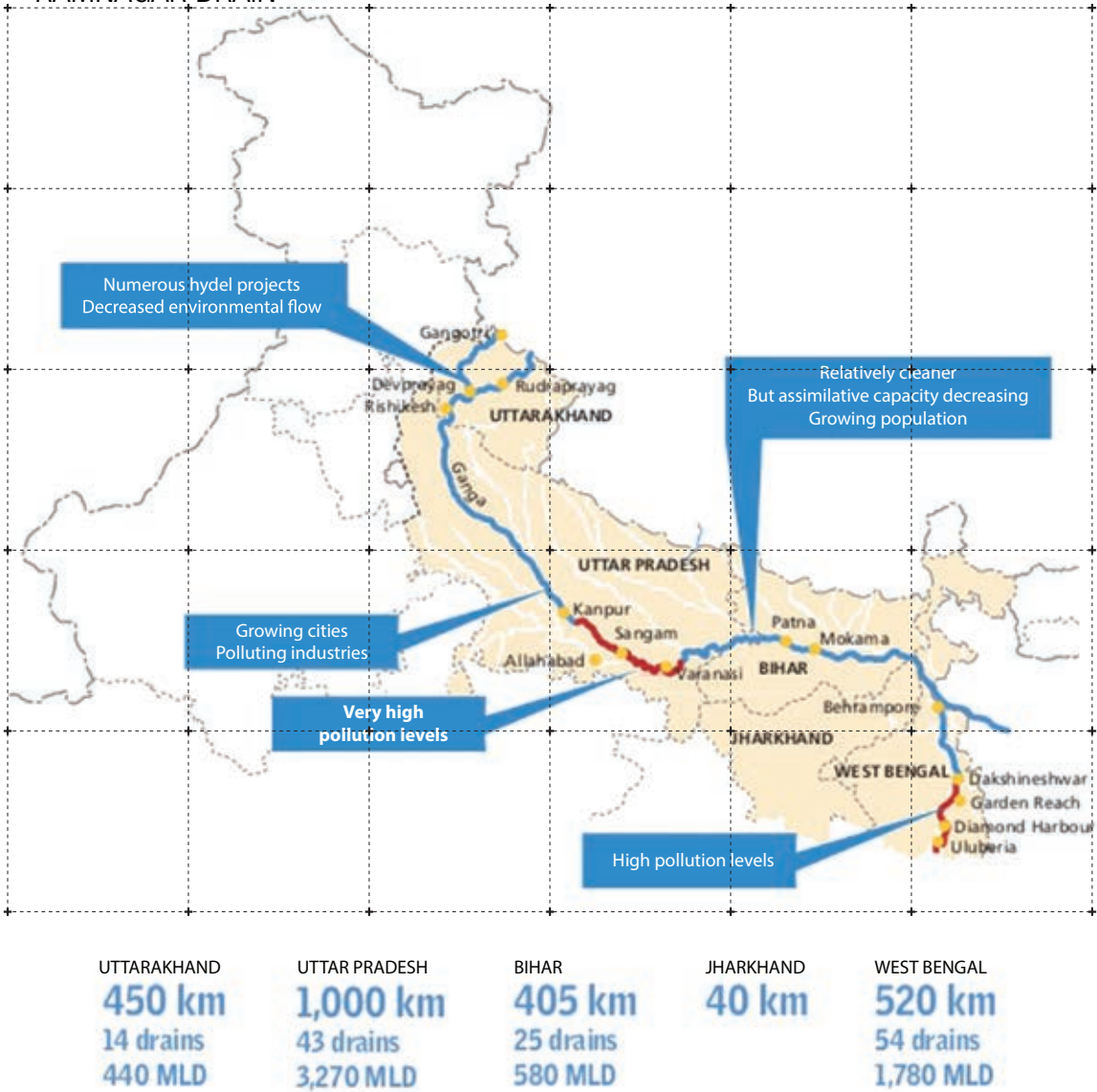


Fig 3.11: Map released by CPCB showing the pollution levels on river Ganga during its flow through important cities.
 Source: Central Pollution Control Board

Water pollution has reached at the severe dangerous levels in River Ganga where effluent from industries, sewage from cities, solid waste, and dead bodies are directly dumped to Ganga. In the complete trajectory path of Ganga, Varanasi contribution to pollution has been severe. The major reasons are due to inefficient sewer systems with increased population and mass religious activities that even involves burning of bodies by the banks of the river. Although numerous schemes and policies worth millions have been allocated by the changing government over the past two decades, not much of progress has been made in the condition of the river.



Fig 3.12(Top left): A boy picking up scrap from polluted Ganga
 Source: asianews.it

Fig 3.13(Top right): Waste accumulated by along the banks of Ganges
 Source: brettcolephotography.com

Fig 3.14(Bottom Left): Burning of human dead bodies at Manikarnika Ghat
 Source: indiaclimatedialogue.net/ Oliver Laumann

Fig 3.15(Bottom Right): Flesh eating turtle dead by the river banks of Ganga
 Source: brettcolephotography.com

3.3 Religion vs Urbanization



Fig 3.16: Image showing the devotees crowding at the Lolark Kund in Bhadani, Varanasi for offering rituals. Tones of clothes and plastic waste is generated as the part of the event. The increasing number of pilgrims is creating huge stress on the existing infrastructure of this old religious city.
Source: photography.sarahhickson.com/ Sarah Hickson

Religions in India have given a cultural identity over many years. This has driven many tourists over various sacred locations in India. But sadly, this has also been used as a platform for economic and political exploitation of sacred cities, and this quality of culture has become a shield for excluding minorities and neglecting sustainable development (Lazzaretti, 2015). The politicization of religion should be taken seriously into consideration during the urban planning process. Religious experts and organizations should be part of the planning process to understand and prevent the changes that can disturb the sacredness of these cities.

Religion has an overarching power to attract millions of people over the years as pilgrims. The political parties and the religious associations are exploiting this leverage for economic stability and misusing religion as a powerful political institution. The ethical understanding of how nature was the prime provider for this spatial exploitation is forgotten and human relationships with nature are being damaged.

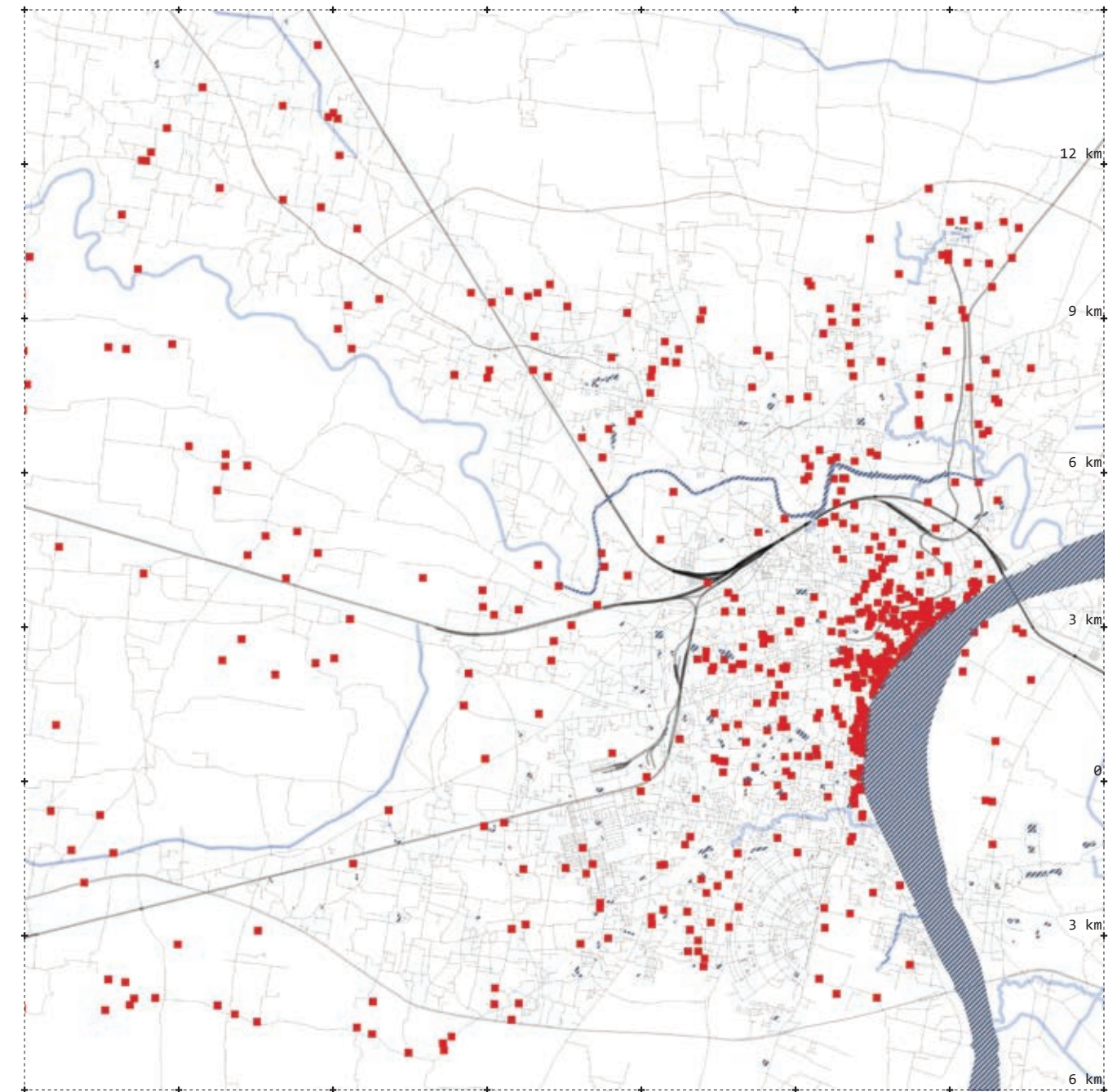


Fig 3.17: Map showing the distribution of temples in Varanasi region. Huge stress on the river front with numerous temples and floating population. The sprawling of city is also associated with new temples being constructed in the semi urban areas.
Data Source: Google earth & Singh,2017 / Map : (Author)

Urbanization using the identity of Varanasi as an attractive city for people from neighbouring towns and villages has increased the population over the years. The amount of people involving in religious practices and rituals has also increased enormously. This floating population is heavily contributing to the pollution and congestion in the city. Contemporary religious practices and religious tourism with increased infrastructure has created huge stress on the city and neighbouring small towns. There is huge pressure on natural and local resources. Significant changes in scales, frequency and character of these pilgrimages over the past few decades reflect new pressures on the environment even outside the urban limits (Patange et al, 2013).

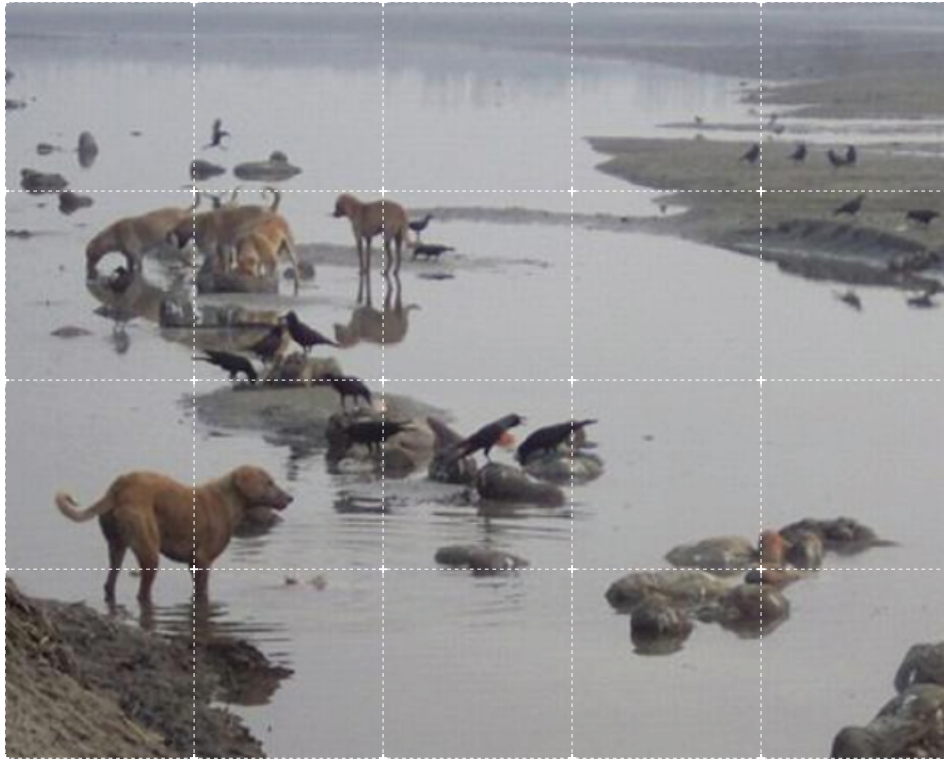


Fig 3.18: Image showing the dead bodies in the Ganges which were given water burials. Source: dailymail.co.uk/gettyimages

Religion could play a major role in protecting the environment. But the truth is, in countries like India, there is no evidence of inherent environmental awareness, possible that the religious practices are ancient and predate concerns about pollution and global warming. Many people in India, depend directly on nature and the beliefs are deep-rooted that it is very difficult to alter the behaviour towards nature to accommodate religious environmentalist goals (Tomalin,2002). Religious-cultural traditions have a very strong connection with nature as elements of nature posses the sacred powers of God. But there is a lack of conscious understanding of protecting this nature on an environmental crisis. People continue to pollute Ganga believing that the river is a Goddess who has the power to making the impure, pure. The understanding of being impure and polluted gives two different dimensions to the people through religion. Hence the power rested in the religious understanding of nature is having much influence on how the socio-ecological systems exist. Conflicting areas near the Vyas Pith where the pilgrims are supposed to pronounce their vows to start rituals has become a conflicting site due to religious societies created by the politics involving Muslims and Hindus. This is a very evident example of the use of religion as a powerful tool to mark a social boundary within a holy land. Although religion in its preaching has tried protecting the sacred groves, trees, river and natural elements to some extent, the modern societies fail to understand the real meaning that abides these principles. Various measures have been carried out in many holy rivers across the country which involves NGO's and other environmentalists, but to have a long-lasting impact on the city contributing to the pollution is far from reach.

Waste generation in
Varanasi
Source: D.Singh,2017



Fig 3.19: Burning of dead bodies at Manikarnika Ghat, Varanasi. Source: jonathan-clark.com

Examining various religious practices that uses nature as a vector for connecting with God practices unsustainable ways that are blinded by profound faith and belief. One of the Hindu religious belief about afterlife is to achieve liberation (moksha) from the life-death cycle. Taking a holy dip River Ganga believed to support in achieving moksha. This has created a lot of stress on the edges of the holy river Ganga. Along with that, cremation of dead bodies at Manikarnika Ghat and Harishchandra Ghat with burning waste and ashes flowing down to the river has worsened the quality of water. These Ghats burn bodies all day long and it is said that around 100 bodies are burned every day.

3.4 Land vs Urbanization

Varanasi has a century-old history of human civilization. The city has been resilient over the years to all major disasters and has kept the cultural identity above all from destruction. But the development process in Varanasi indicates a warning that the city is going through a decay mode in its cultural identity. It is an old city which has dense urban fabric where people have settled over the years forming a strong socio-cultural layer over the city. The aerial images of Varanasi look like a growing organism. This old city fabric has been existing over the natural levee by the banks of river Ganga where different dynasties build the riverfront into what is now popularly known as Ghats. But the riverfront development and the religious importance of river Ganga has created high pressure on the Ghats. Although government initiatives try to keep up the visual appearance of the ghats, there is immense pressure on the infrastructural facilities.

The increasing population of this growing city has also resulted in urban sprawling into the hinterlands of Varanasi. These hinterlands which are mostly agricultural lands and forests are very significant for this sacred landscape. Growth of slums are also indications of low living quality that is prevailing in this sacred city. The land use map for 2031 by the Municipality of Varanasi fails to understand the changing landscape with increasing demand on resources.



Fig 3.20: Image showing the dense urban fabric of Varanasi near the riverfront. The meandering streets of old city that are barely less than 2 m limits the accessibility for other services to reach the dense population. Source: Author

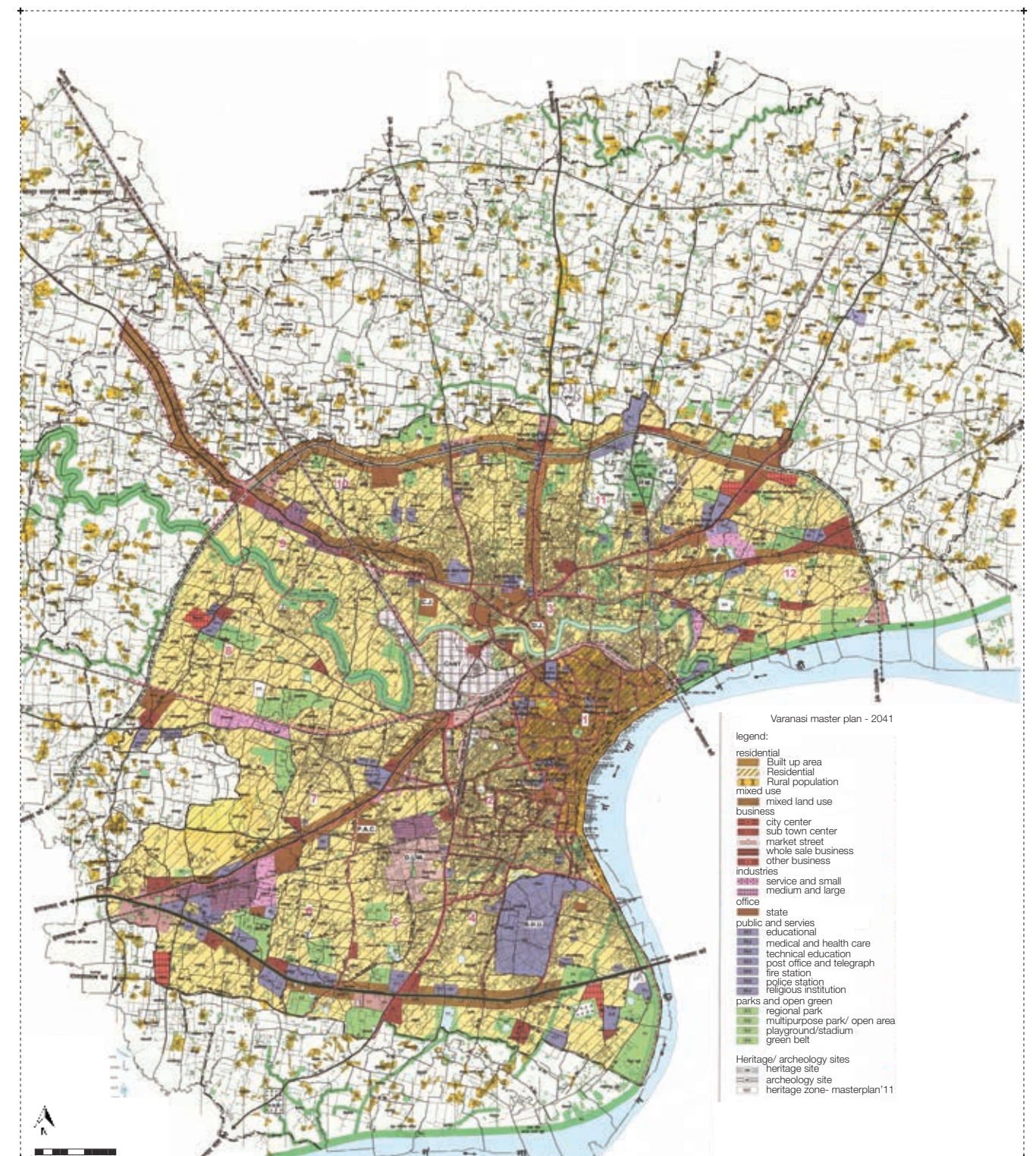


Fig 3.21: Master plan 2041 for Varanasi by Varanasi Development Authority. The lack of clarity in the green-blue structure is one of the primary defects of the master plan. The land-use proposal also silently promotes urban sprawl beyond its boundaries. Source: Varanasi Development Authority

Face lifting initiative of Prime Minister Narendra Modi over the past 7 years has taken up ambitious projects for the city of Varanasi. In the process of converting Varanasi into a smartly developed urban city, proposals and projects have taken shapes that are completely not fitting into the context of a sacred city like Varanasi. Project such Kyoto Initiative where changing Varanasi into Kyoto, a city in Japan due to its similarities of sacred belief and river existence fail to research further into adaptive concepts from the Japanese sacredscape. Proposals for Metro rail project through the dense old city fabric and ropeways project proposal as public transport has looked upon the city as an urbanizing smart city. Varanasi sacredscape posses a cultural heritage in its values and lifestyle than in its tangible elements.



Fig 3.22 (above): 3d model of transformation of Kashi Vishwanath Corridor from existing to the proposed
Fig 3.23 (below): Ariel view of the demolished urban fabric for the Kashi Corridor Project
Source: fortuneindia.com / Narendra Bisht

Kashi to Kyoto: With Yogi at Wheel in UP, Focus on Modi's Varanasi

MORIT DUBEY | 20.04.17

Having been cold-shouldered by the previous Samajwadi Party regime, it is now 'Advantage Varanasi' as the new Bharatiya Janata Party (BJP) government has put Prime Minister Narendra Modi's parliamentary constituency back on the front burner.

Despite concerted efforts by Modi at the Centre, the city – considered one of the oldest in the world – did not see the promised makeover from Kashi to Kyoto because of the "step-motherly" treatment meted out by the Akhilesh Yadav government. But things are changing now that the BJP is in power in the state.

Also Read: UP Election: What Happened to PM Modi's "Kashi to Kyoto" Promise?

Adityanath's Personal Attention

Fig 3.24: An article about the ambitious project of Prime Minister Narendra Modi to convert Varanasi (Kashi) to Kyoto.
Source: thequint.com



Fig 3.25: Map showing metro plan for the city of Varanasi
Source: topyaps.com

Varanasi, the present-day city that settled on the natural levee of the river Ganga had many flow lines, streams and nalas on either side of the natural levee which was the reason for early civilizations. The city also had lots of natural as well as man-made ponds on the leeward side of the levee in the flood plain. But over the years, the urban city developed buildings, roads, networks, infrastructures that hindered and changed the pattern of the natural flow of water (Sharma et al, 2016). Landfilling took over the ponds due to demand on properties and the vegetation cover got buried in urban sprawl. With the growing population, the remaining streams became carriers of city waste into the river Ganga and eventually making Varanasi, the holy city to be one of the major contributors to the pollution.

The increased density of the Ghats along the river has put pressure on the water where the dependency through religion increased. It is estimated that roughly 60,000 people take a dip in the river Ganga every day (Kumar et al, 2012). The auspicious holy dip is followed with people's offering that includes plastic waste, solid waste, clothes etc. which are taken downstream. The traditional drainage system is completely damaged due to overloading above the carrying capacity of the old infrastructure. With an increasing population of the city and 37% of the city population living in slums (Census, 2011), the pressure on these water systems is causing health issues on the people. The increased population with haphazard and unplanned planning strategies for solid waste has caused the waste to be thrown into the rivers and streams making the water hazardous. This has adversely affected the quality of water and the sanitation facilities of the city are unable to cope up with the high rate of unregulated growth. Not only humans but animals are also getting endangered with this polluted state of water as the manganese concentration in the water bodies of Varanasi exceed the safe limit for cattle drinking purpose (Kumari et al, 2015).

Measured sewage flow from
138 drains

Varanasi unsewered
84%

**6,087
MLD**



Fig 3.26: Google earth images of Kakarmatta in Varanasi from 2001 and 2019 where the images shows the depletion of water kunds in the city by the growing fabric. It can be also seen the pressure on the existing water bodies with growing dense fabric around it.
Source: Google earth

Varanasi which derived its name from the land between Varuna river and Assi stream is struggling to maintain their existence in its natural form. The inappropriate planning of sanitation and sewage systems in the city has resulted in enormous waste disposal on the banks of these two water bodies. Assi stream flowing through the heart of the city has been most affected as once a river has now become a wastewater stream (nalah) carrying all the waste of the neighbourhoods it passes ends in River Ganga. The watershed of Assi has an approximate area of 13.5 sq km around it which is densely populated (37.78%), and all the sewage pipes lead to Assi (Srivastava, 2017). Now the alarming factor to all these growing impacts is that these conditions can adversely affect the health conditions of the city. Proper planning and awareness amongst people on these hazardous conditions could improve the river edge of Assi from becoming waste dumping sites.

The ponds and kunds which are related to temples have been now surrounded by thick urban fabric with sewage systems draining into it. The faecal waste due to open defecation and urination mostly from the slums also drains into these water bodies. The studies on the samples of the city ponds show that the water is good for human consumption (Mishra, 2014). It is also evident that the relationship between adjacent land use has severely affected the water quality of the river and streams of Varanasi (Sharma, 2016).



Fig 3.27: Assi nalah which originates within the city flowing as a sewage drain due to inefficient sewage, defecation, urination and solid-waste disposal
Source: Columbia GSAPP,2018

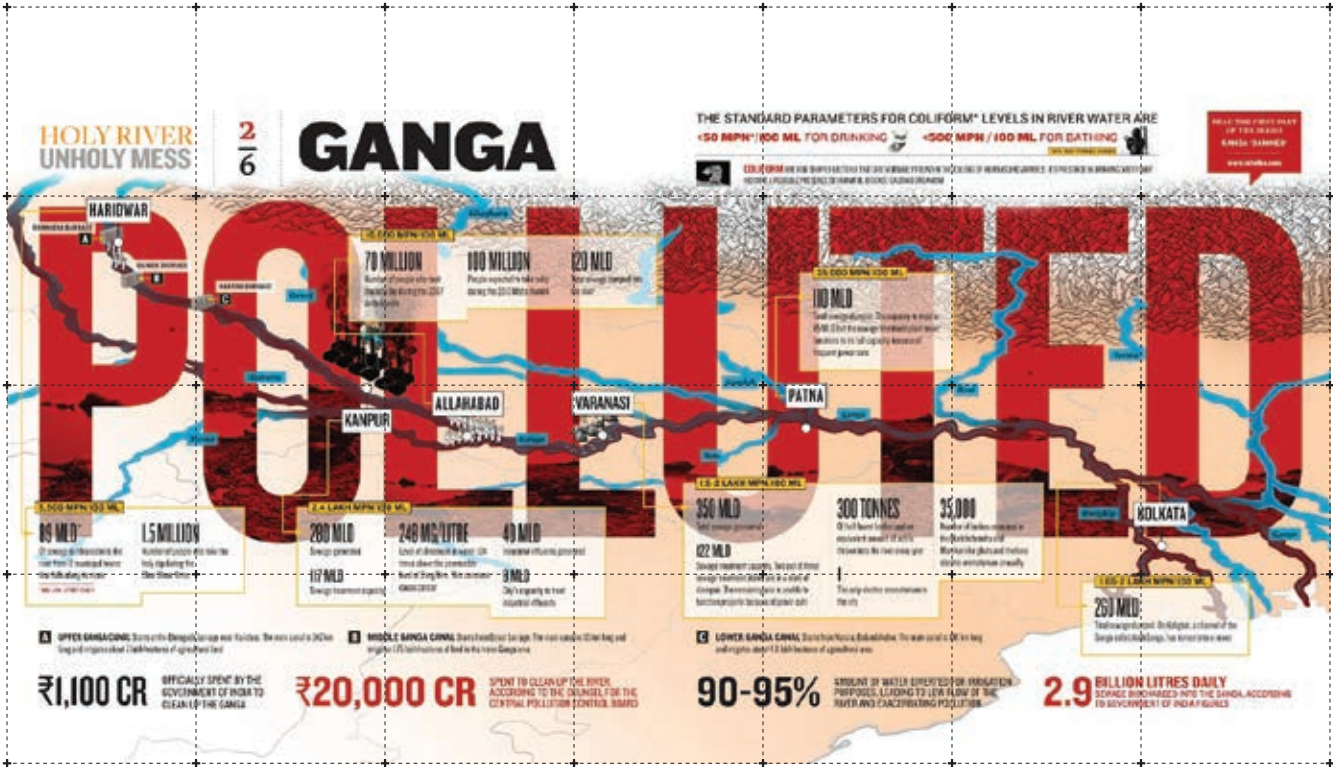


Fig 3.28: Poster on the pollution of Ganga along its course.
Source: toxicswatch.org/ mediavigil

The river Ganga in many parts of its course has not only become non-drinkable but even hazardous for irrigation purposes. With existing issues of pollutants on Varanasi, the government of India is in the process of promoting inland water transport with a multi-modal terminal at Varanasi through the Ganga as well as cruise tourism near Varanasi. The initiatives are looking for promoting tourism which can increase the pollution on river Ganga without proper infrastructural assessment.



Fig 3.29: Alakananda, cruise ship which was inaugurated in 2018 to promote tourism in the river Ganga.
Source: story.flinnt.com

3.6 Problem Focus and Research Questions

After a brief analysis of Varanasi and the changes happening to the city for the 3 variants; land, water and religion, a focus for the problem for this research were concluded as certain considerations that should taken into account while researching as well as designing. These considerations also formed the basis of the research questions for this project.

Problem Focus - Considerations

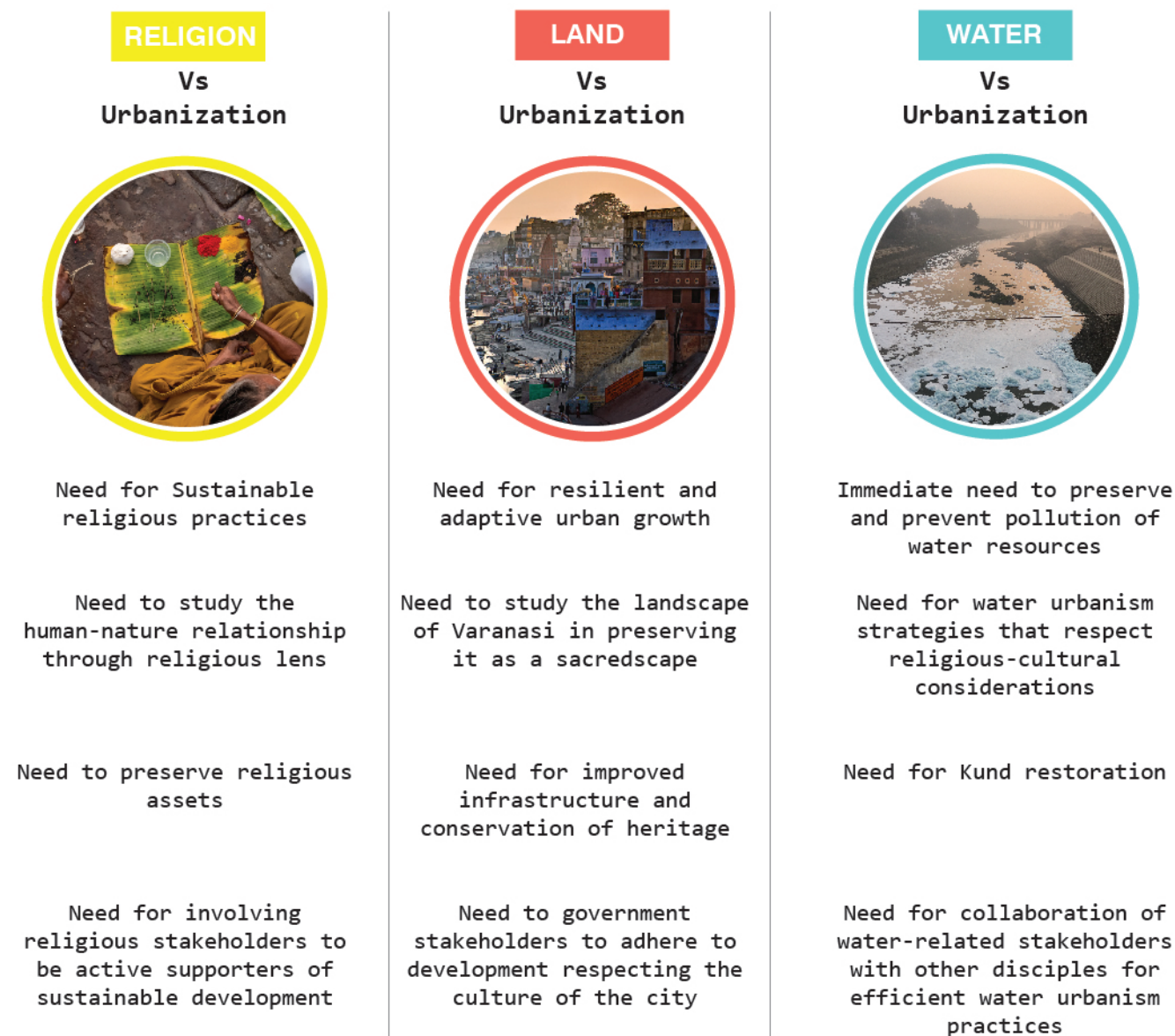


Image Sources (right to left): 01. Author
02. flickr.com/shantideva & 03. mattdadenoch.com

Problem Statement

Varanasi, considered as one of the oldest cities of the country has been undergoing **rapid urbanization** process without reflecting on the existing socio-ecological systems as well as the **identity of the city as a sacredscape**. Urban sprawls, growing slums, polluted water systems, congested urban fabric, air pollution, loss of agricultural lands and loss of environmental concern in **religious activities** is making this holy land amongst the top polluted cities of the world, unhealthy to habitat. The increasing **risks on the socio-ecological systems** of the city due to urbanization and human activities combined with uncertainties of floods and rainfall is threatening living conditions of Varanasi. The government initiatives are concentrated in transferring Varanasi into a smart city and transport hub by the side of river Ganges. The real importance and identity of the city as well as the immediate need for strategies to bring in the balance between nature and humans is forgotten. There is need for a **strategic framework** by understanding the **identity and culture of the city** from its time of evolution to the present and to formulate guidelines, policies and interventions which could **restore the socio-ecological synergies** that the city used to possess as a heritage.

Research Aim

This research project aims to propose a framework which involves **multi-scale strategies to restore the socio-ecological systems of Varanasi**. The research approach for the project aims to uphold the religious and cultural identity of the city while proposing a framework. The project visualizes a multilevel approach involving government policies to local adaptation strategies. The project ambitiously aims to propose policy guidelines for other sacred cities to be adapted into the planning process.

Research Output

The intended output of this research aims at two products. The first product is a strategic spatial framework for Varanasi which includes a vision, set of guidelines and policies and local adaptation design strategies in order to restore the socio-ecological systems of the city. This could be useful for future planning of the city in which the ethical importance of social capital and ecology is to be given prior importance in the planning process. Since the research approach is intended with concepts of multilevel perspective and strategic planning, the project will also look into the possibilities of stakeholder engagement program.

The second product is a guidelines that can be adopted by other sacred cities of the country for regeneration of sacredscape.

How to formulate a **strategic spatial framework** in enhancing the **socio-ecological synergies** to promote a culturally sustainable Varanasi?

key concepts

methods and approach

1. **What** are the socio-ecological systems of a scared city?
What are the relationships between built environment and socio-ecological systems?

socio-ecological
systems
water urbanism

socio-spatial analysis
GIS analysis
fieldwork

2. **What** are the relationships between religion and socio-ecological systems through space and time?
What are the spatial religious considerations to be taken while making the strategic framework?

mythology
evolution & history
cultural conservation

socio-spatial analysis
GIS Mapping

3. **What** are the socio-spatial implications of fluctuating population on the city of Varanasi?
What are the strategies to reduce the impact of these population on the city?

crowd management
temporary vs permanent

socio-spatial analysis
fieldwork
(observations)

4. **What** are the policies and actions undertaken by Government in minimizing the adverse impact on social and physical systems of the city?

role of government
multilevel perspective

institutional analysis
literature review
stakeholder analysis

5. **How** can cultural sustainability be used as a resource for making Varanasi an inclusive and just city?
How can the strategic framework involve religious and cultural actors for enhancing the socio-ecological synergies ?

social inclusion
spatial design

socio-spatial analysis
GIS Mapping
fieldwork
(observations)
fieldwork(questionnaire)

6. **How** can culture as an approach be used for formulating a strategic spatial framework ?
How can the planning process involve the political, religious, economic and social stakeholders achieving a culturally sustainable varanasi?

cultural sustainability
stakeholder
participation

literature review
socio-spatial analysis
GIS Mapping

4

Framework

Understanding the complex systems of a religious city like Varanasi require proper base supported by theoretical knowledge in formulating a framework for analysis. Since the project aims to propose a strategic framework, the importance of an approach is significant in linking the findings of the research to formulating the final product.

- 4.1. Argument
- 4.2. Theoretical Framework
- 4.3. Conceptual Framework
- 4.4. Planning Framework

Source: brettcolephotography.com

4.1 Argument

Varanasi has always been a cultural landmark on the map of India for centuries. The systems and traditions of this city are believed to be even older than written histories of any other Indian city.

Mark Twain has quoted about Varanasi in one of his book 'Following The Equator: A Journey Around the World' that **"Banaras is older than history, older than tradition, older even than legend and looks twice as old as all of them put together"** (Twain, 1897, as cited in Singh. et al, 2020).

People and nature have developed a deep-rooted bond in these sacred landscapes where nature is seen as a representation of God and the natural causes are seen as actions of God. Humans have understood the cycle of natural processes and had developed a synergy with it where religion played an ethical role in worshipping it. The agriculture, crop cycles, stone carving, traditional weaving industry, water irrigation practices and afforestation were all closely connected with the religious beliefs. The flux of flora and fauna also existed with a definite purpose in these sacred landscapes. Migratory birds, annual pilgrimages, harvesting of crops had a natural cycle in which they co-existed without harming each other.

Over the years, this system of interrelationships and interdependencies has taken various perspectives. Understanding this commonalities and differences through the variants and actors with changes that have happened over time as well as spatially will give the complete understanding of the evolution of this sacred land. The analysis is also intended to find the changes that have affected specific sections of society whose underlying principle of existence was the connections with this sacredscape. Hence analysing these changes would mean learning about changes that happen to three variants, land, water and religion would give the picture about the 'culture' of Varanasi. This connection between 'culture' and socio-ecological systems becomes the major argument of this project. Hence, as shown in Fig 4.1, the research aim for enhancing the socio-ecological systems of Varanasi would also mean to make Varanasi culturally sustainable.

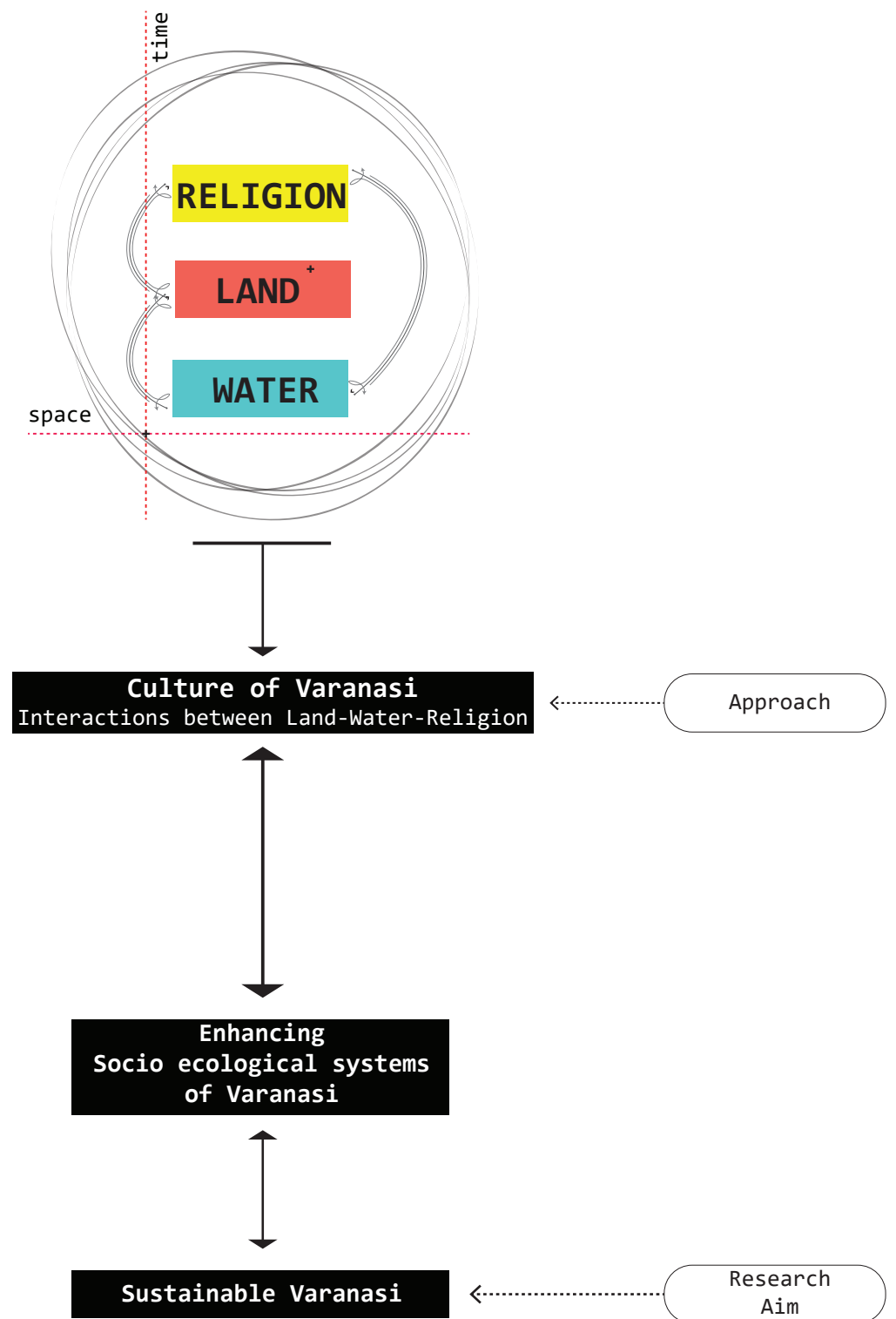


Fig 4.1: Schematic diagram showing the relation between culture and Socio-ecological systems. Different layers of land, water and religion are interlinked to form the culture of Varanasi. Hence, the balance between socio-ecological systems can be enhanced by making Varanasi culturally sustainable (research aim).

4.2 Theoretical Framework

The theoretical study forms the framework for the direction, analysis and approach for this research. Varanasi, as a cultural landscape requires an understanding of its cultural values and evolution of the city before any planning process. Theoretical understanding of culture for sustainability as well as mythological concepts of Hindu religion helps in identifying the constraints that hinder sustainable development of the city. The theoretical study also helps in identifying strategies, mostly socio-ecological that include concepts of ephemeral urbanism. These studies educate with values of reversibility and openness in the design process. Works of literature on the theories relating to sacredscapes and religion helped in formulating the analytical framework of this project. In this chapter, the major theories used in this research project are explained.

1. Cultural Sustainability as an approach (Nadarajah, 2007; Duxbury, 2016)

Within the science of sustainability, the concept of social values is gaining increasing attention. Martin (2006) argued that there is a need for a fundamental shift in values that ensure the transition from a growth-centered society to one which acknowledges biophysical limits and centered on human well being and biodiversity conservation (Ives, 2019). Value of culture should be seen as an agent that characterizes the physical environment (natural or built) as well as the social environment. Cultural sustainability, which is the 4th pillar of sustainability is looked upon as a collective idea as well as a concept which defends the expressions of individual subjectivity, diversity, creativity and freedom of expression. The biggest advocacy of cultural sustainability is that the new should not be built on anything rather it contextualizes the cultural framework that houses it (MTG, 2019). Cultural sustainability is taken as the major approach for the research for enhancing the socio-ecological synergies. The relevance of cultural sustainability is explained through UNESCO Agenda 21 for culture as well as Morley's Triangle (UNESCO, 2016). Morley's triangle with nature, man and economy forming the triangular concepts, explain the existence of a more sustainable rural culture than urban culture (Fig 4.2). This is due to the diagonal relationship of the three concepts. The equation of diagonal strength of the three basic players; nature, man and economy are dominated by economic activities in an urban setting (Nadarajah et al, 2007). Hence the relationship between man and nature can be significant for an equidistant relationship. According to Tiwari, nature is physically as well as psychologically distanced as economic actions get deviated from primary activities and get focused on value addition and creation of surplus wealth. The heterogeneous nature of humans reduces interpersonal relationships and replaces them with institutional relationships (Tiwari, 2007).

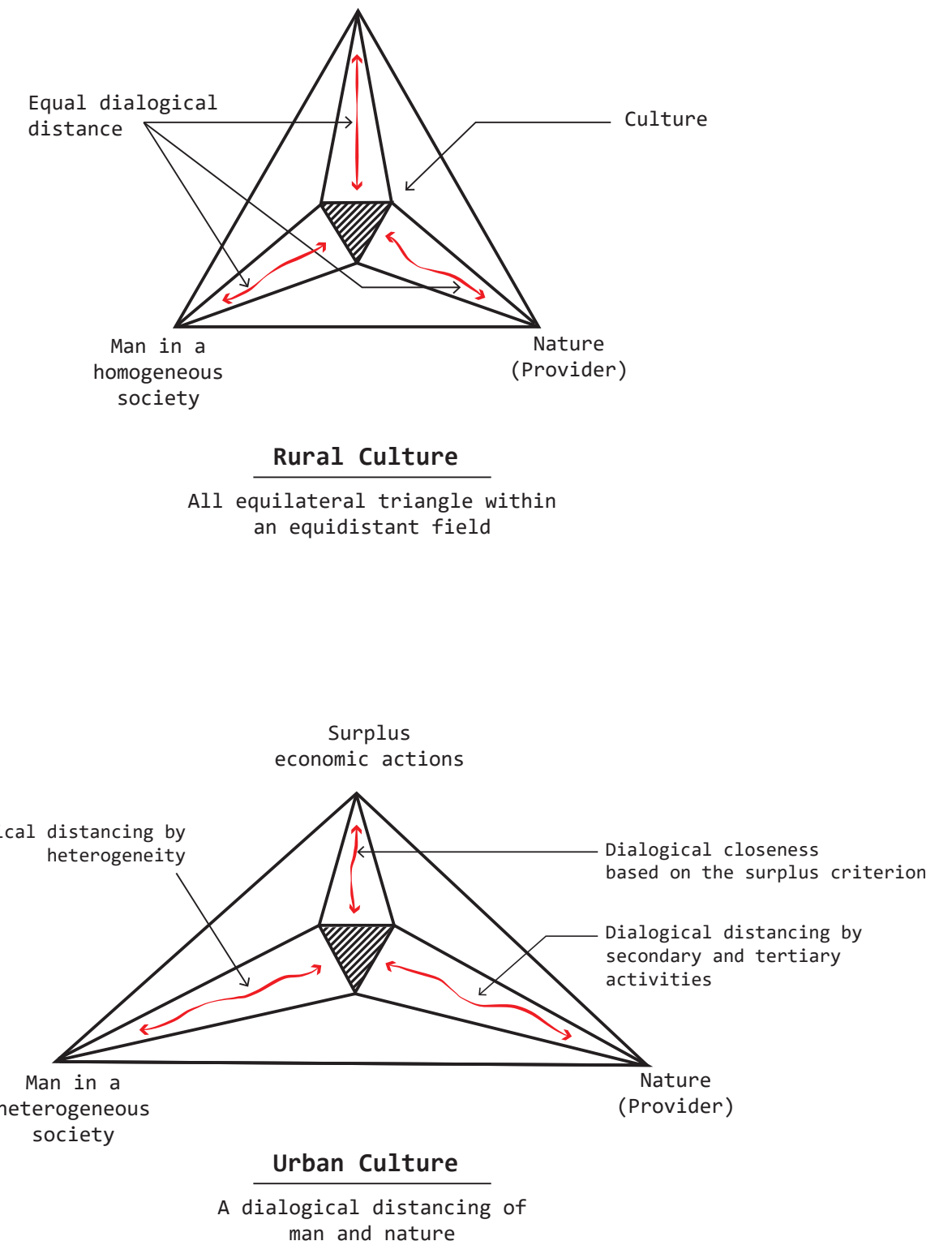


Fig 4.2: Explanation of relationship between humans and nature in urban and rural culture using Morley's Triangle
Source: Tiwari, 2007.

The equilateral triangle (Fig 4.2) explains how traditional urban societies made attempts to moderate the dominant status of economic pursuits and tried increasing the social ties between the many specialized social groups through conscious cultural practices. Culture in traditional urban societies is, therefore, a summary applied knowledge that reflects its composite response to nature, economy, and social relationships (Tiwari,2007). The way cultural processes achieve sustainability is thus through striking a balanced diagonal existence between nature (resources and waste assimilation), economic pursuits (resource capitalization and waste generation), and social relationships (essential ordering of competition for resources and waste disassociation). The validity of this relationship is further explained in the UNESCO's Agenda 21 for a culture where cultural actions and expressions can catalyze environmental reclamation processes and inspire actions to improve environmental health and enhance social connections with ecosystems of local places (Duxbury, 2016).

In providing sustainable cities for the future, the planning requires not an only quality environment which needs the requisites of quality air, water etc., but also an emotional environment for which culture becomes the constituent part. A society that respects life, nature and the built environment is more prepared, conscious, informed, involved, caring and resilient to take on other issues of sustainable development such as social inclusion, economic growth and environmental balance (MTG,2019).

2. Cultural for Sustainable Development

(Dessein et al., 2015); (Soini & Dessein, 2016)

Culture being a complicated phenomenon, it is necessary to focus on the cultural role and approaches relating to the context of the region. Rather than focusing on culture as the fourth pillar of sustainability, which limits the culture as a tool, literature reviews on understanding the role of culture proposes three ways towards sustainable development. The initial concept proposed which is 'Culture in, for and as sustainable development' (Dessein et al., 2015) was peer-reviewed in many publications for linking the complex phenomenon of culture to sustainability. The first representation, *culture in sustainable development* see culture as the fourth pillar of sustainability which is independent and is parallel to economic, environmental and social sustainability. The second representation, *culture for sustainable development* explains how culture takes a mediating role in achieving the other three pillars of sustainability. In the third representation, *culture as sustainability*, culture forms an overarching dimension over the economic, environmental and social sustainability (Soini & Dessein, 2016). For Varanasi, this research adapts the use of 'culture for sustainable development'. The theoretical framework (Fig 4.3) is formulated by connecting this approach with Morley's Triangle (Fig 4.2).

From the understanding of cultural elements in Varanasi, the research places
culture for sustainable development
as the approach in which culture plays a mediating role in linking the other three domains of sustainability.
Through this framework, culture can bridge the balance between man and nature and thereby
culture for restoring the Socio-ecological systems

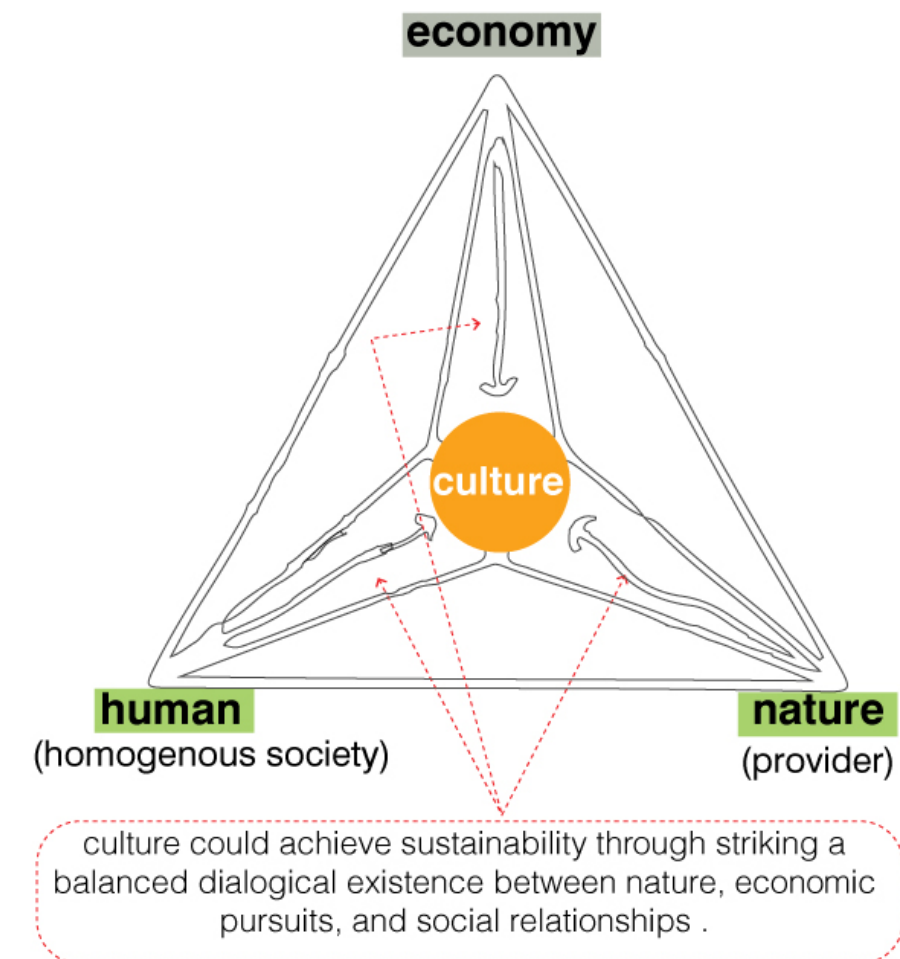


Fig 4.3: Theoretical Framework
Source: Author adapted from Tiwari,2007

3. Religion leaves footprints (Park, 2004)

Religion shapes virtually every sphere of culture and society as one of the most prominent and wide-reaching social institutions (Ives et al, 2019). The diversity in practices and perceptions of different religion across the world is what makes the social and spatial understanding of religion so sensitive and complex. But it is an acceptable idea that religion has its spatial impacts and some of the historical implications of religion define the identity of many global cities. The sacred nature and the sacred orientation of religious institutions have even defined the planning process of many cities. The two sections of spatial implications of religion are one with its distribution on the physical environment and the other due to the movement of people. The religious impacts are not only on the micro-scale but also on the regional scale. The ideologies of prominent religions can even affect the spatial structure of a street. Although the present study can be understood with these 2 dimensions mentioned above, the theory also advocates the importance of understanding the historical context. The ideologies, culture and religious practices over the years has a great contribution which defined the city structure. In the modern world, religion is a significant vector to the human-nature relationship that has changed with the influence of contemporary religious attitude and economic exploitation.

The theoretical study also investigates how a landscape became sacred scape from a known or unknown time and how it is shifting to profane space. According to Eliade (1959) in his book, 'The Sacred and the Profane' explains that the designation of a site as sacred is due to mainly two types of events. Some events (which he calls hierophantic) involve a direct manifestation of a deity on earth, whereas in other (theophanic) events somebody receives a message from the deity and interprets it for others (Eliade, 1959, as cited in Park, 2004). Whichever category it is, the religious expression of sacredscapes varies through space and time and the proofs of diverse cultures existing still in close connection to these sites explain that the notion is deep-rooted and long-lived (Park, 2004). Furthermore, pilgrimages and rituals which are sometimes daily, seasonal, annual or even in 12 years as in the case of Kumbh Mela festival, it leaves long-lasting impressions over the landscape (Fig 4.4).

In developing a spatial methodology to locate religion, Knott derived a framework in which she uses ideas on space, knowledge and power to produce a series of steps in analyzing the location of religion. These include (1) the body as the source of space, (2) dimensions of space, (3) properties of space, (4) aspects of space, and (5) the dynamics of space. Together, these analytical steps facilitate a detailed interrogation of a place, object, body, or group using their spatial attributes (Knott, 2011).



Fig 4.4: Satellite image taken before and after 2001 Maha Kumbh Mela in Allahabad showing the temporary city for 7 million people for 2 months on the flood plains of River Ganga. Source: thepolisblog.org

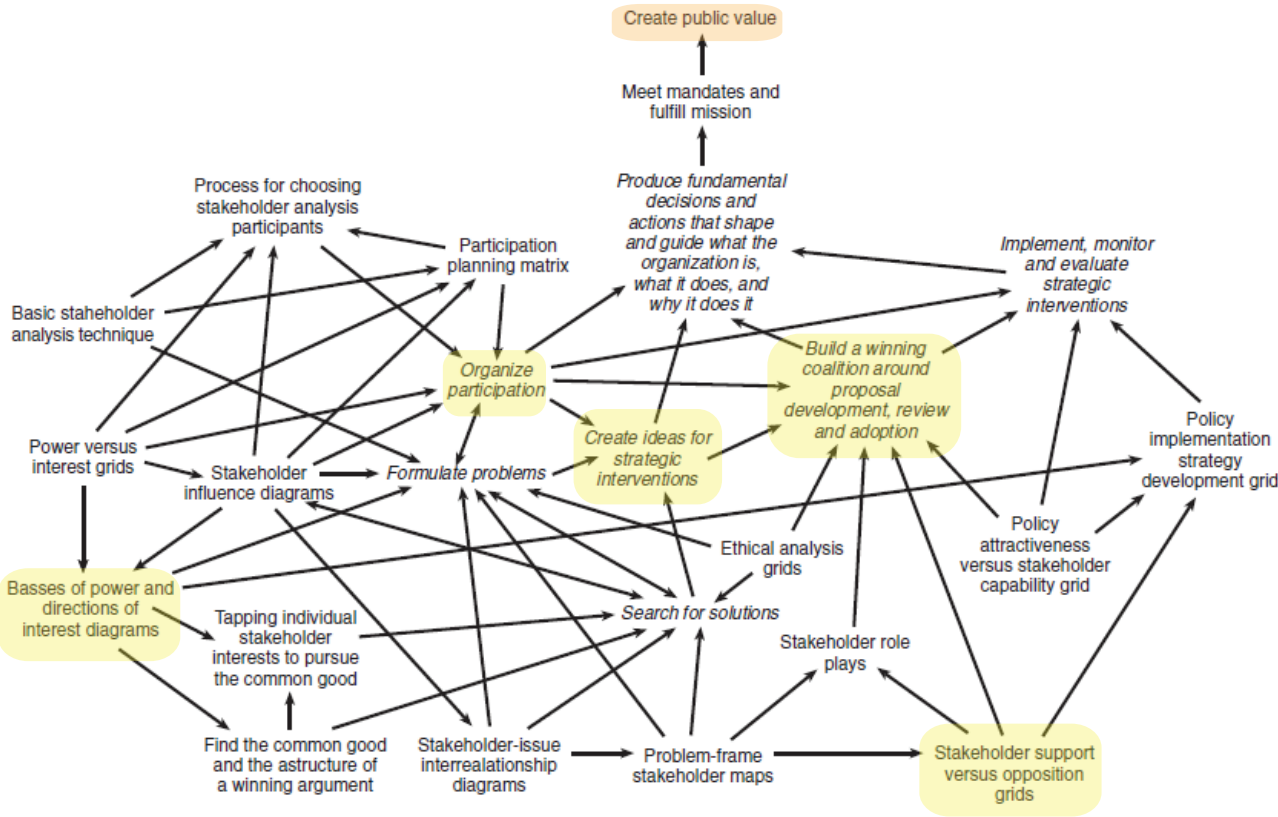
4. Why Permanent? (Mehrotra, 2017)

As culture could be used as a research approach, the study also investigates concepts in which the risks and vulnerabilities could be made adaptable with fewer impacts on nature by human activities. The growing permanent, irreversible and unplanned urbanization has been defined as one of the primary causes for the growing issues in the global south. When city developers are working with permanent solutions for futuristic visions, they lack the perspective of reading the inefficient basic facilities within these cities. Rahul Mehrotra about his study on ephemeral cities around the globe explains the idea of how designers should see urban design as a reversible process. Although the study is based on temporary settlements, the study imparts lessons which can be adapted to cities in the planning process.

Cities which have a high floating or migratory population whose demand keep varying, require strategies and design principles which not only meet the short needs but also looks into the implications on nature for a longer time. The study emphasizes the importance of how human activities and settlements should touch the ground lightly so that people can be prepared when nature reverses the process.

5. Stakeholder engagement (Bryson,2004)

The stakeholder engagement in Varanasi is a complex process as the scales, divisions, objectives and typologies of stakeholders at Varanasi vary in diverse dimensions. To bring in the process of stakeholder participation into one single program, the stakeholder engagement methodology adopts principles from Bryson’s research on ‘What to do when stakeholders matter: stakeholder identification and analysis techniques’ published in 2004. The literature explains what and how stakeholder participation can be effectively carried out.



The diagram above indicates a set of interrelationships based on the idea that the overarching purpose of all public organizations is to create public value (Bryson,2004).

Further on with the engagement process, the literature also explains on various techniques and stakeholder identification process that can be used at various levels starting from formulating problems towards the end process which can be highly useful in strategic management. The paper exposes the complex interactions between formulating problems and searching for solutions, both of it contributing to organizing participation. Various techniques of stakeholder engagement create a platform for stakeholders to realize that there are solutions to co-operation problems before they participate in the engagement (Bryson,2004). Power-Interest Mapping and Supporters-Opposers mapping were used as techniques for grouping stakeholders at a top-level as well as among local stakeholders in the stakeholder program.

Fig 4.5: Theory that underlies most public sector-orientated strategic management Source: Bryson, 2004

6. Scale crossing Brokers and local stakeholders (Ernstson et al, 2010)

The engagement of various actors in different scales and their links with the physical environment where they interact with the blue, green and other complex systems of nature. Scale-crossing brokers are network positions that form the link between the disconnected actor groups who are interactive to the ecosystem in their social practices, by which scale specific and site-specific knowledge and information can be achieved with higher scale stakeholders. The paper investigates Stockholm where it concludes that green networks in the city addressed at meso-scale does not address any actors or practices from civic society from the local ecosystem management who are the crucial actors in upholding the ecosystem services. The paper highlights the importance of involving local stakeholders in the engagement process via scale crossing brokers in the creation of an adaptive ecosystem governance.

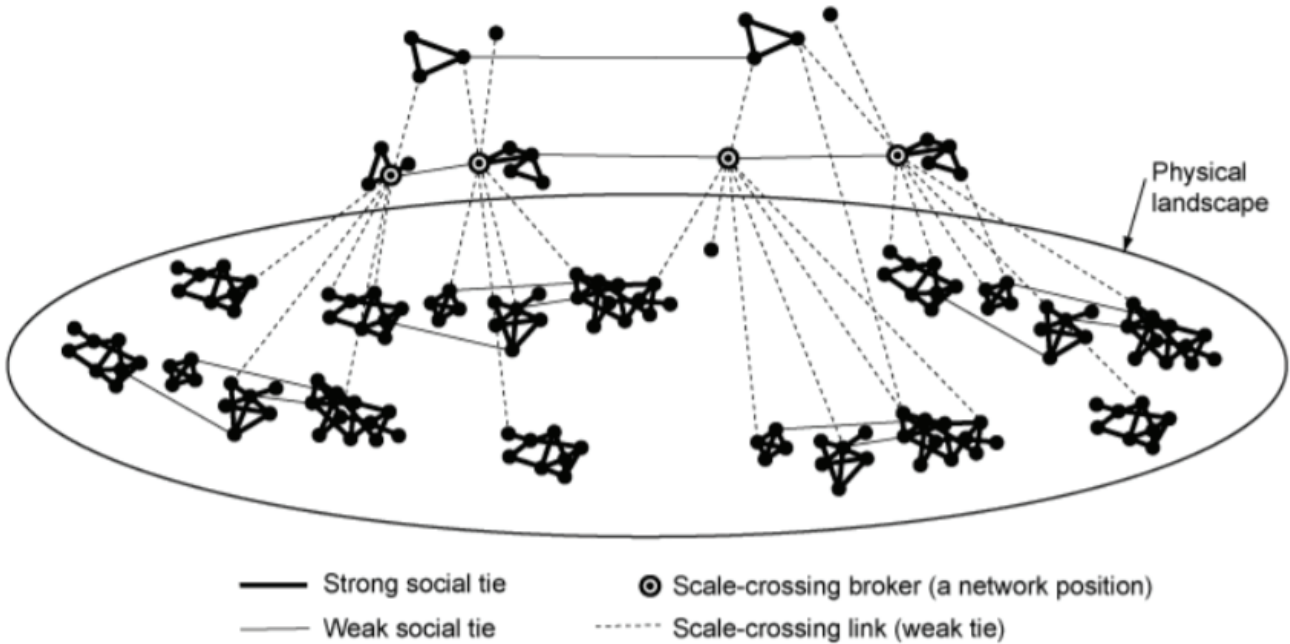


Fig 4.6: Schematic diagram showing the relationship of local actors with the physical environment and the role of scale crossing brokers supporting to create an adaptive ecosystem governance. Source: Ernstson et al, 2010

4.3 Conceptual Framework

A sacrescape is a landscape with sensory as well as a moral phenomenon where the harmonic relationship between nature and man can be experienced (Singh,2011). Urbanization of these sacred cities and the ambitious perspective of governance for economic exploitation of this platform has failed to address the socio-ecological systems and the cultural dimensions of religion. Studying religion should not be judgmental as to see it as a plural, dynamic and engaged part of the social environment which is interconnected at a higher level and suffused with power. Rather it should be used as a tool for engaging with the context which helps to connect to the society, politics, heritage and economy for better understanding of the region and its natural assets. Although the implications of urbanization have changed the patterns of human-nature systems, the role of government in creating such a scenario cannot be neglected.

Varanasi, being the constituency of Prime Minister Narendra Modi is aspiring for glory and is all set to compete with fast-growing urban cities of the country. The sad part of this process is that the whole Governance system is failing to understand the changes happening to nature. Sometimes, transformation is more convenient than adaptation, but the long term impacts will be evident when the resilient capacity of nature is tested ultimately. The damage caused then to socio-ecological systems will be beyond repair. To bring back the balance in the system, the diagonal relationships between nature, economy and humans has to be in balance. Culture, which is an imbibed character of Varanasi can be used as a resource and condition for bringing in sustainability. Concepts of ephemeral urbanism which advocates reversibility causing less harm on nature could be used in restoring ecological assets of Varanasi, that is in the process of dilapidation. The variables to study the impacts of urbanization on land, water and religion are formulated using the analytical framework. All these concepts combined forms the conceptual framework for this project.

changing VARANASI

a destroying identity; VARANASI

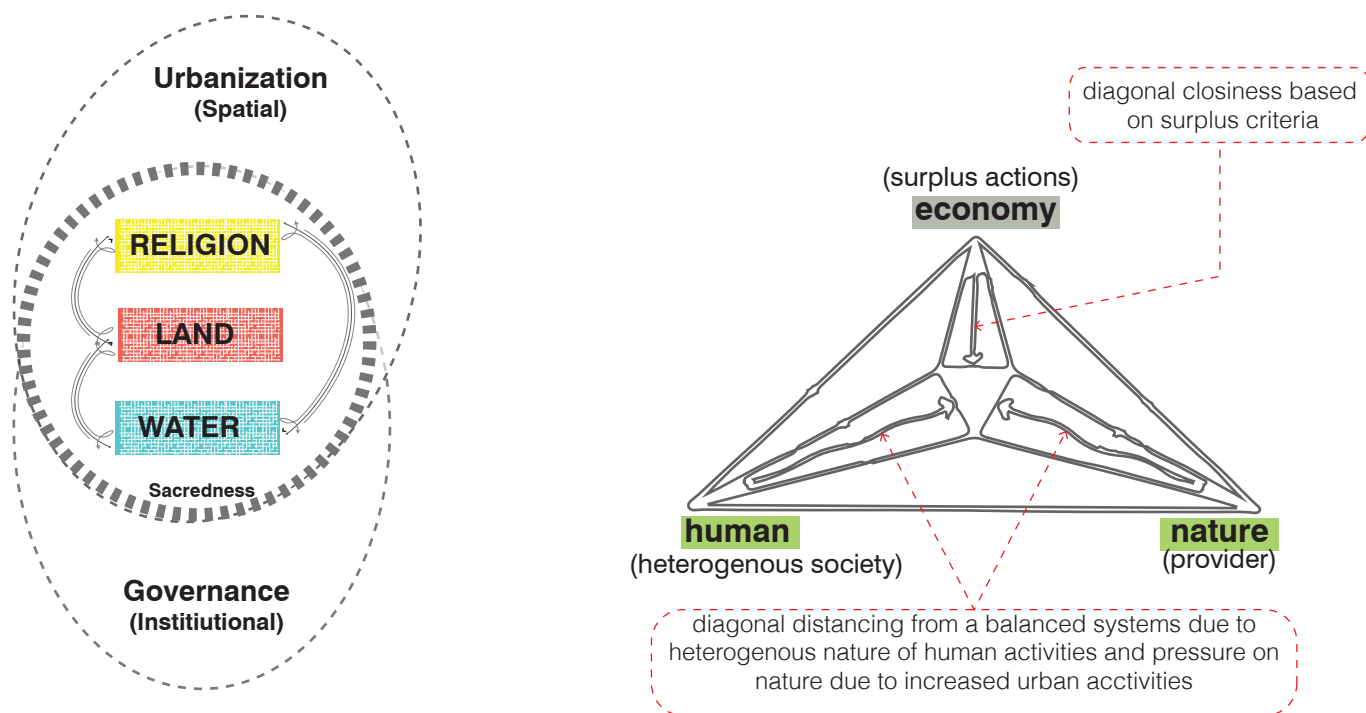


Fig 4.7: Conceptual Framework showing the changes happening to the variants of sacredscape and relationship between human and nature due to these changes
Source: Author

a cultural resource; VARANASI

culture for sustainability
as a resource and condition

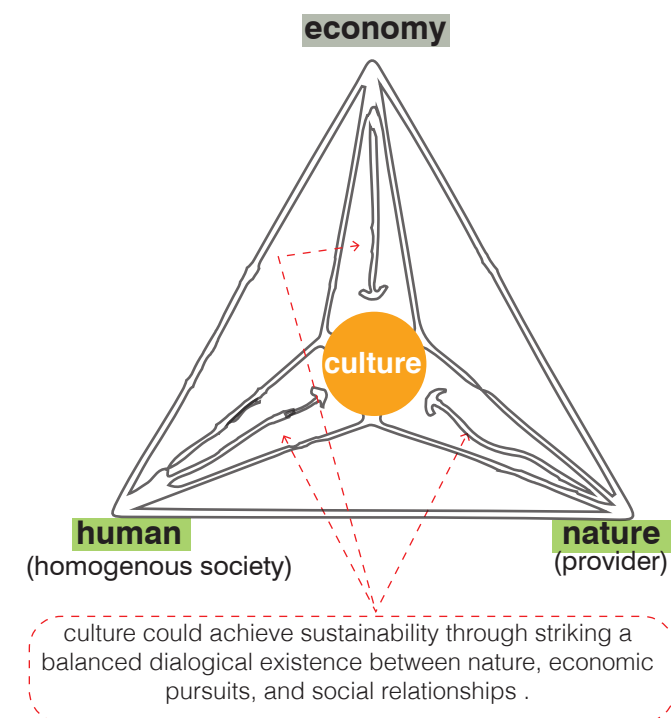


Fig 4.8: Conceptual Framework of using culture as an approach for enhancing the socio-ecological balance
Source: Author adapted from Tiwari, 2007

4.4 Planning Framework

1.Strategic Planning (Albrechts, 2004)

Strategic spatial planning is a set of concepts, procedures and tools that may be used in different scenarios. It is a process through vision, actions and means for implementation to a complex situation that decides what a place is and may become in future. In Albrechts' words, strategic spatial planning (SSP) means;

'To construct challenging, coherent, and coordinated visions, to frame an integrated long-term spatial logic, to enhance action orientation beyond the idea of planning as control, and to promote a more open multilevel type of governance (p.1119 in Albrechts, 2010).

Strategic planning focuses on certain key issues like determining the strengths and weakness, studying the external factors and allowing a diverse involvement of stakeholders in the planning process. The outcome of the process is to try to develop realistic long-term vision or strategies at various levels considering the uncertainties. Following the process, strategic planning concludes with decisions, actions, results and implementation program (Albrechts,2004). Strategic framework and visions carry a potential for 'rescaling' the issues down from a national scale or state level to the neighbourhood level. This approach to widening the scales will also give a broader platform for the involvement of more actors, new alliances and stakeholders (Albrechts,2004). Strategic framework throughout the scales involving different stakeholders aims in achieving the vision. The strategies at regional level connecting to design interventions and community participation at neighbourhood scale will be effective in restoring the socio-ecological synergies of a city or a landscape.

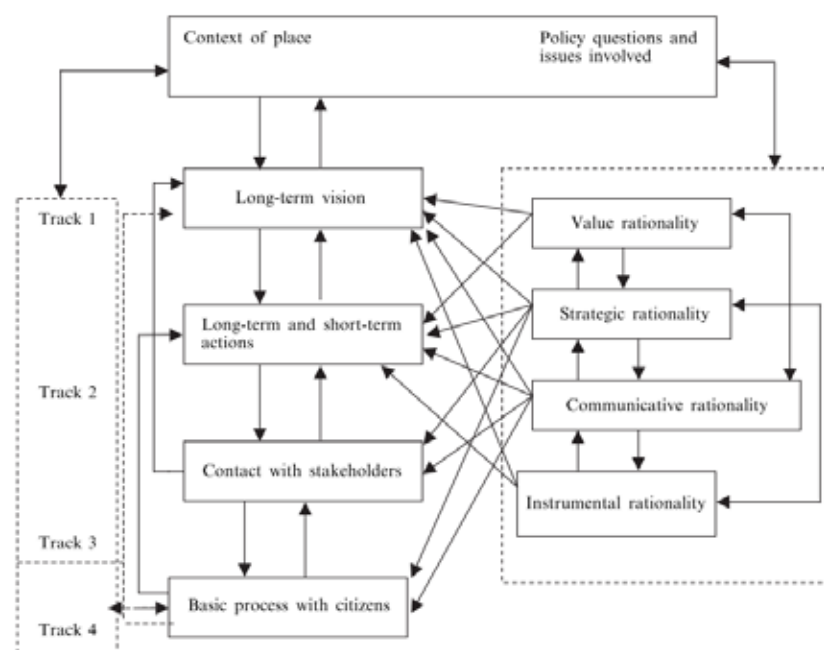


Fig 4.9: Schematic diagram showing Four track approach
Source: Albrechts,2010

2. Four-Track Approach (Albrechts, 2010)

The four-track approach is based on interrelating four types of rationality: value rationality (the design of alternative futures), communicative rationality (involving a growing number of actors private and public in the process), instrumental rationality (looking for the best way to solve the problems and achieve the desired future), and strategic rationality (a clear and explicit strategy for dealing with power relationships) (Albrechts, 2003a). The four-track approach consists of a long-term vision, short term actions to achieve the vision, stakeholder participation and local implementation programs involving people (Albrechts, 2010).

The research approach to enhance the socio-ecological synergies through cultural sustainability will require a strategic spatial framework for its implementation. The framework using spatial planning involves planning across the scales combined with a four-track approach proposes long term vision to local strategies involving stakeholders. This will be effective in transferring the problems and conflicts to opportunities and synergies through strategic policies across different spatial and temporal scales.

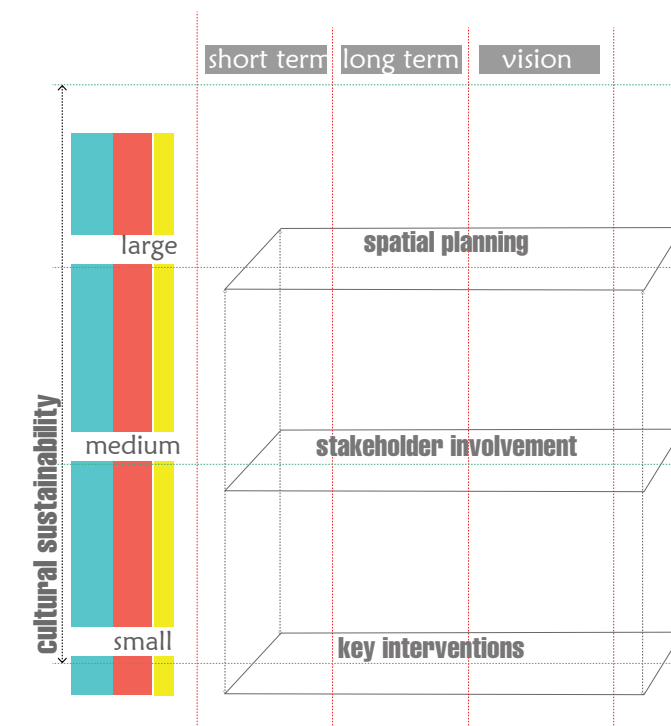


Fig 4.10: Schematic diagram showing the planning framework
Source: Author adapted from Albrechts, 2010

The planning framework aims to procure strategic visions to short term design interventions across scales through an approach involving cultural sustainability as the key concept understanding the interrelationships between the variants of Varanasi in restoring the socio-ecological systems of Varanasi.



Many efforts have been taken for the qualitative as well as quantitative analysis of culture, there is still a lack of knowledge in which these cultural contributions can be used for achieving sustainability in developing countries. In the context of India, where culture has prevailed as the overarching factor of development over the centuries is focusing on different methods of planning for achieving sustainability. From the initial understanding, these frameworks are not systematized and the planning process is leading to inequalities, sprawls, slums, pollution, loss of biodiversity, economic loss, social exclusion etc. This is the motivation of using culture as an approach in my graduation project which focuses reviving the socio-ecological synergies of Varanasi. Socio-ecological systems, economic growth, ecological balance, social inclusion and values of this sacred city is deeply connected to culture. Understanding the role of culture and finding its links to sustainability can help in proposing a strategic framework which can be adapted to many other cities of the country. To take it forward, I intend to use culture as not only an approach but also as a design tool for inclusive interventions within communities. Through this process, I hope to stabilize the socio-ecological synergies that have been the backbone of these culturally rich cities (Author,2019).



5

Methodology

A methodology is derived to analyse the socio-spatial conditions of Varanasi and to produce research outputs with design solutions. For better research outputs, the methodology was processed in different stages corresponding to the requirements for each graduation presentation.

- 5.1. Structure
- 5.2. Methods Used
- 5.3. Limitations

Methodology Phasing were determined for the development of the project over the Graduation presentations from P1 to P5

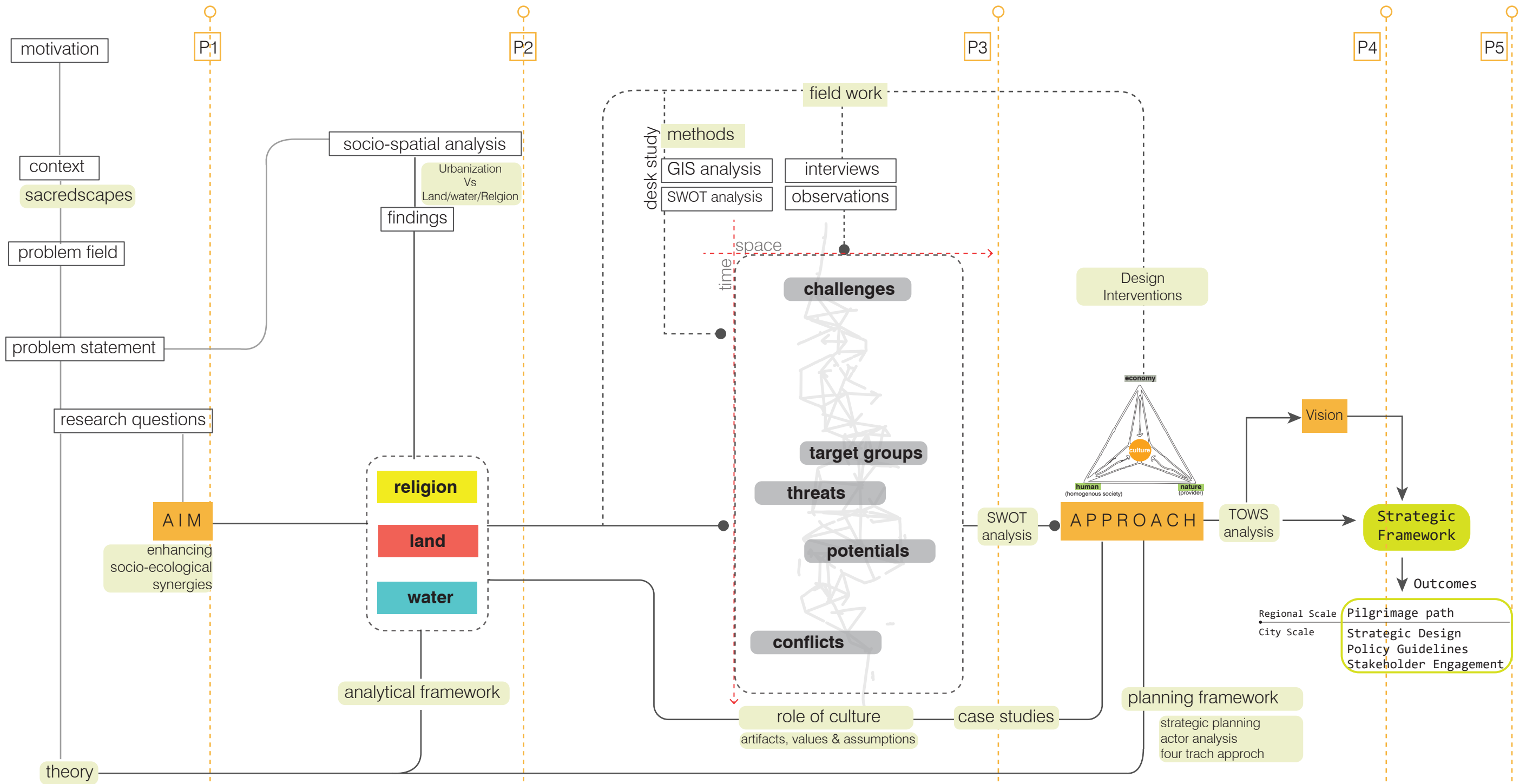
Process of researching, analysing and designing for a complex city like Varanasi faces many limitations and challenges. As this project proposes an approach of using culture in its strategies, the need for theoretical study on 'culture' as a concept in socio-spatial dimensions of Varanasi forms the pivotal idea for the methodology. Framing the analysis according to the 3 variants (land, water and religion) itself places the study to look into specific cultural relationships within Varanasi. This process needs phasing where first it is important to understand the identity of sacred landscapes which is followed by detail study on the cultural interactions in Varanasi city, analysed with a theoretical understanding of variables of culture for achieving sustainable development. The third phase looks into the changes that have happened to the city over time. This change is studied through a socio-spatial analysis where the land, water and religion as variants are broken down through a cultural perspective. The last phase is the formulation of strategies and policies for the implementation of the cultural approach.

Methodology Phasing

	Phase 1 Varanasi as a Sacredscape <ol style="list-style-type: none"> 1. Understanding the meaning of sacredscape 2. Mythological and religious importance of spaces and elements
	Phase 2 Varanasi - A cultural resource <ol style="list-style-type: none"> 1. Relating scientific research on 'Culture' to analysis of Varanasi 2. Sustainable interactions of culture in Varanasi
	Phase 3 Changing Varanasi <ol style="list-style-type: none"> 1. Socio-spatial analysis in dimensions of Land, water and religion 2. Preparation of SWOT analysis for region as well as city scale
	Phase 4 REimagining the Cultural Landscape <ol style="list-style-type: none"> 1. Formulation of Strategies that 're' imagine the lost cultural identity of Varanasi 2. Engagement strategies and policies for implementation

Methods Used

1. Literature Review
2. Reports and Documents
3. Field Work
4. Mapping / Remote Sensing
5. SWOT Analysis
6. Stakeholder analysis



Varanasi as a Sacredscape

Varanasi - A cultural resource

Changing Varanasi

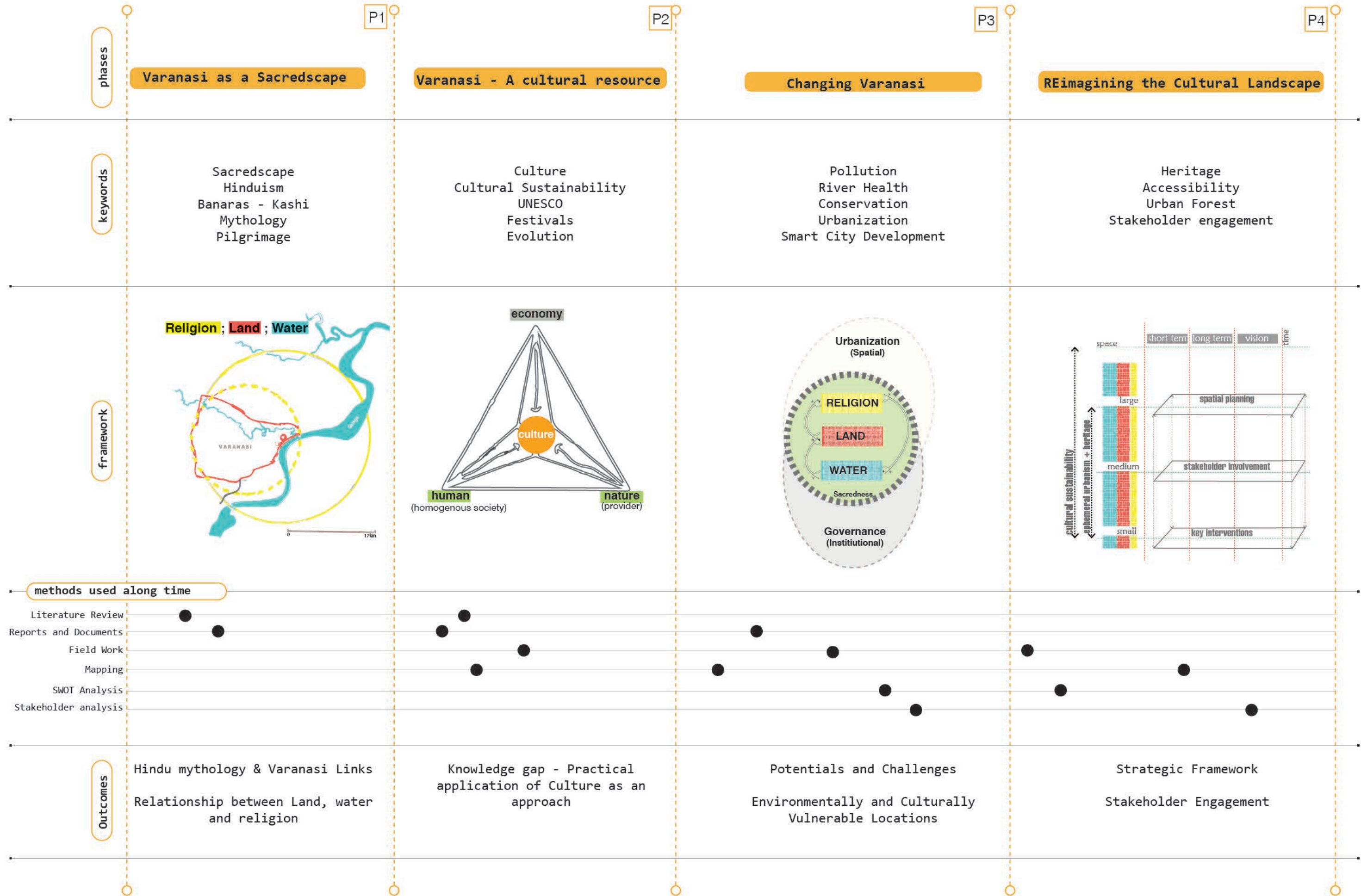
REimagining the Cultural Landscape

- R Qn.1A** Sacred city - socioecological links
- R Qn.2B** Religion and space

- R Qn.1B** Built environment-evolution
- R Qn.2A** Spatial chages through space and time scale
- R Qn.3A** Crowd management

- R Qn.5A** just and inclusive development
- R Qn.5B** actor/stakeholder participation
- R Qn.3B** temperory vs permanent

- R Qn.6A** cultural sustainability
- R Qn.6B** resilient strategic framework



5.2 Methods Used

Field Work



Need for investigating and validating the findings from literature through the process of fieldwork was highly necessary for a project where culture forms the pivotal line linking analysis and design.

Duration:

21st January 2020 to 31st January 2020

Interviews Conducted:

- 1 Discussion Forum (at Banaras University)
- 5 professors
- 4 Government officials
- 3 Bussinessmen
- 2 Hindu priests
- Public Interactions

Acknowledgement

I am extremely grateful to my sister, Manju Lakshmi IAS, for providing me with the support to connect to various administrative persons in Varanasi. I would also like to mention my humble gratitude to Shri Rahul Pandey IAS, Shri Vikramaditya Singh Malik IAS, Shri V N Mishra, Dr Deivasigamani Vasudevan, Dr Santosh Kumar Tripathi, Shri Abhinav Kaushal, Dr Shaiju P J and Dr Prabhat Kumar Singh. I would also like to thank Ravi Chaudhary helping me experience the Panchakroshi pilgrimage path.

Fig 5.1: Photographs from fieldwork
Source: Author



Interviews



Discussions



Digital Documentaion



Observations

Experiencing Varanasi

The city of chaos and differences where once you get there, you tend to forget the era in which you are presently living because of its a whole different world. Being in Varanasi as a part of my fieldwork was one of the amusing experiences of this graduation project. Every element in this city has a story to tell and to be surrounded by the power of religion around it makes it one of the valuable assets of this cultural nation.

Varanasi is the sacredscape that wakes up with the people worshipping the rising sun right above the horizon of Holy Ganga river, enveloped by religious chantings and Siberian birds hovering over boats on the water. Stepped Ghats fall as the backdrop to this scenery where diversity of architectural styles blends from Mughals to the British. This morphology is bisected spatially by narrow streets that trap you in its Old City maze where you will see God, monk and cows sharing the same holy space near a shrine of Lord Shiva that rest under the canopy of a Banyan tree penetrating into the stacked up urban fabric. The rhythmic sound of handloom weaving machines and temple bells ringing as you move further. The streets will be portraying you with people carrying dead bodies for the cremation, sadhus (Hindu monks) spraying the air with the smell of cannabis, street hawkers selling everything you can find in Varanasi and numerous patterns of sarees by the streets for which the city has always been famous for. The city bids farewell to its day when the Banarasi people come along the Ganga river and join the prayers with lighted Ghats.



Stakeholder Analysis



Creating a stakeholder program for identification, engagement and co-operation of stakeholders for the implementation of projects and strategies. The program uses methods such as power-interest mapping and supporter-opposer mapping to propose collaborations and discussion forums.



01. Bryson, J. M. (2004)What to do when stakeholders matter: stakeholder identification and analysis techniques. Public management review, 6(1), 21-53

02. Ernstson, H., Barthel, S., Andersson, E., & Borgström, S. T. (2010). Scale-crossing brokers and network governance of urban ecosystem services: the case of Stockholm. Ecology and Society, 15(4);
Stein, C., Ernstson, H., & Barron, J. (2011). A social network approach to analyzing water governance: The case of the Mkindo catchment, Tanzania. Physics and Chemistry of the Earth, Parts A/B/C, 36(14-15), 1085-1092.

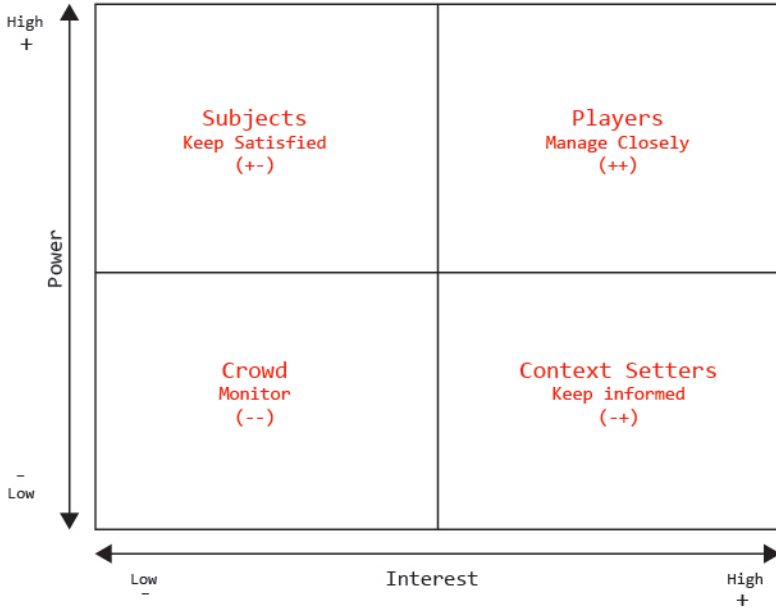


Fig 5.2: Power vs interest matrix helps to decide which players’ interest and powers must be considered to tackle a problem or to find a solution
Source: Bryson, 2004

The strategic framework derives a winning coalition platform where the key stakeholders engage with local stakeholders who are primarily the users of the space. The potentiality of this stakeholder engagement process is that it finds a middle ground for bottom-up and top-down approaches.

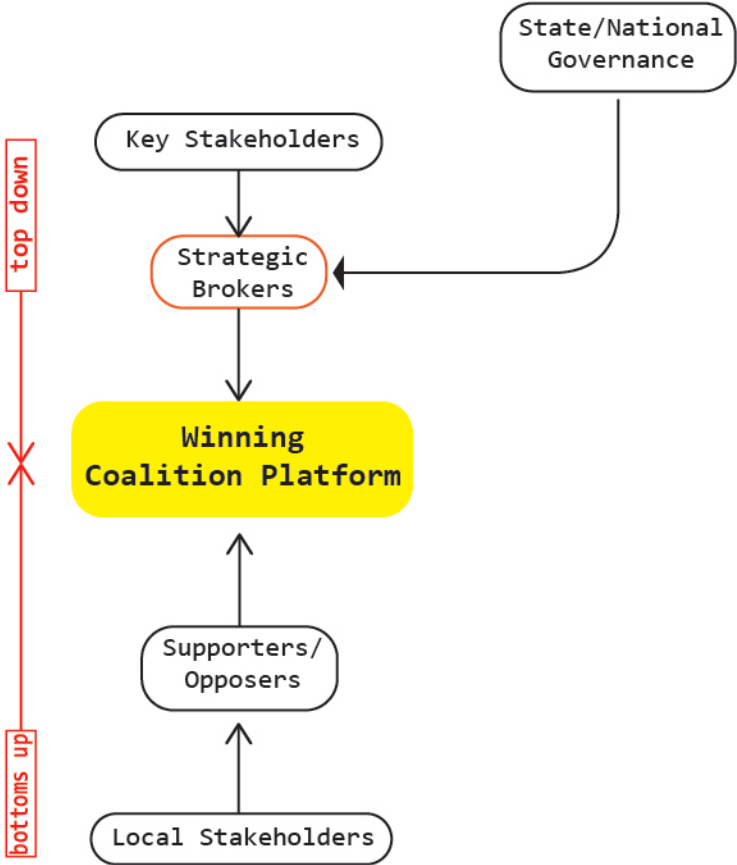
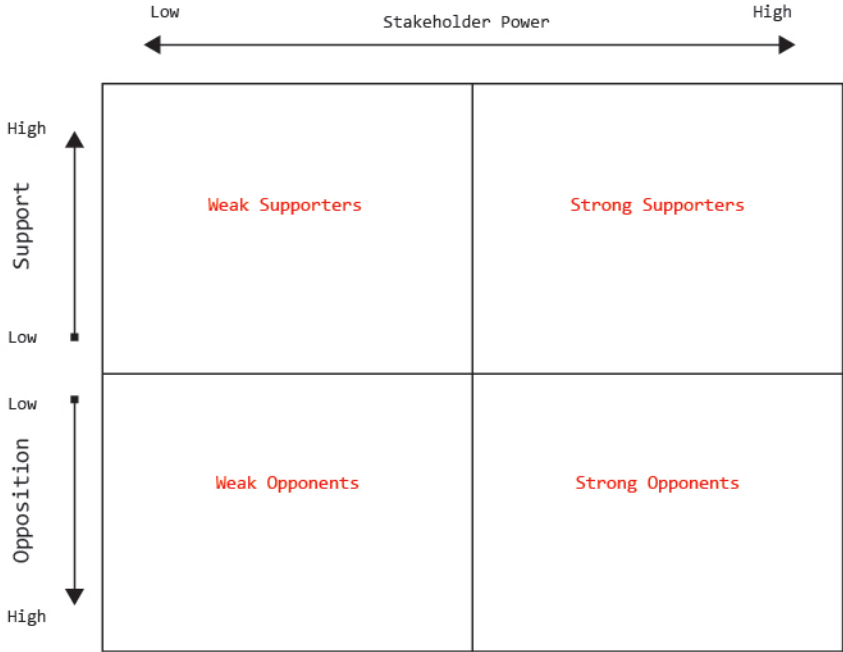


Fig 5.3: Flow diagram showing stakeholder engagement program proposed in Varanasi
Source: Author

The problem-frame stakeholder mapping technique which identifies supporters and opponents is a technique which is helpful to develop solutions that lead to a winning coalition (Bryson, 2004).



1. Varanasi being a complex city has many prominent issues that hinder the sustainable development of the city such as slum population, poverty, social inequalities, unemployment and crimes etc. Varanasi **slum population** accounts for 30% of the total city population (Census, 2020). Only 29% of the city is employed and the young population of the city is moving to metro cities to find a job (CRISIL, 2015). These limitations are realized however strategic solutions for the whole city to tackle these issues aren't coming together. Having said that, there are efforts made to create a supporting economy.

2. Hinduism is vast with its ideology spreading to different dimensions supported by various stories from mythology and sometimes contradicting with some scientific evidence. In this research, I try to look deeply into the environmental perspective of Hindu religion, although the amount of knowledge I have acquired is so limited knowing that it takes years to understand the concepts of Hinduism. This limitation is reflected in my proposals where I am restricted with design to completely cope with the Hinduism concepts contextually.

3. Use of culture also limits the futuristic ideologies that can change the phase of Varanasi to a completely new one which the Government imagine. The research is more about adapting the best practices through culture than bringing in more changes to the city.

Image Source: mattbadenoch.com



6

Analysis

Following the conceptual framework, this chapter studies how can culture be used as an approach and the variants of land, water and religion. Each section concludes with suggestions that can be used as guidelines for making policies in the strategic framework. The cultural analysis and socio-spatial analysis leads to SWOT analysis which forms the base for TOWS strategies that form the vision for the city. The chapter begins with Case studies that were carried out to learn about concepts of planning process that can be helpful to Varanasi.

- 6.1. Case studies
- 6.2. 'Culture as an Approach?'
- 6.3. Socio-spatial Analysis
- 6.4. Flows
- 6.5. SWOT to TOWS

Literature reviews on ‘culture’ and its relationship to bridging the 3 pillars of sustainability provided with conclusions on categorizing culture as well as linking the tangible and intangible elements of culture with the environment, social and economic interactions. But the knowledge gap on the practical applicability of culture has to be investigated to understand what are the conflicts and obstacles that might hinder the use of such an approach. Also, there is a need to study and learn from best practices that might have adaptable concepts related to sacredscapes, pilgrimage paths and cultural strategies. For this purpose, case studies were done on a few locations around the globe using keywords as well as UNESCO heritage site recommendations to learn more about the planning process that either led to sustainable practices or mistakes that can be rectified in this research proposal.

As conditions in India being similar, locations outside India were taken as resources for case studies. Heritage sites in Kyoto, Kumano Kodo pilgrimage in Wakayama Prefecture and Historic villages of Shirakawa-gō and Gokayama were case studies that were chosen from Japan to understand sustainable development of sacredscapes and cultural landscapes along with urban regeneration process. Studies on Otākaro Avon River corridor project provided with valuable concepts of how a river landscape should be regenerated by understanding its cultural connections with people. Cultural strategy visions by City of Gold Coast in Australia and Liverpool in England provided insights on the implementation and stakeholder participation programs of use of a cultural strategy in formulating the vision. The main objective of this method was to find answers to key questions from different case studies which can help in building the strategic framework for Varanasi.

Kyoto, Japan UNESCO World Heritage Sites



*How can urban regeneration be linked with a sacredscape?
What are the importance of being a UNESCO World heritage Site?*



Fig 6.1 : Kyoto is a sacredscape with thousands of temples and shrines scattered in different parts of this unique landscape.
Sources: flickr.com/Jonathanhawkins (Left)
static.independent.co.uk (top right)
flickr.com/Melissarosechasse (bottom right)

Similar to Varanasi, Kyoto is considered as the cultural capital of Japan with numerous Buddhist shrines and temples scattered in this beautiful landscape. Inspired by Kyoto, Prime minister of India as well as the present elected Member of Parliament(MP) from Varanasi constituency, Narendra Modi has initiated VAKYO (Varanasi Kyoto) Vision to connect heritage cultural cities of Varanasi and Kyoto through India-Japan Global Partnership (VAKYO, 2020).

Lessons Learned

The role of Government as a facilitator amongst the stakeholders in creating an enabling environment is one of the key lessons that is imbibed from studying the master plan for Kyoto. The participation of various households in the preservation program enables the city to ensure the cultural heritage legacy which they further brand as “Kyoto-ness” is passed which supports participation of people in upholding the culture as well enabling local economic development (Eiweida & Arai,2018).

The master plan of Kyoto explicitly defines three main targets of intervention where 'regeneration' of the historic old city, 'preservation' of the landscape and 'creation' for urban growth and brown-field redevelopment (Eiweida & Arai, 2018).

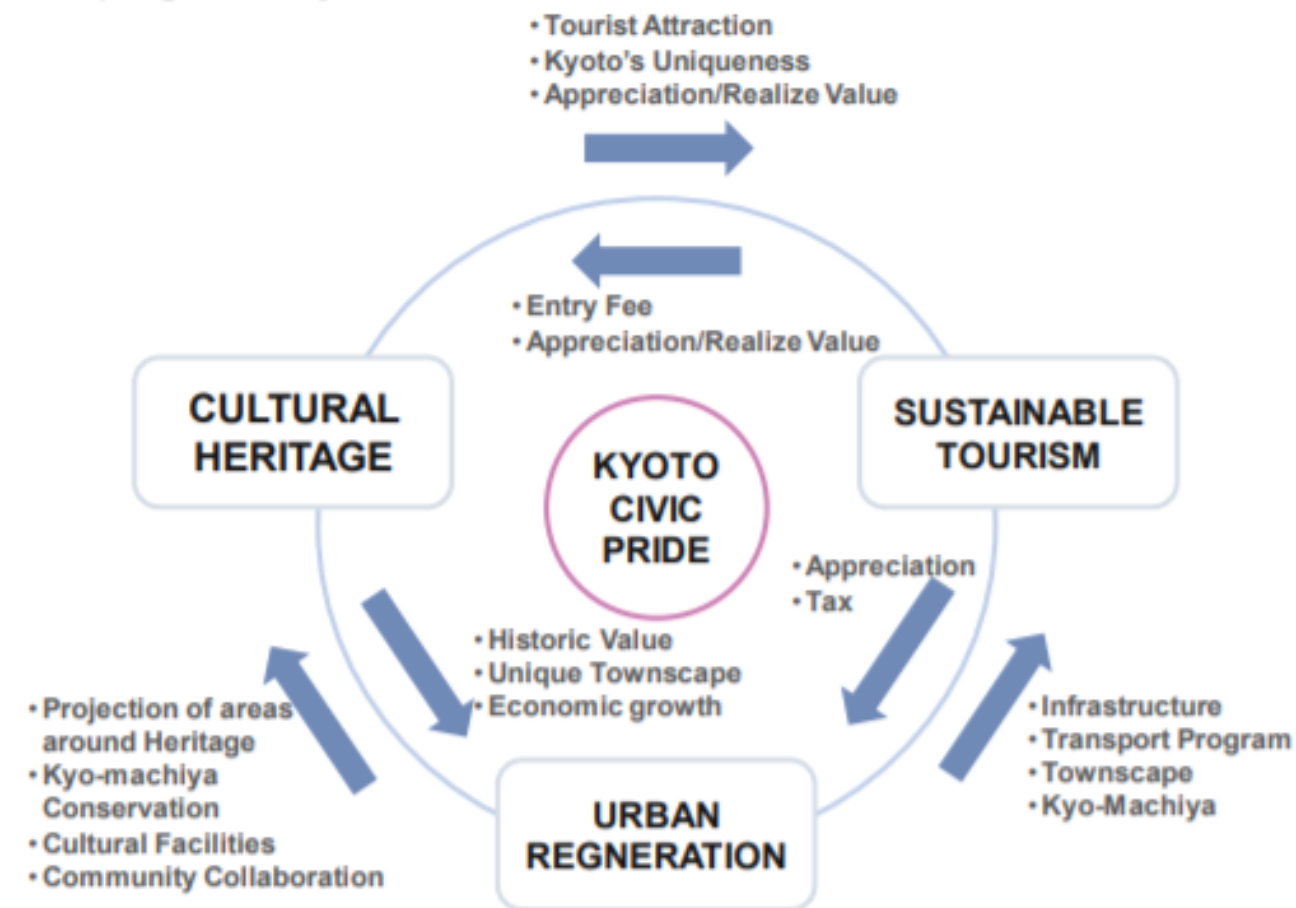


Fig 6.2: Interrelationship of Cultural Heritage, Urban Regeneration, and Sustainable Tourism
Source: Eiweida & Arai, 2018

As a UNESCO World Heritage site, the brand name brings a lot of tourism that can support the economic development of the city as well as at local scales. World Heritage Site (WHS) status will help in creating a global recognition that can help in increasing infrastructure developments and attracting investors. Beyond tourism and economic advancements, the WHS status provides other benefits such as learning and educational related, community cohesion and participation, social capital and conservation (LLP, 2007). Along with these benefits, the site also improves certain values that are related to culture, environment, aesthetics, heritage, sustainability, scientific, historic and urban context (LLP, 2007). These can support urban regeneration as well as the development of the cultural landscape as a sacredscape.

Q How can pilgrimage paths be used as a foundation for sustainable development of destinations?

Sacred sites of three different religion that are located in the Kii Mountain ranges of Wakayama Prefecture in Japan with pilgrimage paths and traditional culture in harmony with nature was accepted as a UNESCO World Heritage List as "Sacred site and Pilgrimage routes in Kii Mountain range" in 2004. The pilgrimage trail includes Kumano-Kodo, that leads to 3 grand shrines where Buddhism, Shintoism (nature worship) and Shugendo religions co-exist.



Fig 6.3: Kumano region is spiritually believed to be a powerful land where gods reside in the very fabric of this scenic landscape.
Sources: flickr.com/Stefangermann (top left)
perroviajante.com (bottom left)
i.pinimg.com (right)

Pilgrimage paths which are mostly walking routes create a 'caring' quality for the pilgrims, the host communities as well to the related environment (Kato & Prozano, 2017). This attitude creates awareness about the need for preserving these landscapes, if not through an ecological perspective, but surely through a religious perspective. As the use of these pilgrimage paths as also walking tourism, which is a slow process but quite powerful force for the sustainable resource management and allowing the users to be religiously connected with the landscape, and also in providing an economy for regional communities (Kato & Prozano, 2017). These pilgrimage paths religiously connect various destinations that might be scattered in rural, peri-urban and even in forest locations. This connection acts a corridor that links the landscape with the beliefs of people, that has maintained the socio-ecological balance over the years.

Ōtākaro Avon River, New Zealand

River Corridor Regeneration

Q How can a river corridor be regenerated understanding its past and connecting it with the future?

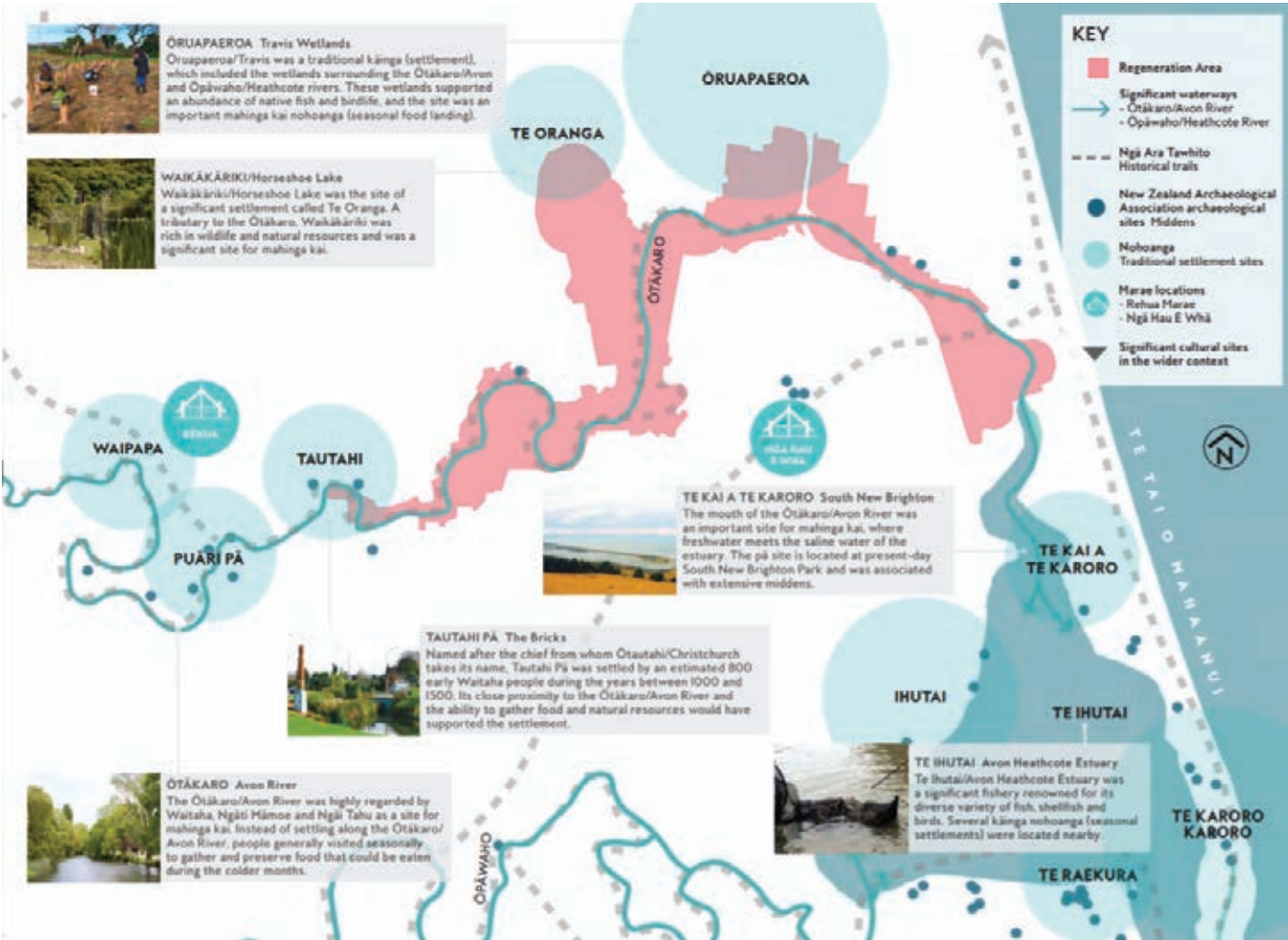


Fig 6.4: The cultural map of the Ōtākaro Avon River corridor that connects it to history, cultural sites and nature that becomes the base for river corridor regeneration vision.
Source: Regenerate Christchurch, 2019.

The sacred geography of Varanasi is religiously auspicious due to the presence of Holy river Ganga. The landscape is even richer with the Varuna and Assi rivers that tells a lot about the culture and history of Varanasi. The Ōtākaro Avon River corridor project emphasis on a restored natural environment, and improved connection between people, river and the landscape (Regenerate Christchurch, 2019). The guiding concept of this river corridor regeneration project is that it acknowledges everything connected to this river, even the people who have inherited the lands along the edges of the river over the years. Following this concept, the starting point of this project was about mapping the history and stories related to the Ōtākaro Avon River. This process helped the stakeholders in understanding what the river means to the environment as well as to the culture of the landscape.

Shirakawa-gō, Japan

UNESCO World Heritage Sites

Q How to experience and preserve a living heritage site over time?



Fig 6.5: The rural landscape along the Sho River in Japan surrounded by the rugged high mountain with traditional lifestyle and unique architecture made these historic villages a UNESCO World Heritage site in 1995. The bottom right picture shows a rice planting show highlighting the agricultural tradition of the village
Sources: flickr.com/RichardCassan (top), flickr.com/Felix Garcia Vila (bottom left) (Kuroda, 2010)(bottom right)

The ‘Historic villages of Shirakawa-gō and Gokayama’ possessed elements such as the Gassho-style houses, sericulture and traditional lifestyle in a very scenic natural setting. Although presently Gassho-style houses are conserved, the occupation of the residents has drastically shifted from sericulture to agriculture to construction and tourism (Kuroda, 2010). Over time, Shirakawa-gō did also undergo cultural loss due to modernization and increased tourism. Works of literature about this heritage site reveal that overexploited tourism on the scale of a village has led to the loss of substance of this cultural landscape and further leading to dissatisfaction for tourists. For example, the rice-planting festival (Taue show) as shown in the Fig 6.5, is cultivation by hand that was a traditional way of farming in these villages which later on got modernized. But enactment of farming in the traditional manner for the tourists made uncomfortable as it was obvious to the visitors that it was fake and was not a part of ongoing life in the village (Kuroda, 2010). Hence, the important lesson to be learned from Shirakawa-gō is that tourists should be accepted into a living heritage in a way that the culture or the tradition is not enacted to please the visitor rather the presence of tourists should be felt like a silent spectator to the cultural lifestyle.



Fig 6.6: Ariel view of Varanasi City
Source: airpano.com

The research aims to produce a strategic framework for Varanasi city using a cultural approach. As defined in the conceptual framework, a cultural approach can bring the socio-ecological balance in Varanasi. Hence, it is highly necessary to understand what does culture mean to Varanasi and what are the socio-spatial changes that have happened to Varanasi over the years. In this context, the analytical framework has two parts where the first part dealt with understanding what culture means to Varanasi, and how can it be linked to sustainability. The second part of the analytical framework consists of the socio-spatial analysis on land, water and religion. This results in SWOT, where the potentials, risks, challenges and target groups are identified. This SWOT analysis forms the base of vision, strategies and proposals which are supported by lessons learned from case studies.

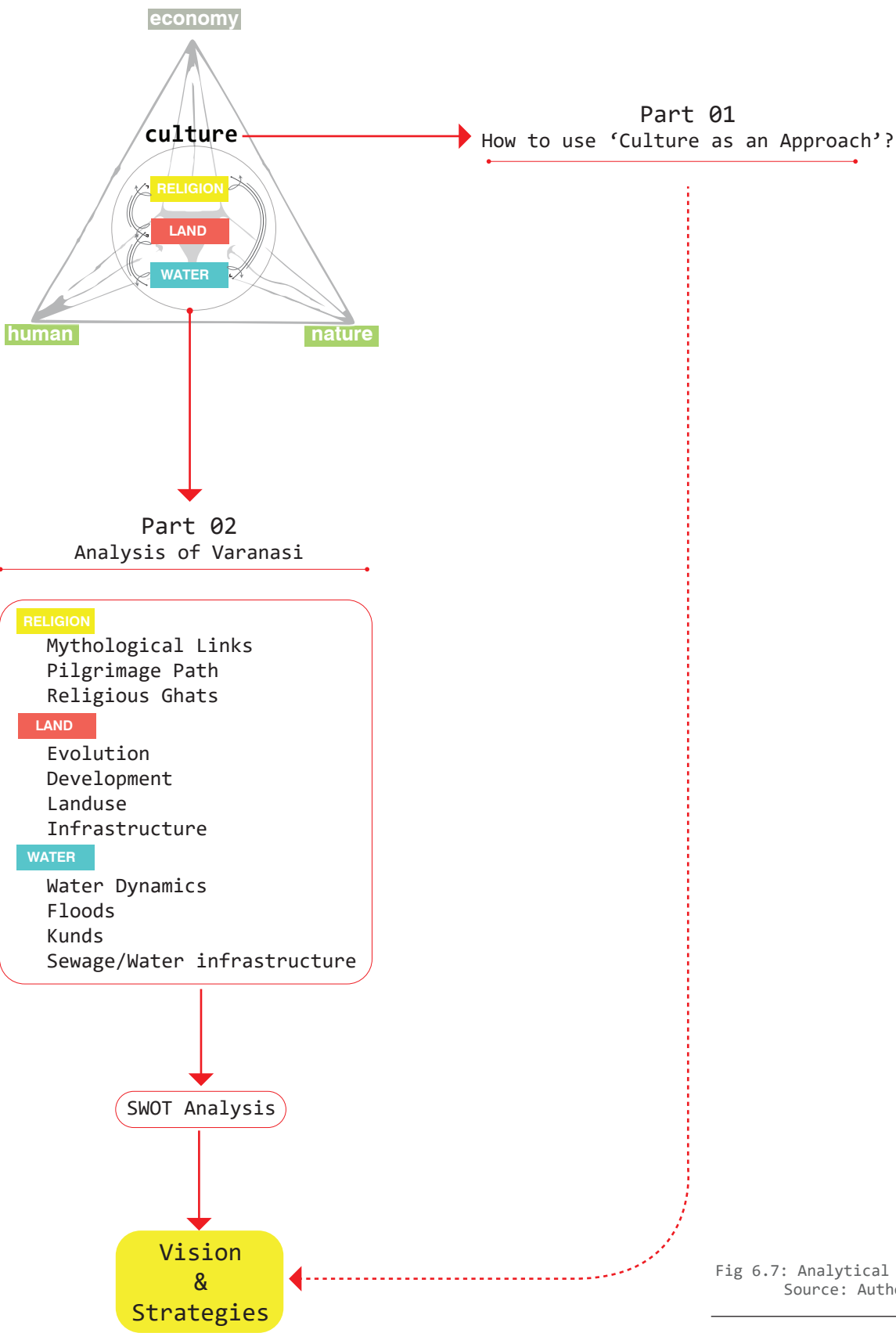


Fig 6.7: Analytical Framework
Source: Author

6.2 'Culture as an Approach?'

The integration of sustainability and culture into the planning process is a highly favoured concept by researchers and policy-makers which usually requires frameworks and methods as the two are complex phenomena with a wide range of interpretations in different contexts. These challenges create different perspectives for a culture where usually it is seen as just a way of living for specific groups or as an asset for cultural activities or as a layer of promotion of arts and ethnicities or as protection of heritage in the policymaking process. These challenges arise mainly due to four main reasons. Firstly, there is a lack of understanding of the aims and goals of 'sustainability' worldwide. Secondly, culture being a complex term adds extra complexity to the vague notion of sustainability and thirdly, culture exist independently as well as within the three pillars of sustainability lacking clarity of expression. Finally, the perspectives of culture are highly contextual (Soini & Dessein, 2016; Nadarajah & Yamamoto, 2007). Due to these complexities, this research derived three important steps for the methodology of using culture as an approach:

1. *Understanding culture* - This is the initial step in the framework where the tangible and intangible elements of culture are realized.

2. *Defining the role of culture to sustainability*- This step involves linking culture to sustainability. It is necessary to have a perspective in which culture will be used for achieving sustainability. This step helps to contextualize the importance of culture and its relationships to economic, social and environmental aspects of the region.

3. *Analyzing cultural concepts*- To finally use culture in a planning process, different indicators for analyzing the various cultural concepts relating to the economy, social, environment, communication, governance and heritage are identified.

According to Schein, culture is manifested in 3 fundamental levels; artifacts, values and assumptions. Artifacts include visible products, patterns of culture, technological, artistic and architectural creations in the physical environment (Schein, 1990). These artifacts are easy to be observed but difficult to decipher the meaning. The meaning of these artifacts differs with the context. Values and beliefs help in understanding the ideology in communities have existed and evolved. The level of assumptions provides a sense of identity about a place and the fundamental ways of lifestyle. The degree to which cultural phenomenon is expressed by people is the basis of the classification of these three layers. Structuring culture in these three layers into different components will give a clear image of what culture means to the place and people.

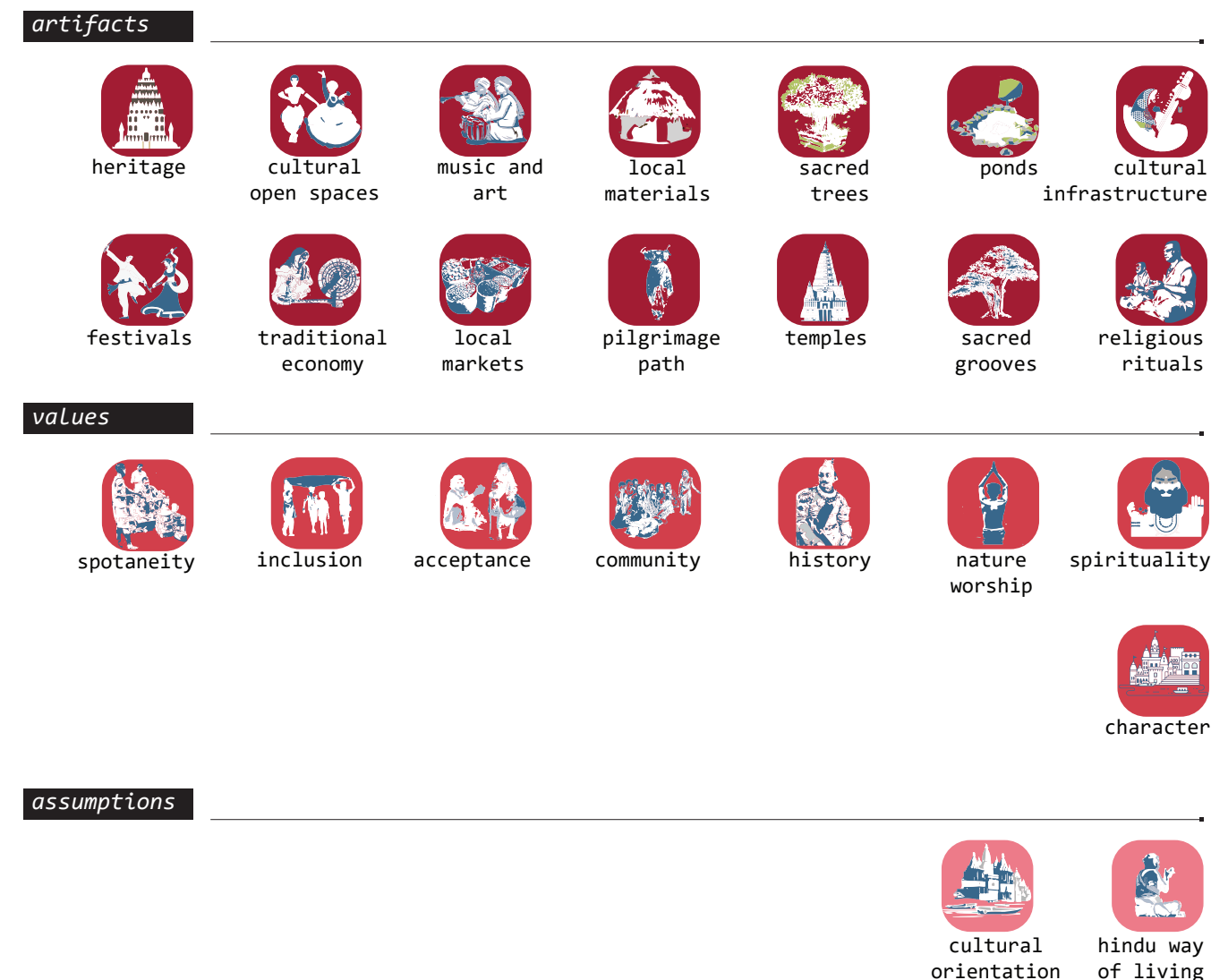


Fig 6.8: Three levels of Culture in Varanasi
Source: Author

For studying culture, multiple analytical frameworks have been proposed by organizations and researches over the years such as Culture 2030 Indicators by UNESCO (2019), Culture for development Indicators Suite by UNESCO (2014), seven story lines of cultural sustainability by Soini and Birkeland (2014) etc. All these literature have overlapping ideas in which culture is linked to various dimensions of sustainability. For this project, the analysis is supported by literature Culture 2030 Indicators by UNESCO (2019) where culture is studied over four dimensions and 22 indicators. Although there are differences in priorities of the selection of various indicators considering the context and planning methods, the agenda for achieving sustainable development within these dimensions are highly effective using a cultural approach. Considering the context and cultural elements identified, the following section categorizes the different cultural elements into social, environmental and ecology.

Environment and cultural interactions



Fig 6.9: Various cultural elements linked with environment
Source: Author

By relating the cultural elements to the theme of the environment, these cultural elements take shape of design tools which can be used in creating sustainable interventions at micro and macro scales.

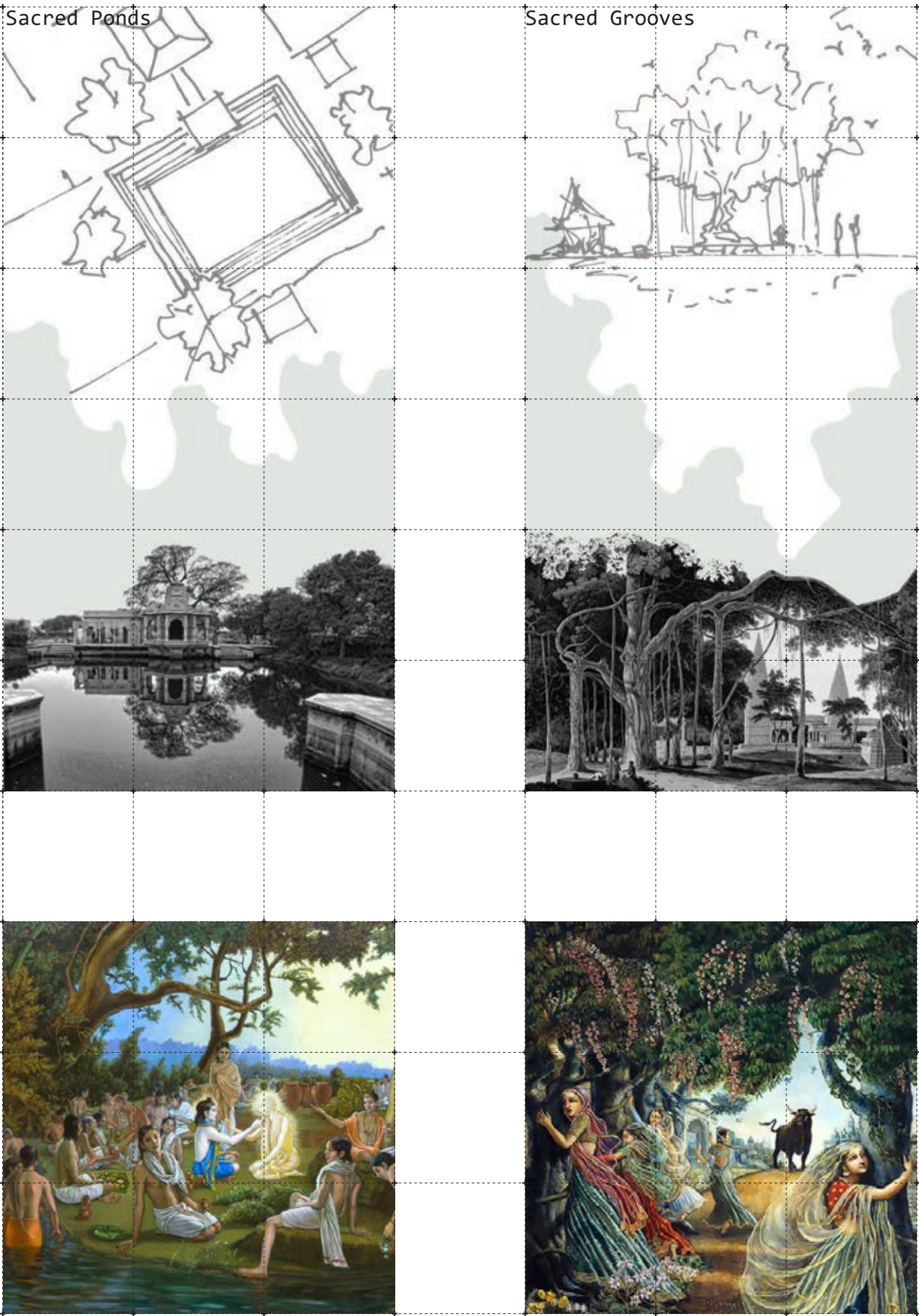


Fig 6.10: Sacred Ponds as cultural elements that can be linked with environment

Fig 6.11: Sacred Grooves as cultural elements that can be connected with environment



Fig 6.12: Various cultural elements linked with economy
Source: (author)

Seeing culture as a system of beliefs, values and identities which results in shared benefits can help in promoting inclusive economic development. Culture also creates a greater contribution to poverty reduction, generating income, heritage conservation, cultural infrastructure and increasing resilience (UNESCO, 2016). Cultural and creative industries are one of the rapidly growing sectors in developing countries which can cater to equality and inclusion amongst different social groups.



Fig 6.13: Stone carving in Varanasi. During festival season, idols of God are sent to different parts of the country from Varanasi
Source: dsource.in

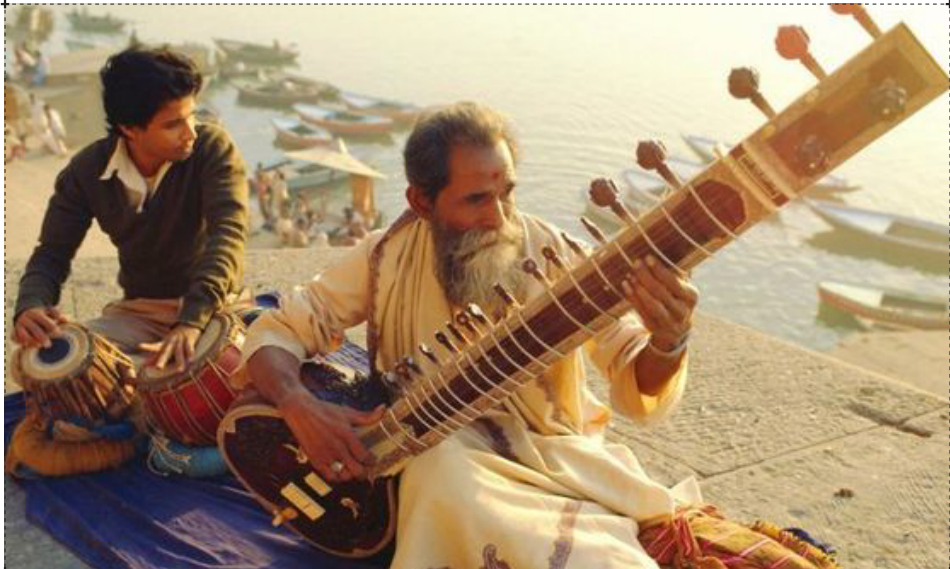


Fig 6.14(top): Artists playing tabla and sitar at the Ghats of Varanasi. Varanasi is well known as the land of famous musicians. Source: mynation.com
Fig 6.15 (middle): The famous Banaras Sarees are handmade in Varanasi. Source: caliedoscope.in
Fig 6.16(Bottom): Varanasi Laquerware. Making of toys out of eucalyptus and Coraiya woods and coloring with fluorescent and bright colours is an art which is unique to certain communities in Varanasi. Source: dsource.in

Social and cultural interactions



Fig 6.17: Various cultural elements linked with society
Source: Author



Fig 6.18: Homeless and beggars along the Ghats are silent stakeholders in Varanasi. The city has always accepted people and has provided food and shelter to all. Source: trekearth.com

Varanasi has a long history of acceptance where people came and settled over the years. Different communities exist as groups in various parts of the city. The people have become part of the Varanasi like an organism and have adopted to the way of life in Varanasi. The Mughal rule brought in the Muslim community and the location of Sarnath near Varanasi, where Buddha made his first preaching, has accepted Buddhists also to Benaras. The cultural orientation of the city forms an important aspect in the social structure of the city. The active participation of people of the city with religious activities that happen all the year around brings in interaction within the neighbourhoods.



Fig 6.19(Top): Sadhus (monks) have always been a larger community in the city of Varanasi. These sadhus lead a spiritual life which is an identity portrait of Varanasi. Source: indiamike.com/drvbose

Fig 6.20(Bottom): Women from a hand-loom workshop where they are given training for weaving sarees. Source: switch-asia.eu

6.3 Socio-spatial analysis

Religion

Mythological Links

Varanasi also popularly known as Banaras and Kashi have stories connected to Gods about its evolution and existence. Banaras is believed to be the city that provides the 'Life of juice' where Bana means 'always ready' and ras means 'juice of life' (Singh,2009). It is believed that energy from Shiva flows in the form of Ganga river from the Himalayas. The city is also believed to be the abode of Lord Shiva as shown in Fig 6.23. Varanasi is mentioned numerous times in Hindu mythologies where Kashi Khanda in Skanthapurana is an exclusive scripture about Varanasi. According to Kashi Khanda, Lord Shiva, River Ganga and the land of Varanasi together make the trinity of grace and perfect bliss (Singh,2009). This trinity is symbolised by the three hillocks as the three forks of Shiva's trident on which the city exists, where the north is known as Omkareshwara, the centre known as Vishweshwara and the south as Kedareshwara (Singh,2009). Water is an identity of this sacred land as the name Varanasi is derived from Varuna and Assi rivers that form the northern and southern territories of this sacred city.



Fig 6.21: River Ganga that is believed to be flowing from the head of Lord Shiva makes this city sacred.
Source: airpano.com/ Dimitriy Moiseenko

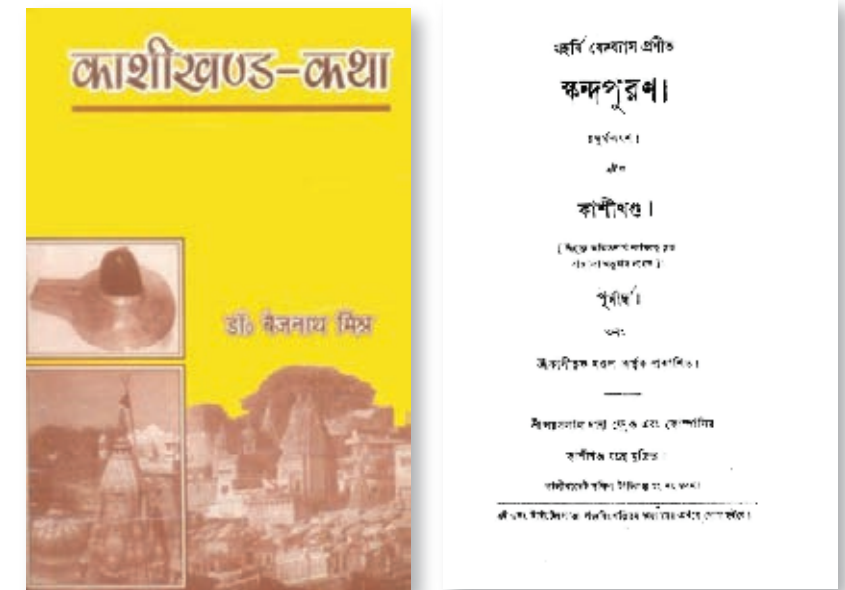
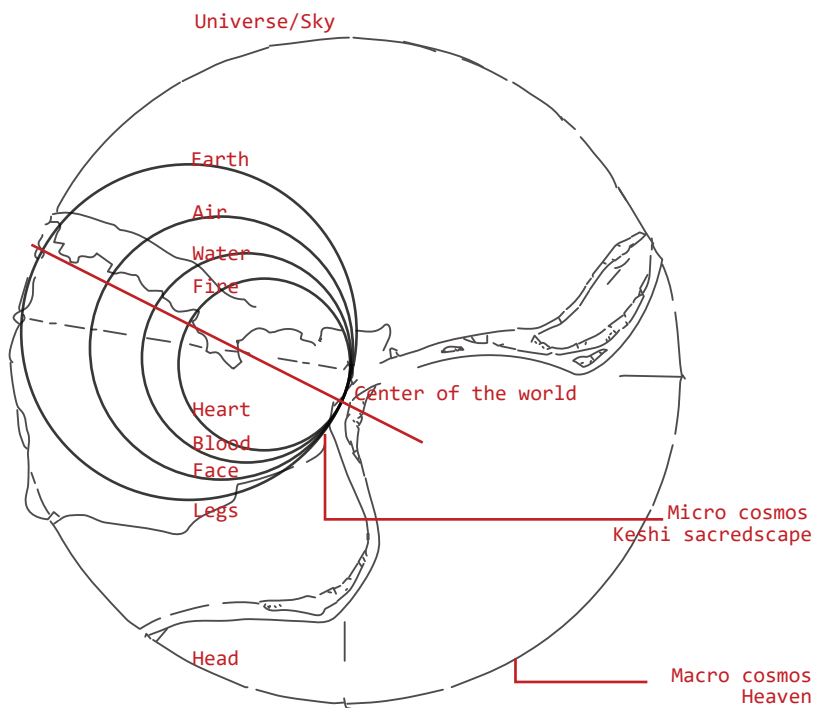


Fig 6.22 (Top): Cover Page of Mythological Book about Varanasi; Kashi Khanda
Fig 6.23 (Bottom) : Varanasi city symbolized as resting on the three forks of Shiva's Trident
Source: Singh, 2009

Pilgrimage Path



The pilgrimage journey is believed to transform the microcosmic journey into a macrocosmos for moksha

Fig 6.24: Kashi Mandala, Diagram showing cosmological relationship of Kashi sacredscape
Source: Author. Data: Singh,1997

Even though the five sacred routes have various myths related along its path, the sacred journey starts from the Vishwesara temple which is cosmologically considered to be the centre of the world (Singh, 1997). The 5 sacred routes represent fire, water, air, earth and sky. These also resemble the parts of a human body, there creating a connection with humans and Gods. Varanasi is regarded as the microcosm of India and the passage from macrocosms (heaven) to microcosms (Varanasi) through mesocosms (earth) is achieved through pilgrimage paths and the representation of these paths are known as 'Kashi Mandala'. The Vishweshara temple located at the centre of the Kashi Mandala is believed to be acting as the communication link between the three archetypal levels (Singh, 2016). In Varanasi, these pilgrimage paths are fully developed and still follow rules and concepts of cosmology in its practice of rituals and pilgrimage. The patron deity of Varanasi, Lord Shiva who is one among the trinity Gods of Hinduism, is the deity at Vishweshara temple.

The cosmological relationship of Varanasi(Kashi) to its spatial pilgrimage path was first mapped by Kailashnath Sukal in 1875 (Singh, 1997). The map (Fig 6.25) clearly explains the sacred territory of Kashi with various temples distributed around the sacred path in a circular form and the inner holy boundary marked in a square. The most interesting factor to decipher from this map is to understand the importance of nature given on this symbolic representative map of sacredscape. The map highlights the Ganga and Varuna river along with the symbolic representation of sacred trees and temples with religious mantras written all around.



Fig 6.25: First spatial pilgrimage map drawn by Kailashnath Sukal in 1875. Source: Singh, 1997

Although cosmic relation about the city is a belief for Hindus, it has made a significant impact in connecting the rural, semi-urban and urban parts of the Varanasi to the centre of Varanasi city through pilgrimage paths. This shows how the rural areas acted as hinterland from an economic and religious perspective.

Pilgrimages have been a tradition in Hinduism from centuries and are sometimes annual, seasonal, monthly, weekly or even daily. Although over the years, many temples have been constructed along these paths, pilgrims must visit 108 shrines that are mentioned in the Panchakroshi pilgrimage route (Singh, 1997). As explained in Fig 6.24, the pilgrimage paths are related to the various elements and circumambulating Varanasi along its sacred paths is believed similar to circling the world. (Prime, 1996). In the past, these sacred paths were rich with trees and kunds that provided comfort and experience of a sacred-scape to the pilgrims.

Panchkoshi pilgrimage is a five-day pilgrimage that completes an 88.5 km long walking circumambulation in Varanasi with five halt stations at Kardameshwar, Shivpur, Rameswar, Bhimchandi and Kapiladhara along the path. The journey starts from the Manikarnika Ghats in Varanasi city and ends in the same place after five days (Sehgal, 2017). The pilgrimage is usually carried out by pilgrims during July and August.



Fig 6.26: Old photograph, showing pilgrims leaving Kapiladhara, the last stop on Pilgrimage path before returning to Varanasi.
Source: Prime,1996

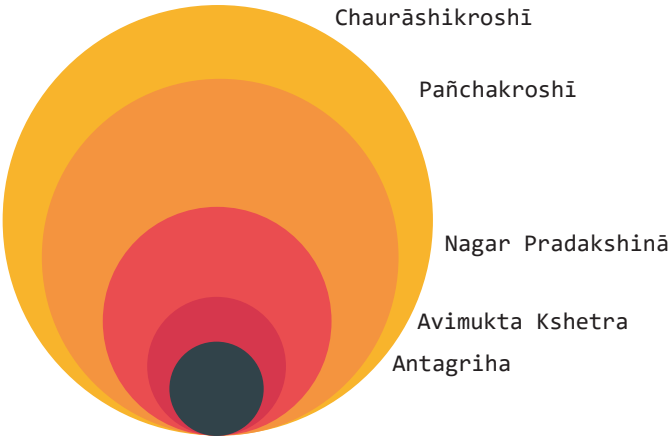


Fig 6.27: Five main pilgrimage paths in Varanasi that relates to Kashi Mandala. The scale, length and duration of journey increases from inside to outside.
Source: Author. Data: Prime,1996

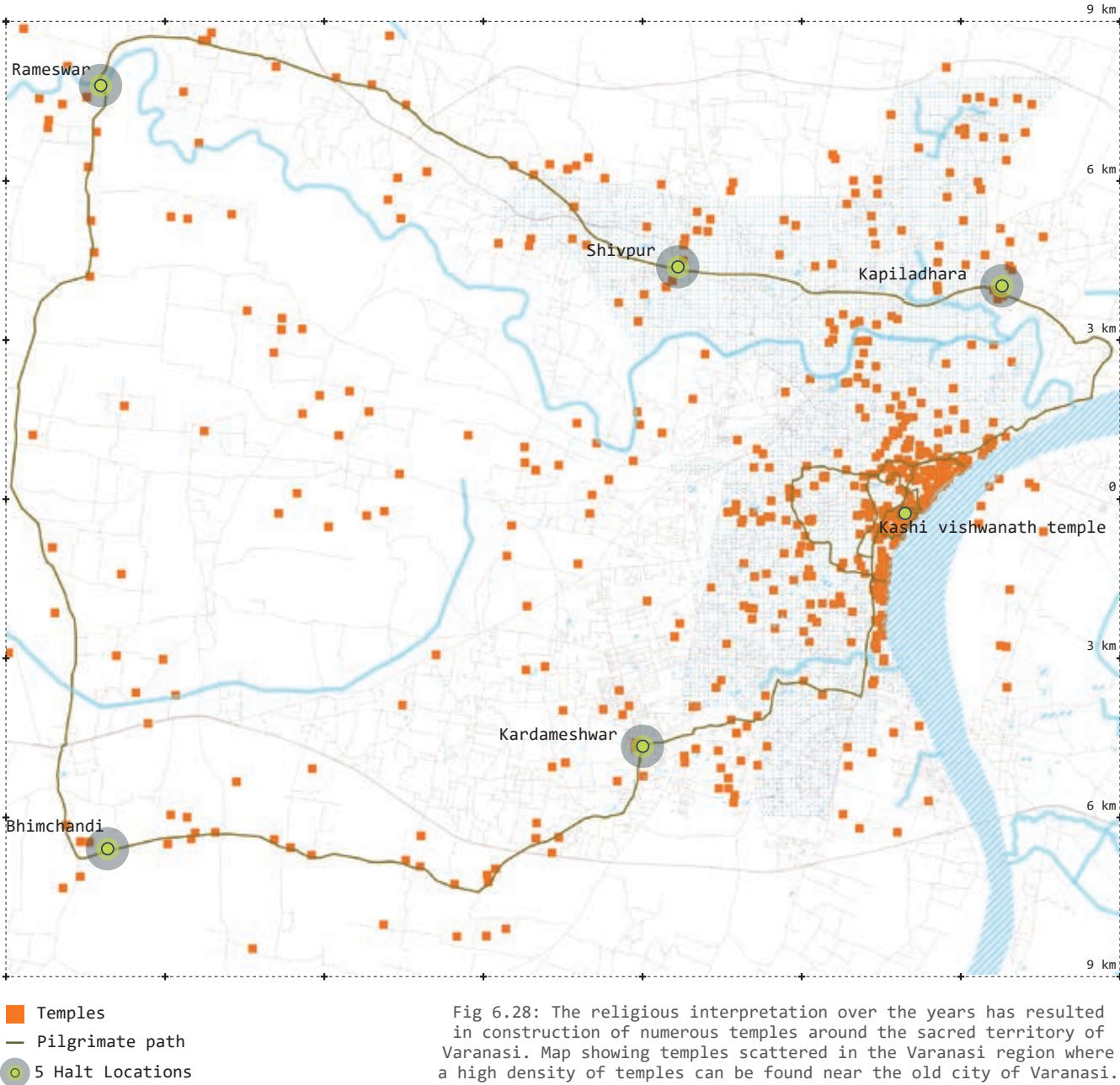
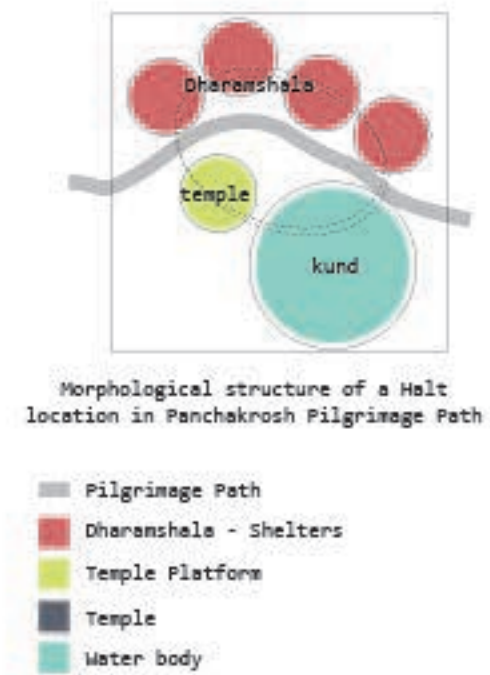


Fig 6.28: The religious interpretation over the years has resulted in construction of numerous temples around the sacred territory of Varanasi. Map showing temples scattered in the Varanasi region where a high density of temples can be found near the old city of Varanasi.
Source : Author



Analysing the 5 locations, it was found that a similar pattern of morphology as well as architecture was strictly followed in the setting of these shelter locations. Most of the buildings are in dilapidated condition due to its location far away from the city but the architectural details relate to buildings that must be conserved with heritage value. The basic structure of all the 5 locations is explained with the schematic diagram above where the temple is facing the kund (water body) and rest houses known as Dharamshalas that are courtyard houses are located along the pilgrimage path in the precinct. Rural settlements are clustered around these structures with a slight deviation in Shivpur and Kardameshwar which are basically located in peri-urban areas.



Present Condition

Over the years, the cultural landscape has lost ecological quality. The heritage structures (Dharamshala) at 5 halt locations along the path are in dilapidated conditions and lacks infrastructural facilities.



Fig 6.30: Images showing the sacred paths from rural, peri-urban and urban context(left to right) .Source: Google Earth



Fig 6.31: Images showing the dilapidated condition of pilgrimage halt locations .Source: Author

The sacred path is the regional link that connects the systems of rural to the city. There is a need to uphold the quality of these sacred paths not only for the ecological conservation but also for increasing the social capital of the city.

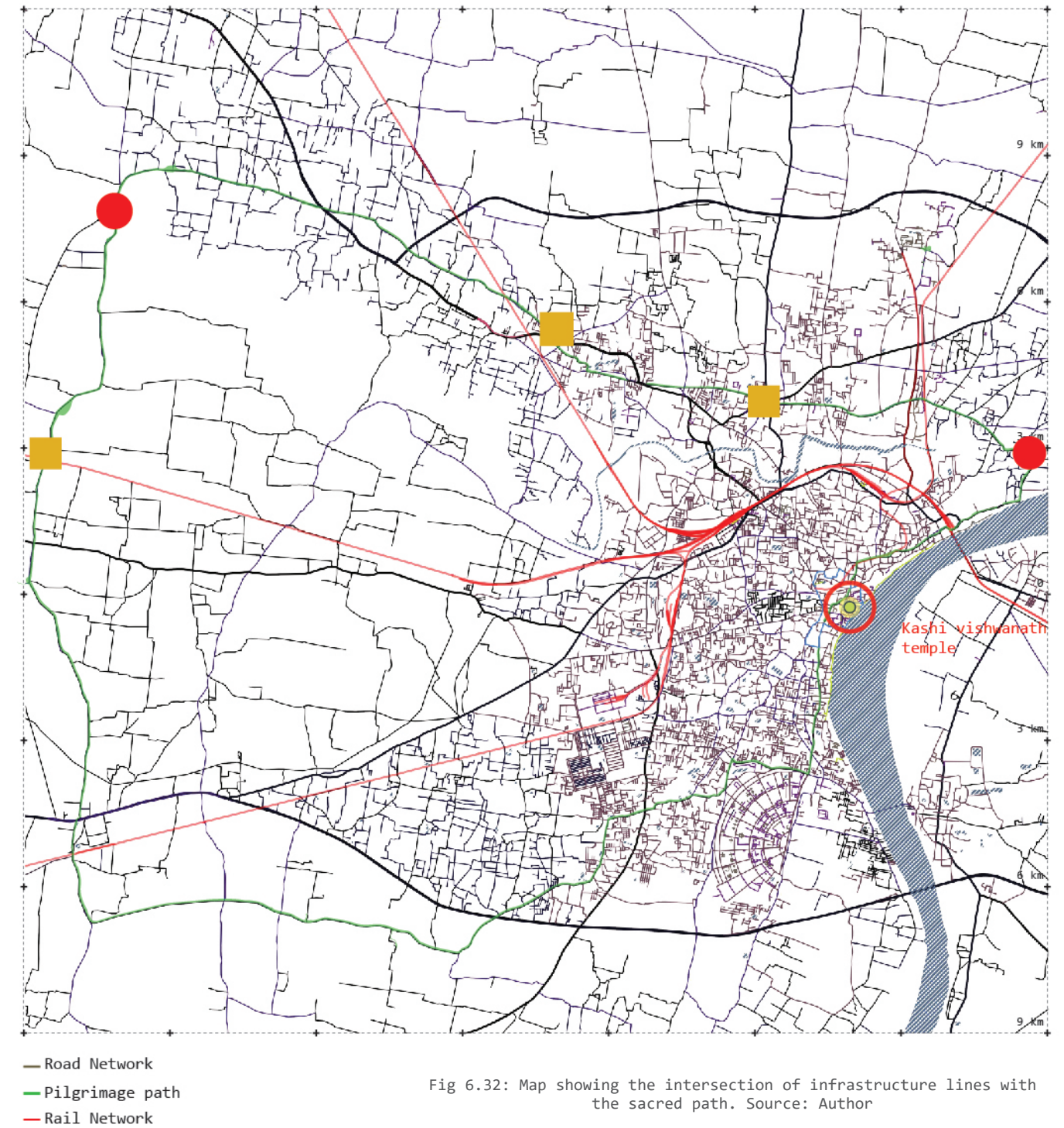


Fig 6.32: Map showing the intersection of infrastructure lines with the sacred path. Source: Author

Conclusion

Infrastructure development in converting Varanasi into a logistics hub in all modes of transport has bisected the sacred paths in different parts, whereby the ecological quality of the sacred path has completely lost. The sacred path which once used to be rich in green landscape and kunds has now changed where development has taken to overexploitation of the resources, hence harming the sensitive landscape. Adding to these impacts, the negligence to pilgrimage halt locations which possess high value for heritage is in dilapidating conditions.



The 'crescent-shaped' riverfront of Varanasi is considered highly auspicious as it is believed to symbolize the crescent moon on the forehead of Lord Shiva. The Ghats of Varanasi sits on the natural levee of 60m bed of clay consisting of coarse-grained sediments extending from Raj Ghat in the north to Samne Ghat in the south (Singh,2018). This unique shape of river Ganga changes the course in a semi-circular path. The river Ganga takes such a unique flow in Varanasi only in its entire flow from the Himalayas before it merges with the Bay of Bengal. The architectural morphology of Varanasi Ghats is evolved from the geology of this landscape. The 6.4 km long river-scape stretching from Assi to Varuna inherits layers of history express the sacred image amongst Hindus. Amongst all the 84 ghats, a few ghats are considered auspicious and the most visited location by people. They are Assi Ghat, Dhashashvamedha Ghat, Harichandra Ghat, Manikarnika Ghat, Panchaganga Ghat and Adi Keshava Ghat.

Fig 6.33: Old photographs of Varanasi
Source: oldindianphotos.in

Present Condition

Varanasi Ghats continue to remain as a strong space for Hindus where people from all over the country still flow into this city to take a dip in Holy River Ganga from this sacredscape.



Fig 6.34: Panoramic view of Ahilyabai Ghat. According to Hindu mythology, 84 ghats of Varanasi symbolizes 8,400,000 organic species and taking holy dips in these ghats is believed to purify the soul from these species and attain moksha (Singh,2011).
Source: Aditya Deshmukh,2014

Present Condition

The curved Riverfront of Varanasi has transformed into the focal point for the city with a diversity of people and activities happening along the Ghats.



Fig 6.35: Collage of images showing various actors and activities of the Ghats. Pilgrims, tourists and ghat hawkers are seen in large numbers along Ghats. Boatmen community and Dhobis (washing community) depend the River Ganga for their living. The Doms are considered the caretakers of cremation grounds at Manikarnika Ghat and Harishchandra Ghat. Wandering cows in the streets of Old city is a everyday scene in Varanasi. Sources : (Dhobis) pinterest.com, (Tourist) m1key.me/Michał Huniewicz. All remaining pictures by Author.

Evolution

Varanasi is a representation of an archetype of sacredness that has been placed in the unique cultural history of India. Significance of this holy land is vastly expressed in various pieces of literature relating to Hinduism, culture, heritage, architecture, and history. The extra layer of cosmos pertaining above this holy land makes this sacredscape purely auspicious for any believer. According to Mark Twain, the city is older than history, legend, and tradition (Twain,1898). The city has more than 3000 Hindu temples and 1400 mosques scattered in different parts of the city. For Hindus, besides these temples, the materialistic worship of trees, rocks and other shrines create the complete city a holy land. The city was ruled over centuries by different dynasties who worshipped Lord Shiva to whom Varanasi is considered as the abode. Due to the cultural and economic growth of Varanasi, waterfront developments grew rapidly over the rule of different kingdoms. Later on, the Mughals construction added mosques and palaces along the Ghats. The British rule installed further infrastructure systems to the city and the riverfront development increased with the construction of forts along the Ghats.

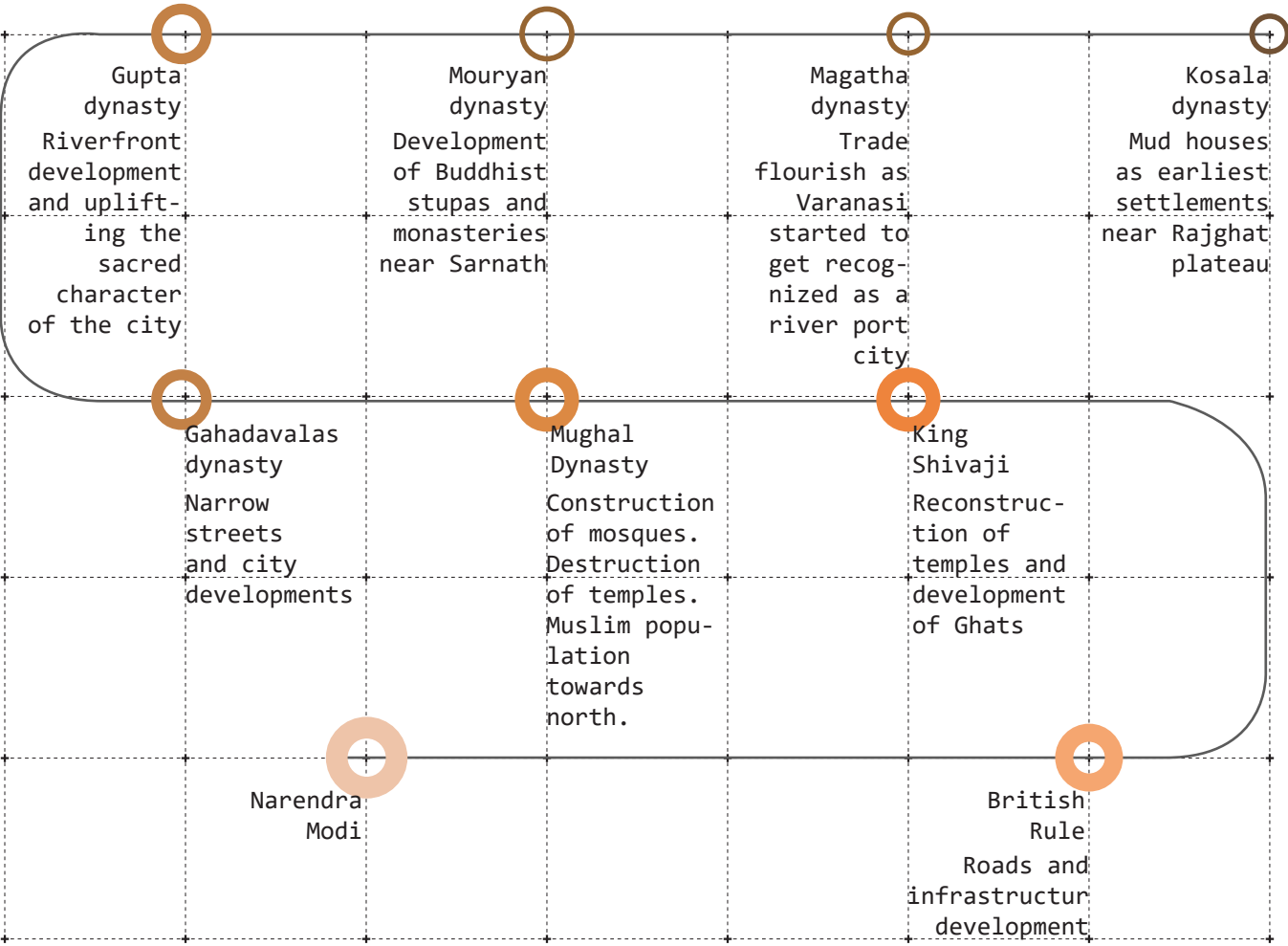


Fig 6.36: Time line showing the rulers and evolution of Varanasi over time
Source: Author

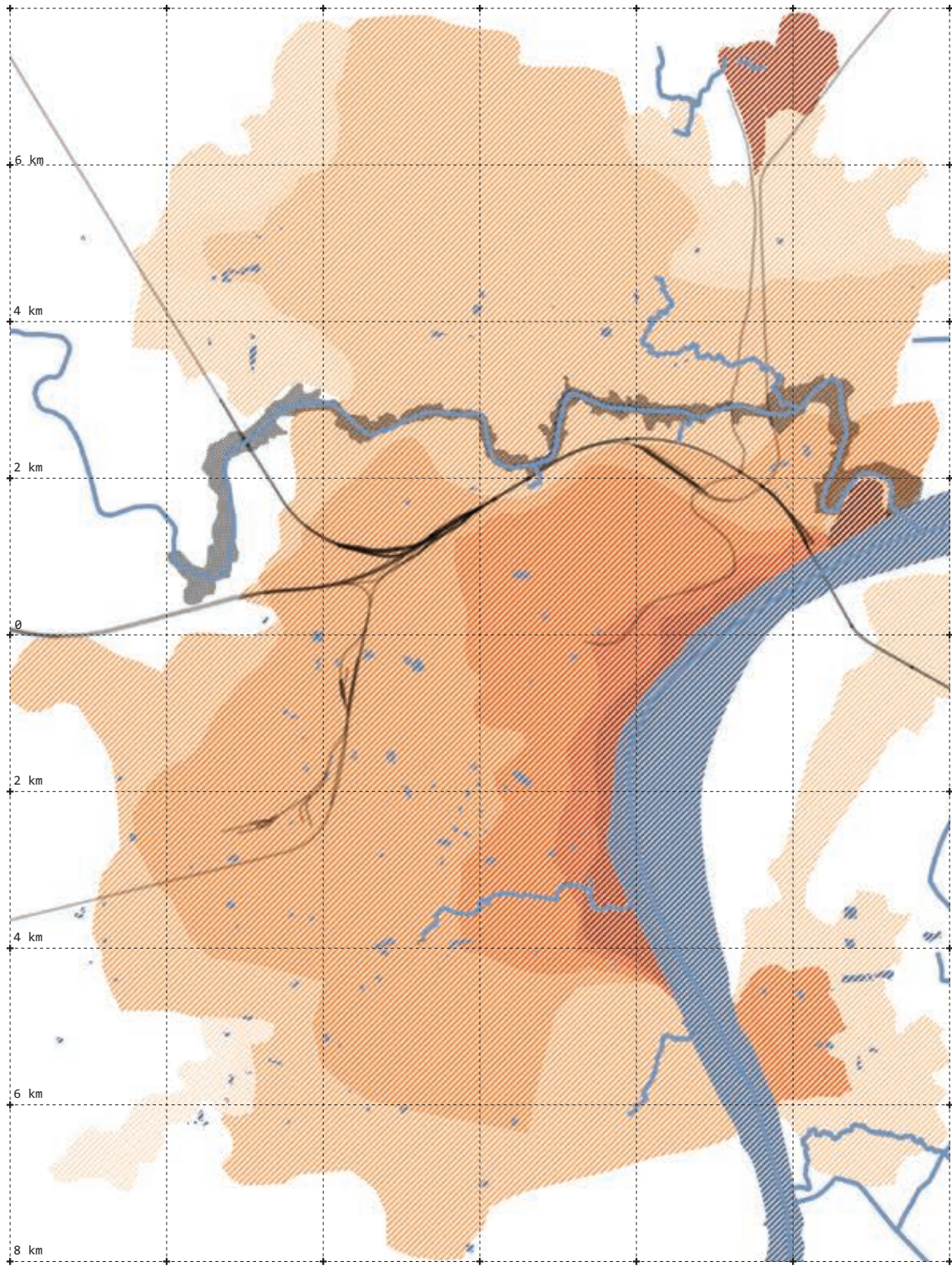


Fig 6.37: Map showing the evolution of city over time where the city evolved from the river front to the outside (Dark to light colour shows the growth of the city).
Source: Author

Old city of Varanasi

The old city of Varanasi holds an identity as it is set over the high terrain on the leeward side of river Ganga. The old city descends to river Ganga as Ghats which are stepped banks with platforms and temples scattered everywhere along the river edge. The scenes of the old city are so unique that this place is a favourite spot for photographers and tourists.



Fig 6.38 (left): Morning scene along these narrow old city streets
Fig 6.39 (right): Steps leading from Old street to riverfront
Source: behance.net/ Ashraful Arefin

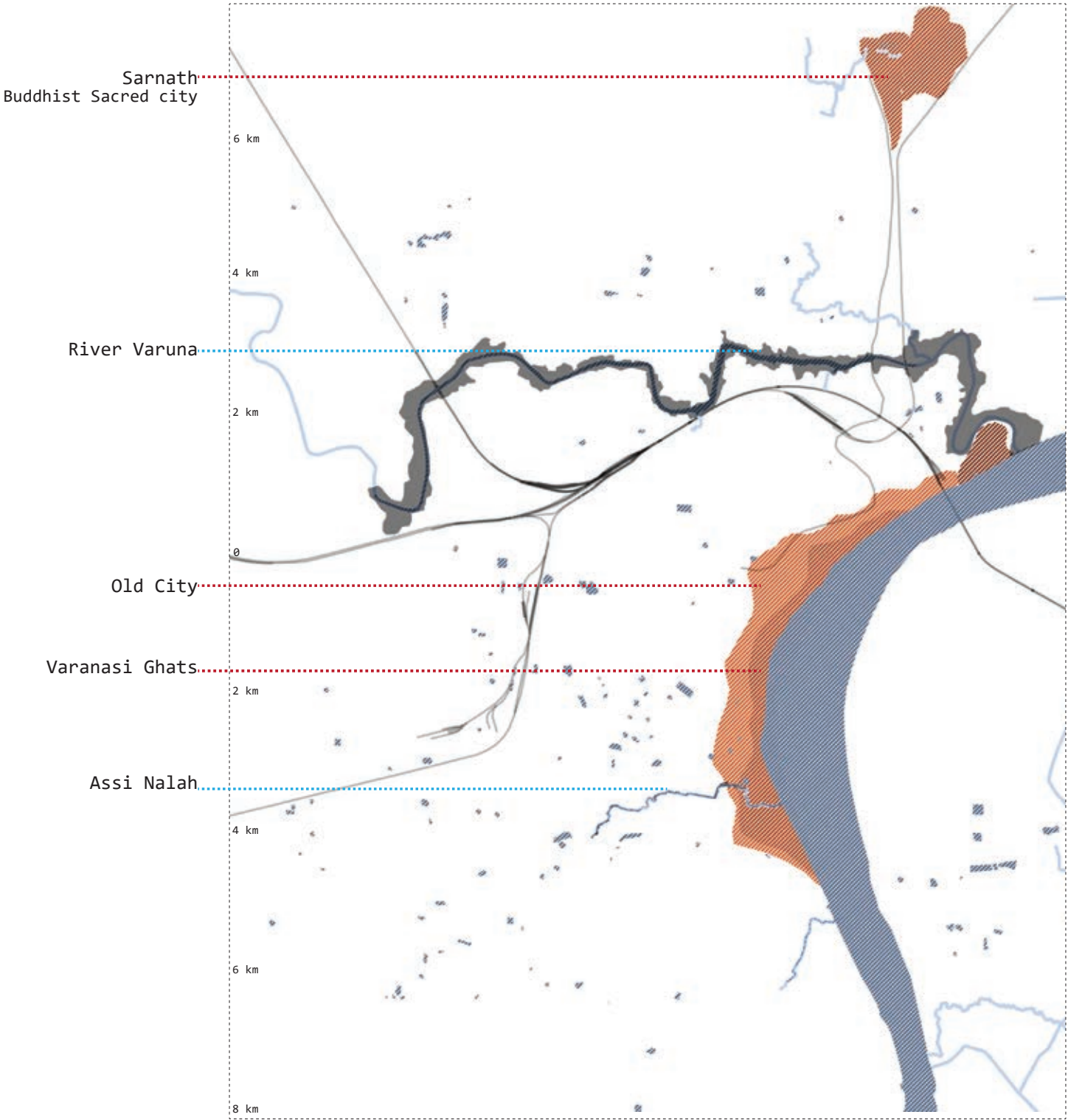


Fig 6.40: Map showing the old city and river front settlements of Varanasi
Source: Author

The old city of Varanasi exists like an organism with meandering narrow streets leading to the Ghats with layers of urban fabric which were stacked over time. Different socio-cultural groups have been living in this old city precinct and their lifestyle adds to the cultural identity of Varanasi. Many temples and shrines are scattered in many parts of this old city. Cows wandering through these narrow streets is not a scary scene for Varanasi people as cows are seen as holy in Hindu religion.

Development

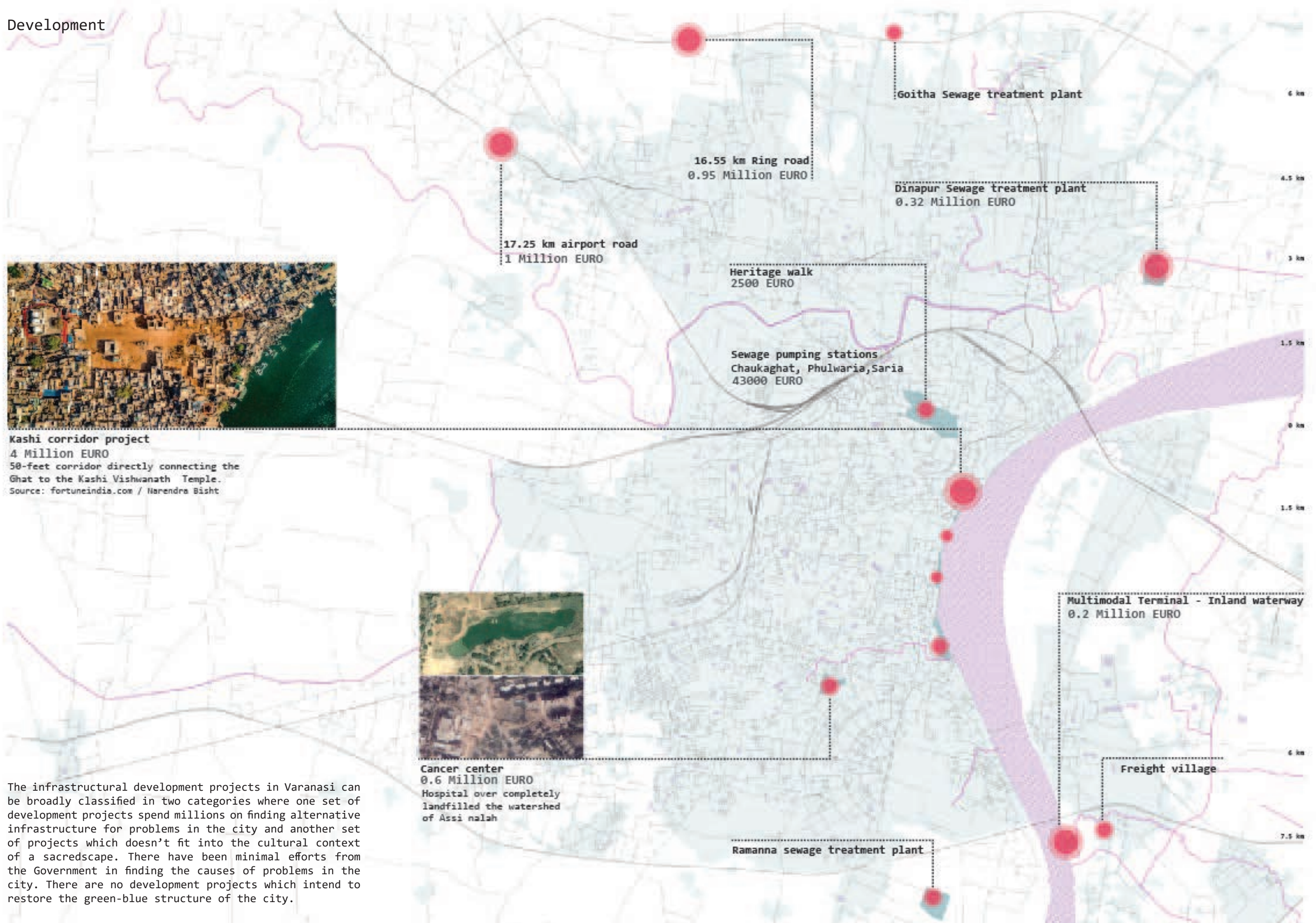


Kashi corridor project
4 Million EURO
50-foot corridor directly connecting the Ghat to the Kashi Vishwanath Temple.
Source: fortuneindia.com / Narendra Bisht



Cancer center
0.6 Million EURO
Hospital over completely landfilled the watershed of Assi nalah

The infrastructural development projects in Varanasi can be broadly classified in two categories where one set of development projects spend millions on finding alternative infrastructure for problems in the city and another set of projects which doesn't fit into the cultural context of a sacredscape. There have been minimal efforts from the Government in finding the causes of problems in the city. There are no development projects which intend to restore the green-blue structure of the city.



There is a lack of open space for any development process in the city. Proposals for many recreational parks is in process but these lands are disputed for creating more parking spaces in the city (Kaushal,2020).

Land Use	Proposed land use as per draft URDPFI guidelines , 2014	As in 1991 (Master plan, 1991)		Proposed, 2011 (Master plan, 1991)		Actual in 2011 (Master plan, 2031)		Proposed, 2031 (Master plan, 2031)	
		Area (Ha)	%	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Residential	35-40	5457.24	38	9254.61	50	5476.44	57	9886.54	40
Mixed Use	-	-	-	-	-	-	-	759.83	3
Commercial	4-5	475.1	3	618.23	3	233.21	2	1099.54	4
Industrial	12-14	981.37	7	656.19	4	281.78	3	515.56	2
Public - Semi Public	14-16	450.42	3	1413.04	8	719	7	2339.33	9
Recreational	20-24	2705.76	19	984.47	5	775.54	8	4652.7	19
Services	-	-	-	-	-	-	-	141.2	1
Govt. land (including offices)	-	292.18	2	1433.15	8	233.5	2	503.34	2
Tourism and Heritage	-	-	-	672.96	4	440.42	5	92.4	0
Transportation	15-18	1300.27	9	1460.35	8	1029.5	11	3442.5	14
Others	-	-	-	273.5	1	273.5	3	571.05	2
Total	100	14494.4	100	18449.95	100	9624.13	100	24645.99	100

Fig 6.41: Adapted from *URDPFI Guidelines 2014 showing the proposed and actual land use allocations in master plans 1991, 2011 and 2031
Source: INTACH, 2016

Varanasi has been stretching its limits beyond its municipal territory due to increasing population and density within the city. In the land-use shift table (Fig 6.41), it is evident that the population increase has led to an increase in residential land-use. The important conclusion from the table is that the green (recreational) that has been reduced over the years. But since there is an immediate need for open spaces in the city, the master plan aims at increasing the recreational spaces to 19% by 2031.

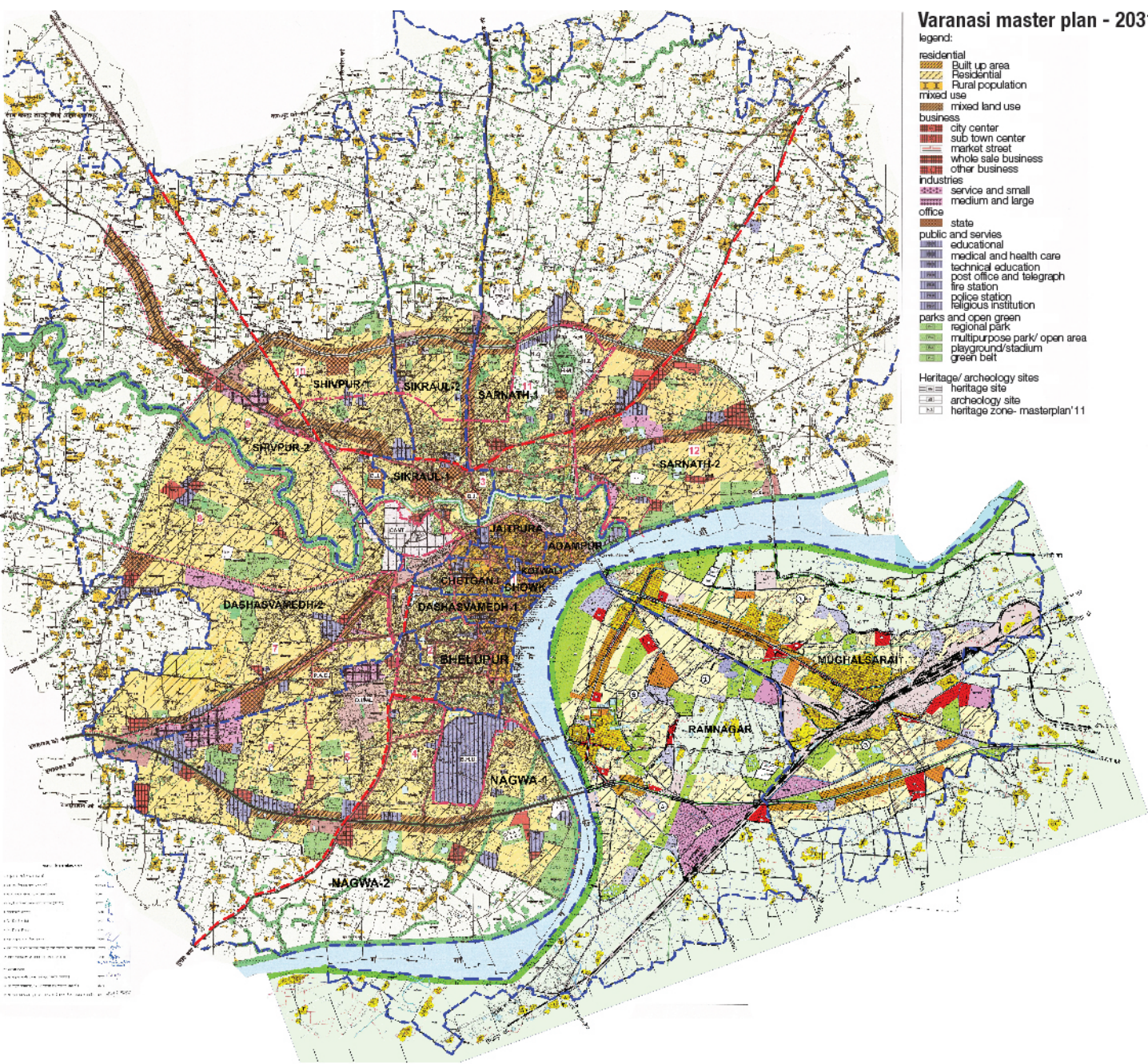


Fig 6.42: Varanasi Master plan for 2031 showing the agglomeration of Varanasi city with Ramnagar and Mughalsarai across the river
Source: Varanasi Development Authority

Urban agglomeration and face lifting development proposals by the government are resulting in complete decaying of the city's actual identity (Mishra, 2020). The identity of this unique sacred city is vested in its people and their traditional practices from agriculture to religious worshipping. Masterplans of Varanasi should give due importance to safeguarding these interests. Varanasi is been divided into many government territories within and across scales that lack co-ordination and have political differences which prevents any holistic development in Varanasi (Mishra, 2020).

*URDPFI - Urban and Regional Development Plans Formulation & Implementation

With narrow streets and increasing density, Varanasi is ranked 5 amongst India's **slowest cities**.

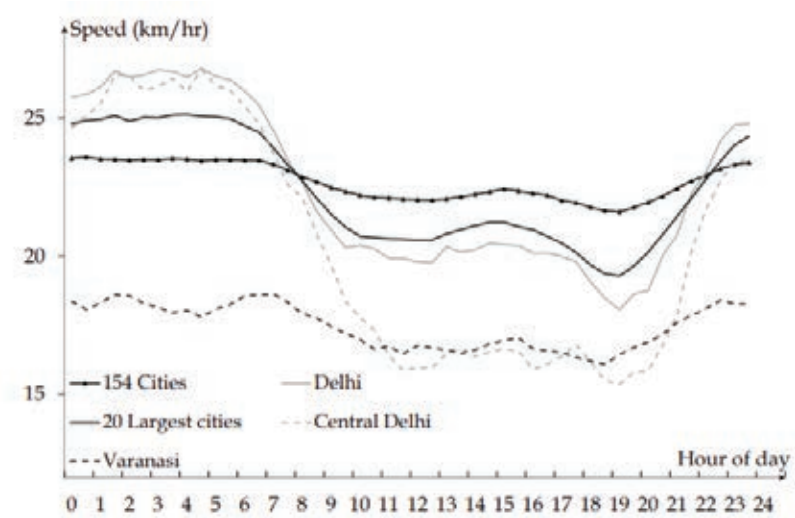
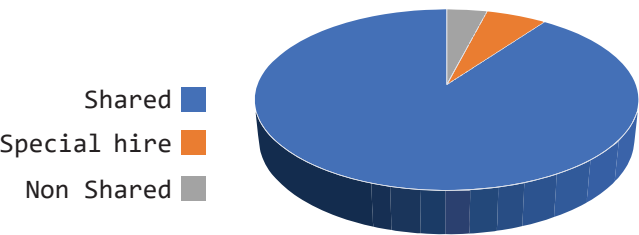


Fig 6.43: Speed of travel by motorized vehicles throughout the day in Indian cities (excluding pedestrians)
Source: Akbar et al, 2018

From the historical evidence, it can be seen that Varanasi was the center for trade activities in the Northern part of India. The major reason for this was its connectivity via road and water. Being a riverfront city, the ghats of Varanasi was a docking site for many travelers who moved across the north of India. The trade was also supported by crafts and Saree making industry of the city. The sacred identity always drew people to the city as the British rule improved the infrastructure of the city with rail developments. But over the years, water transport has declined in India and transportation towards the city has completely shifted to road and rail. The traditional lifestyle of the city keeps rickshaws and bullock carts still active modes of movement. Increased density and automobile use along with these traditional modes of transport have made the streets of Varanasi completely chaotic for movement.



The above pie chart shows the percentage of usage type of rickshaws. 90% of the rides are shared which gives an insight into how important are the rickshaws for the city. Not only for the users, but these rickshaws are also the livelihood for a major section of Varanasi. There is a need to explore the possibilities of recognizing these rickshaws as a public mode of transport.



Fig 6.44: Traffic Congestion in Varanasi
Source: loupiote.com/Tristan Savatier

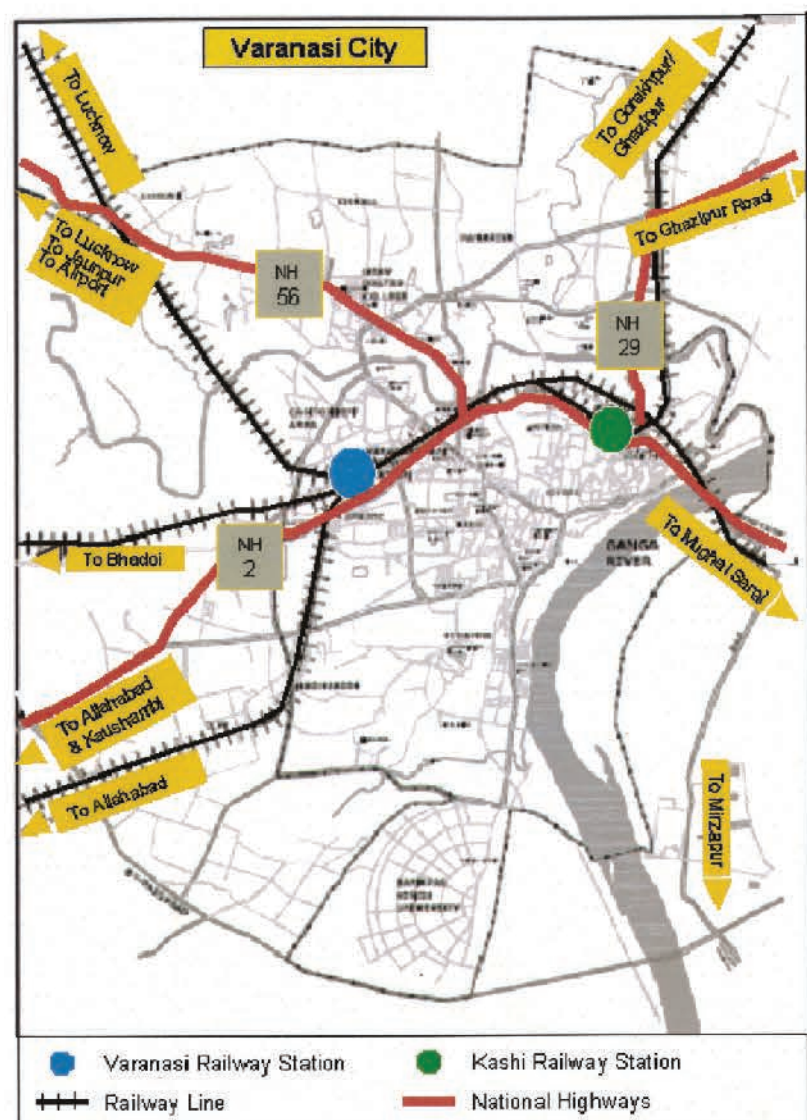


Fig 6.45: Intercity connectivity lines by rail and road. The city is supported by two main train stations and a transport terminal. Source: Ernst & Young Pvt Ltd., 2009

Varanasi has strong intercity connections via road and rail. The Varanasi airport which is located 25km away from the city has good connectivity via four-lane road till the outskirts of the city. The major problem of accessibility issues is more within the city where congestion and traffic is a daily scenario in many parts of the city. Scattered locations around the city create diversified movements and lack of public transportation contributes to congestion in almost all lines of connectivity. The government had initiated schemes for public transportation but lack of space remains as an unsolvable issue. Parking issues for the city where there is no formal parking allocated is another problem that the city is facing.

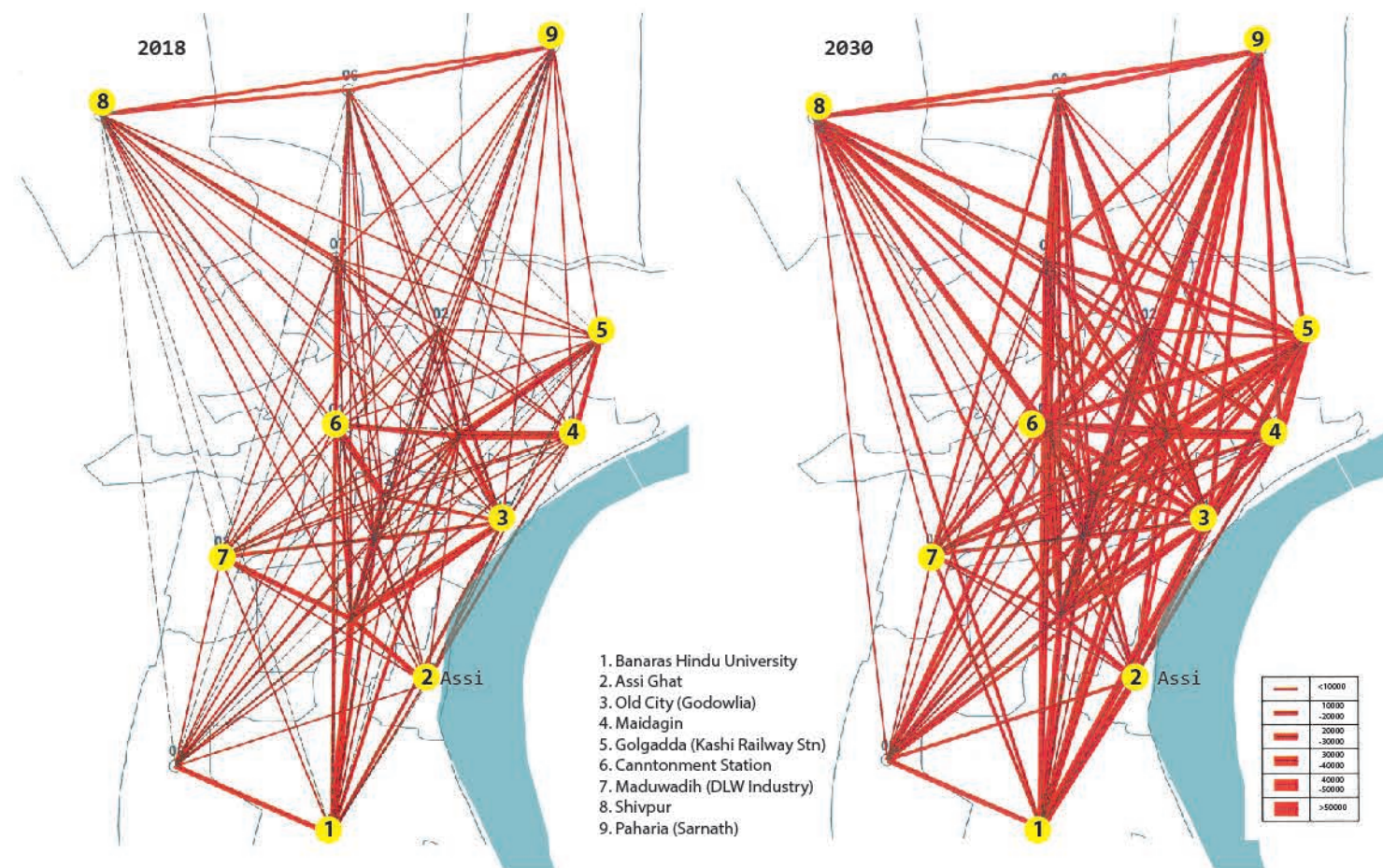


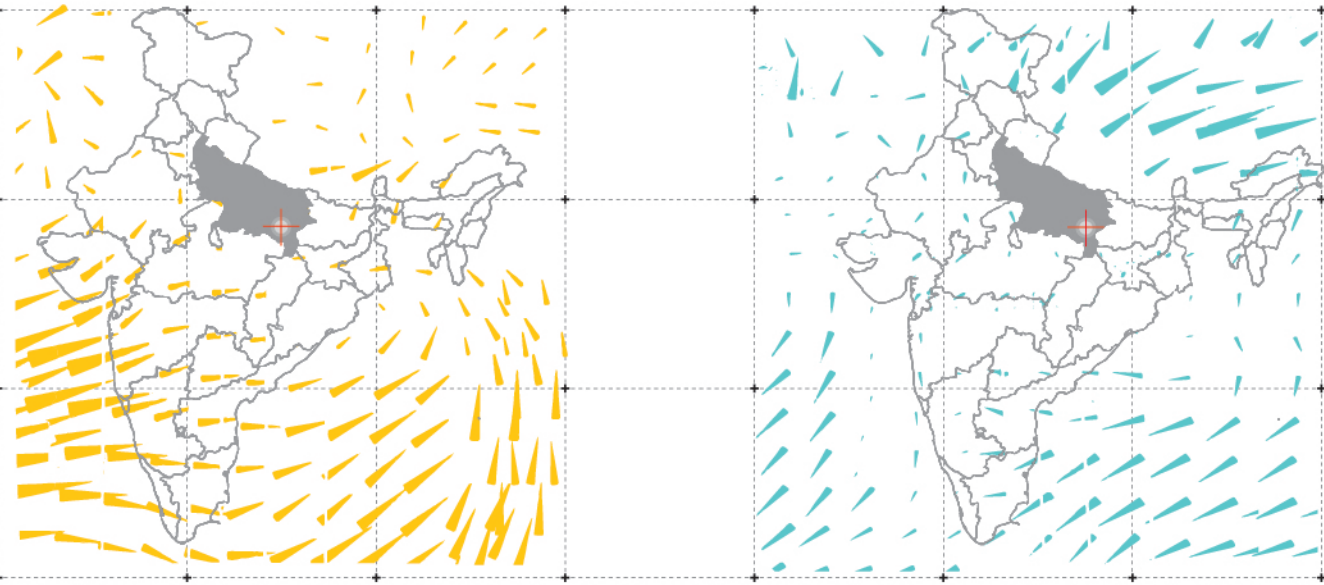
Fig 6.46: Desired Line diagram of Movement based on PPHD (Passengers per hour per direction) for 2018 and 2030 shows that the intracity connections. According to the National Urban Transport Policy, routes above 5000 should be catered with public transport. Source: Ernst & Young Pvt Ltd., 2009

There is an immediate need for a public transportation system connecting the desired locations of the city with taking into considerations the limitations of narrow streets, terrain and slow traffic.

Conclusion

From the analysis and field visit, it is clear that there is a need for a public transportation system in Varanasi. But lack of space and slow traffic projects major hazards in the implementation of a public transport line. Being an old city, the urban fabric and the streets are closely linked with streets becoming active spaces throughout the day and night. Lack of formal spaces for parking, absence of pedestrian paths and slow-moving traffic are other additional issues which need solutions. Varanasi still has limited transportation via water transport which mainly focuses now on the tourist industry.

Dynamics of water - Fall of Water



Varanasi experiences a subtropical climate with heavy monsoon rainfall from mid-June to September and hot humid climate from March to mid-June. Fig 6.47 shows the direction of summer and winter monsoons in India of which the heavy rainfall is due to result of summer monsoons. Fig 6.48 shows the frequency of floods over the years that have increased due to poor water management practices. Since all the Himalayan rivers being perennial, which originates from the mountain glaciers, more floods should be anticipated for the coming years with global climate change.

● Summer Monsoon ● Winter Monsoon
Fig 6.47: Direction of Monsoon Rainfall in India
Source: Author
Data: Acciavatti & Mehrotra,2015.

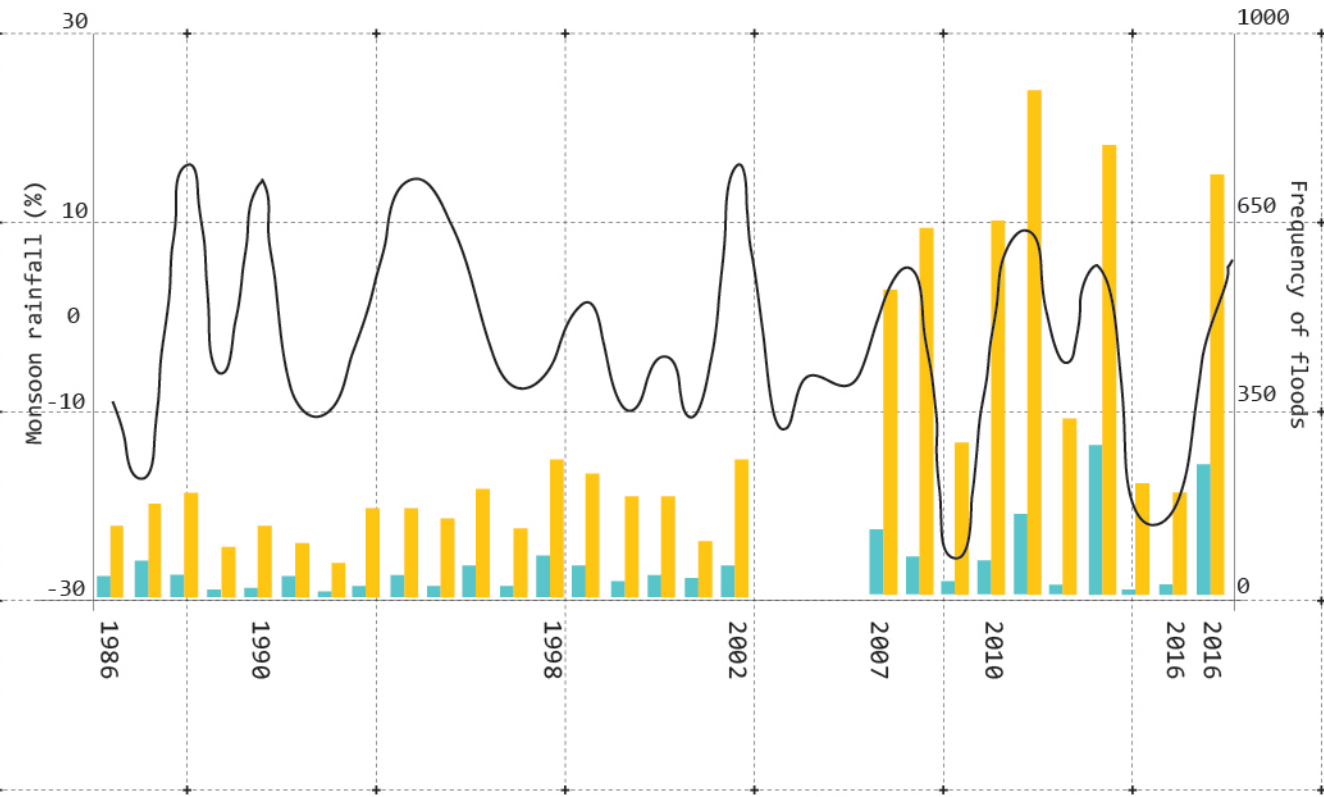
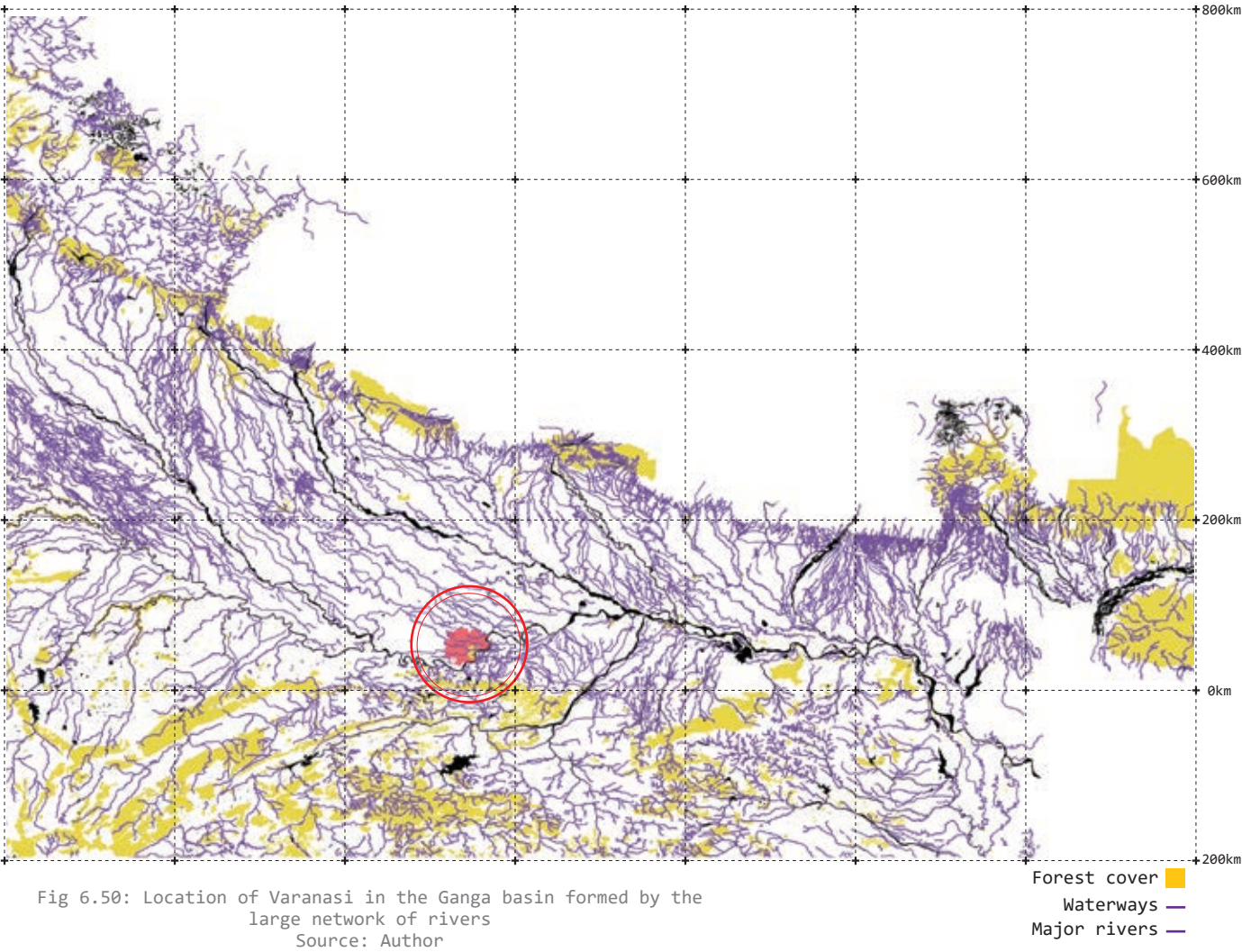


Fig 6.48: Amount(%) and frequency of floods in Varanasi over the years
Source: Author, Data: Nandargi & Shelar,2018
■ Total no of floods
■ Major floods
— Ganga Basin rainfall(%)



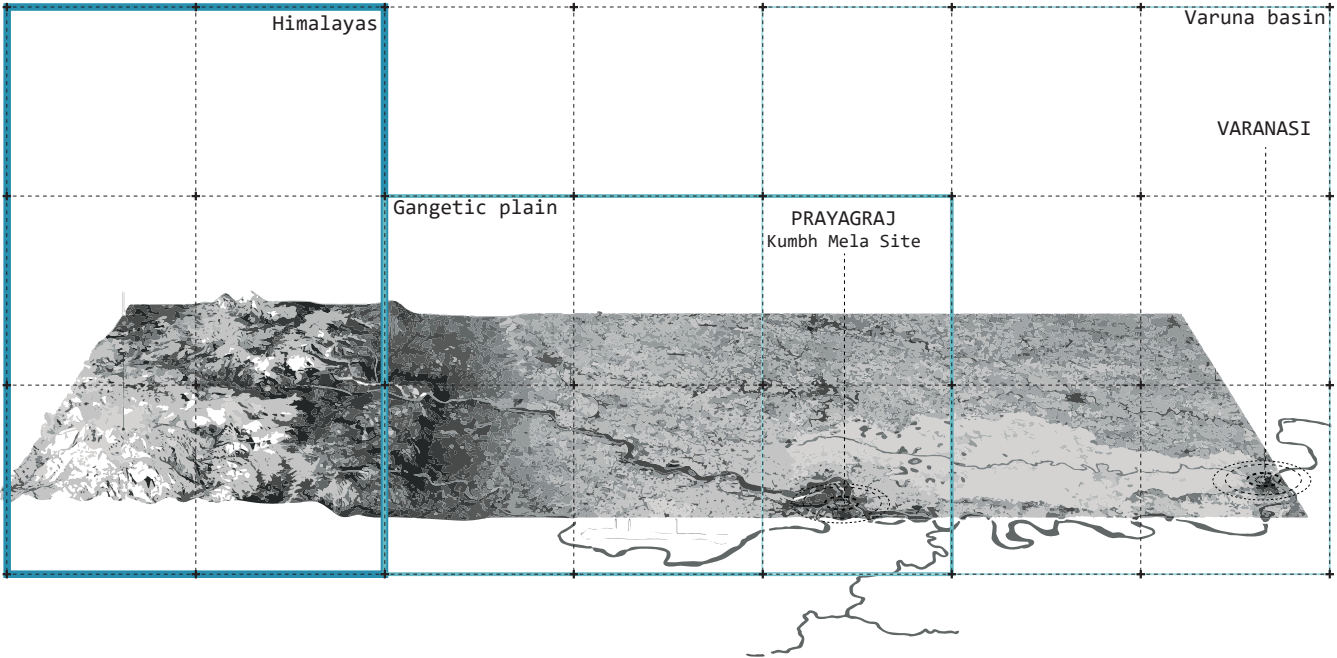
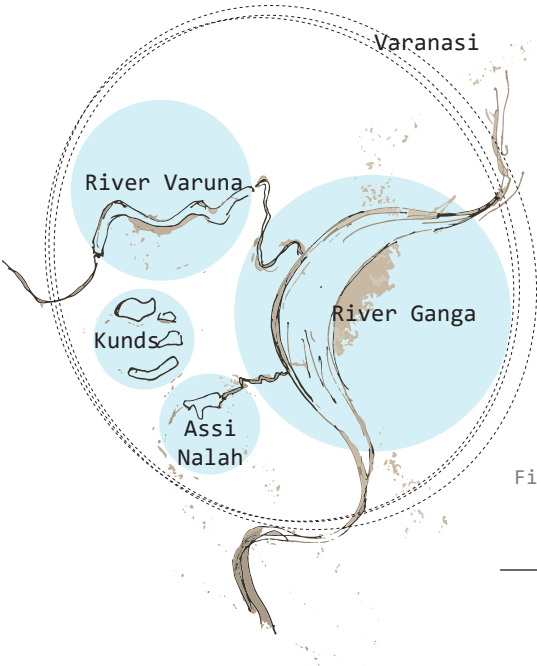
Fig 6.49: Water flowing through stepped Ghats of Varanasi
Source: live.staticflickr.com

Varanasi receives heavy rainfall during June, July and August. The city sits on a higher plain, on the levee, but still floods are not new to Varanasi. The floods are mainly due to level of rise in Ganga, and overflow of Varuna river . Poor infrastructure also leads to water clogging in the low lying areas of Varanasi. Due to these predictable climatic conditions, tourism and pilgrimage are high from October to April.



River Ganga is one of the largest rivers in the Indian subcontinent that travels through the northern plains of India before merging with the Bay of Bengal. Ganga originates from the Himalayan glaciers and many religious sites are located along its banks. Some of the famous Hindu pilgrimage locations include Haridwar, Rishikesh, Ujjain, Prayagraj and Varanasi. Ganga is considered as a goddess in Hindu religion who has the power to cleanse the sins and gift freedom from the cycle of life and death. The location of Varanasi along the course of the Ganges is very peculiar as the Ganges flows northeast only in the stretch where it passes along Varanasi. The Hindus relate this natural phenomenon with cosmic relations of the city. Ganga is the livelihood for millions of people in terms of drinking, irrigation, industries and other purposes. But the river is highly polluted with industrial waste and domestic waste from the cities. This has threatened not only human life but has also made many aquatic species of the river endangered. Religious activities, open defecation and sewage waste from Varanasi make it a highly polluted region in the trajectory of Ganga. Faecal coliform bacteria levels in the course of Ganga at Varanasi is 3000 times higher than WHO standards (Briney,2019).

Geologically, Varanasi has a rich water system with three rivers draining the city. Ganga river to which the city faces is a perennial river flowing from the Himalayas. The Varuna river in the north flow through the edge of the city limits and Assi nalah originates within the city. Low lying areas in Varanasi gets filled with water during the monsoons. Some of these water collection areas are transformed as ponds are known as kunds. They have been existing as a water resource for many Varanasi locations during non-monsoon seasons over many years. Some of these tanks are considered temple ponds as they are related to a temple or a shrine. Besides these water systems, Varanasi is highly rich in groundwater resource where many of the neighbourhood depends on the tube well water systems.



Varanasi whose edges are defined by Ganga, Varuna and Assi sit on the natural levee of the River Ganga. The concave shape on the course of the river Ganga where Varanasi is located is called point bar, which is naturally erosional (Shukla,2013). The riverfront development and construction of Ghats over the years have created huge stress on this land as the city riverfront has stopped the natural shifting of the river course at this point bar. Different from the normal course of flow of river Ganga, which is usually in the southeast direction from the Northern Himalayas to the Bay of Bengal, the river takes a turn from Chunar in north direction and shifts to a northeast direction at Varanasi forming a crescent shape for its flow (Shukla,2013). According to Hindu belief, the crescent shape relates to the crescent that is on the head of Lord Shiva.

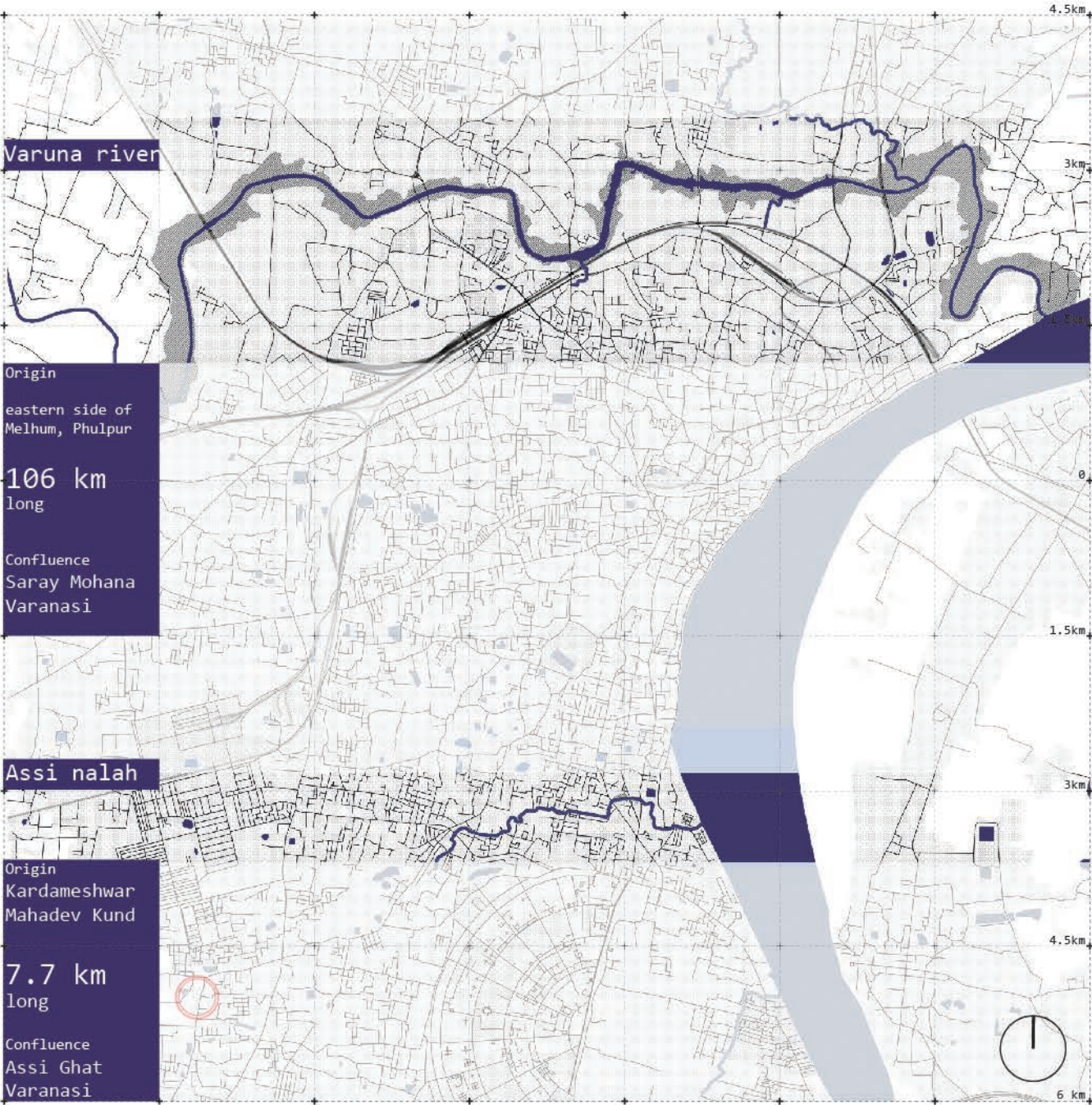


Fig 6.53: The name of Varanasi has been evolved from the concept of land between the Varuna river and the Assi Nalah.
Source: Author

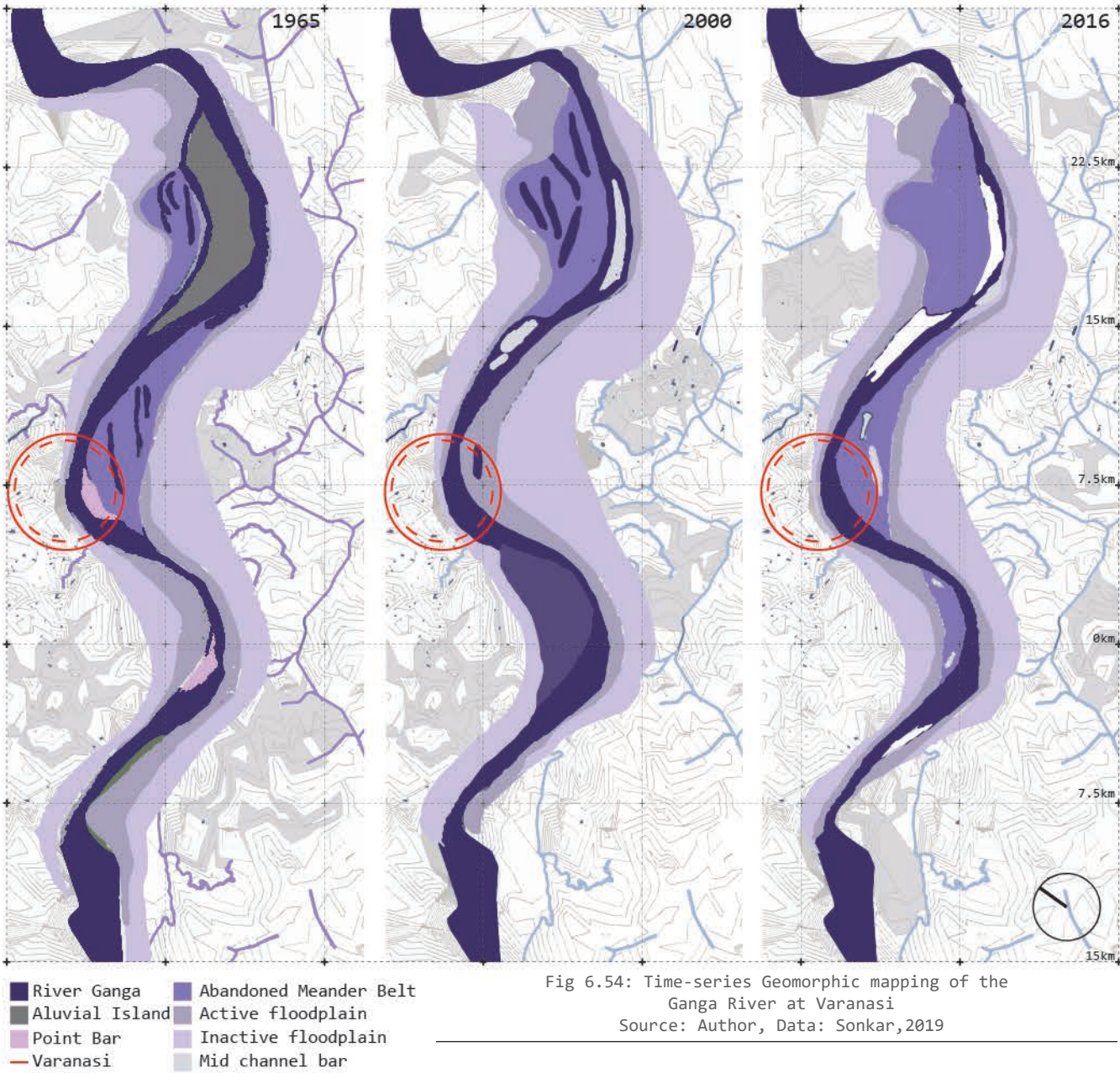


Fig 6.54: Time-series Geomorphic mapping of the Ganga River at Varanasi
Source: Author, Data: Sonkar,2019

Conclusion

Water dynamics related to monsoon and variation in the melting of glaciers in the Himalayas has been associated phenomena for river Ganga over the years. Floods are no different to Varanasi city even being on high terrain. But floods should not be seen as a natural disaster as these causes dynamic landscapes along the flood plains of the river. These plains could be used as productive landscapes for agricultural farming or religious festivals. The urbanization process is curbing the boundaries of the river to flow by riverfront development which should be prevented, rather there should be enough room for the river to flow during the monsoons without affecting the built environment. These shifting landscapes projects possibilities where the river can be filtered in the region of Varanasi preventing water pollution downstream. The idea of allowing water to flow freely without curbing it to man-made boundaries is one of the key conclusions of this section.



Fig 6.55: Varanasi during floods
Source: tumblr.com/ Steve McCurry

Climate change will also be impacting river Ganga that will cause devastating floods along its flood plains in Varanasi. (World Bank,2008) Rather than seeing this large quantity of water that flows down as floods or any disaster, authorities should propose scenario planning where this water can be managed using proper water management techniques (Nandargi & Shelar,2018).

Although Varanasi city is at a higher level compared to many low lying plains in the Ganga basin, the city is flooded during heavy monsoons by Varuna and Ganga. During the years of 1916, 1948, 1972 and 1982, the level of water reached above 73m causing heavy destruction to the city (Nandargi & Shelar,2018). With the danger level of floods at Varanasi marked at 71.27 m, the recent 2019 floods reached above 72 m causing great damage to livelihood and infrastructure.

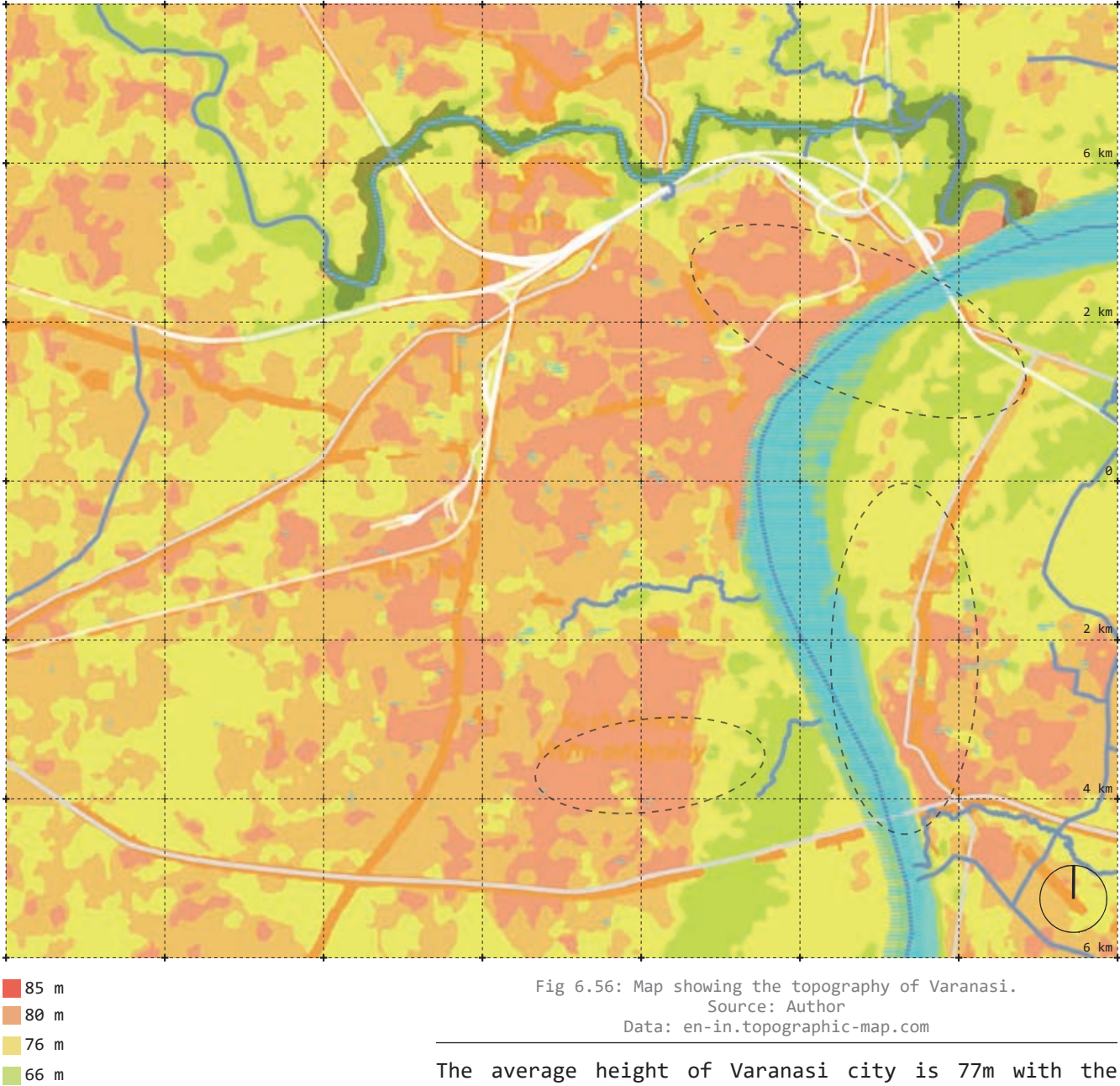


Fig 6.56: Map showing the topography of Varanasi.
Source: Author
Data: en-in.topographic-map.com

The average height of Varanasi city is 77m with the highest point at Rajghat plateau, near the Varuna and Ganga confluence(83.84m) and the lowest along the Assi nalah(72m) (Nandargi & Shelar,2018).

Conclusion

Varanasi city situated on the natural levee of river Ganga is less vulnerable to disaster floods compared to other low lying areas of the region. The advantage of Varanasi with its varying topography could be used as a natural way for water drainage using gravitational flow if proper filtering process of the storm-water is done in its path. Stepped cultivation and productive landscapes along the river over the active floodplain during the non-monsoon seasons are interventions that can be adapted to the landscape of Varanasi.

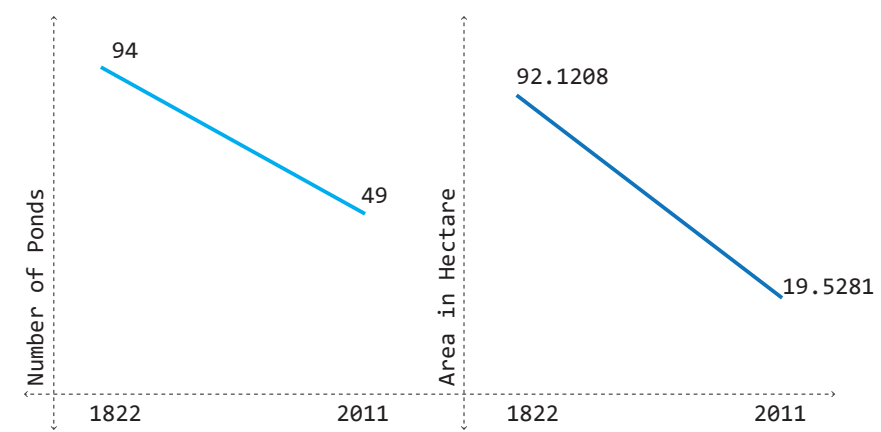


Fig 6.57: Number and area of ponds in Varanasi over the years
Source: Raju & Bhatt,2015.



Fig 6.58: Temple pond in Varanasi
Source: Columbia GSAPP,2019.

Kunds that persist away from rivers and streams act as the main water resource for sustainment of life for a region around it (Sehgal & Singh,2017). The spatial analysis of the pilgrimage path reveals the presence of Kunds along the path which proves that these kunds must have played a vital role in sustaining the pilgrimage over the years. With a growing number of pilgrims and an increasing population of Varanasi, the conditions of these Kunds have deteriorated.



Fig 6.59: Old Map of Varanasi by James Prinsep showing the rich water system of Varanasi. Source: Varanasi.org.in.

Kunds that are related to temples have sustained more than the remaining. Adding a sacred identity and proper conservation techniques on the existing water systems can help in restoring the green-blue structure of Varanasi. Besides the environmental benefit, this will add quality to the pilgrimage path and help to conserve the cultural quality of Panchkrosh Parikrama.

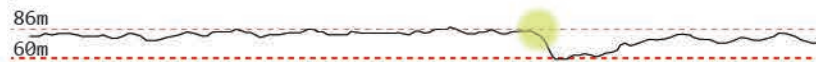


Fig 6.60: Chakra tal in Varanasi where the solid waste garbage and cow dung has polluted the water systems.
Source: Columbia GSAPP, 2019

Within the urban precinct of Varanasi, kunds are water bodies that are smaller than lakes and could hold water for 5 to 6 months depending on the amount of rainfall and dryness during the non-monsoon seasons (Azam et al., 2017). In India, where the seasonal rains exist, people depend on these water kunds for bathing, drinking and for even irrigation purposes. These kunds have always helped in keeping the balance for the biodiversity. These kunds also had high social relevance where people used to gather during different activities and acted as a meeting point. The alarming factor is not just that the number of kunds has come down drastically, but most of the remaining kunds are highly polluted due to poor management, sewage disposal, eutrophication and pollution (Azam et al., 2017). This has indeed destroyed the aquatic lives in these kunds. The relation between religion and ponds is that these were considered as sacred temple ponds which ideally was supposed to prevent the water from getting polluted and to keep it pure as it is. But these temple ponds have dense urban fabric around which have either slowly taken over the water body by landfilling or with waste disposal.

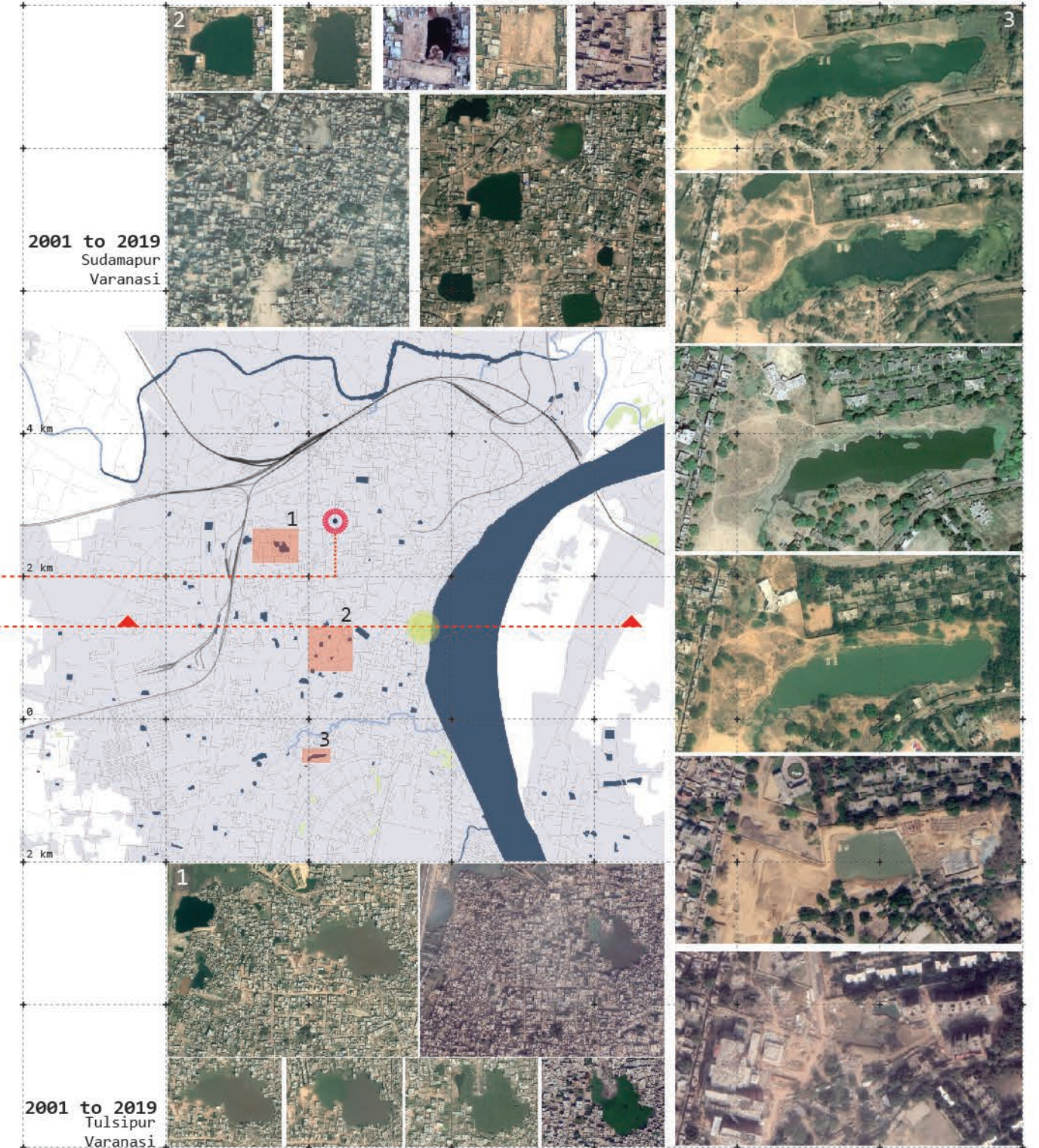


Fig 6.61: Google images from 2001 and 2019 showing the disappearance of kunds in various parts of the city.
Source: Google earth

Conclusion

Reviving the existing ponds and creating ponds in low lying regions of the city where water is scarce could help in stitching the lost water structure of the city. These could not only bring a solution to the water crisis but also help in creating community interaction.

Sewage System



Fig 6.62: Outdoor Urinals along the Ghats. The photos reveals the alarming condition of sewage systems that exist within the city
Source: earthtrekkers.com

Varanasi falls under the red category in the city sanitation index which means it is on the brink of public health crisis and requires immediate actions (CRISIL, 2015). Community toilets have been arranged for the pilgrims, but they are inefficient for the number of pilgrims visiting the city. As these public toilets are paid-use, people chose open urination as the pilgrims mostly come from rural areas.

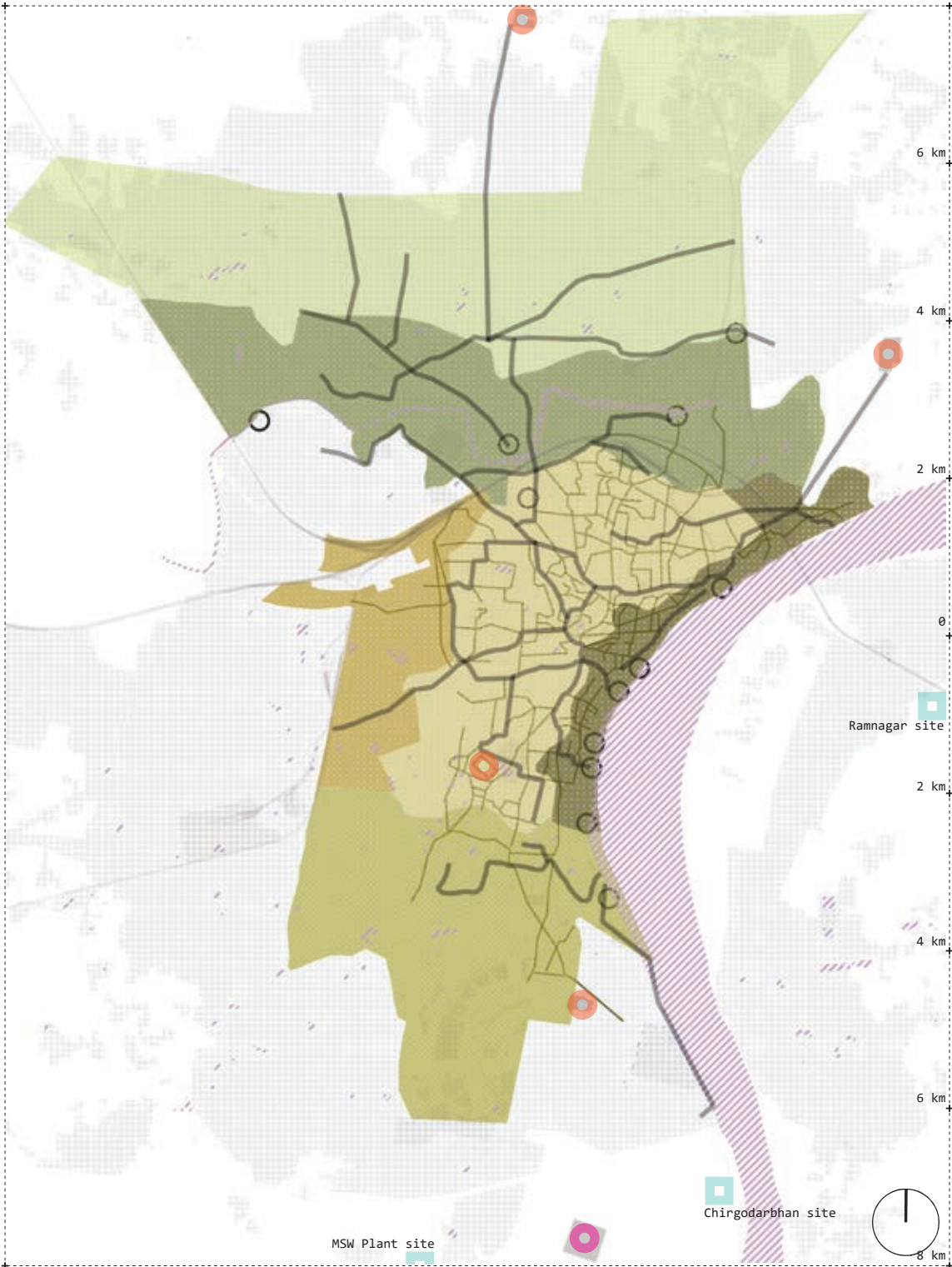


Fig 6.63: Map showing the distribution of sewage systems in 6 zones in Varanasi Municipality.
Source: Author, Data: CRISIL,2015

Conclusion

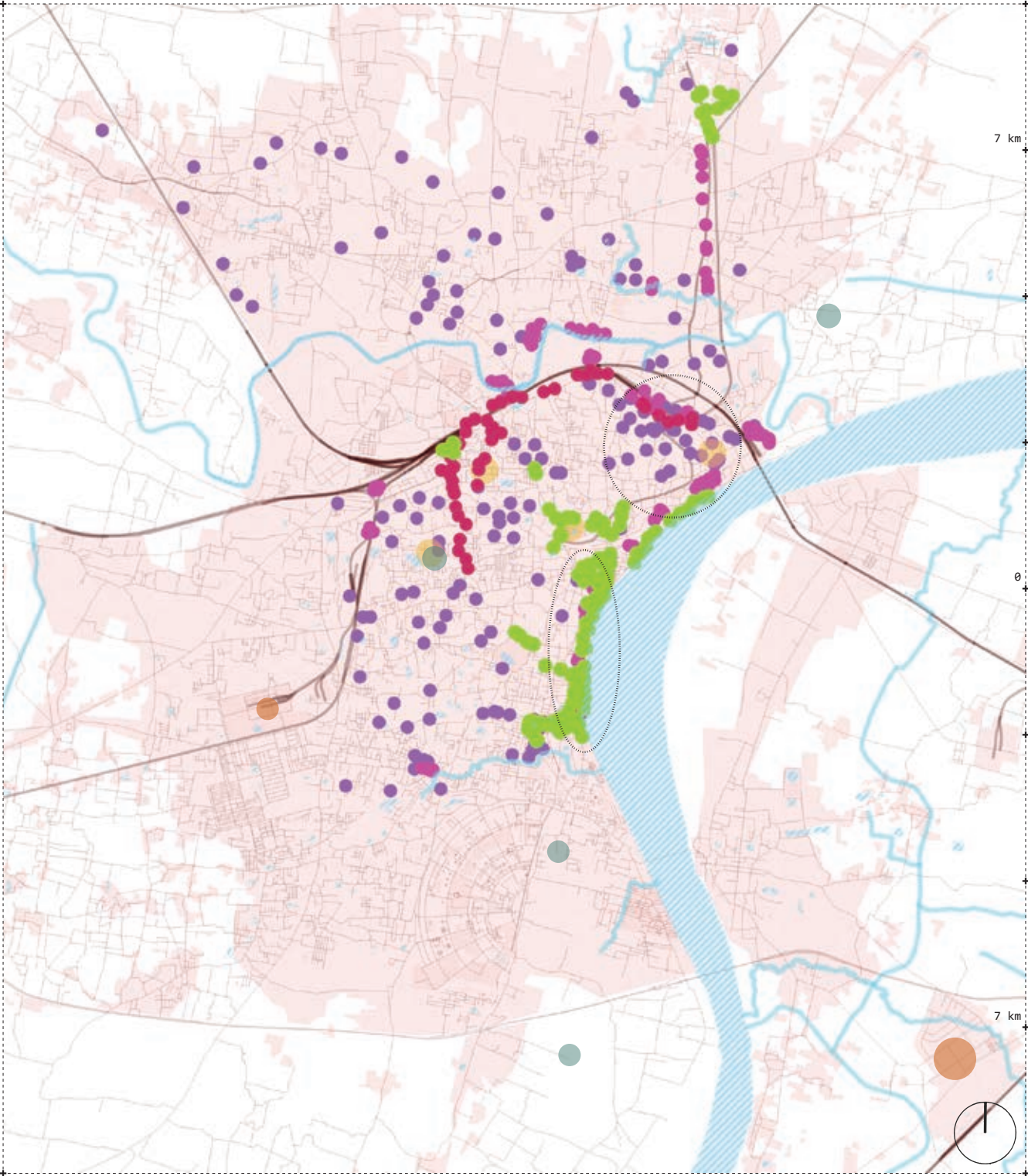
The low lying places of the city are near the river corridors of Varuna and Assi. In these regions, the sewage connectivity is weak and sewage waste directly flows into Assi and Varuna and finally reaching the Ganga. Proper filtering of water in the rivers that flow within the boundaries of the city can be used in preventing these waste from polluting the Ganga. These flood plains could be used for growing crops that could use the waste as fertilizer and help in restoring the green structure of the city.

Varanasi sewage system mainly depends on three sewage treatment plants, five sewage pumping station along the ghats, and one in Konia and a complex network of old and new sewage drains that only covers above 30% of the whole Municipality (CRISIL,2015). During the monsoons, due to the excess amount of water flowing down the drains, the water is directly pumped from the sewage treatment plants to the river. Also, the open drains carry the filthy waste in the streets directly to the river system without any treatment.



Fig 6.64: Collage showing the causes of waste in Varanasi
Source: Author

Varanasi still possesses a greater threat to Ganga being one of the major contributors of river pollution. Although over the years, Government schemes like Ganga Action Plan and Namami Ganga have tried to restore the quality of the river, it still remains polluted. Some of the major problems in the sewage system in Varanasi is firstly the lack of problems in providing the sewage treatment for the various scales and the inefficient technology that is used. Secondly, the conditions of the sewage systems in the old city is very critical as they were installed during the British rule. Thirdly the breaking of power supply for these sewage treatments as a continuous power supply is required for these systems.



- Religious/Tourist activities
- Slum concentration
- Open urination hotspots
- Open Defecation critical places
- Industry
- Sewage treatment plant

Fig 6.65: Map showing the critical regions of waste generation and the causes of it.
Source: Author , Data: CRISIL, 2015

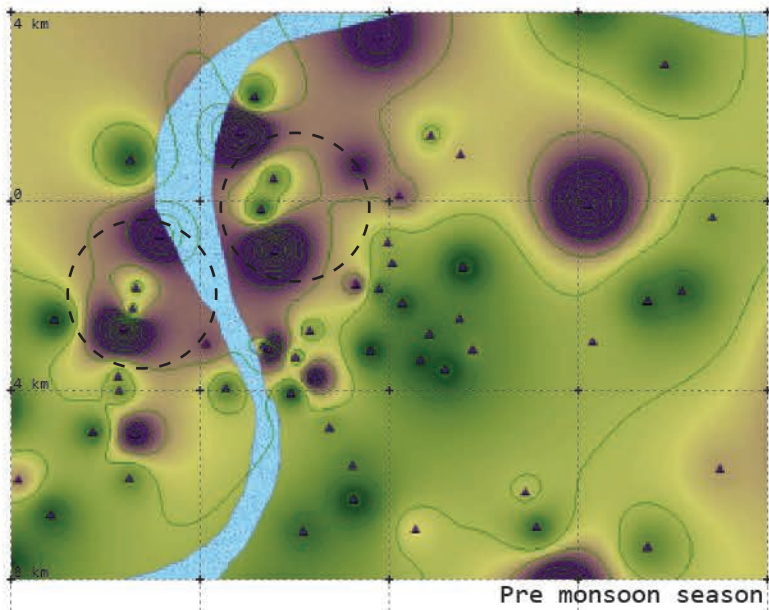
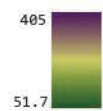
Conclusion

The Government is spending a huge budget for installing sewage treatment plants that are unable to meet the pace of increasing sewage waste from the city. It is high time for the Government to come up with alternative measures where it involves community participation for reducing the waste from its source or treating it within the neighbourhood using the natural process of filtration. Creating constructed wetlands within the neighbourhoods of the city could considerably help in treating the surface water and gray water that flows from the city.



Fig 6.66: A Brahmin boy offering prayers in the holy water which is completely filthy and polluted.
Source: Columbia GSAPP, 2019

The sewage network of the city mostly caters to the old city which is an integrated connection of old sewers with new in which the old ones built during the time of British fails to meet the present capacity of the city. 18% of households in the city have no toilet access (CRISIL,2015). Most of the households have septic tanks, pits or service toilets. There is no scientific method to treat the waste generated in septic tanks and poor treatment leads to leakage and over spilling which either pollutes the stormwater systems or the groundwater (CRISIL,2015). 30% of Varanasi population resides in slums (Census,2011). Open defecation and urination from these slums directly enter the water network without any treatment. The floating population also contributes to this waste accumulation in the city where the lack of public sanitation facilities results in open urination and defecation from the pilgrims near the Ghats and open grounds in the city.



Pre monsoon season

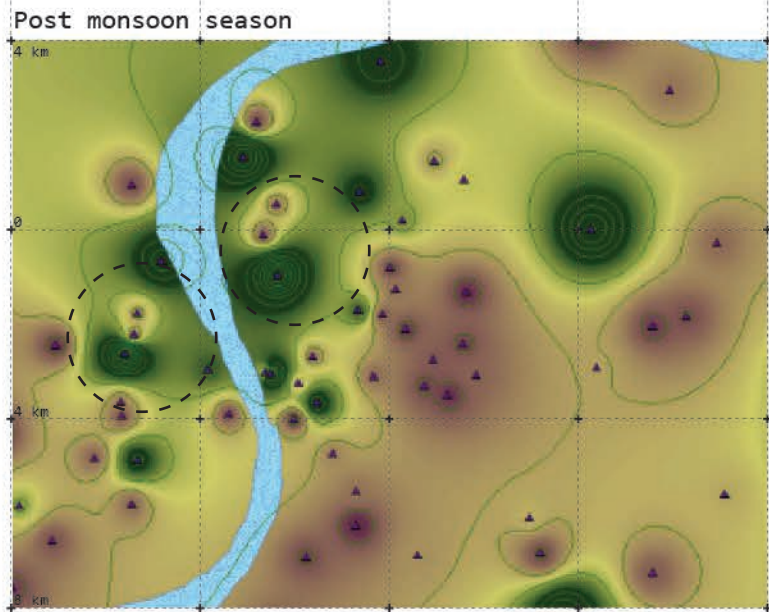
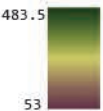


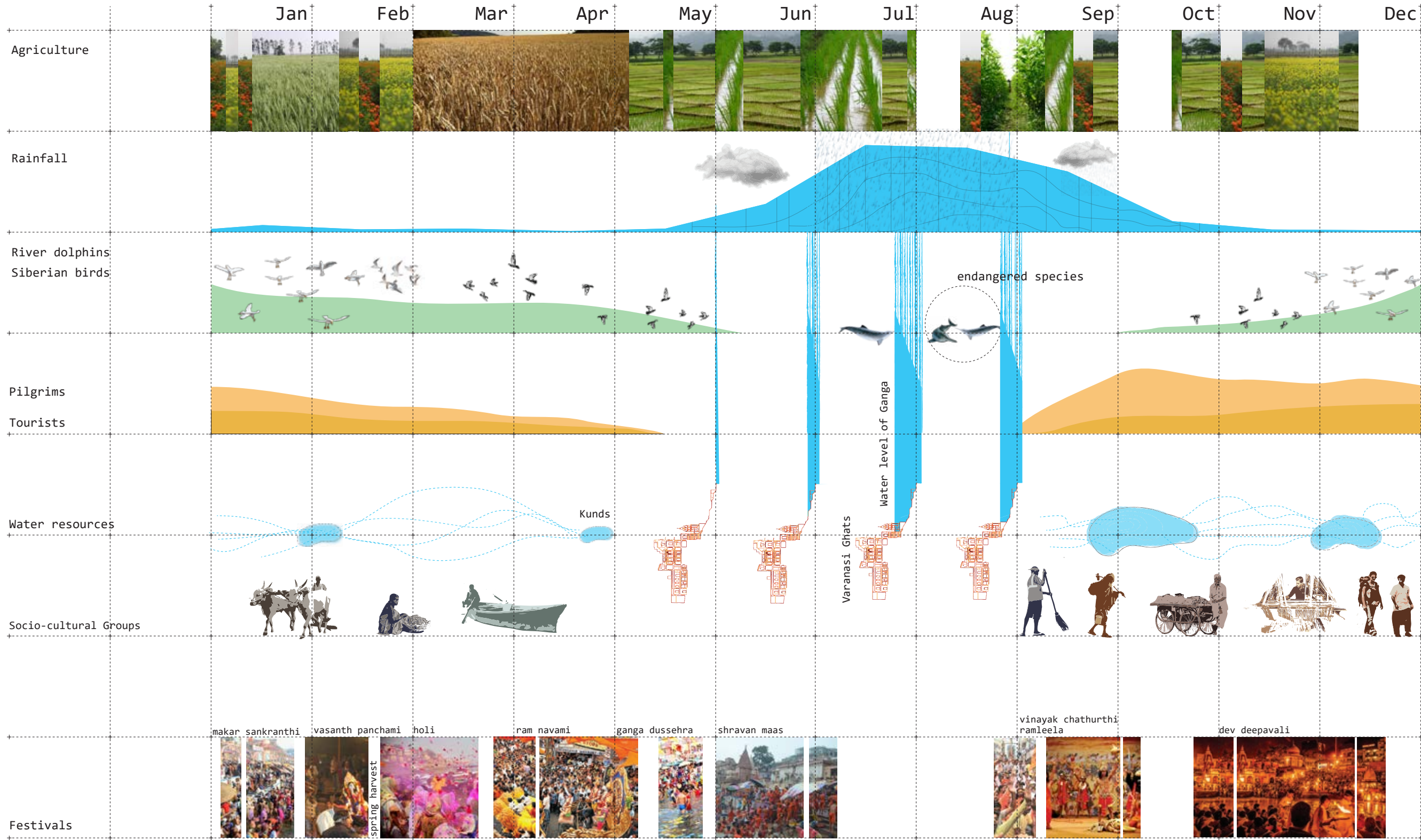
Fig 6.67: Spatial distribution of water quality index (mg/l) during pre-monsoon and post-monsoon.
Source: Singh et al,2015

The mapping of water quality index shows the hazardous effect of pollution within the city limits as the groundwater quality index shows that the pollution does not only affect the source, but it distributes to various parts of the city after the monsoon. This can cause a hazardous effect on living quality and health as the contaminated water could result in consumption through tube well water systems on which many neighbourhoods of the city depend for drinking water (Singh et al,2015). The higher pollutions levels seen across the river is a protective reserve by the Government. This concludes the need for pollution control measures to preserve the groundwater table and to increase the green quality along the river corridors.

6.4 Flows

For the sustainable development of Varanasi, it is important to understand the flows and cycles that exist in this landscape. Fig 6.68 tries to study the cycle of events and activities over a year to understand the interrelationship that exists within the socio-ecological systems. Fig 6.69 also shows the flow of materials within urban and rural parts of Varanasi opening up opportunities of sustainable development.

Fig 6.68: Illustration of annual cycle of events and activities in Varanasi. The illustration connects the relationship between agriculture crop cycle relating to the monsoons. Flow of pilgrims and tourists which is connected to the festivals and pilgrimage seasons. Biodiversity in Varanasi involving Siberian birds, South Asian river dolphins and flesh eating turtles who are also connected to this network.
Source: Author



Socio-ecological systems and their interrelationships can also be understood studying the flows. Sustainable traditional practices in rural areas have kept the socio-ecological balance compared to urban Varanasi. Adapting these practices to the city lifestyle can bring in sustainable development as well as circular economy practices within the city. These findings show the importance of using the Panchakrosh pilgrimage path as a corridor that brings in regional sustainability connecting the rural and urban Varanasi.

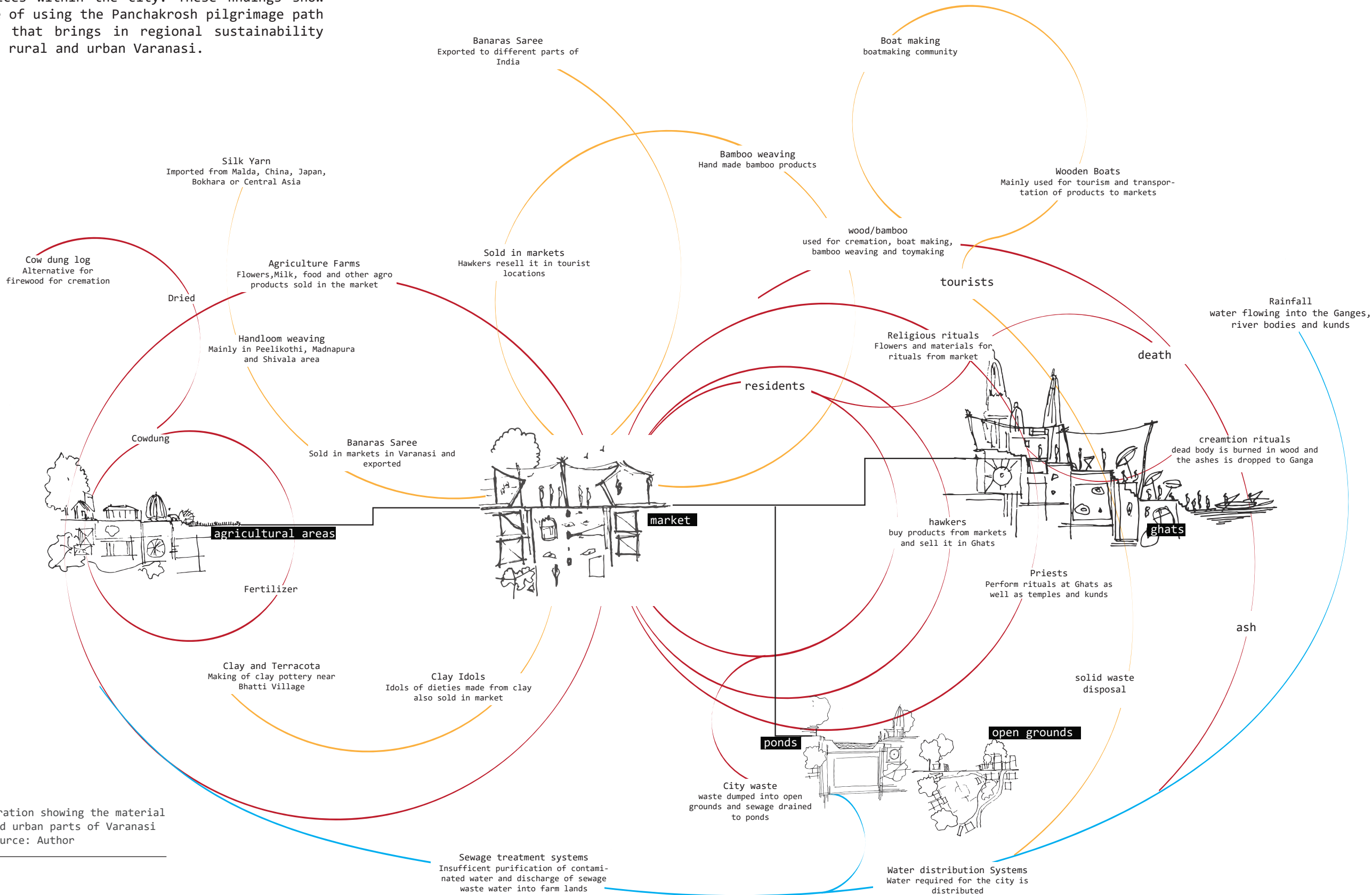


Fig 6.69: Illustration showing the material flow in rural and urban parts of Varanasi
Source: Author

6.5 SWOT TO TOWS

The results from socio-spatial analysis and fieldwork resulted in identifying the strengths, weakness, opportunities and threats for the city which further on was developed to form strategies. The findings were also supported by interviews that were carried out during the fieldwork to Varanasi. Some of the highlights of the interviews are shown below.

Voices of Varansi

'What I know about Varanasi is that....'

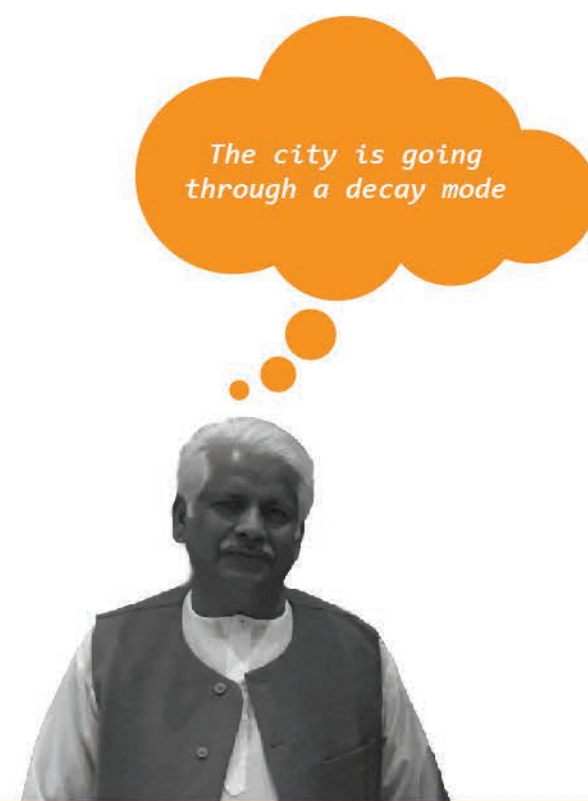


Dr. Shaiju P J

Asst. Professor (Tourism Management)
Banaras Hindu University, Varanasi

- The city identity and evolution is supported by two perspectives. The first one is myth-based relating to religion and mythology. The second one is evidence-based where archaeological cum historical pieces of evidence prove the heritage of this old city

- Over the years, three things have been growing in this city ie, trade, population and travellers. Over the years, trade has declined and the economy of Varanasi has completely shifted to tourism.



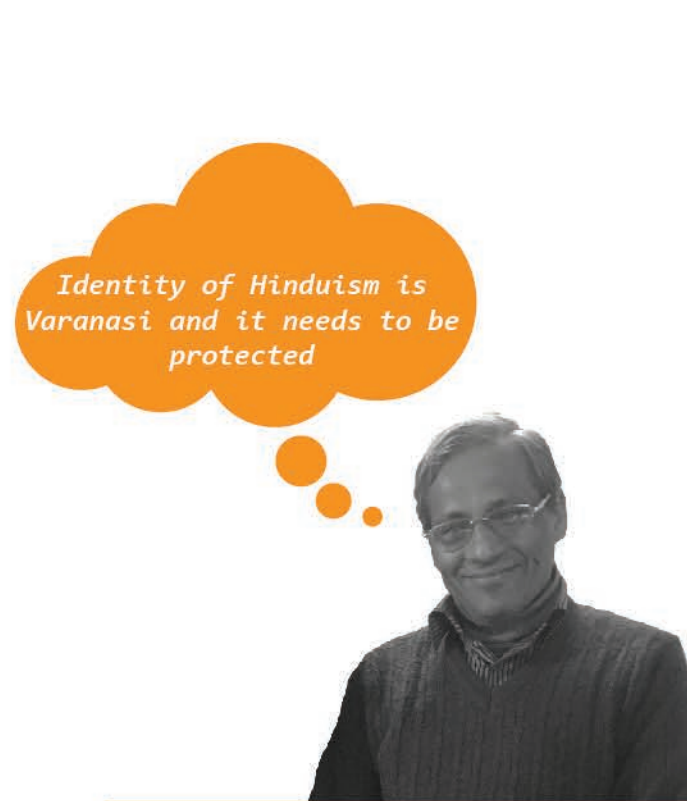
V N Mishra

Mahant(Chief Priest) _ Sankat Mochan Temple &
Professor, Banaras Hindu University

- Projects like Kashi Corridor has destroyed the natural habitat of Varanasi

- Varanasi is known as the oldest living city not only because of its physical features but also because of its occupants who have been living on this holy land for generations

- Kashi is ongoing a forced change in recent years



Dr. Prabhat Kumar Singh

Professor & HOD (Civil Engineering)
Banaras Hindu University, Varanasi

- Assi should be regained as a river from the nalah (stream) considering its cultural importance for Varanasi as well its ecological significance

- River health is an important aspect that should be considered for assessment of any river bodies

- Varanasi lacks co-operation between researchers and government which leads to non-compatible projects



Ar. Abhinav Kaushal

Heritage Architect
&
Varanasi Smart City Official

- The city is undergoing a lot of changes but traffic and congestion remains a major issue to Varanasi

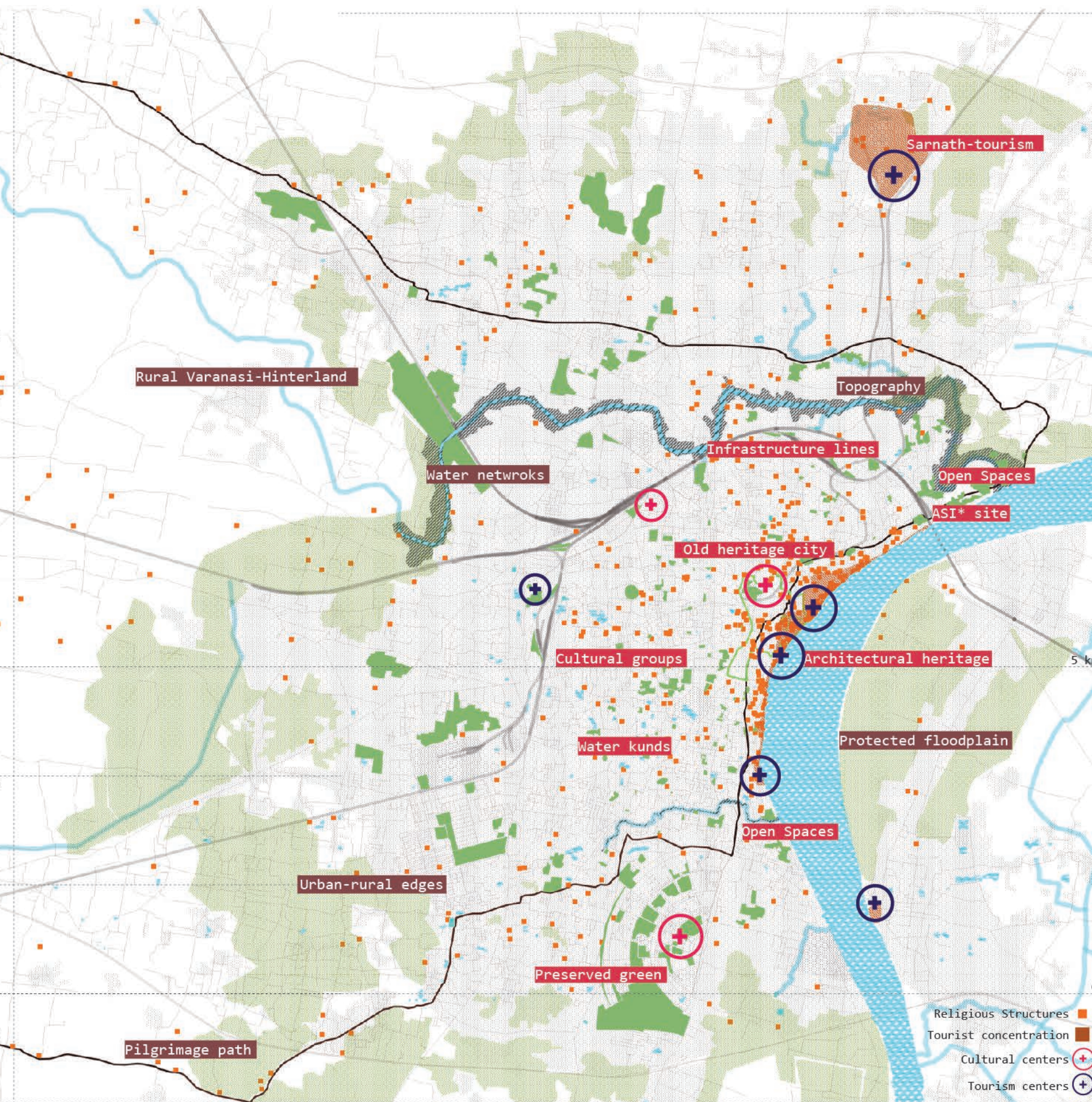
- Many innovative interventions fail to happen due to political indifferences and funds

Strengths

- S1. Oldest Living Heritage city with riverfront access
- S2. Th old city with traditional planning principles with climate-adaptive architecture
- S3. The city with everyday culture and religious activities
- S4. Rich in Educational and Cultural centers that are scattered in different parts of the city
- S5. Rich in Architecture value with unique riverfront and Ghats creating an identity to Varanasi Morphology
- S6. Presence of natural waterbodies such as rivers and kunds within the city
- S7. The identity of water as Holy which makes it a religious-cultural asset
- S8. Rich in artisans, craftsmen, weavers and other ethnic socio-cultural groups
- S9. Existence of a strong history and cultural setting for the whole city of Varanasi
- S10. A city where culture is everyday
- S11. Distinct architecture style existing in Varanasi for Ghats, mohallas, temples etc
- S12. Cycle of activities and festivals happening throughout the year
- S13. 3 railway stations within city and railway line forming a semi outer ring connection

Opportunities

- O1. Varanasi is a diverse city with varied heritage and culture distributed around the city.
- O2. Growing tourism industry with large influx of domestic as well as foreign
- O3. Potential for uplifting Varanasi as a hub for cultural economy, hence providing employment for people of Varanasi
- O4. River Ganga is a major national waterway route which can be used as a potential to promote intercity water transport system to reach Varanasi
- O5. Rural areas of Varanasi engaged in traditional craft making and agricultural practices that can act as a hinterland to the city of Varanasi
- O6. Pilgrimage paths which culturally connect different parts of city to one common purpose
- O7. Agriculture favoured for multiple cropping and terrace farming due to the terrain as well as climatic conditions of Varanasi
- O8. Water connects urban and rural and also with other cities
- O9. High percentage of Cycles and rikshaws are sustainable modes of transport



*ASI - Archaeological Survey of India

Fig 6.70: Map showing the strengths and opportunities in Varanasi
Source: (Author)

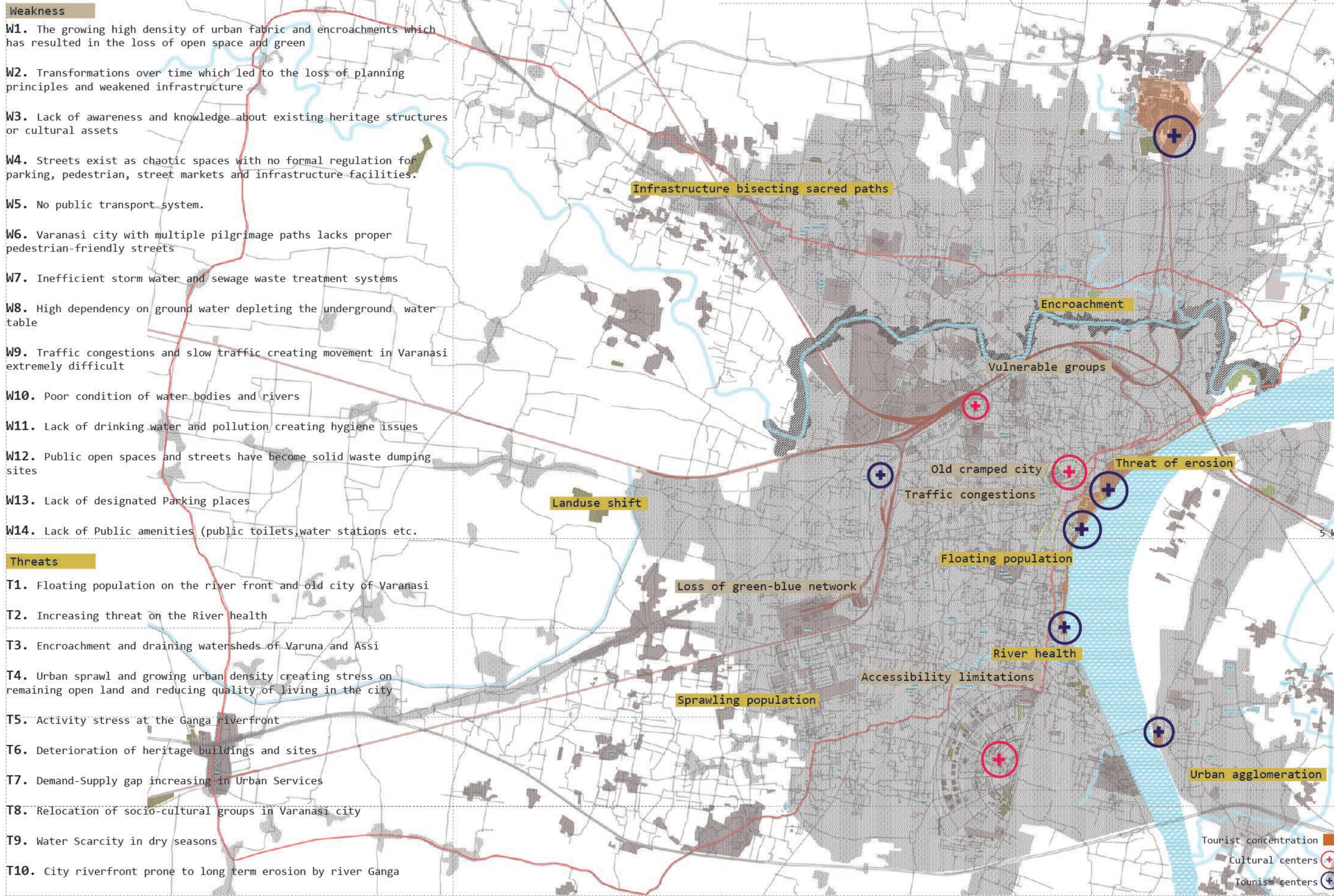
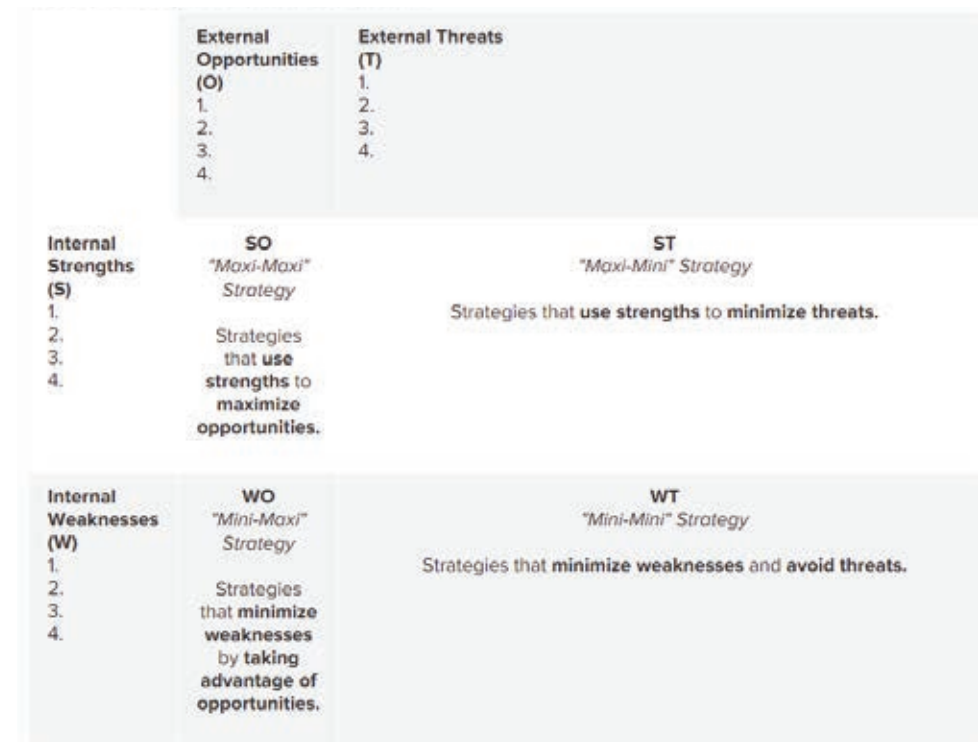


Fig 6.71: Map showing the threats and weakness of Varanasi
Source: (Author)



By analyzing the SWOT, strategies were derived by matrix matching between external environment Opportunities and Threats) and internal environment (Strengths and Weakness) (TOWS Matrix, 2020).

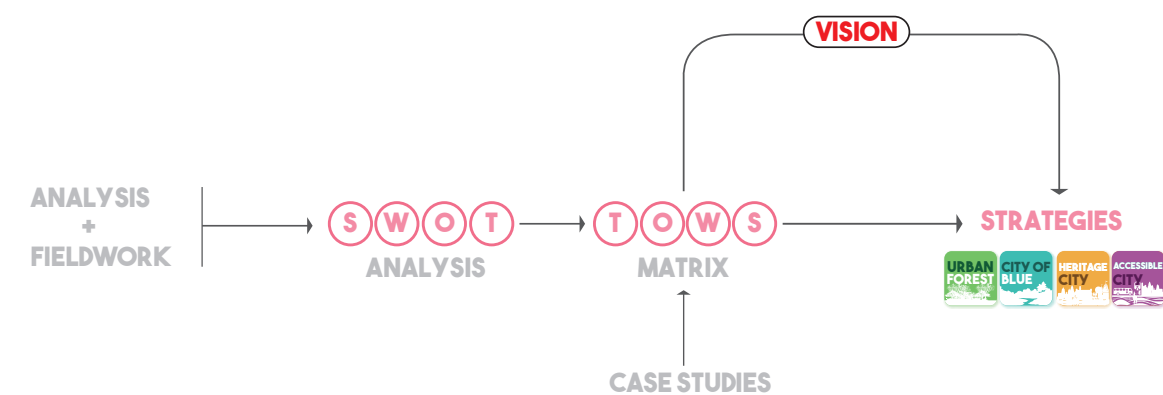


Fig 6.72: Schematic Diagram showing the methodology followed in the formulation of vision and strategies.

Conclusions from socio-spatial analysis of Varanasi were grouped into a SWOT analysis. This SWOT analysis reflected on the regional scale and city scale. Following the TOWS matrix method, strategies were formulated. These strategies were supported by lessons learned from case studies that were carried out as a part of the analysis. Further on, these strategies were grouped to form projects as a tool box that can be used according to the conditions of the chosen locations for interventions.

TOWS matrix resulted in numerous solutions for various conflicts and proposed strategies for various opportunities. A holistic application of all these strategies can further help in re-imagining this cultural landscape. Further examining the strategies, they were grouped mainly under 4 sections; green, water, heritage and accessibility-related strategies. Comparing with the findings of the analysis, it can be found that sustainable development of these can bring in socio-ecological balance in the city.

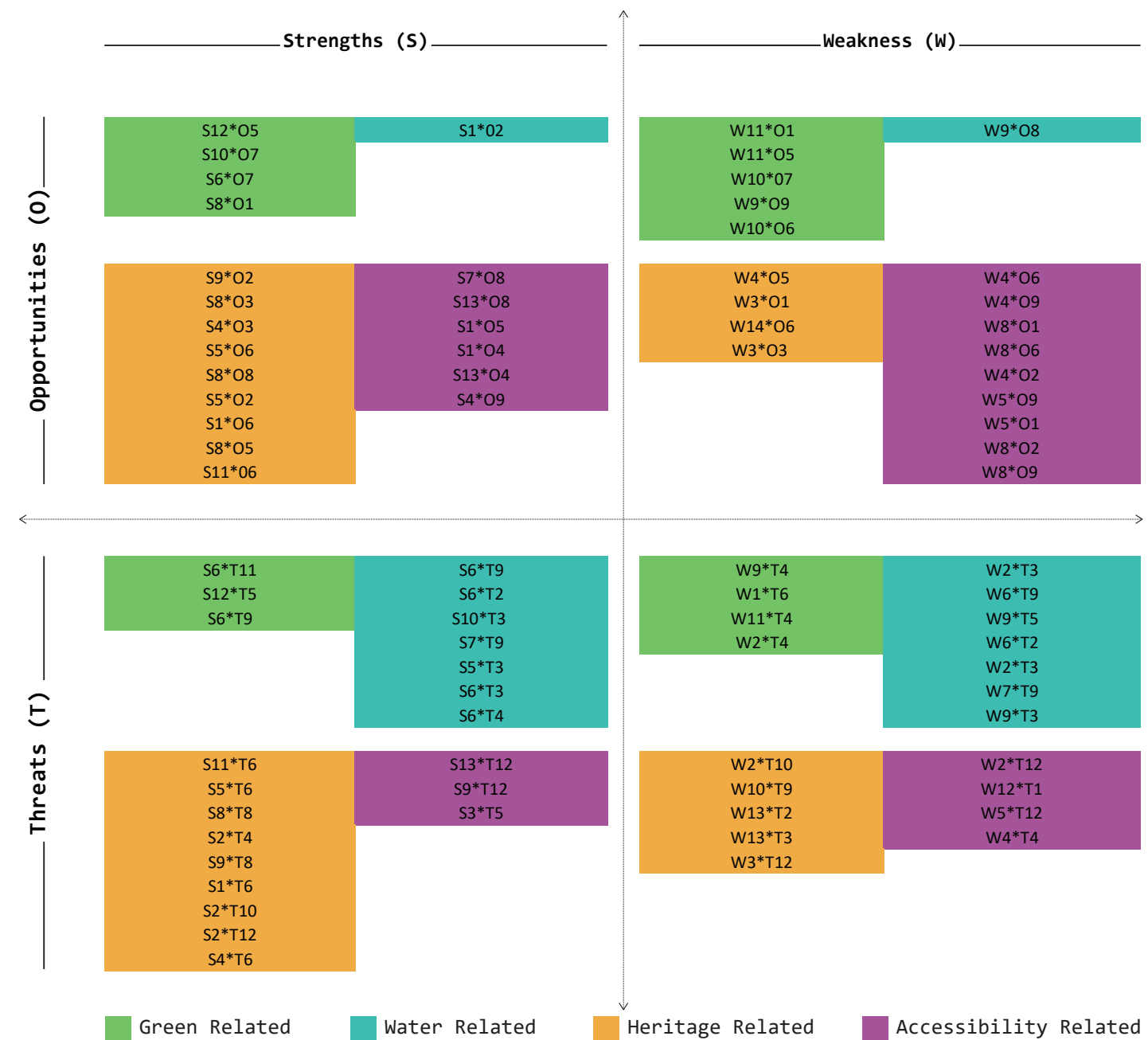


Fig 6.73: TOWS matrix diagram. Details of the strategies and grouping of these strategies into specific projects are shown in the following page.





Fig 6.74: Few photographs that were taken during the fieldwork showcasing the diversity of Varanasi
Source: Author

The background of the page is a black and white photograph of a dense crowd of people. In the upper left, a cluster of large, colorful balloons in shades of yellow, orange, and red is visible. A blue, stylized map of India is overlaid on the right side of the image, with a white outline of the state of Uttar Pradesh. A white line, possibly representing a river or a path, winds through the map and the crowd.

7 Vision

As explained in the previous chapter, the socio spatial analysis of Varanasi concluded with SWOT analysis that was followed by a TOWS analysis that framed the strategies that can make Varanasi culturally sustainable. Summarizing the outcomes and the strategies derived, the research project formulated a Vision for Varanasi that mainly incorporates the 4 strategies into achieving cultural sustainability. Chapter 4 argued that the aim of the research project which is to bring back the socio-ecological balance in Varanasi can be achieved through a process of cultural sustainability.

- 7.1. Varanasi Vision
- 7.2. 4 Strategies
- 7.3. Policies

Culturally Sustainable Varanasi

Varanasi from centuries is(was) landscape with strong **green** - **blue** networks living on a unique cultural **heritage** which was easily **accessible** for all.

The vision for Varanasi is guided by a strategic framework that enables Varanasi to be Culturally Sustainable.

The concept in the formulation of Strategic framework focusses on **stitching the lost layers** of green, blue, heritage and accessibility in a **holistic way** such that Varanasi continues to remain as the **religious as well as the cultural capital** of India for future generations.

‘The visual breakdown of a complex design of fabric will reveal the various colours that form the essence of the final design’.



Fig 7.1: Thread installation by Azerbaijani artist Faig Ahmed.
Source: mymodernmet.com/faig-ahmed



Revitalize



Regenerate



Restore



Reconstruct

Cultural Reasoning

1. Varanasi was once a forest land that was formed by a series of streams which divided the city into 5 forest tracts('vana') from North to South which were Maha Vana, Daru Vana, Ananda Vana, Hariksha Vana and Bhadra Vana.

2. Parikrama Pilgrimage Path – Revitalization of pilgrimage path as a cultural-ecological path that hinders economic activities for the people of Varanasi

1. In Varanasi, water is sacred than more of a need

2. River corridors are spaces that form the active space in everyday life of Varanasi (Everyday culture of Varanasi)

3. Cultural importance of Water sources (Ganga, Varuna, Assi and Kunds) to be regenerated

1. People + place forms the heritage of city (socio-ecological balance)

2. Defining the character of Heritage Areas as Protected cultural zones

1. Varanasi, river front city was most accessible city in History where it was center for trade and culture.

2. The strategies aims at reviving land-water transport which was the main connectivity over Ganga river in the past. It also boosts the local transportation mediums such as cycles and rikshaws within the city limits

Sustainable Development Goals



Reimagining VARANASI

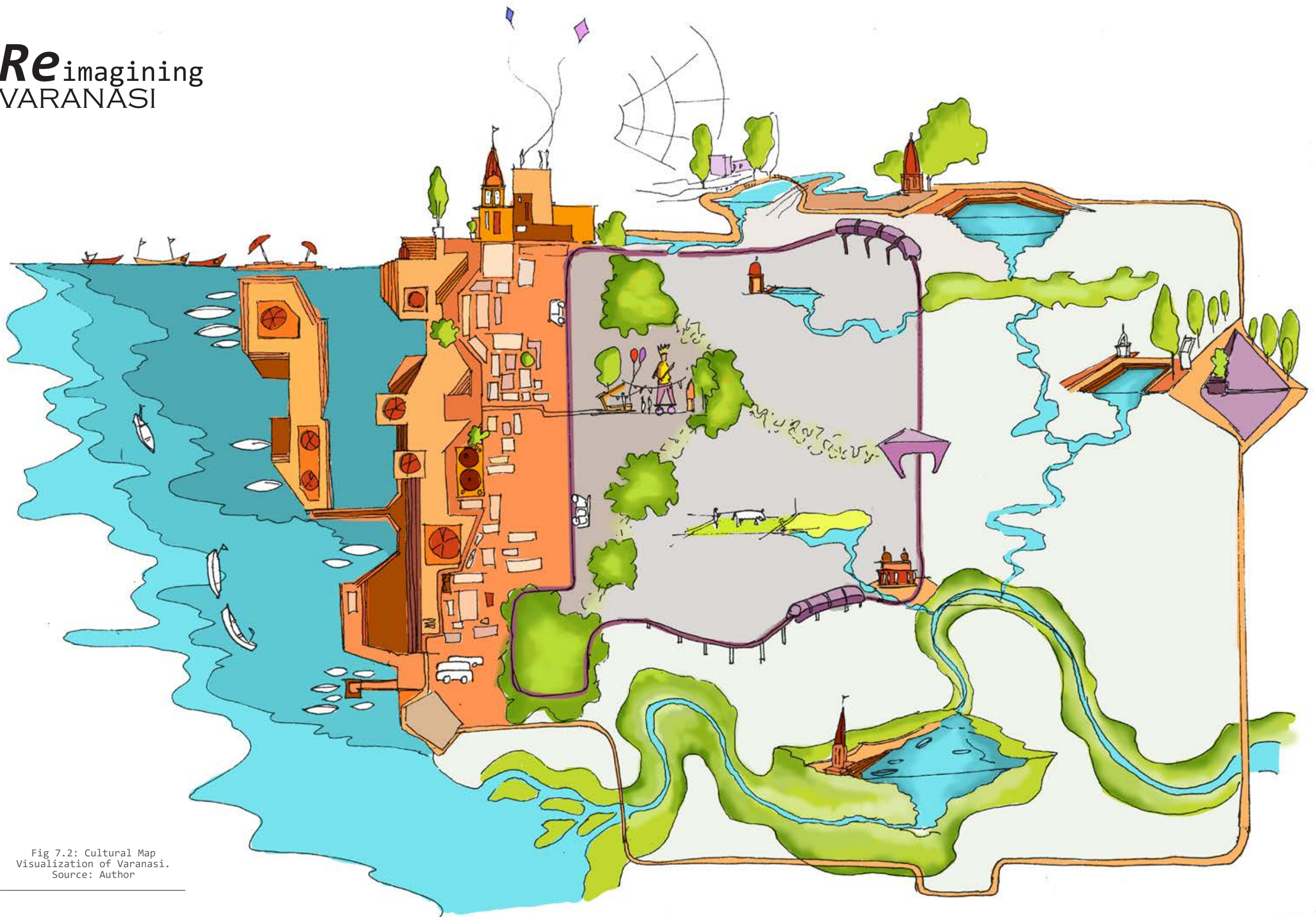


Fig 7.2: Cultural Map
Visualization of Varanasi.
Source: Author

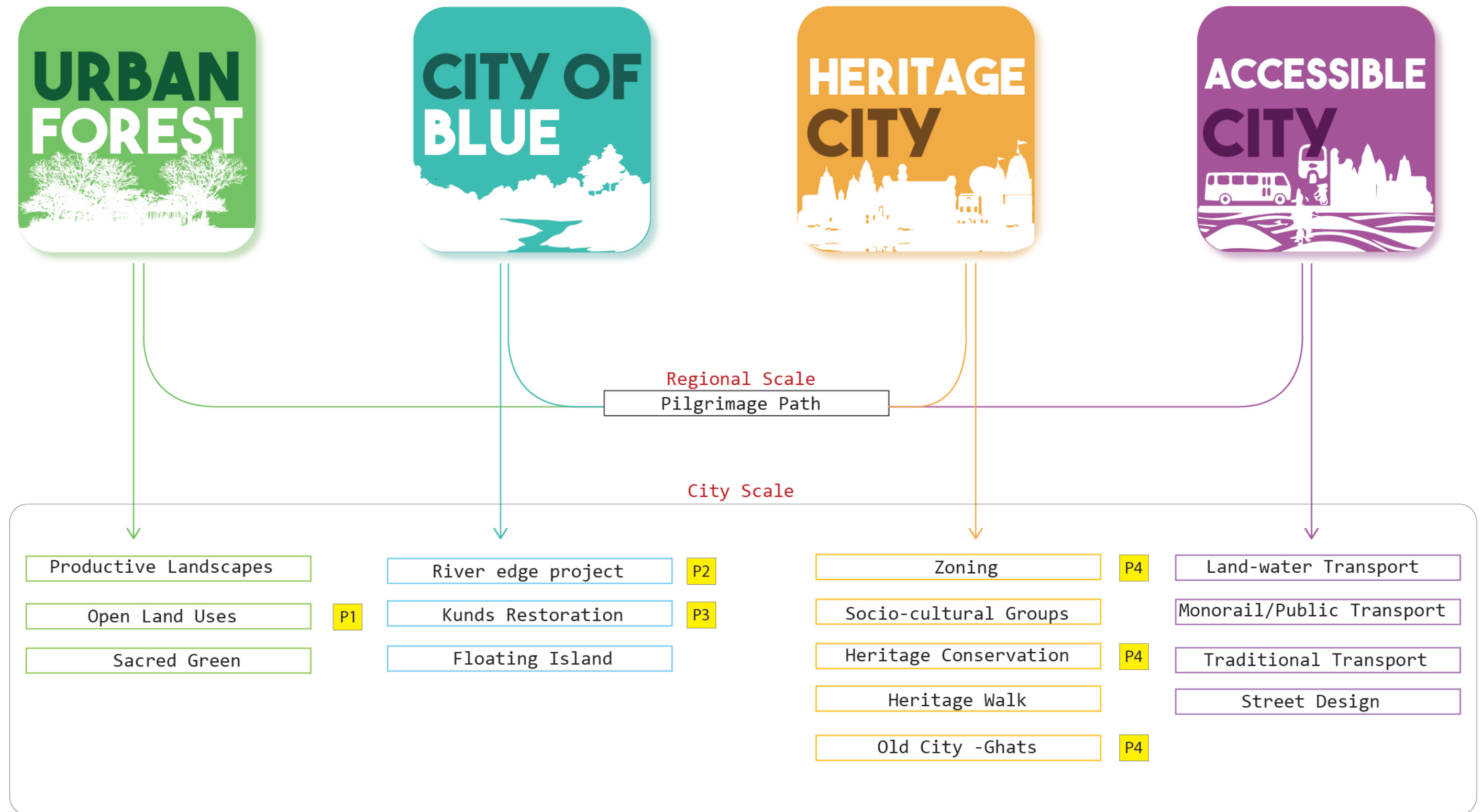
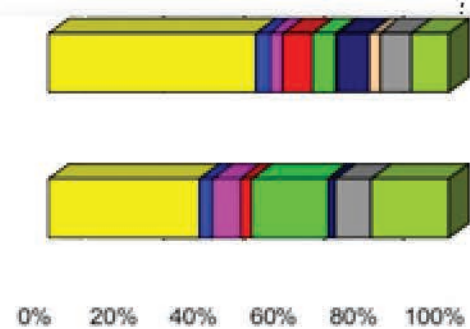




Fig 7.3: Adapted from Singh(2009)

why Revitalize Green?

Linking the cultural green identity of Varanasi to the solutions that can bring in sustainable development in the city leads to the importance of 'Revitalizing' green with a sacred identity in the city



Reduction of Green in the Master plan of Varanasi compared to the previous Master plan.

Related SDG's



Major Problems Solved

- Lack of Open green spaces
- Loss of Agricultural Lands
- Stress on Land
- Grey more than blue and green (Sprawling)
- Parcellation leading to waste lands
- Loss of Living Quality
- Reduced BioDiversity
- Limited accessible Green space
- Limited recreational Opportunities
- Lack of Community Cohesion

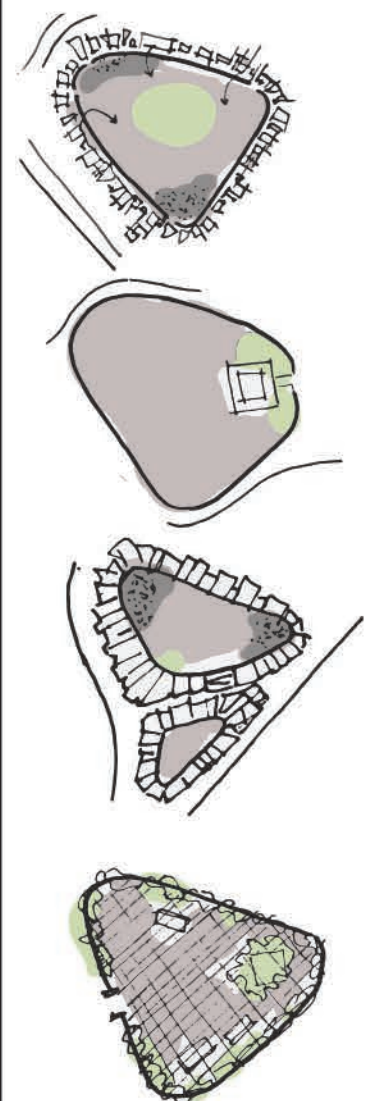
Observations

Edges of open grounds are covered by the urban fabric
The back walls of urban fabrics form the edge of the fabric making it a waste dump site

Government service/ facility open ground is protected from public access. Create public spaces of activity on the campus

Parcellation of urban fabrics in a certain neighbourhood creates unused lands with no accessibility that ends up as wasteland in a city of highly dense fabric

Paved Grounds are used in public parks and complete pavement of streets makes water to run off without replenishing the groundwater and flows down to the river as wastewater

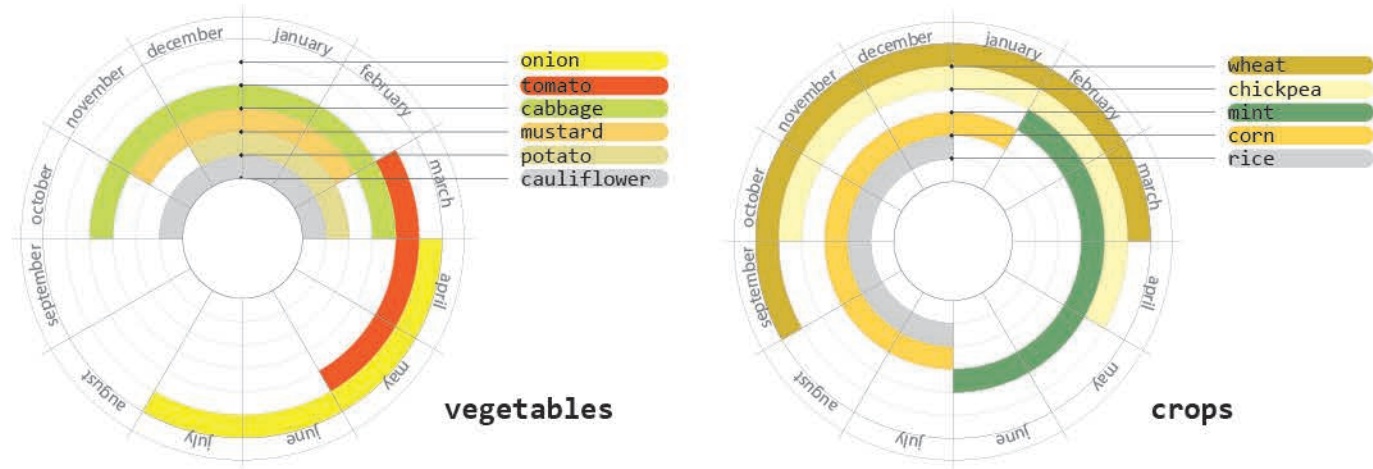


Urban forest strategy focusing on reviving the green structure of the city derived from the TOWS analysis focuses mainly on 3 project principles that were clustered from different strategies in TOWS. Application of these project guidelines considering the context will help in the implementation of Urban forest strategy.

TOWS Analysis	Projects	Key Stakeholders
W10*07 S6*07 W9*07 S10*07	Project 01 . Productive Landscape	Varanasi Development Authority Varanasi Municipality Real Estate Land Owners Temple Organizations
W11*05 / S12*T5 S8*01 S12*05 W2*T4 W1*T6	Project 02 . Activating Open Lands	
S6*T11 / S6*T9 W9*T4 W11*01 / W11*T4	Project 03 . Sacred Green	

Project 01 . Productive Landscape

Productive urban landscapes are open spaces in cities that are planted and managed in a way that they are environmentally and economically producing for the city as well as the communities (Viljoen et. al,2012). These landscapes are activity induced strategies which help in reclaiming the waste land and river edges and help in being more greener.



Crop rotation is highly important for preserving agriculture lands for better fertility. The process itself brings creates community participation as well as induces the practices of agriculture and its understanding within the city boundaries.



(Re)asoning

Revitalizing agricultural practices on identified wastelands and private plots that are parceled within the urban fabric.

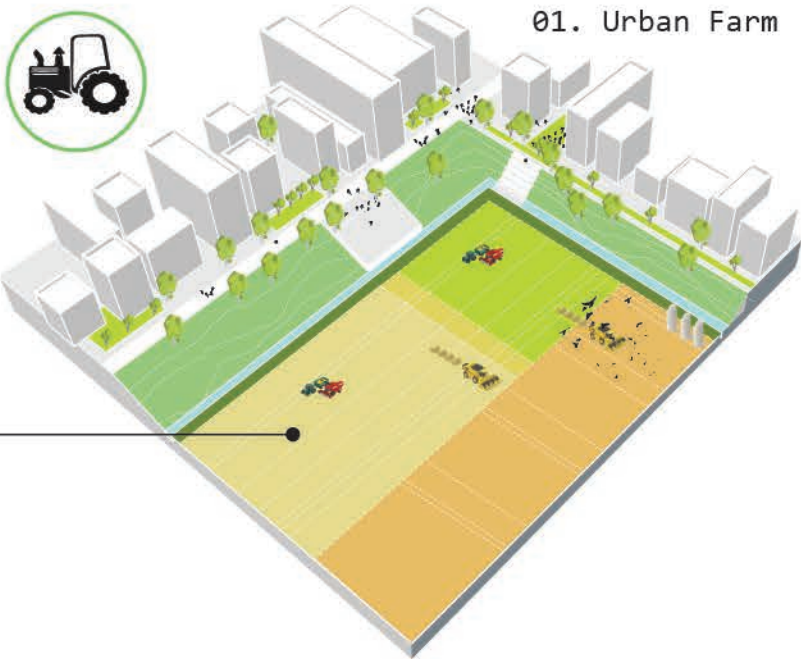


1. Crop rotation
2. Biodegradable fertilizers

Fig 7.4: 3D view of Urban Farm
Source : Author



01. Urban Farm



(Re)asoning

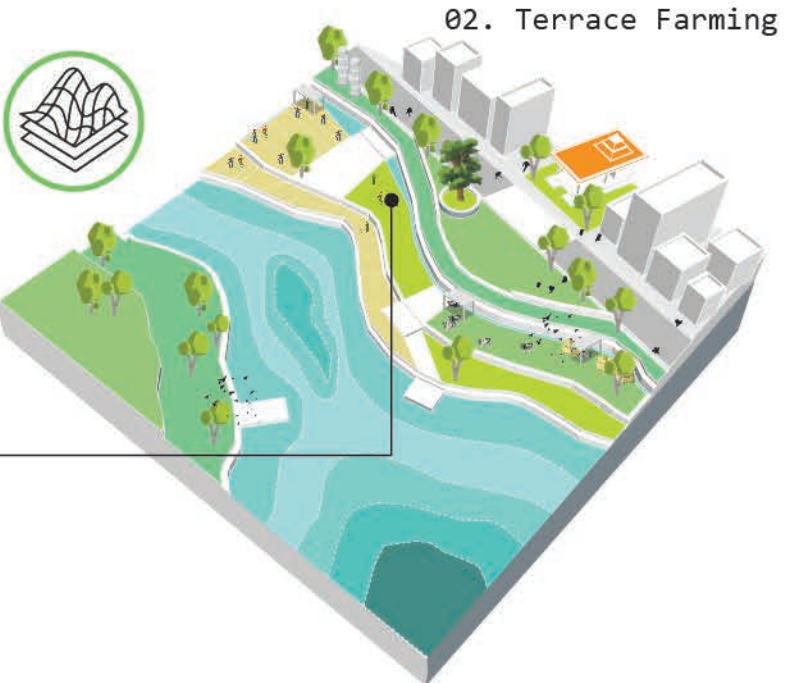
Engagement of communities to have a feeling of belonging towards the edges of the river through agriculture practices along the slopes of the river so that conservation of river will be a commitment from the public.



1. Landscape
 2. River Health
 3. Crop rotation
- Fig 7.5: 3D view of Terrace Farming
Source : Author



02. Terrace Farming



(Re)asoning

Community engagement for preserving green spaces through community garden practices.



1. Biodegradable fertilizers
 2. Landscape
 3. Recreation
- Fig 7.6: 3D view of Community Gardens
Source : Author



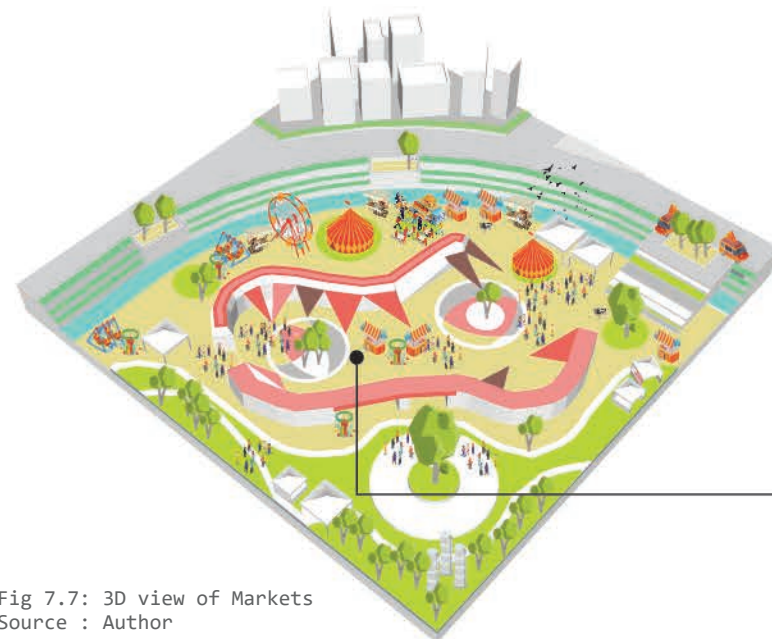
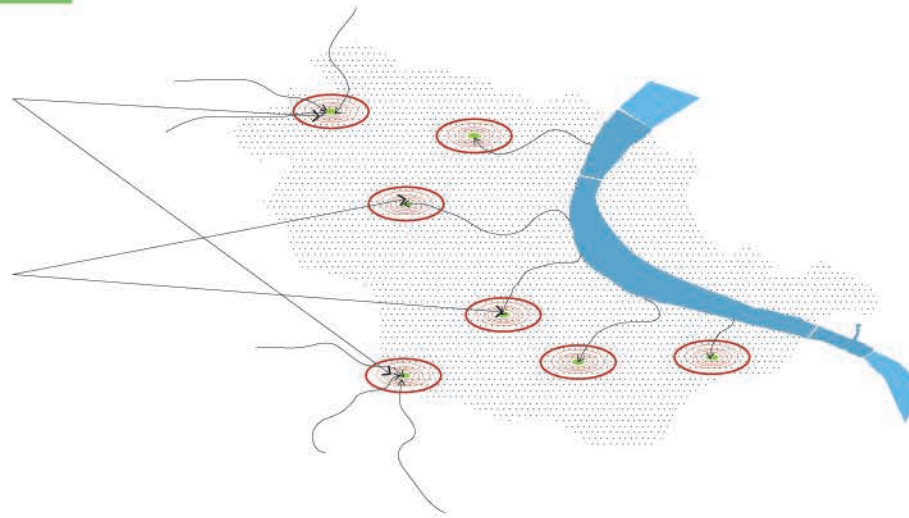
03. Community Gardens



Project 02 . Activating Open lands

Transforming open lands in the peri urban region into activity spaces to create a strong link between the urban and rural and also to limit the rural population inflow into the city during religious festivals.

Open lands with proper connectivity within cities to trigger events that will reduce the stress of the floating population on the riverfront during events or festivals.



(Re)asoning

These active open lands relate to traditional trade and fair festivals that used to happen in Varanasi which attracted people in the nearby villages and districts to reach Varanasi over land and water transport modes.

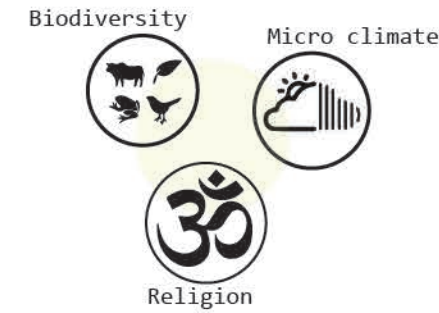


Fig 7.7: 3D view of Markets
Source : Author

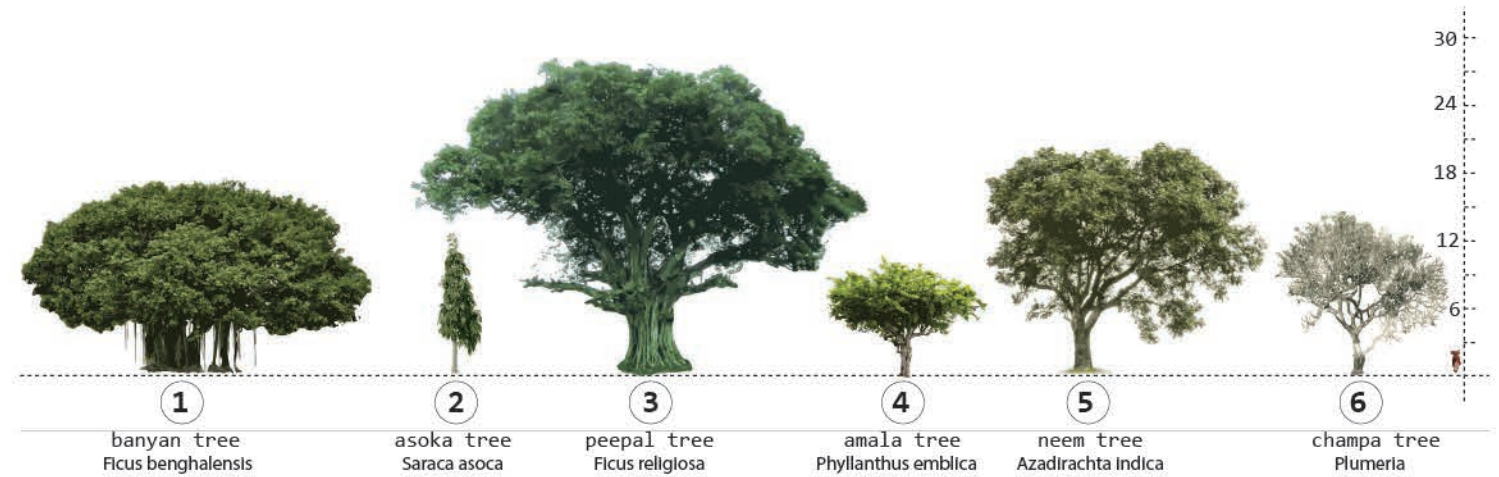
Image Sources of Activities (left to right) : (1)i0.wp.com, (2) bp.blogspot.com
(3) cloudfront.net (4) cookiesound.com (5) hlimg.com (6) img.indiaonline.in



Project 03 . Sacred Green



Sacred trees in India occupy a respected identity where in some cases it is even worshiped. The mythological relationship of these trees or its fruits or leaves to specific Gods make these trees very sacred in Hinduism. Every person born a particular star is also assigned to have a sacred tree in his horoscopes. This is taken as an advantage in the 'Urban forest' strategy where the addition of green to the city is activated by planting sacred trees that will be preserved and protected in a sacred city like Varanasi.



Religious importance sacred trees

- 1 The banyan tree is a type of fig tree which appears to be formed by a labyrinth of roots. The tree has a main trunk which slowly disappears with roots growing around it over the years. The banyan tree is believed to be the representation of 3 lords of cosmic creation - Lord Brahma, Lord Vishnu and Lord Shiva (Tales by Trees, 2020). Various references are made to banyan tree in various mythological texts of Hinduism.
- 2 Asoka falls under the category of evergreen trees which has the meaning "without grief". In Hindu mythology, the tree is related to the God of Love and it is considered auspicious for fertility. It is said that Lord Buddha was born under this tree and hence it is a very sacred tree in Buddhist monasteries (Tales of Trees, 2020).
- 3 According to Hindu faith, Lord Krishna has close identification with peepal tree in mythology. The Hindus also relates the roots to Lord Brahma (creator), trunk to Lord Vishnu (preserver) and leaves to Lord Shiva (destroyer). People worship the tree by building shrines under the peepal tree and tying red fabric around the tree. It is considered inauspicious to ever cut a banyan tree.
- 5 With small leaves and white flowers, Neems are believed to be having anti-viral and anti-bacterial values in Ayurveda. It is a highly commercialized product by Indian toothpaste companies due to its medicinal qualities. Leaves and flowers of Neem are offered to temples as according to Hinduism, neem is considered as the Goddess Durga (Wife of Lord Shiva) (Tales of Trees, 2020).

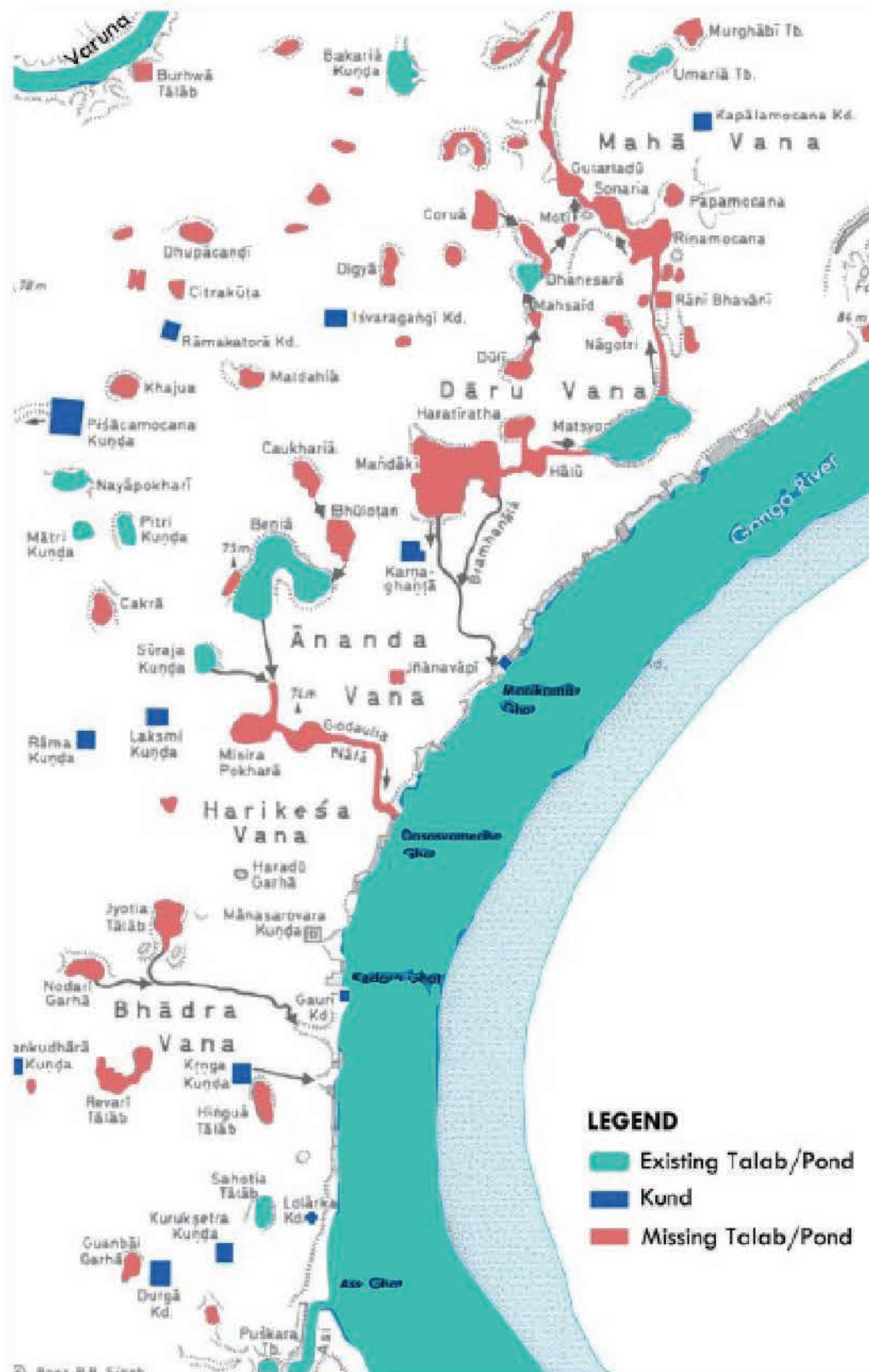


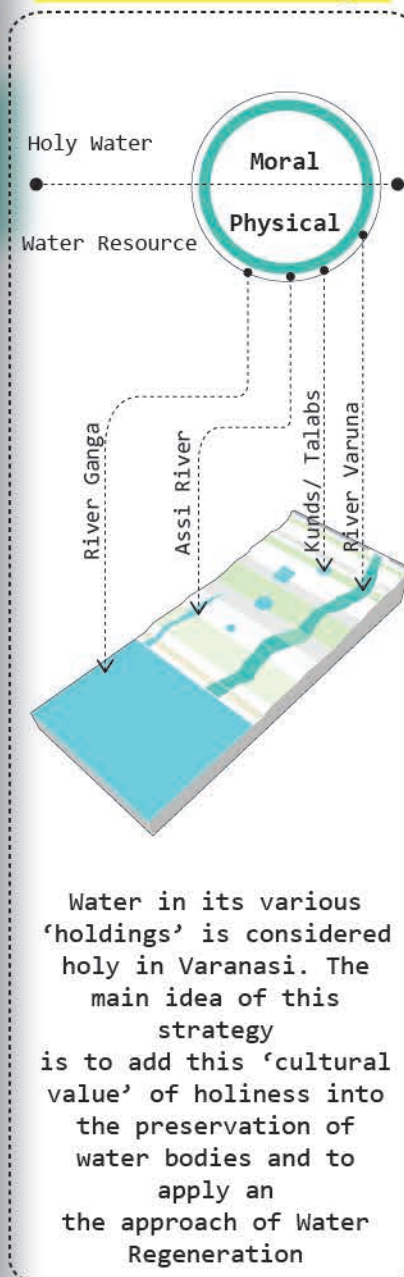
Fig 7.8: Old map of Varanasi
Source : Singh, 2009

why Regenerate Blue?

Varanasi along the left side of the crescent-shaped bank of river Ganga, with sloping topographical landscape averaging 15 to 20 m above the water level of Ganga always had a very strong blue network. Varanasi is touched by 3 river bodies along its north, south and east of which river Ganga is a perennial river. The kunds of the city formed due to its natural landscape and sacred territories form the very important blue network within the city. As explained, Varanasi possesses a strong network of blue which is dying and what it requires is only regeneration of these water resources.



Cultural Reasoning



Related SDG's



Major Problems Solved

- Decreasing water sources in City
- Ground Water pollution
- Assi River Pollution
- Varuna river Depletion
- Increasing Water Scarcity
- Non-hygiene wastewater leading to diseases
- Insufficient water infrastructure
- River Health

Water Management program

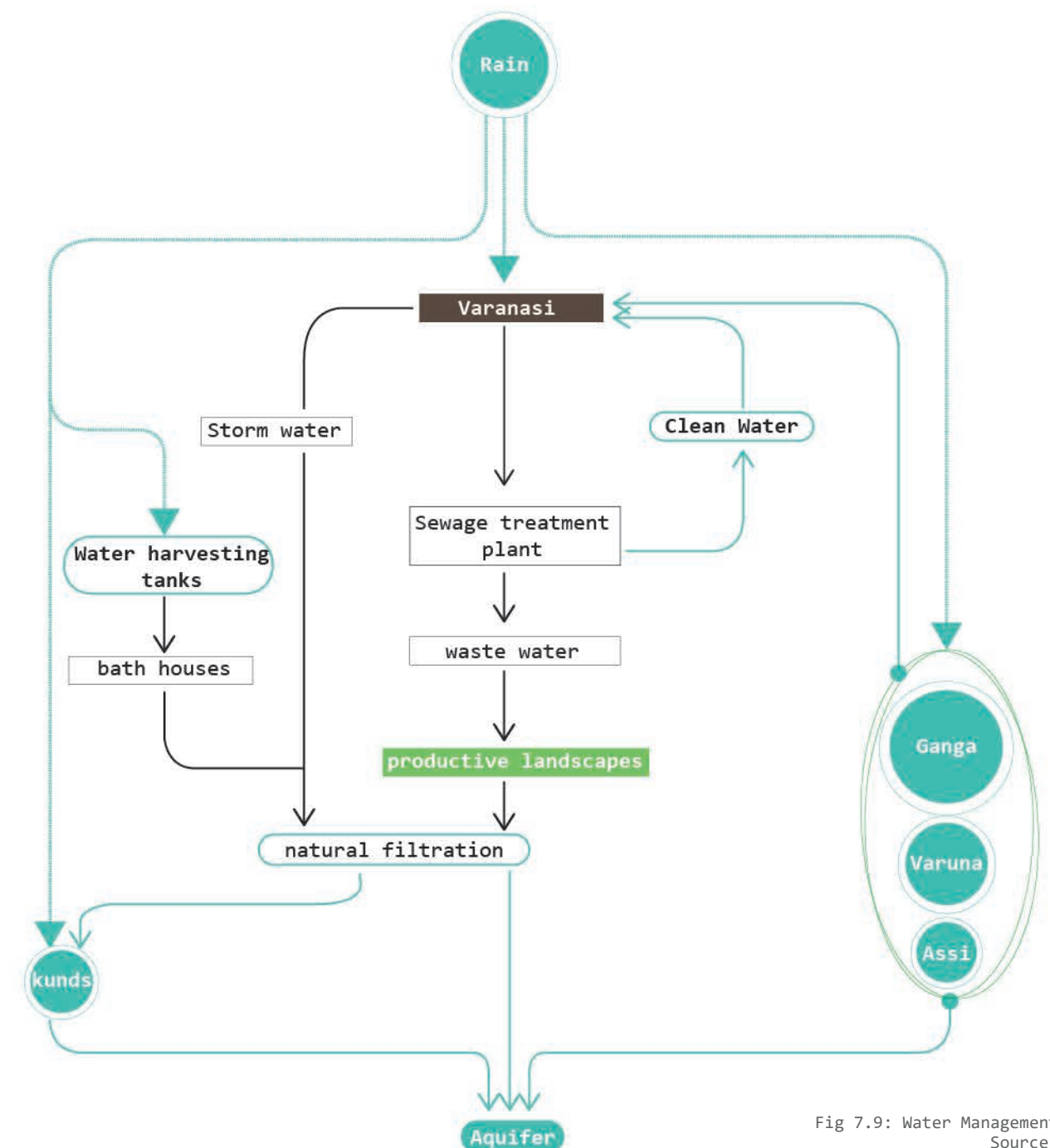
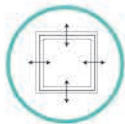
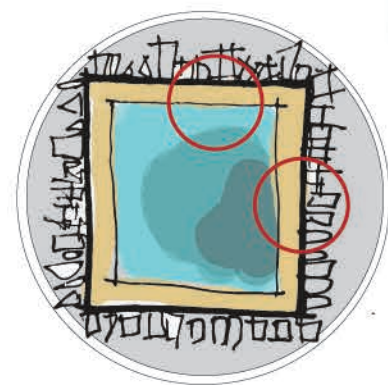


Fig 7.9: Water Management Program
Source : Author



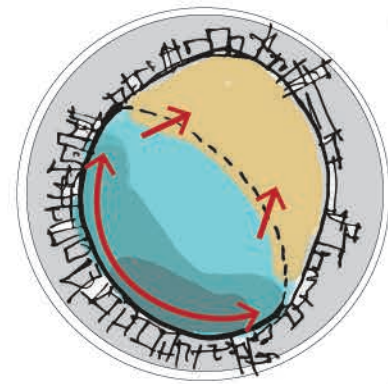
Set of interventions and policies are formulated in this action of regeneration of kunds where the focus is on the precinct of the kund. Treatment of water and green-blue structure around the kund decides the quality of water that drains to the kund. The second part focuses on keeping the water kund clean and non-polluted even throughout the non-monsoon seasons.

Identified typologies of Kunds



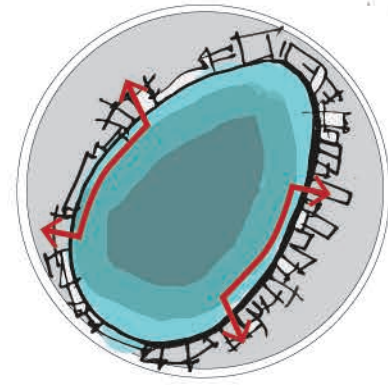
1

Soft edge formed by road but lacks public interaction with pond. Non fencing and recreational activity generators along the Kund will expose the Kund as a public asset to be preserved. Presence of Temples can translate the identity of these Kunds to sacred ponds.



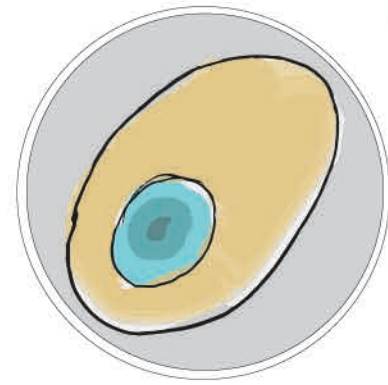
2

Land being acquired from the soft edge. Need for retaining the water area back through water management process such as deepening of the Kund, prevention of waste dumping. The hard edge of the Kund to be softened with walkway around the Kund creating a Buffer between urban fabric and the Kund.



3

Kunds that are trapped within urban fabric needs to open up to public access roads. Exposing the water body as a public recreational space will influence in maintaining a quality of the water and can prevent the waste dumping from the edges.



4

Mainly occupied in large parks with the extent of water body constrained to a limited surface. These locations are few among the identified Urban forest locations in the Varanasi city level strategies and for increasing biodiversity and reducing pollution, the scale of blue has to be increased supporting the green structure.

identified kunds

Pishach Mochan Kund
Suraj kund
Durga kund
Pushkar talab
Kardameshwar Kund
Lakshmi Kund
Ishwargara Pokhra

Chakra Tal
Moti Jheel
Pranchin Bade Hanuman Mandir pond
Sonia Pokhara
Ram Kund

Balaji Temple pond
Pogalpur Village Pond
Bhakar Kund
Prathmik Vidhyalaya Kandhapur Pond

Company Garden
Beniya Park
Maa Kaveri Dakshia Durga pond
Lat Bhairav Kund



Stormwater filtration around Kund



Public Bath houses

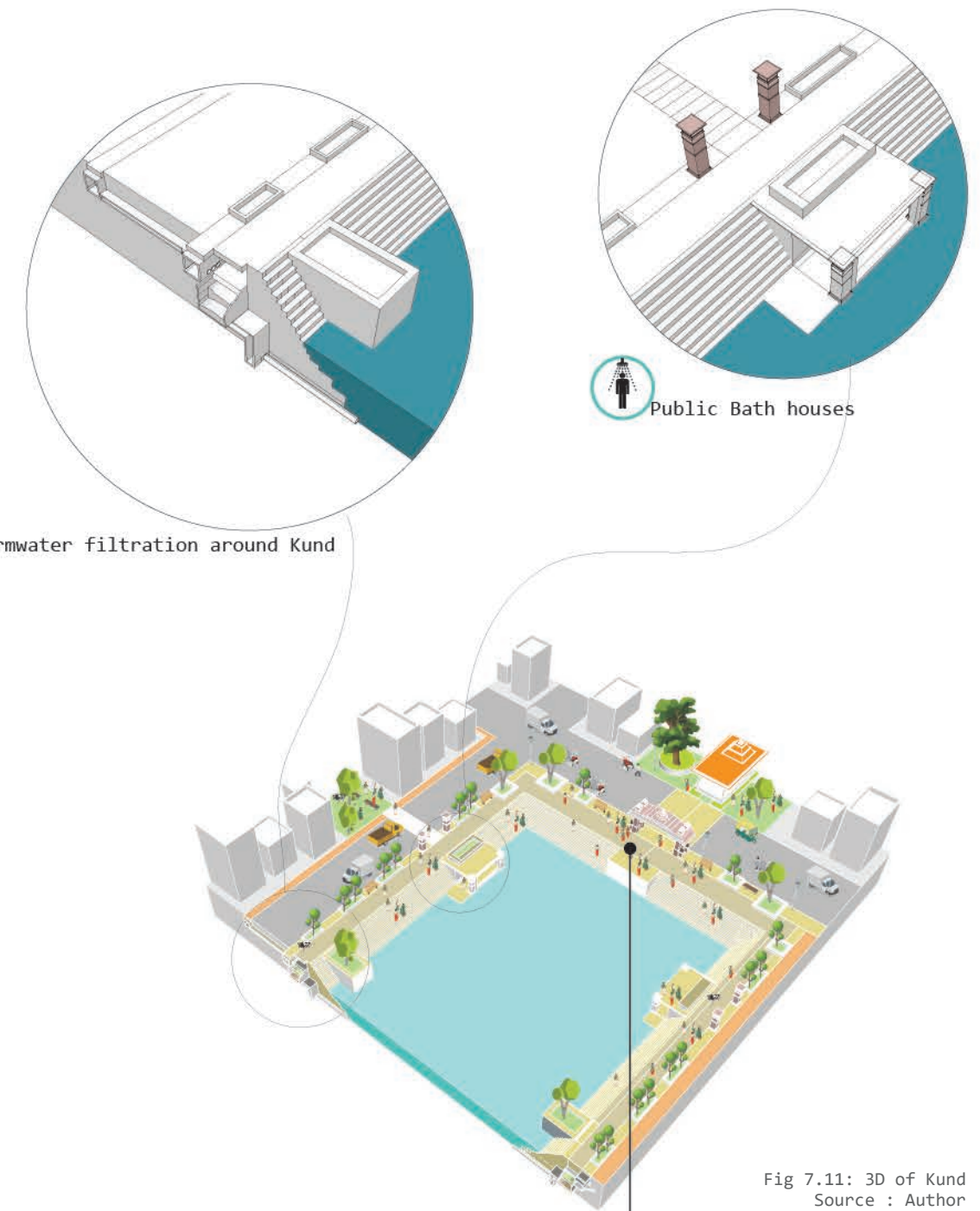


Fig 7.11: 3D of Kund
Source : Author

(Re)asoning

Kunds are significant heritage assets of Varanasi where they have survived floods and droughts that the city has confronted over the many years. These kunds are active hubs for neighbourhoods as well as a public asset for pilgrims and travelers.



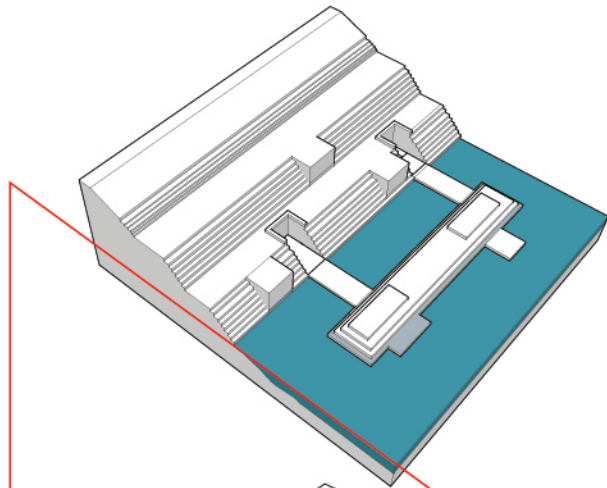
1. Sacred Identity
2. Recreation
3. Ghat Construction
4. Pedestrian accessibility



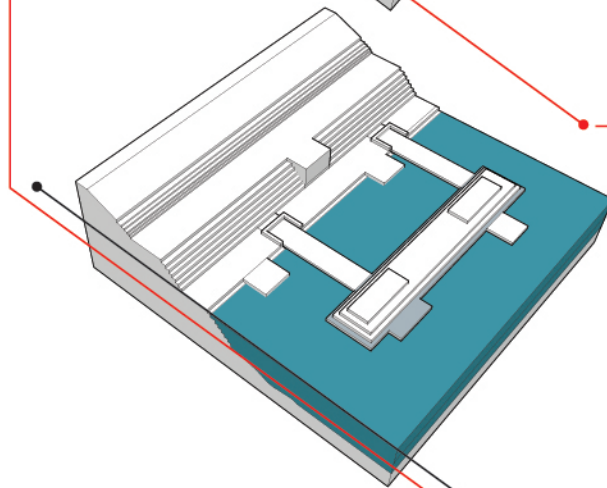
The stress of the floating population along the riverfront of Varanasi is the major reason behind the floating island project. By implementation of these floating islands that architecturally blend with the ghats, it will create more open spaces for pilgrims to perform the rituals. These are flexible constructions that can adjust according to rising and fall of water.



The intrusion of numerous boats into the ghats at important ghats to attract tourists creates chaos and reduces the space for pilgrims to perform their rituals in the river Ganga.

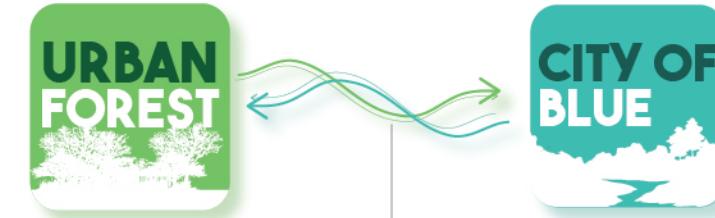


Non- Monsoon Season

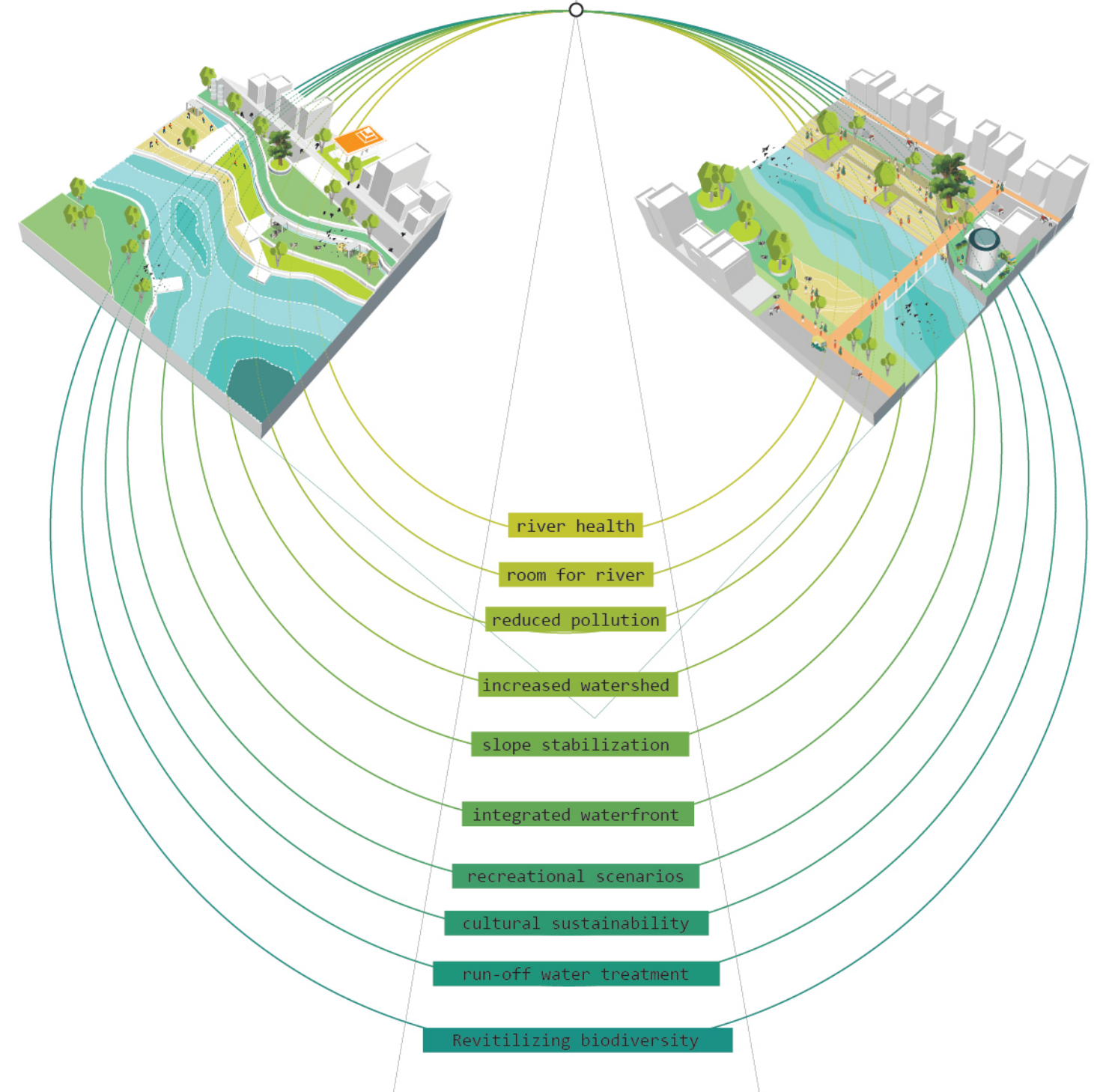


Monsoon Season

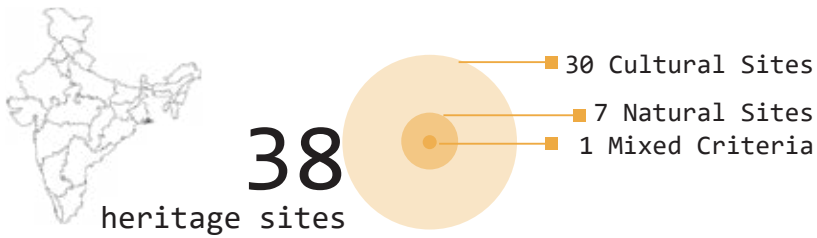
Fig 7.12: Aerial view
Source : airpano.com



Green - Blue strategies Outcomes



why Varanasi is not a
UNESCO HERITAGE city ?



One of the underlying objective of 'heritage city' strategy is to improve the heritage management and human use of the environment that includes river bodies in making this unique religious urban city to be listed in the UNESCO heritage cities of the world.

The World Heritage Centre proposes certain criteria and regulations which the site or location should satisfy from the list for being enlisted. Until November 2017, India has filed 35 properties for consideration which does not include Varanasi due to political differences. (Pravin & Rana, 2017)



Criteria for selecting heritage sites

TO BE included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of 10 selection criteria.

These criteria are explained in the Operational Guidelines for the Implementation of the World Heritage Convention which, besides the text of the convention, is the main working tool on World Heritage.

The criteria are regularly revised by the committee to reflect the evolution of the World Heritage concept itself.

Selection criteria:

- to represent a masterpiece of human creative genius;
- to exhibit an important interchange of human values, over a

span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

- to bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared;
- to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
- to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable

under the impact of irreversible change;

- to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The committee considers that this criterion should preferably be used in conjunction with other criteria);
- to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- to be outstanding examples rep-

resenting significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine eco-systems and communities of plants and animals;

- to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

The protection, management, authenticity and integrity of properties are also important considerations.

Since 1992, significant interactions between people and the natural environment have been recognised as cultural landscapes.

Source: whc.unesco.org

Image Source : vault.starproperty.my.s3.amazonaws.com

UNESCO Creative city

Although in 2015, Varanasi was enlisted in UNESCO Creative city in the field of Music. It is well renowned for its Banarasi Music, arts and crafts. Over the years, the city has produced famous musicians and artists whose legacy is followed as a tradition in many cultural institutions of Varanasi. There exist an intercultural exchange between artists during famous festivals and events that keeps the traditional music of Varanasi to be explored by the rest of the world.

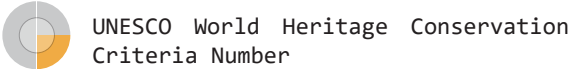


Satisfying criteria for selection of Varanasi as World Heritage site with reference to 'Varanasi: Heritage Zones and its designation in UNESCO's World Heritage Properties' by Rana P.B. Singh and Pravin S. Rana

Varanasi as a World Heritage Site



The unique landscape of Varanasi with exceptional architectural grandeur on one side of the river and a flood plain preserving the natural ecosystem showcase an exceptional example of co-existence of natural beauty and aesthetic importance on one site



TOWS Analysis	Projects	Key Stakeholders
S1*T6 S4*T6 W3*03	Project 01 . Heritage Zoning	Tourism Development Authority Archaeology Survey of India INTACH Sanskrit University Toursit Agencies Hindu Religious Organizations Cultural Organizations
S9*T8 S8*T8 / S8*03	Project 02 . Socio Cultural Groups	
S11*T6 S9*02 S4*03 S5*02 S8*08 S8*05	Project 03 . Conservation Practices	
W13*T2 W3*01 W3*T12	Project 04 . Heritage Walk	
S2*T4 / W1*T2 S2*T10 S2*T12 W10*T9 / W6*T2 S5*T6 S9*06 W13*T3 W2*T10	Project 05 . Old City - Ghats	

Project 01 . Heritage Zoning

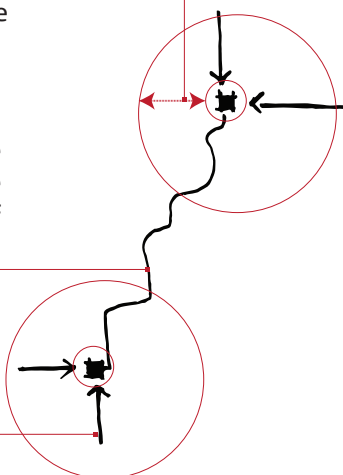
Being a highly dense city that grew over many years around heritage structures, no specific land-use restrictions or policies exist to safeguard them. One of the biggest examples can be seen where many historic temples were hidden in the urban fabric when the buildings were taken down as part of the Kashi Corridor project. Hence this strategy follows a series of steps by which it identifies structures and the precinct to be preserved as a heritage zone.

Factors determining Extent of the zone

- Number of Visitors
- Condition of Buildings
- Societal/Religious Value
- Location

Zoning to protect the structures and lifestyle that form a narrative of history

Determining flows and connections

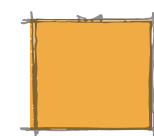


Process of Heritage Zoning of a Building

Identification

Based on architectural, religious, societal, historical value

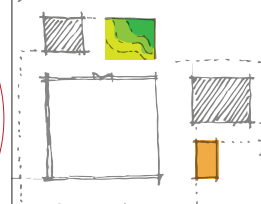
1



Facilitating

Allocating facilities such as information centre, toilets, drinking water, public green space etc.

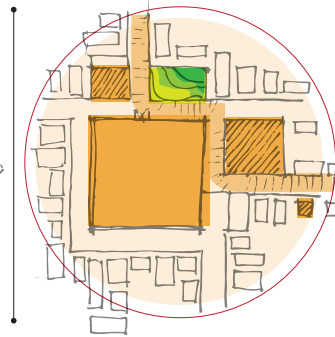
3



Synergizing

Contextual reformation of urban fabric in order support the heritage feel of the site using building conservation practices

5



2

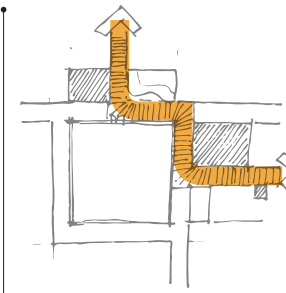
Clustering

Marking the heritage territory by clustering other heritage structures in the precinct

Movement

Designing pedestrian movement along the planned path that forms part of narrative or heritage walks

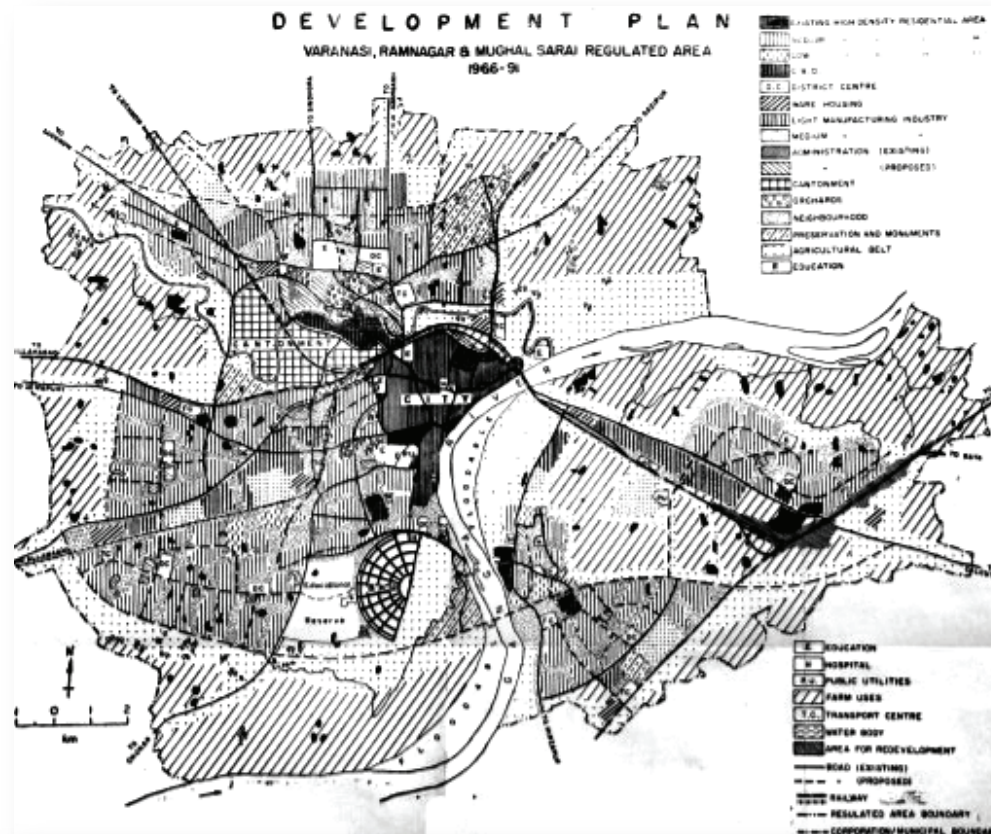
4



Once the region is preserved, the strategy proposes policy guidelines that are intended to preserve and restore the structure from time to time.

Project 02 . Socio Cultural Groups

During my fieldwork, I was informed by many that Varanasi never belongs to anyone as it belongs to all. The heritage of Varanasi is not only formed by the place itself, but by the occupants that have been living in this city for generations (Mishra, 2020). Socio-cultural communities were mapped with scientific evidence done by various researchers on their location and density around the city. The heritage strategy links these socio-cultural groups to various initiatives that aim to restore the culture of the city. Various kinds of Hindu sects like Marathas, Kannadas, Gujurathis etc live closer to the old city of Varanasi. The strategy also identifies specific cultural groups which include artisans and weavers who have been involved in creating unique cultural artifacts in this city over generations.



Related SDG's

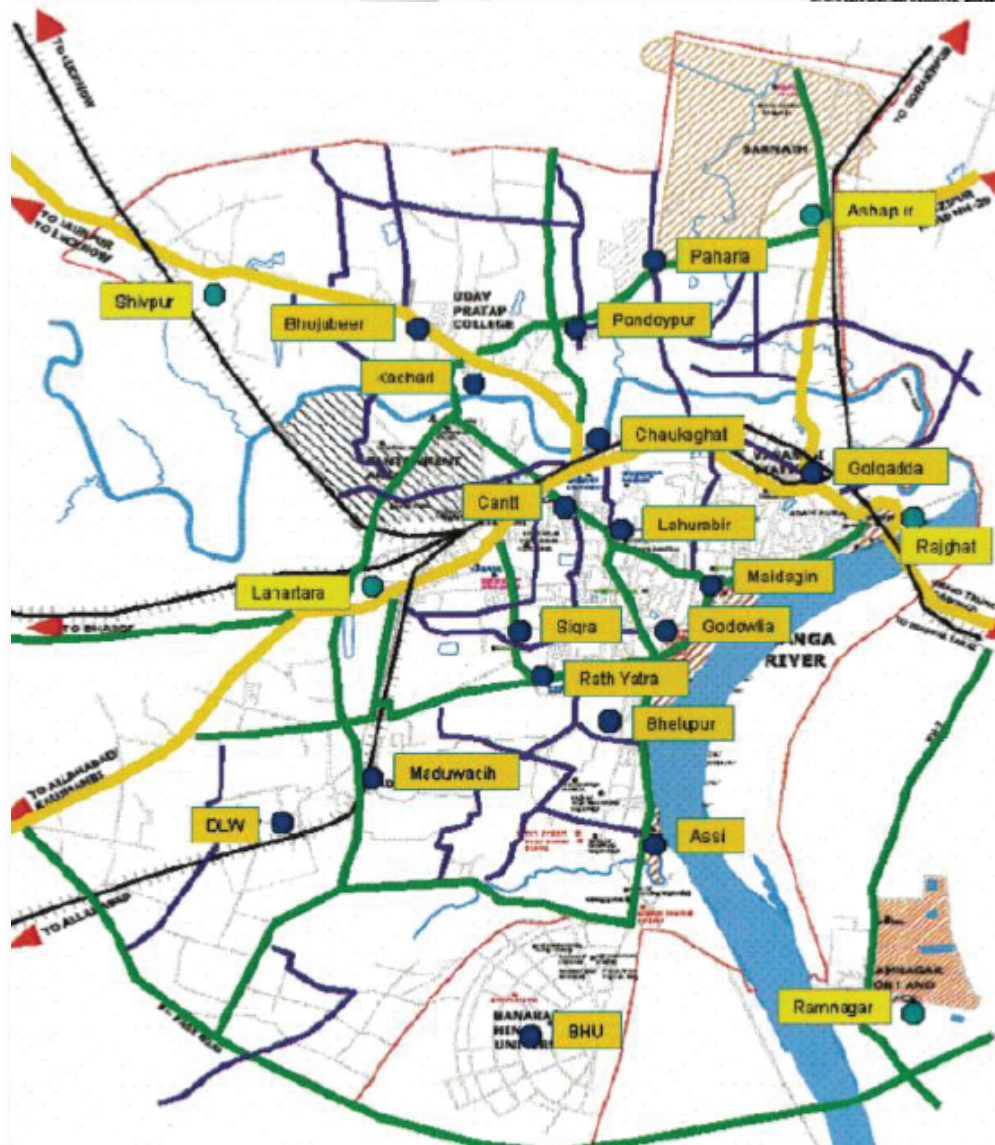


Major Problems Solved

- Chaotic transport connections
- Lack of easy Accessibility to major locations
- Slow traffic - traffic congestion
- Street activities restricting movement in many roads
- High pedestrian % with less infrastructure
- Concentrated activity generators/ traffic paths
- Character loss for religious paths
- Lack of Public Transport
- Parking Issues

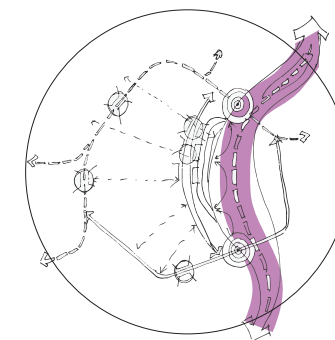
Strategy Considerations

The following strategy considerations are the guiding concepts of this strategy. The opportunities driven from the following concepts have given shape to specific transportation policies as well as design interventions.

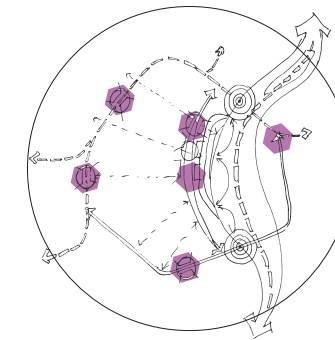


why Reconstruct?

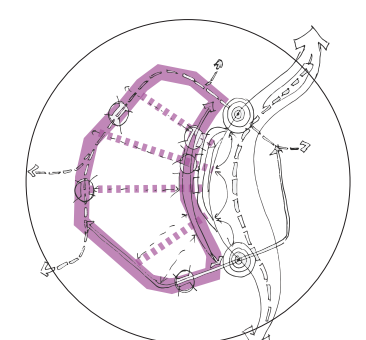
Varanasi was the foremost city in India for trade over centuries due to its strong transportation line both by road and river systems as the city. The rich craftsmanship of the city favoured by central markets for horses from Sindh and elephants from the Himalayas made this city flourish as one of the richest cities of the country (Sukul,1974). This strategy aims at reconstructing the strong transportation network over the river as well as favouring movement within the city for improved accessibility. The goal is to solve issues of congestion and traffic in the city.



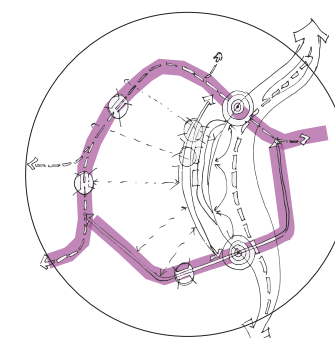
Water transport Opportunities



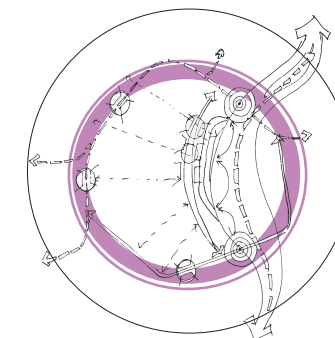
Connecting significant zones



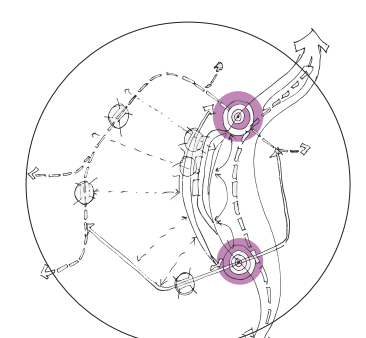
Easy movement Public transportation



Use of existing infrastructure lines



Focusing on intracity transportation



Land water transit hubs

Fig 7.15(above): 1966 Development Plan of Varanasi showing strong infrastructure. Source: Singh, 2009.

Fig 7.16(below): Strong infrastructural lines within the Varanasi City. Source: Ernst & Young Pvt Ltd. , 2009.

TOWS Analysis	Projects	Key Stakeholders
S1*04 / S1*01 S7*08 S1*05 W12*T1	Project 01 . Land-Water Transport	Public Transport Authority National Highway Authority Public Works Department Infrastructure developers Ferry Authority
S13*T12 W5*01 S13*04 /S13*08 S3*T5 W2*T12	Project 02 . Monorail Public Transport	
S4*09 W5*T12 W8*09 W5*09 W8*01 W4*09 / W8*02 S9*T12 W4*02	Project 03 . Traditional Transport	
W4*06 W4*T4	Project 04 . Street Design	

Project 01 . Land-Water Transport

North and South transit hubs along the river Ganga will be transformed into entry points to the city where there will be parking facilities to prevent the inflow of vehicles towards the city. These transit hubs will be well connected to the monorail, public transport and traditional transport mediums.

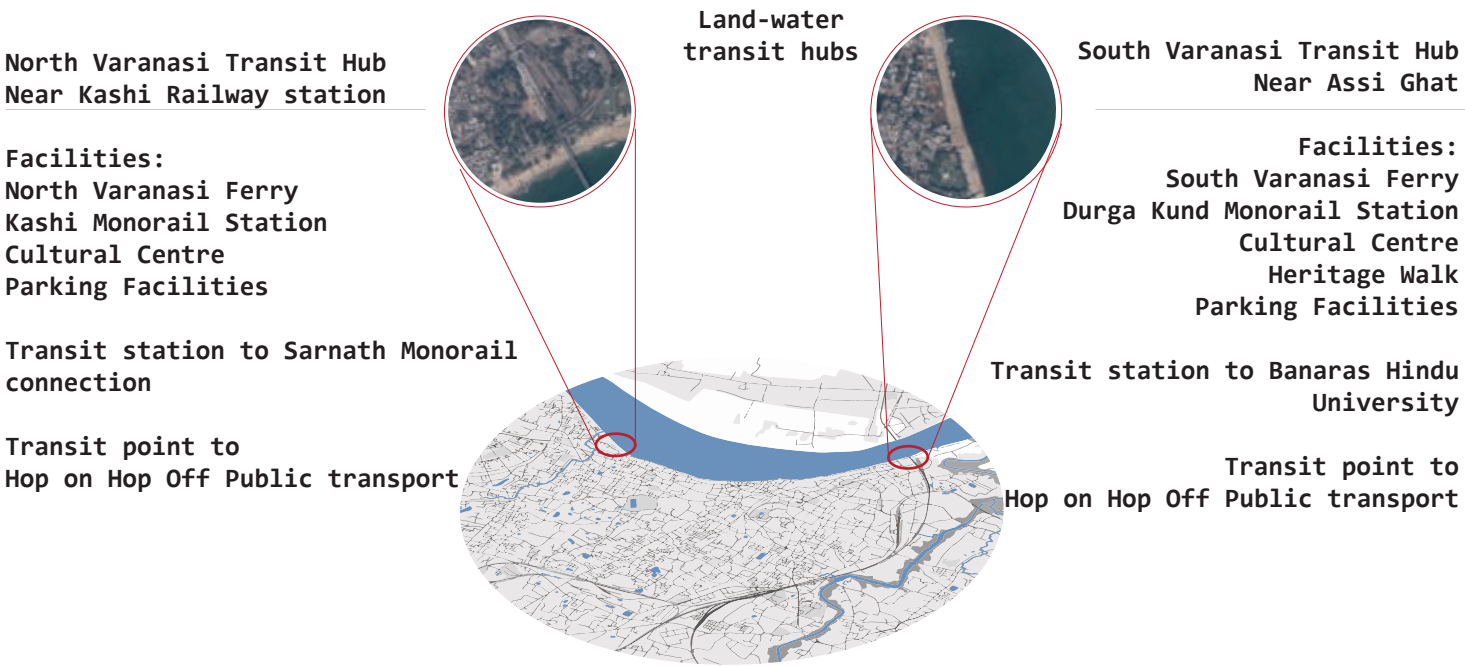


Fig 7.17: Old lithograph of Varanasi by James Princep
Source : Britishlibrary.uk

The flourish of Varanasi economy was highly influenced being a waterfront city to the largest river of the country. The ghats used to be docking places for many ships and boats of travellers who continuously visited the city in their trade routes (Sukul, 1974). Over the years, the increasing religious activities and the dependency of transportation by road have declined the trade and the potential of this riverfront city in transportation via water. The need for this strategy is to boost the existing water transport system using the traditional boats of Varanasi. The choice of traditional boats was taken as the strategy does not intend to cause any visual damage to the unique identity of the ghats with recreational cruises or ships that can also hinder the daily religious life of Varanasi. The selection of two Hubs towards the North and South was taken as to reduce the number of vehicles coming inside the city, instead to promote the use of boats from these transit hubs that move along the ghats to enter the city. Over the project phasing, these hubs will be transformed into Cultural interpretation centres that will offer all the amenities and parking facilities for visitors.

why Monorail?

The increasing urban population of Varanasi projects the need for the rapid transport system. A city which lacks public formal public transport within the city has a lot of commuting issues for not only the visitors but also for the residents. This urgency leads to the implementation of the monorail project in the city. The feasibility of monorail in Varanasi is supported by the report prepared by Ernst and Young Pvt ltd. in their efforts for preparing a comprehensive mobility plan for Varanasi (Ernst&Young, 2009). The feasibility is also supported by a scientific explanation of Monorail from monorails.org. The reasons for the choice of monorail as the main rapid transit system is given below

Although expensive, monorail suits well with the PPHPD of Varanasi which could change in future with a growing population. But with other accessibility strategies of land water transport and traditional transport means, the count of PPHPD can be kept within 5000-6000 which is optimum for the monorail (Ernst & Young Pvt Ltd., 2009).

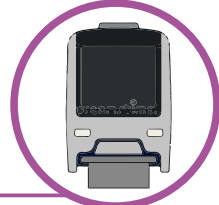


Comparing to other transit mediums such as heavy rail and light rail, monorail transit system projects certain other spatial and aesthetic advantages

Heavy rail
This mode of rapid transit system requires much wider roads for its implementation and the roads of Varanasi are quite narrow for rail lines to be installed. Installation of Heavy rail is very expensive also

Light rail
Varanasi could adopt a light rail transport system but the shared use of road along with other users of the road makes it more difficult in Varanasi for the implementation of light rail. Also, light rail requires a spider web of wires with support posts which will look obtrusive as the proposed line passes through dense roads of Old city of Varanasi

Monorail
As monorails are single track for passenger vehicles, it exists as only one beam casting least shadow and disturbance to the path it follows. The biggest advantage of Monorails is that it is wider than the supporting guideway



Taking some case studies of Monorail projects from the world, there are few more advantages of using Monorail transit system. One of the major advantages of using this monorail transit system is that it mitigates the use of private vehicles around the city, thereby reducing pollution.



Hide stations
eg. Sydney monorail city center station
Source: monorails.org



Hide tracks within Buildings
eg. Oasis Shopping Centre Broadbeach
Source: c1.staticflickr.com



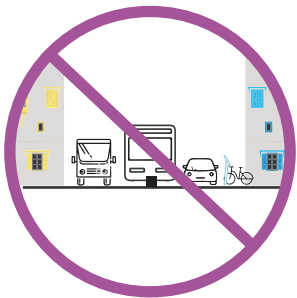
Green Corridor
eg. Chongqing Rail Transit, China
Source: monorailsaustralia.com.au



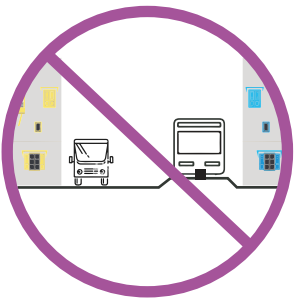
Less Width
eg. Walt Disney World Monorail System
Source: 31.media.tumblr.com

why Elevated?

The proposed monorail in Varanasi takes an elevated position and mainly uses the space next to the **existing railway line** within the city limits in creating a portion of the monorail track. The reason for the choice of an elevated platform is shown below in comparison to other ways.



Shared Path



At Grade



Underground









Elevated

Lack of width rules out the possibilities of transit system to be constructed sharing the road or at grade. The intension of strategy is also to create a pleasant environment to the travellers to get an experience of the old city of Varanasi as the rail moves through and the underground option completely rules out this experience into a darker environment

7.3 Policies

Four policy sets are prepared for Varanasi that are related to green, blue and heritage strategies. They are mainly grouped into incentives and regulations. There are also policies that engage, empowers and protects the natural and built assets of Varanasi. These policy sets also indicate the stakeholders who are responsible or affected by specific policies.


-  Objective
-  Civic society
-  Religious Organizations
-  Non-Government Organizations
-  Government Institutions
-  Water Management Authorities

Green

Related Policy set **P1**



Reference : Asia, I. S. (2015). Urban Green Growth Strategies For Indian Cities. Delhi, India.

Sacred Green


-  1. To promote the plantation of religiously auspicious trees and shrubs in identified sacred sites.
- 2. Preservation of Kashi Forest and 5 Sacred Green gardens (Protected ecological reserve for Varanasi).

Policies




Incentives

-   Promoting sacred garden program involving planting of sacred trees.



Regulations

-  Strict measures to prevent cutting down of Sacred trees.


Protection

-  1. Demarcate the boundaries of sacred trees such as peepal, banyan and neem and no construction to be allowed within the estimated canopy stretch of the tree.
-   2. Identify culturally important sacred trees and to make immediate preservation practices.

Engagement



-  1. Guidelines to promote the practice of planting sacred trees.
-  2. Boards explaining the ecological importance of sacred trees and the mythological relation for creating awareness amongst pilgrims.

Public Green




-  1. To preserve the recreational green spaces for promoting a quality environment within neighbourhoods, thus contributing to the overall green structure of the city.
- 2. To provide a set of guidelines for local users to be aware of the functions of specific green areas and the incentives associated with the preservation practices.

Policies





Incentives

-   1. For landowners to provide space for city green development.
- 2. For communities for Urban farm and community garden.
- 3. For supporting residences for setting up a terrace garden.
- 4. Agricultural schemes supporting terrace farming.







Regulations

-  1. No permanent construction allowed in urban forest identified sites. Formulation of green codes and bylaws for any development within the city.
-   2. Every open space in the city to have labels defining the function, typology and history (if any). This is to create awareness amongst the residents.

Protection

-  1. Open spaces containing water resources and environmental assets to be assigned specific guidelines relating to ecological conservation practices.
-  2. Transformation of the Urban forest to temporary event locations with efficient green preservation guidelines.
-  3. Flood identified zones to have specific open spaces with no permanent constructions to provide room for the river to flood.
-  4. Land use of waste lands to be changed as recreational or green space in the land use plan for the city.

Engagement

-  1. Open space allocation for recreation near heritage buildings.
-   2. Building guidelines for the city to allocate minimum open spaces for any new construction.
-  3. High priority for open spaces within the city centre.
-   4. Working with educational institutions, communities and NGO's for preserving agricultural land within cities.

Water
Related Policy set

Reference : Rohilla, S. K., Matto, M., Jainer, S., Kumar, M., & Sharda, C. (2017). Policy Paper on Water Efficiency and Conservation in Urban India. New Delhi: Centre for Science and Environment

River Conservation **P2**

- 1. Water efficiency and conservation practices for water resources, mainly rivers.
- 2. Water management for storm-water, wastewater and rainwater harvesting .

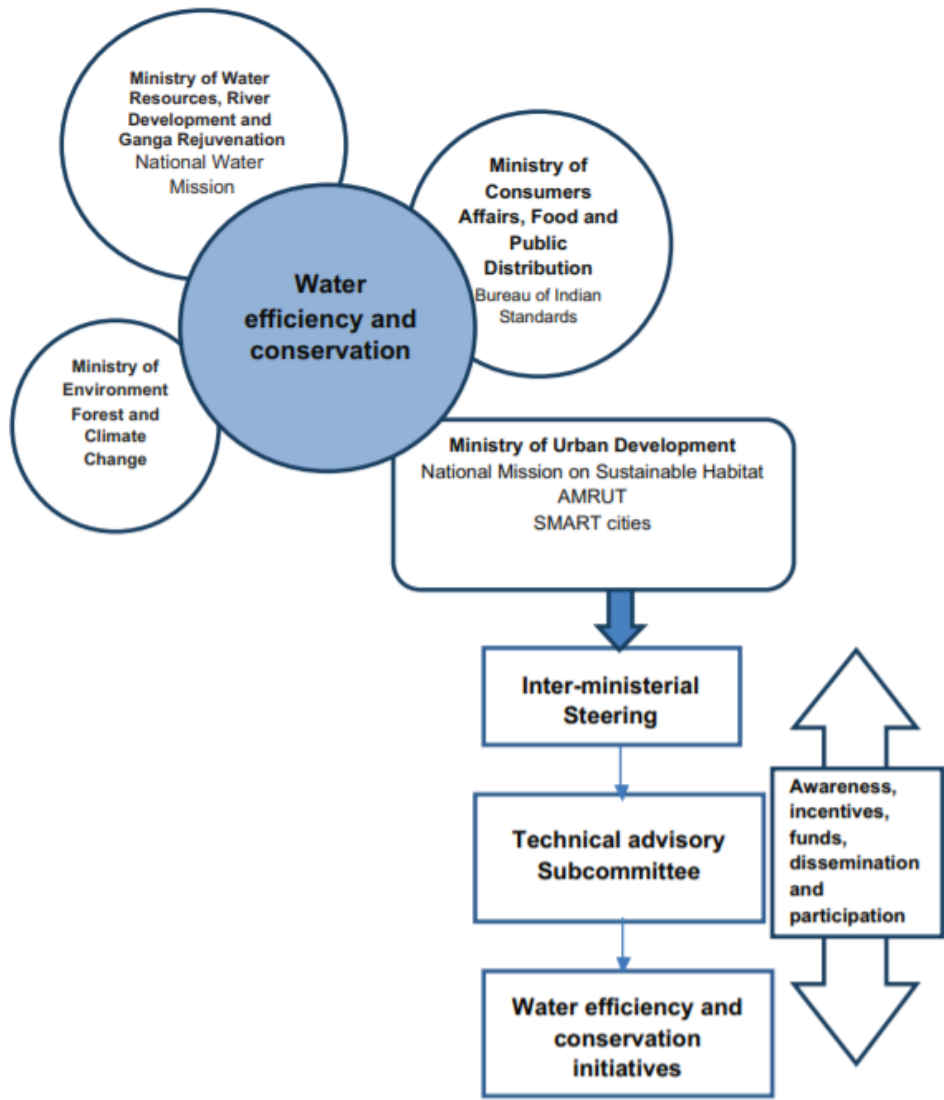


Fig 7.18: Proposed road-map for urban water efficiency and conservation in India. This framework proposes Ministry of Urban Development(MoUD) as the key facilitator where it merges the cooperation of other ministries in water efficiency and conservation.
Source: Rohilla & Dasgupta, 2010

Policies

Regulations

- 1. Develop water conservation by-laws for the use and recycling of water resources.
- 2. Measures to prevent direct discharge of sewage water into any rivers.
- 3. Special regulations for pollution control of river Ganga near Ghats.
- 4. Restricting constructions within 400 m front riverfront of Ganga.
- 5. Restricting construction within 100 m on both sides of river Varuna within city limit and 200m outside municipality boundary.
- 6. Restricting construction within 50m along the corridor of Assi River.
- 7. Water management team to be set up to inspect and maintain the water quality of rivers and water resources of the city.
- 8. High water-efficient public toilets to be installed instead of high water usage toilets.

Protection

- 1. Document and map the watersheds and water resources of the city. Mapping process should involve detail analysis of the condition of the resource and source of pollution(if any).
- 2. Integration of water resources into land-use planning.
- 3. Conservation of tortoise sanctuary along the river edge of Ganga which is a wildlife protected land from 1989 by the *MoEF.
- 4. Alterations to drainage flow to be set minimum for any construction site.

Engagement

- 1. Religious organizations to promote sustainable ways of rituals and practices that cause minimum damage to the river.
- 2. Participation of Public communities in water management practices.
- 3. Irrigations systems to integrate water efficiency.
- 4. Implementation of techniques and methods for using storm water, wastewater and rainwater to its maximum capacity before discharging it.

Kund Conservation **P3**

- 1. Preserving the traditional water resources of Varanasi.
- 2. Upholding the sacred identity of heritage kunds in the city.

Policies

Incentives

- 1. Incentives for water harvesting system installation.
- 2. Incentives to temple organizations for conservation of sacred ponds.

Regulations

- 1. Strict rules for maintaining the water quality in the kunds.
- 2. No water-dependent industries to be set within 300m radius of any kund.

Protection

- 1. Standard inspection on the quality of water in the kunds.
- 2. Guidelines and design for transforming kunds as public assets
- 3. Creating a hierarchy in kunds according to various factors such as area, location and significance.

Engagement


- 1. Promote sustainable ways of rituals and practices to reduce kund pollution.
- 2. Formation of neighbourhood associations for maintaining the kunds.
- 3. Awareness programs for communities for kund Conservation.

*MoEF - Ministry of Environment and Forestry

Heritage
Related Policy set **P4**





Reference : INTACH, (2016) Preperation of City HRIDAY Plan (CHP) including civic infrastructure development plan1.

Heritage - General




 Conservation of historic, religious, cultural and natural heritage assets along with its related social and spatial environment .

Policies


Regulations

-  1. Heritage zones to have levels of classifications as primary, secondary and tertiary zones.
-  2. Heritage regulations to be introduced in the building laws of the city for effective conservation practices for scattered structures.
-  3. Building guidelines for renovations to retain the heritage quality of the precinct around the primary zone of the heritage structure.
-  4. Special heritage guidelines for monuments in the city.


Protection

-  1. Heritage Conservation Authority to be formed for Varanasi City to monitor the conservation practices in the city.
-  2. Heritage Conservation Authority to be directly linked to Central and state ministries for efficient utilization of conservation schemes and for enlisting Varanasi as a UNESCO Heritage city.
-  3. Grading for heritage buildings. Grading will be based on several criteria such as relevance, condition of the structure, location etc. Grading will decide the amount of funding that will be allocated for restoration and maintenance.

Engagement



-  1. Collaboration with Universities and institutions for effective documentation heritage (tangible and intangible) assets of the city.

Heritage - Old City






 Preservation of social and spatial assets of historic old city of Varanasi
Guidelines to improve infrastructure conditions in old city of Varanasi to continue to preserve it as a 'living ' old city.

Policies


Incentives

-  1. Incentives for owners of heritage structures for yearly maintenance.
-  2. Involvement of socio-cultural groups within the city to create active hot spots and programs to activate open terraces.

Regulations

-  1. All buildings of Old city and Ghats to follow heritage conservation guidelines. Demolition/ Renovation of any buildings within the city prohibited without consultation with the Heritage Conservation authority.
-  2. Guidelines for adaptive reuse of buildings without causing any damage or visual change to the structure.
-  3. Infrastructure development to follow conservation guidelines without causing any heritage damage.
-  4. Use of advertisement signboards and display flex boards to be prohibited along the streets of the old city.
-  5. Street furniture to adapt sensitive design considerations which cause no visual disturbance to the streets or structures.

Empowerment

-  1. Protection of rights of Socio-cultural and ethnic groups using schemes/programs to protect them from becoming vulnerable.

DO's and DONT's



Preserving traditional street furniture
Infrastructure facilities to be hidden



Advertisement banners hiding the
old street facades



Restoration of Building facades with
intricate architectural details
Avoiding electrical wires to create
visual disturbance for heritage facades

Fig 7.19 (top left) : nomad40.com/ Jeff Bronson Kraven
Fig 7.20 (top right) : commons.wikimedia.org/ Jorge Royan
Fig 7.21 (bottom left) : flickr.com/ Eric Lafforgue
Fig 7.22 (bottom right): flickr.com/ Manfred Sommer



8

Regional Design

The regional design of Varanasi focuses on the Pilgrimage path which is transformed into a cultural corridor connecting various parts of the region with Varanasi city. The chapter proposes design components for the pilgrimage path and the 5 halt locations along the path.

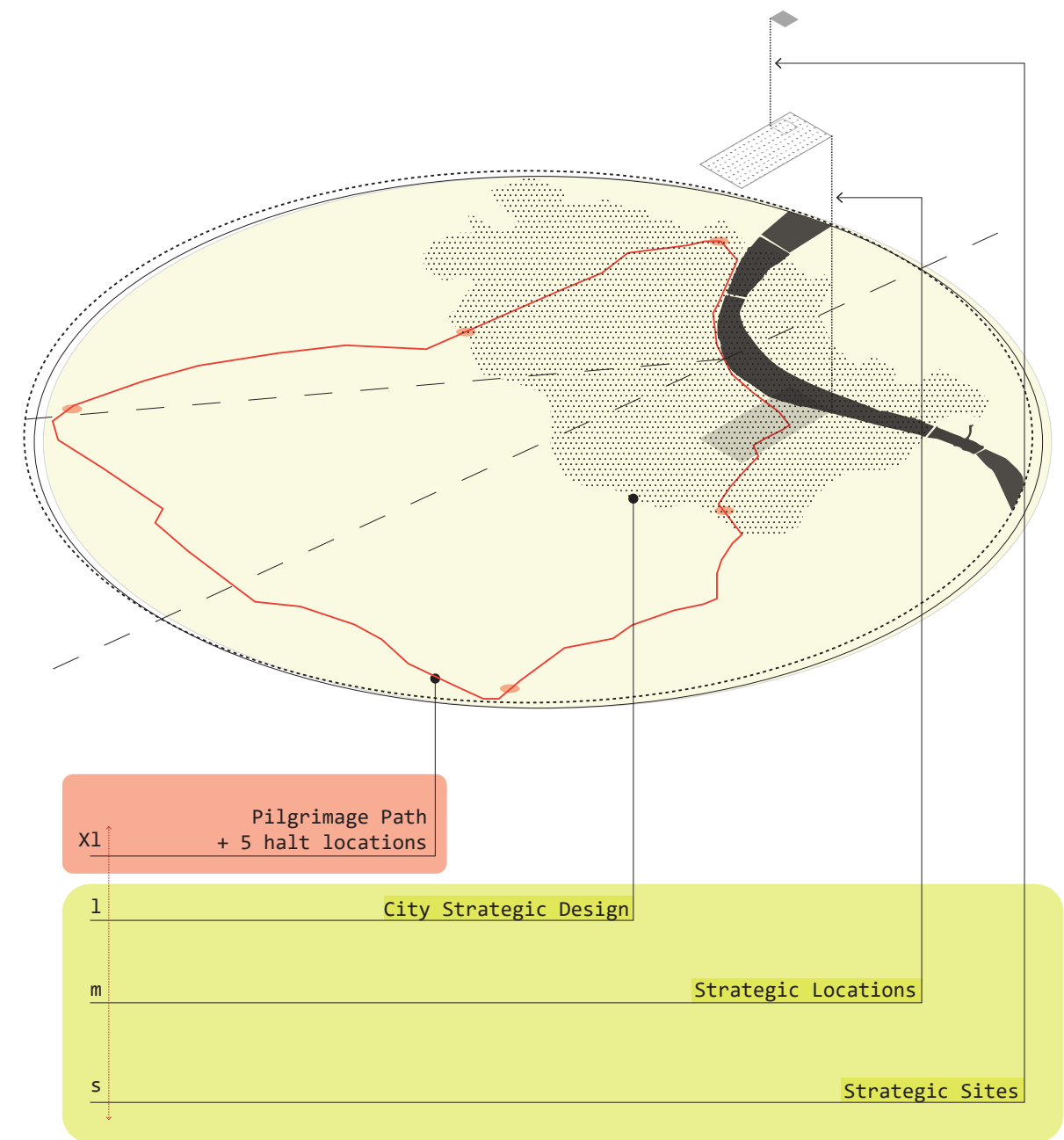
- 8.1. Introduction
- 8.2. Design Components
- 8.3. Kapiladhara Site

8.1 Introduction

The regional design for Varanasi focuses on Panchakrosh pilgrimage path and the 5 halt locations. At the city scale, a strategic framework is proposed, which is composed of mainly 3 parts. The first part maps the spatial design formed by the overlapping of 4 strategies (Urban forest, City of Blue, Heritage city and Accessible city) and the interconnectivity projects. The second part of the framework proposes a stakeholder program which is theoretically supported by the concept of scale crossing brokers connecting higher scale stakeholders with local stakeholders (Ernstson, 2010). The final part of the framework is composed of specific events and phasing of projects over 25 years.

For explanation and testing of the design, from the city scale, two strategic locations are selected. The north and south strategic locations that are connected to water bodies of Varuna, Assi and River Ganga further explain the applicability of the 4 strategies in the selected locations. Even further, for detail design interventions, several zooms in sites in these strategic locations are selected and local stakeholders are identified easily at this level. The holistic approach using culture in the four strategies across the scales support to regaining the socio-ecological balance of the city.

Regional Design and Strategic Framework
Through Scales



8.2 Design Components

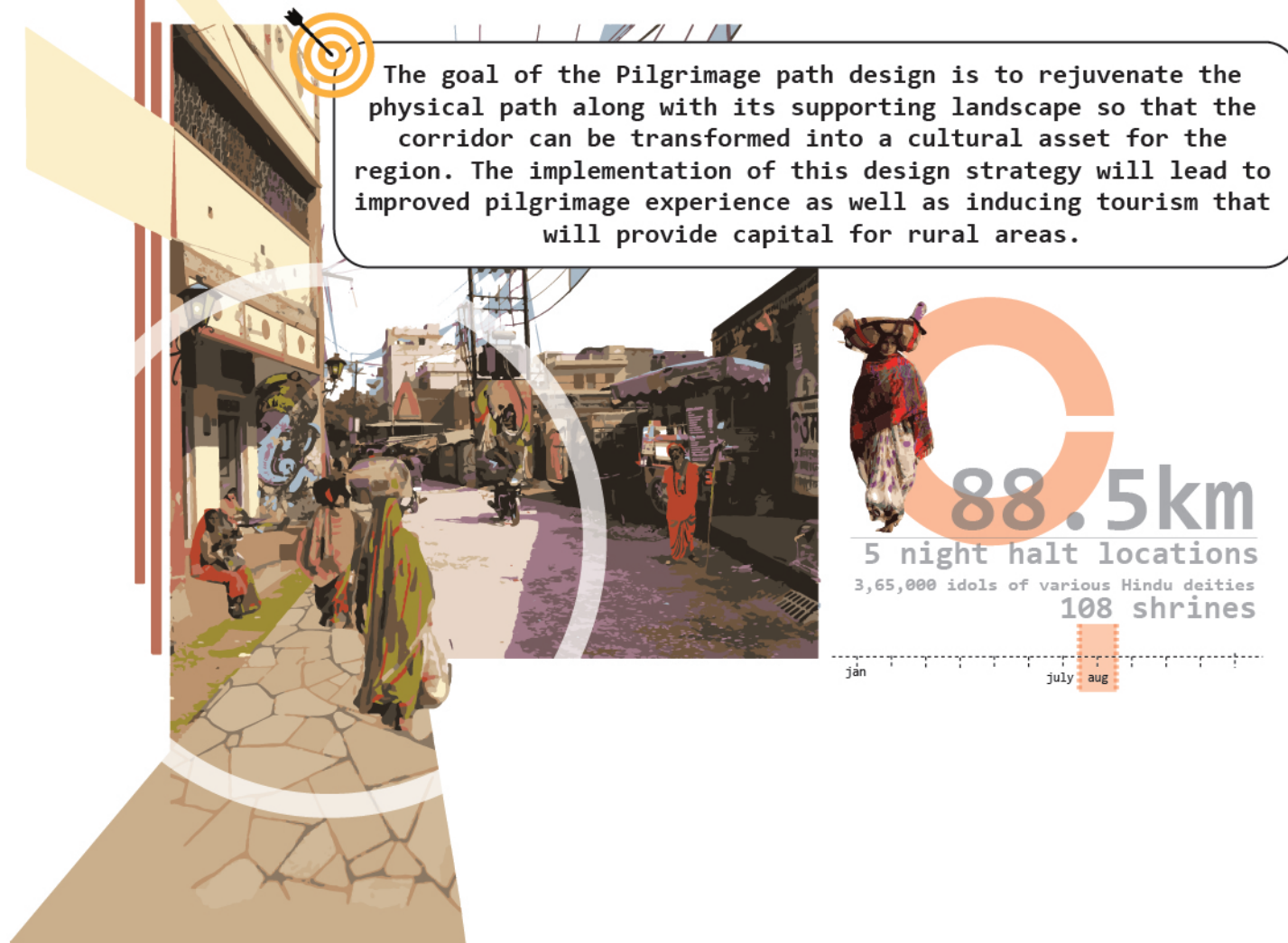


Fig 8.1: Visualization of the Panchakrosh pilgrimage path.
Source: Author

Fig 8.3 shows how Panchakrosh pilgrimage path design can be proposed as a cultural corridor that connects urban and rural through activities, events and economy. The pilgrimage path design has two components, which is the physical path and its associated landscape. Transformation of five halt locations along the pilgrimage route into rural cultural hubs is the spatial component of the design. These locations are shelter places where pilgrims rest overnight during their 5-day journey. Dharamshalas which are large courtyard houses with special architectural character is an asset for this transformation where the design proposes the use of these structures as multipurpose buildings that cater the needs of pilgrims during the season and support the cultural hub development during off pilgrimage seasons.

Pilgrimage Path Design

Cultural - ecological
Corridor
connecting Urban to rural

**Thirtha
Physical Path**
+
Padavs
5 halt stations

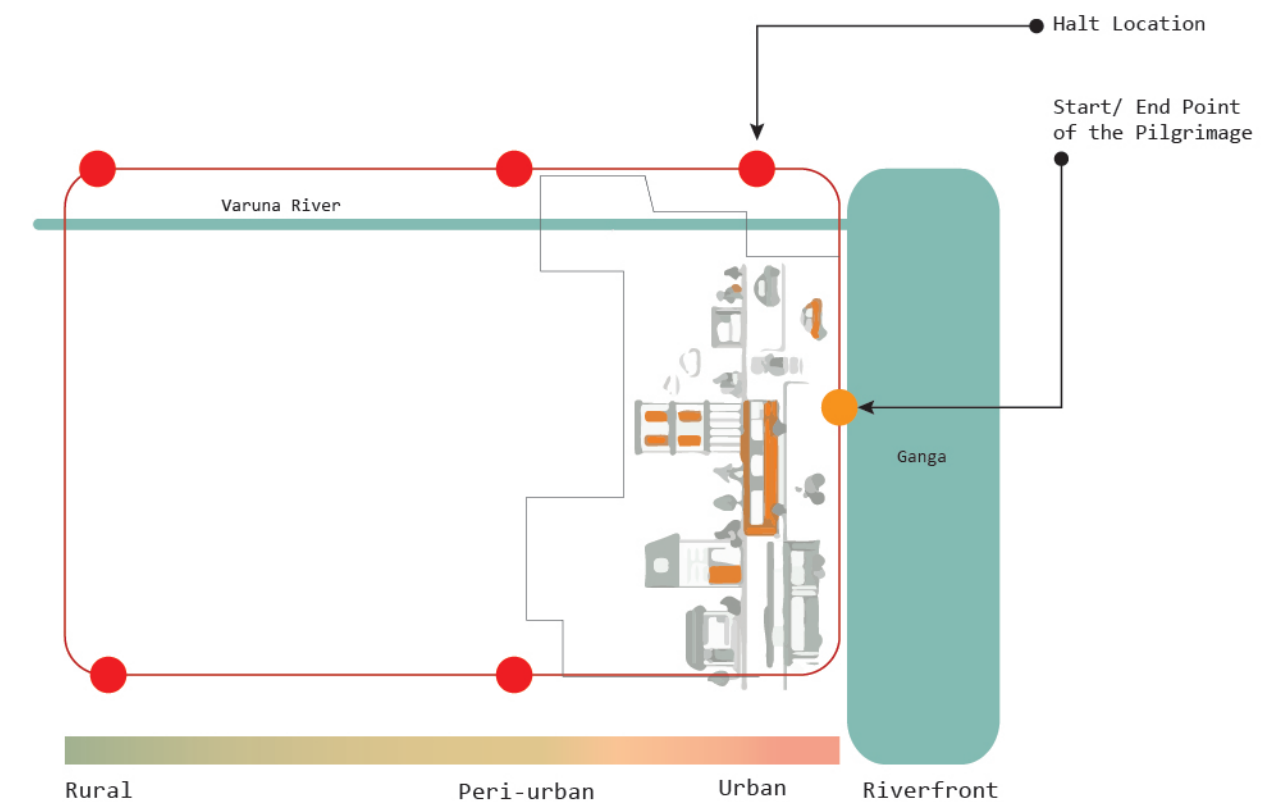
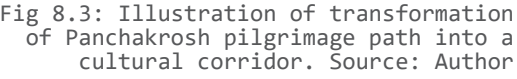
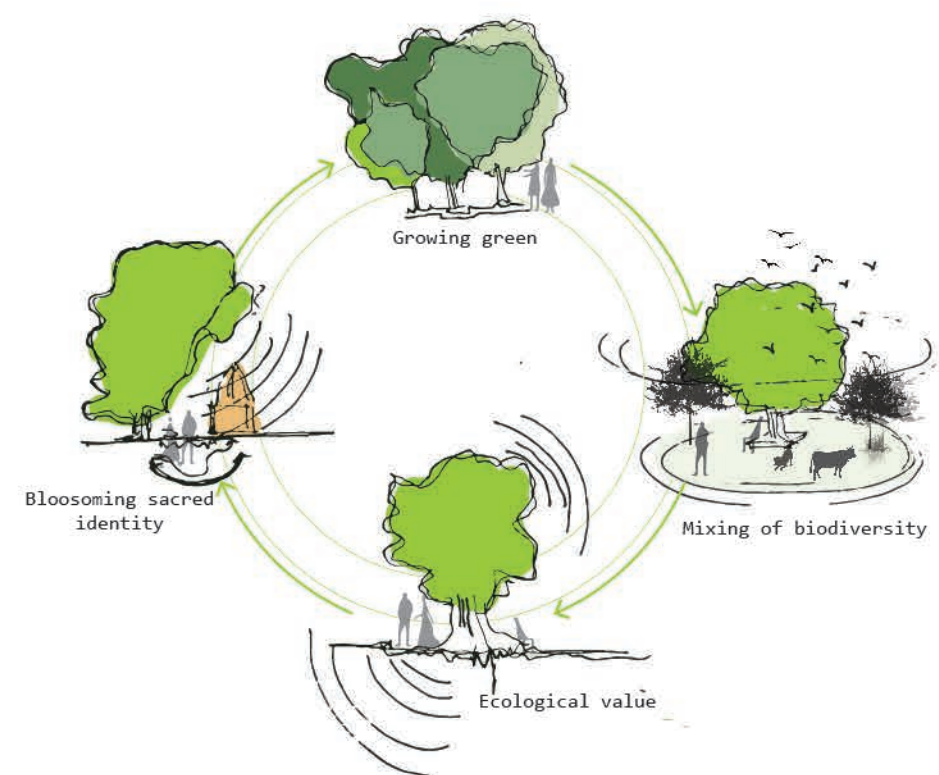
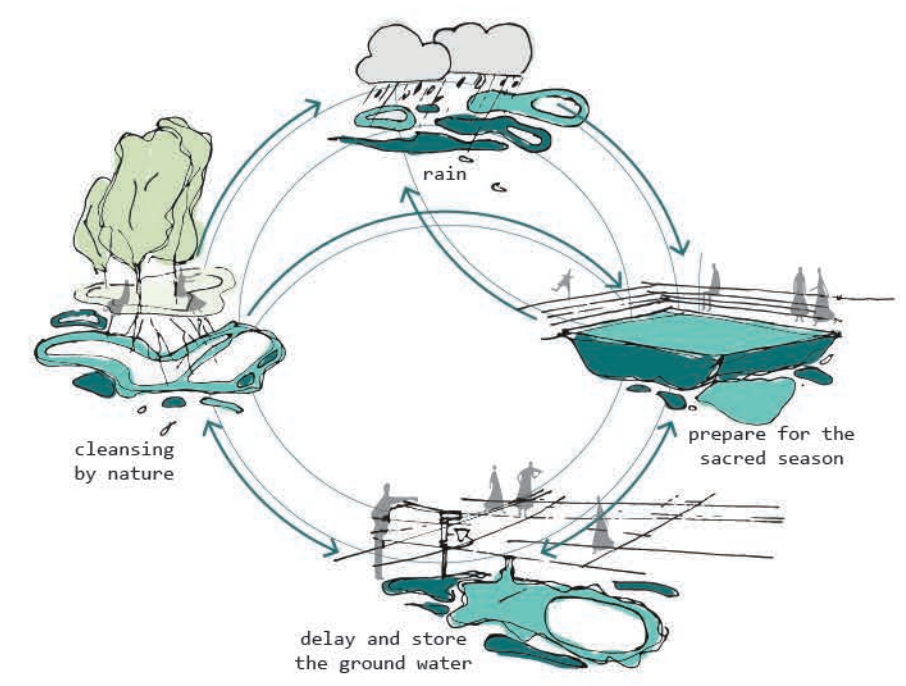


Fig 8.2: The pilgrimage path is in the clockwise direction with all the temples on the right-hand side and the area enclosed by the path is known as Kashi Kshetra. The path begins from Manikarnika Kund near the Kashi Vishwanath temple and finishes at the same location in a period over 5 days. Source: Author

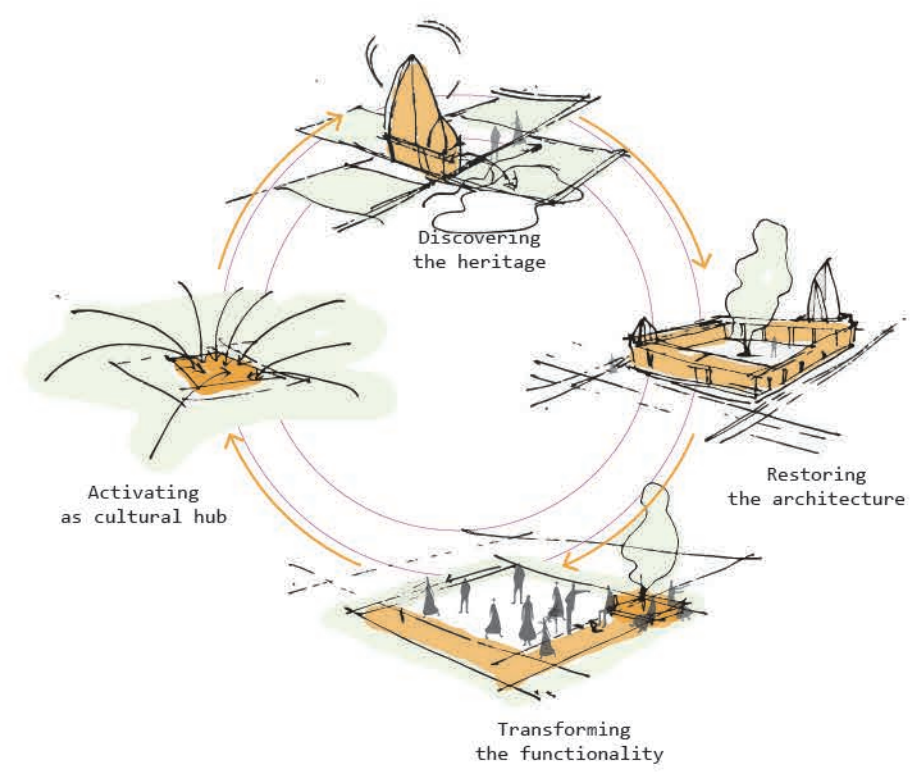




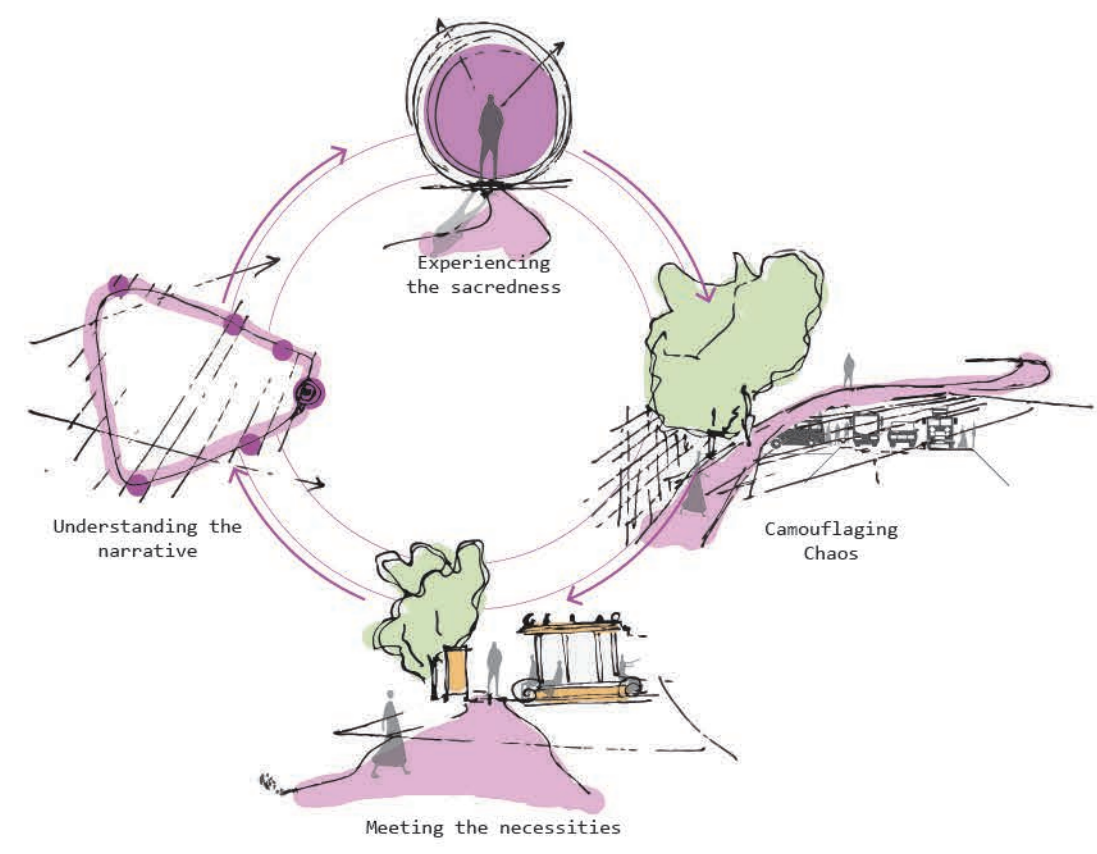
पवित्र वृक्ष [sacred tree]



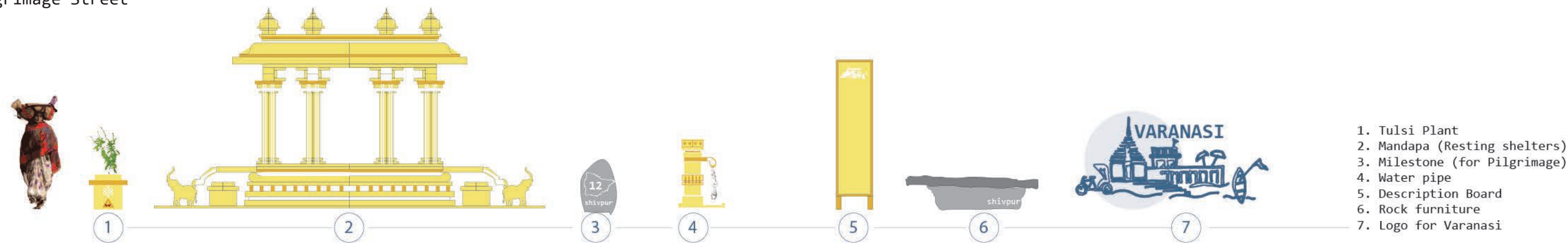
कुण्ड [kund]



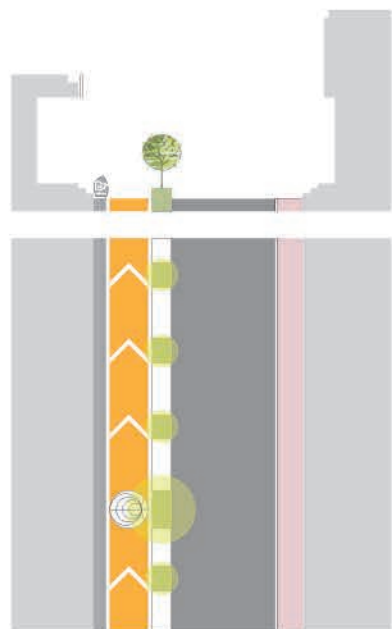
धर्मशाला [dharamshala]



तीर्थ [theertha]

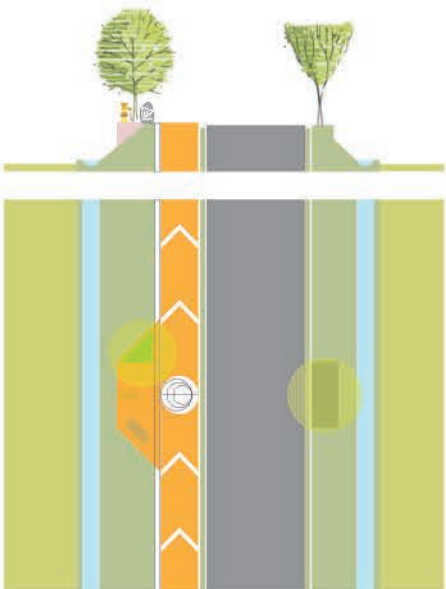


Peri - Urban



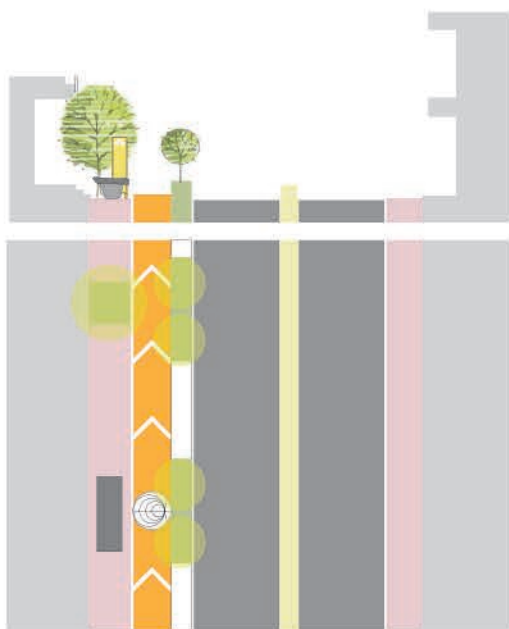
Spatial Plan and Section illustrating the Pilgrimage path in Peri Urban Areas

Rural



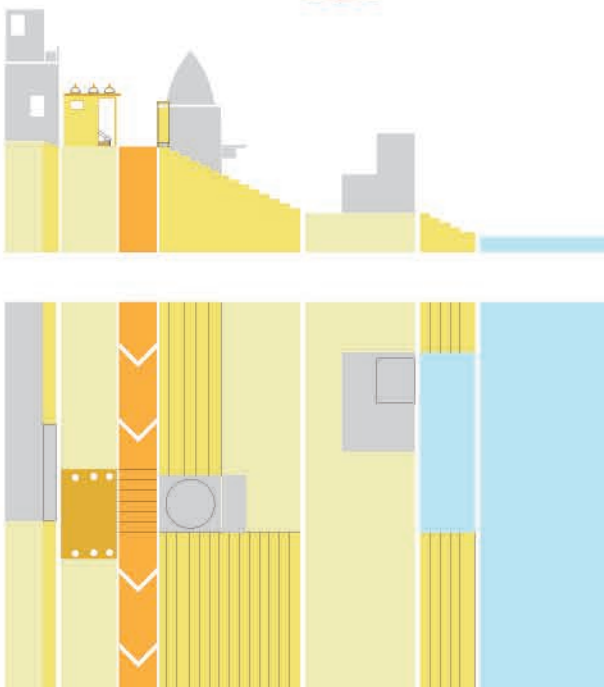
Spatial Plan and Section illustrating the Pilgrimage path in Rural Areas

Urban



Spatial Plan and Section illustrating the Pilgrimage path along Highways

Ghats



Spatial Plan and Section illustrating the Pilgrimage path at Ghats

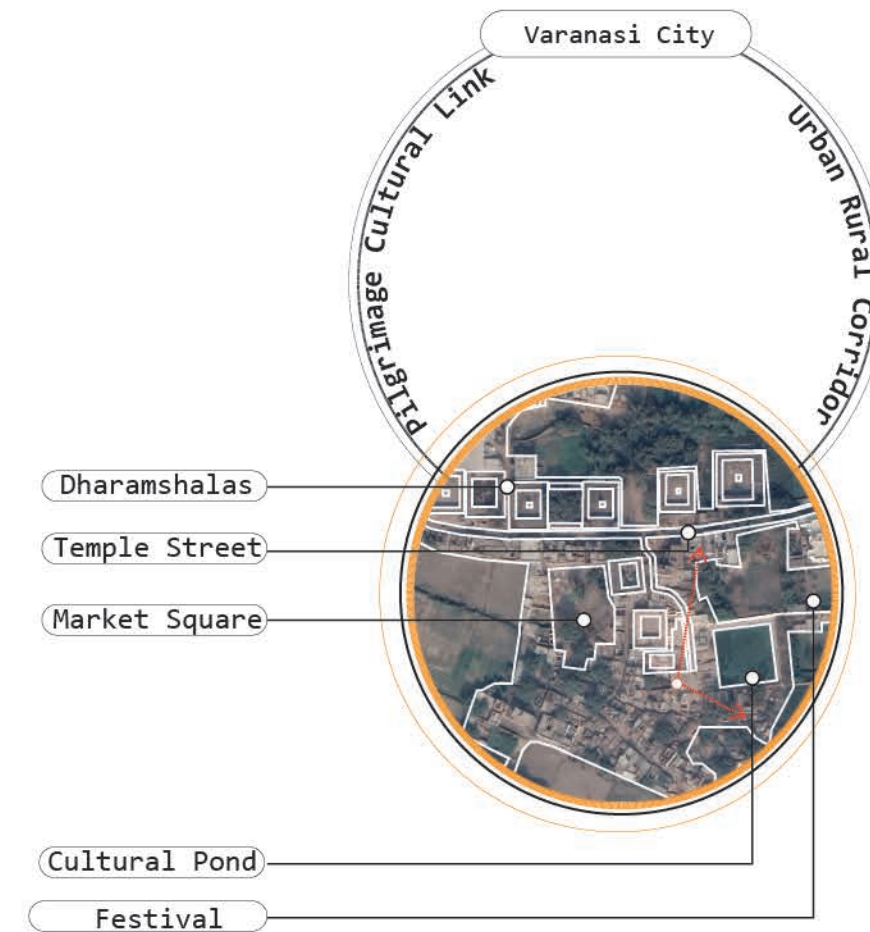
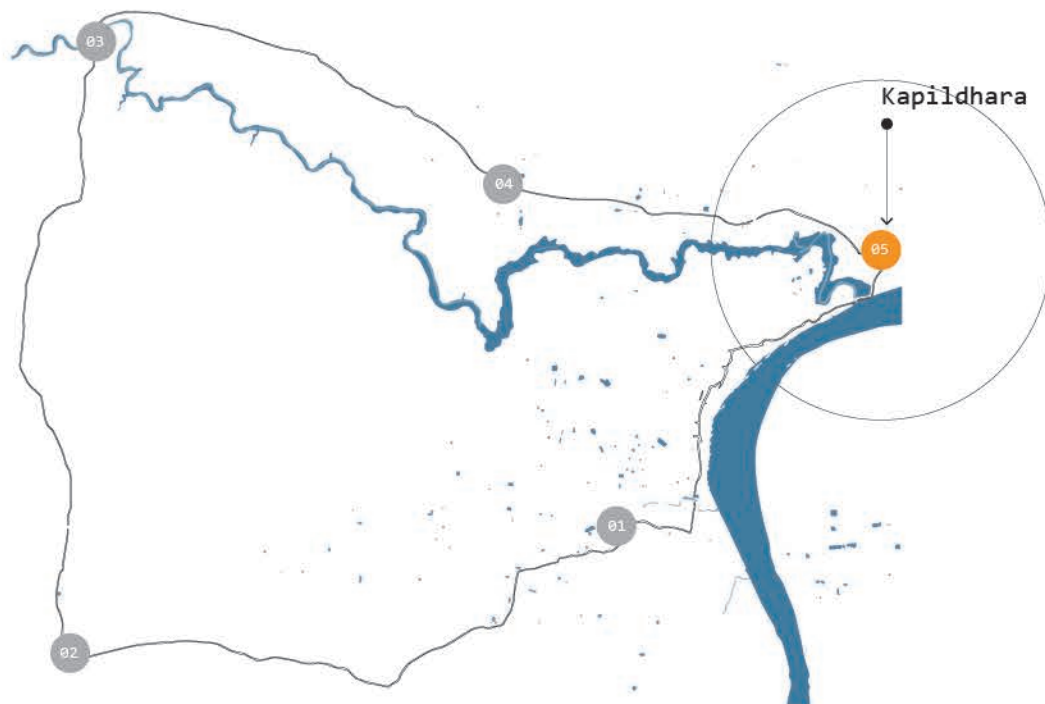
8.3 Kapiladhara Site



कपिलधारा [Kapiladhara]

Transformation of Halt location into a Rural Cultural Hub

Kapiladhara is the 5th and last halt location situated in Khalispur village to the north of Varanasi City. Situated by the banks of river Varuna and River Ganga, the village had a population of about 2,892 in 2011 (Census, 2011). Transforming the pilgrimage halt location into a cultural hub for the village will provide a platform in the rural setting for a sustainable development, culturally. The pilgrimage path that becomes the corridor connecting various parts of the region to Varanasi city will open up new opportunities for economy within these rural areas.



Transformation of a village centre into a rural hub needs strong stakeholder participation which connects higher levels of Governance to village governance through an intermediate platform. The engagement strategy (Fig 8.5) for a rural hub focuses on 4 stakeholders where the rural administrative head creates a platform to present the interest of people to Varanasi Development Authority, Varanasi Municipality as well as religious organization heads.

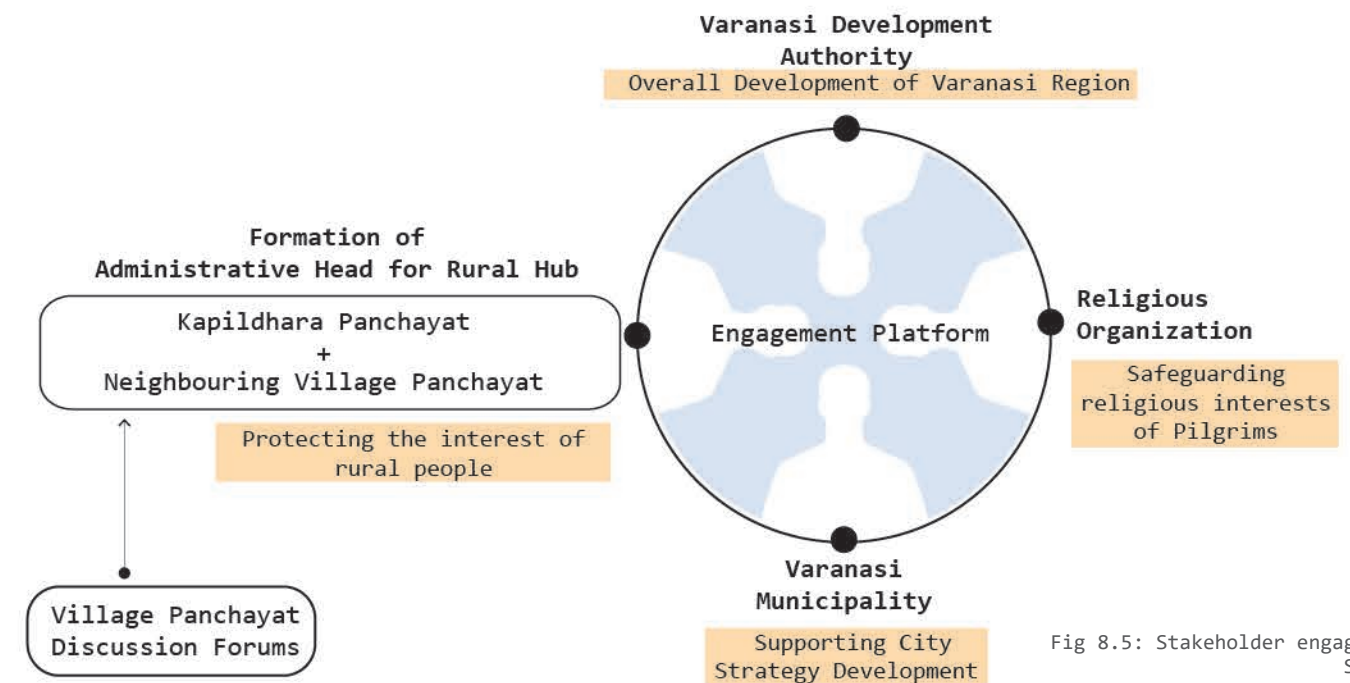
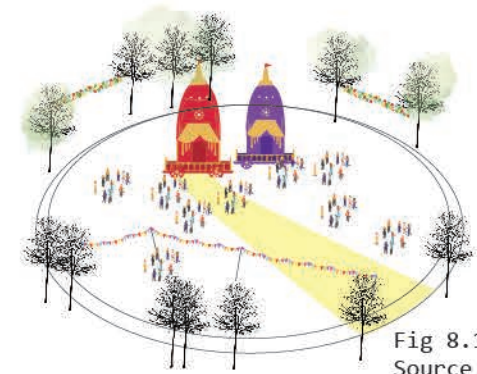
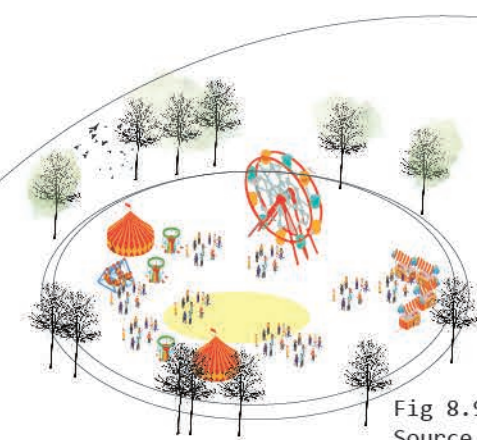
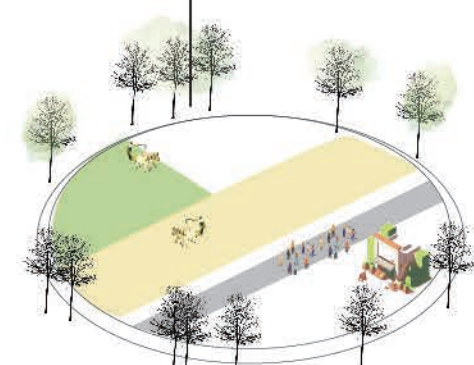
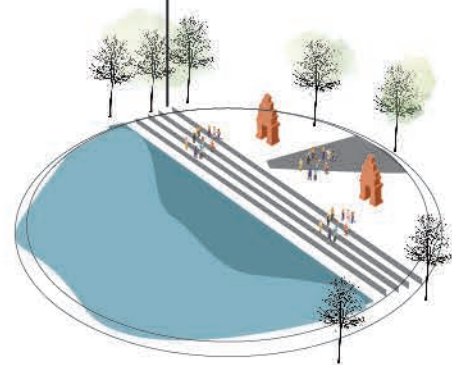
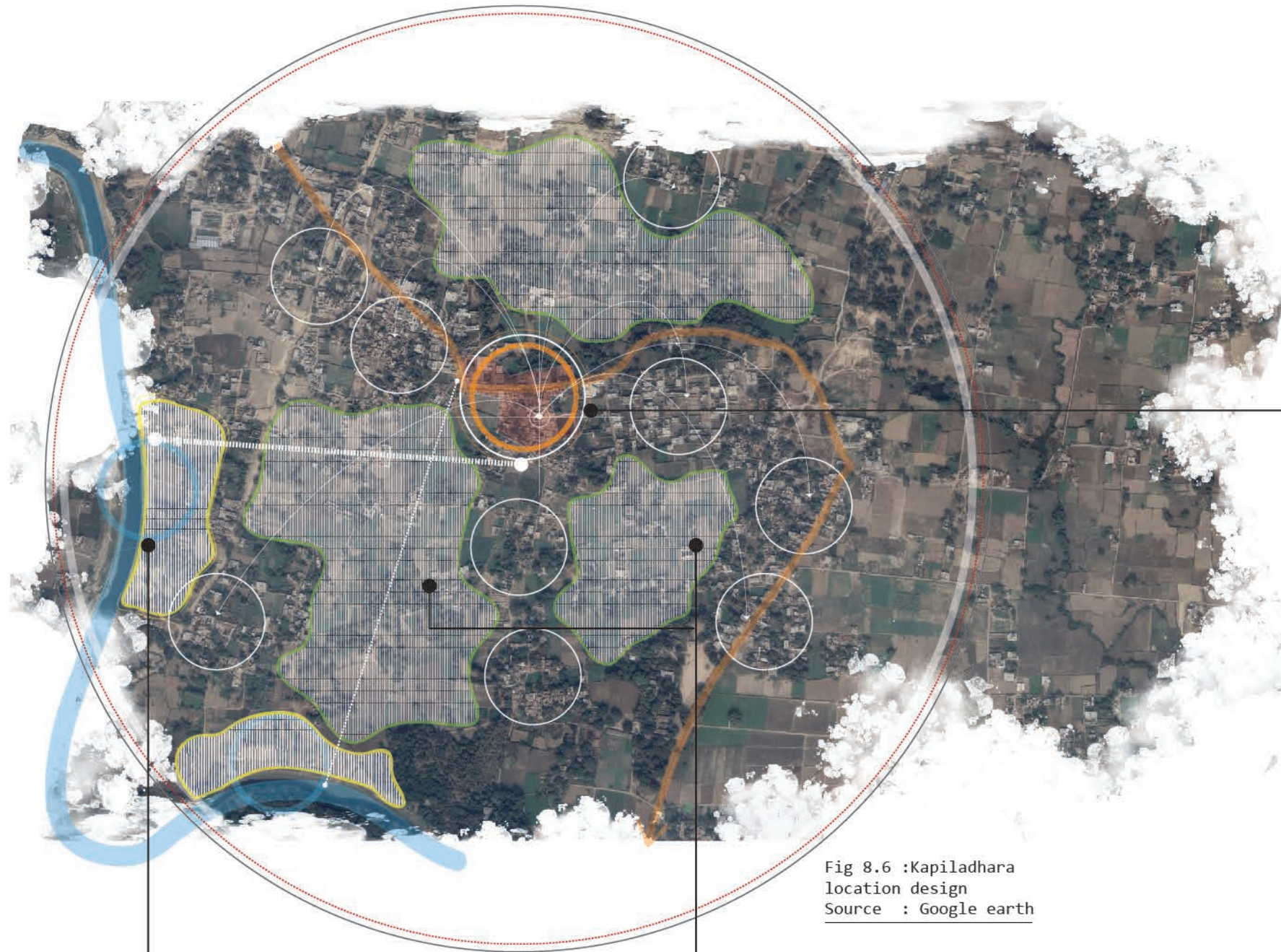


Fig 8.5: Stakeholder engagement program
Source: Author



As a process of transformation of Halt locations into cultural hubs, the open ground at the centre of the location will become the active gathering spot for the nearby villages during times of festivals and fairs. These sites can be transformed into daily market locations where the urban crowd can be attracted that can provide economy for village farmers.

During off pilgrimage seasons, as a part of tourism activities, the agricultural lands around the centre can be regained as productive landscapes that showcase the traditional agricultural practices to the tourists. Dharamshalas that can provide shelter to tourists can also encourage folk dances and other cultural activities connected to rural areas of Varanasi. With all the cultural developments, these rural locations will be provided with sufficient funds to completely transform into cultural hubs.



धर्मशाला [Dharmashala]

Transforming Dharamshalas as Multiuse Complex

Functionally similar to Caravanserais, Dharamshalas were built along the pilgrimage path for providing a resting place for the pilgrim travellers. The present dilapidated conditions of these Dharamshalas require immediate conservation measures. Transformation of these large courtyard buildings opens up a lot of opportunities for these halt locations. This can be a multiuse complex that offers various functions during the off pilgrimage seasons. Every halt location has 6 to 7 Dharamshalas which are almost 25 m long and wide in plan with a large courtyard at its centre.



Fig 8.12: Image showing the dilapidated conditions of Dharamshalas along the Pilgrimage path. Source: Author

Archetype Design Dharamshalas

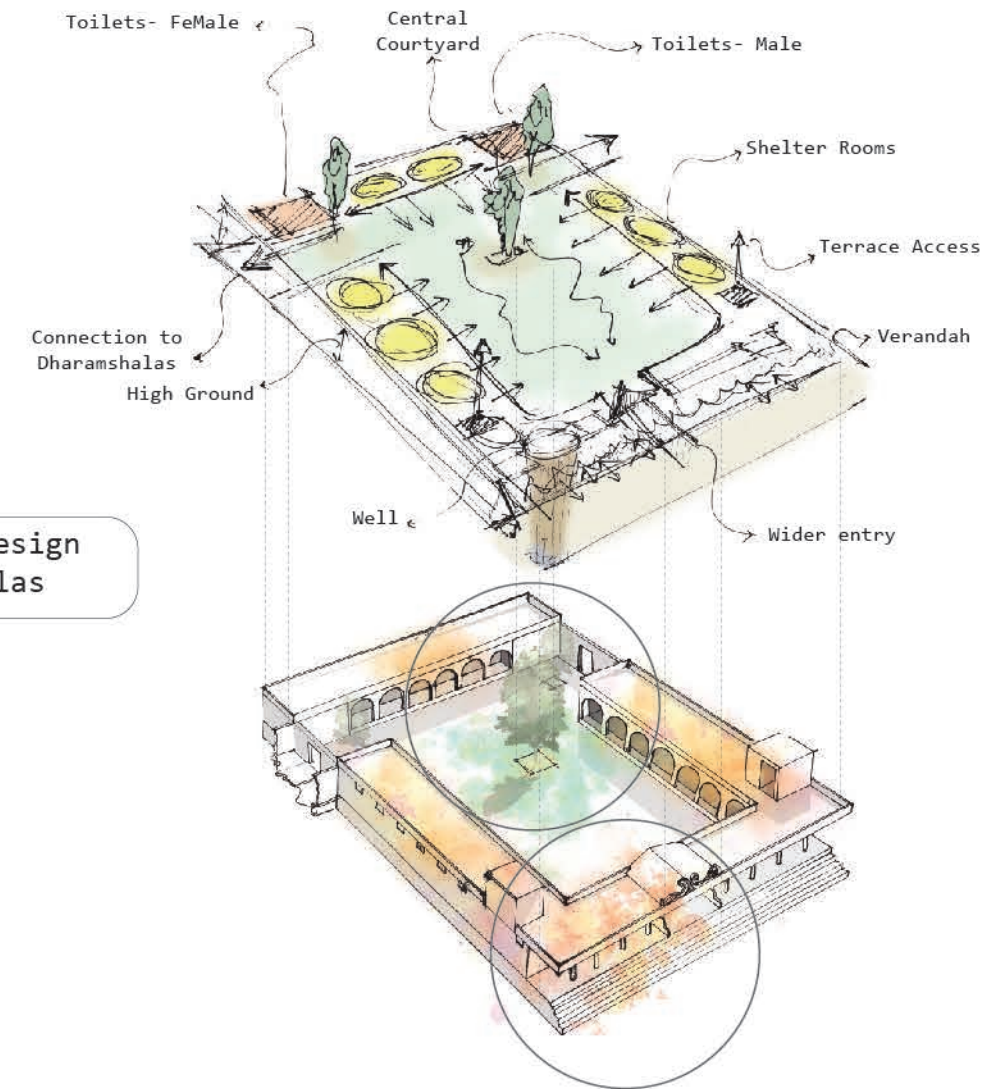
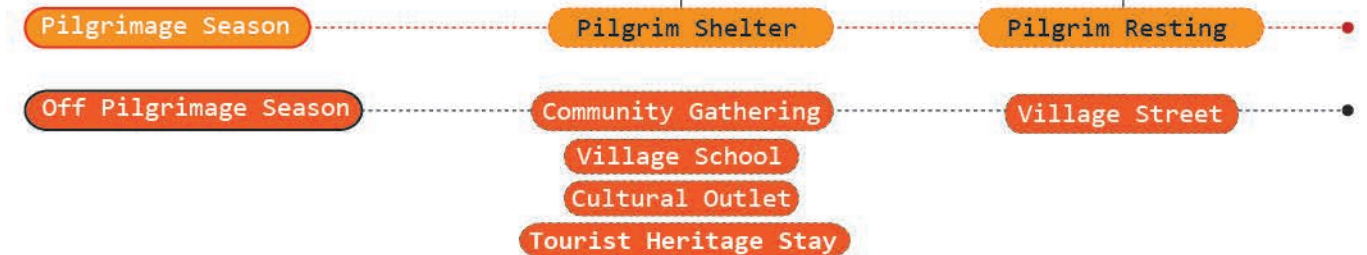


Fig 8.13: Architectural re-design of Dharamshala. Source: Author



Inducing facilities into the existing morphology of Dharamshala and creating spaces that are vibrant and active even in times when there is no pilgrimage. Opening up the built structure as a semi-public space for the rural settlements will transform the set of Dharamshala into cultural centres as well as community gathering spaces. Located on a higher platform, this can be also used as an emergency rehabilitation centre for nearby villages during the heavy monsoon rainfall season



कुण्ड [kund]

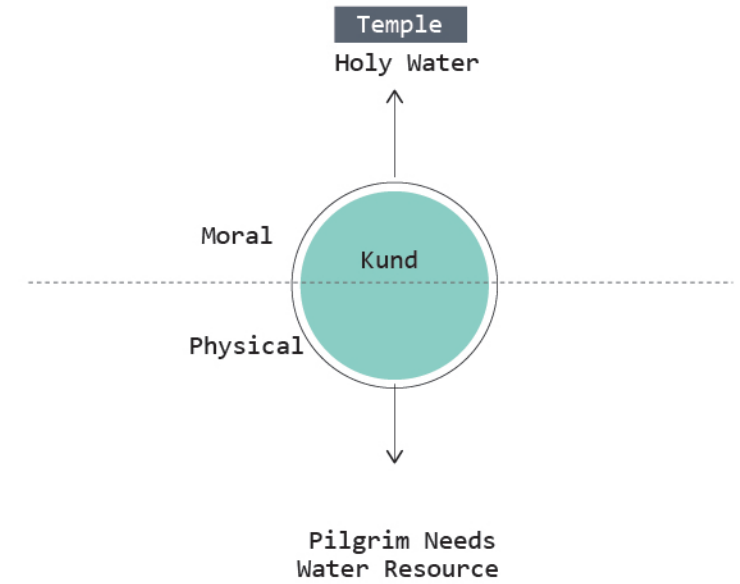
Restoration of the ecological quality of Kunds

The photographs below show the Kapildhara talab that is located in front of the main temple at Kapildhara Halt location. It is evident from the photographs the differences in the ecological quality of the pond edges. The strategy is only to regain the lost ecological quality of this pond.



Fig 8.14: 1834 lithograph of Kapildhara Talab by James. Princep. Source: Britishlibrary.uk

Fig 8.15: Steps leading to the Kapildhara Talab. Source: Author



The kund restoration must focus on moral as well as the physical environment in the whole setting. Bath-houses are provided along with the steps for the pilgrims to avoid the accumulation of soap in the kund. Sacred trees along the kund will increase the biodiversity and help in creating recreational spaces of a cultural quality for the people of the village.

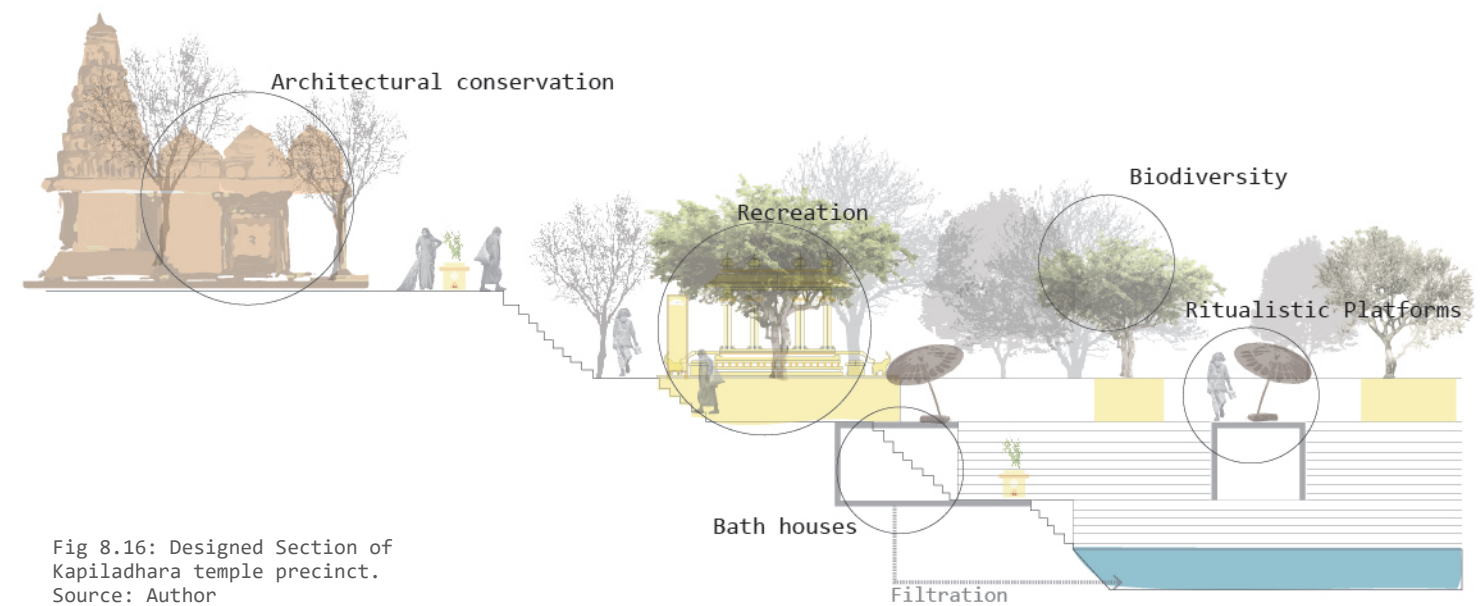


Fig 8.16: Designed Section of Kapildhara temple precinct. Source: Author

Experiencing Panchakrosh



‘The oldest civilization of this unique sacredscape does not limit itself within the human boundaries’
Fig 8.17: Sketched view of Panchakrosh pilgrimage path leading to Kapiladhara Temple. Source: Author

Engagement Strategy for rejuvenating Panchakrosh Parikrama

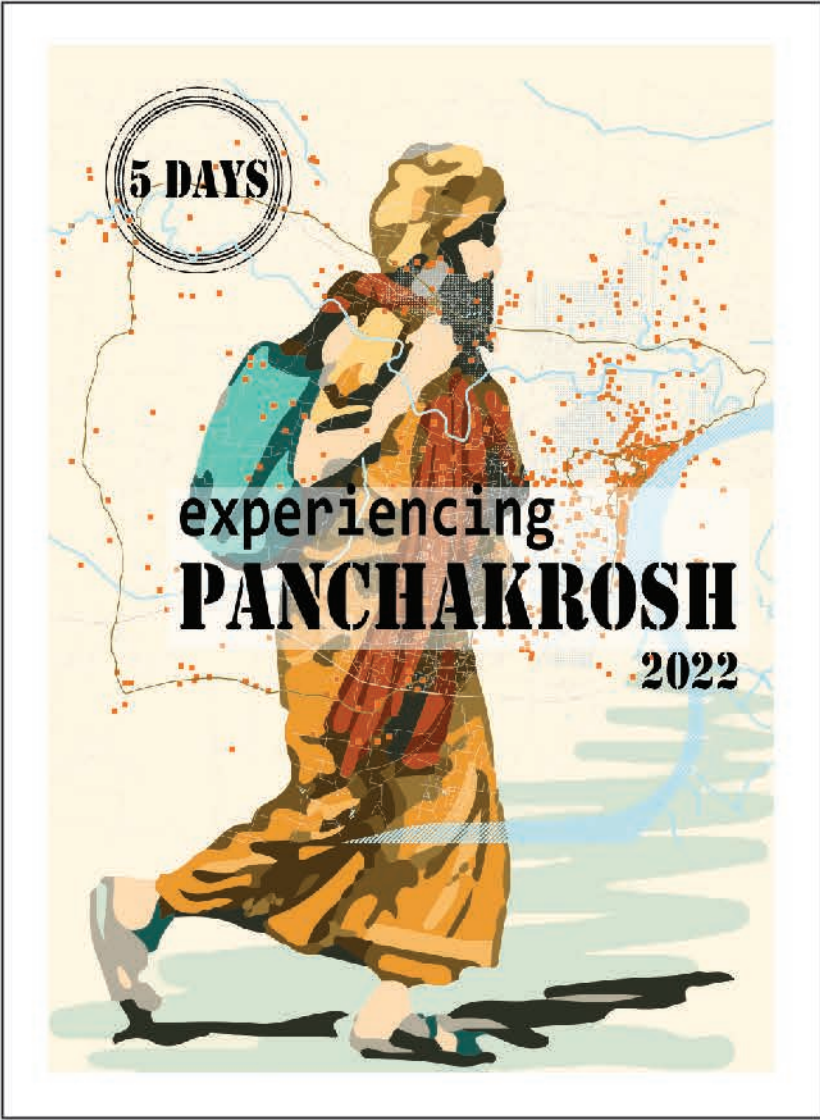


Fig 8.18: Showcasing the cultural significance of Panchakrosh Pilgrimage path and to initiate development of the path as well as the 5 Halt locations.
Source: cdn.vectorstock.com/ Olya Tropinina

8.4 Conclusion

Regional design of Varanasi, as explained in this chapter focuses on Panchakrosh parikrama that connects the entire sacred landscape to one purpose. The design intentionally uses this purpose as the framework bringing in cultural sustainability of rural-urban regions that are linked by this pilgrimage path. The importance is mainly given to uplifting the quality of pilgrimage path both spatially and spiritually. In this process, the design proposes the regeneration of landscape and its sacred identities that provide the feel of the sacred landscape to the pilgrims. With this development, it also aims at attracting tourists to showcase this as a heritage that can, in turn, provide the revenue for sustaining these landscape during off pilgrimage seasons. The regional design is support for sustaining the traditional lifestyle of rural regions where agriculture, pottery, crafts etc can be preserved as a part of the whole program.

Fig 8.19: Panoramic visualization of the sacred landscape along the Panchakrosh pilgrimage path. Source: Author



9

Strategic Framework

In this Chapter, the four layers of strategies are mapped one above the other to produce a holistic design for the city of Varanasi. This chapter also includes stakeholder engagement program which is designed for the city of Varanasi.

9.1. Strategic Design

9.2. Stakeholder Engagement

As explained in the introduction of the previous chapter, the regional design focuses on the pilgrimage path and at the city scale, a strategic framework. The previous chapter discussed the opportunities of using the pilgrimage path as a cultural corridor connecting the urban and rural for sustainable development.

The strategic framework for Varanasi city is composed of 3 parts where a Strategic design is achieved by overlapping 4 layers of Strategies; Urban forest, City of Blue, Heritage city and Accessible City. Each layer supported by cultural principles from the Vision and projects derived from the TOWS matrix overlay one above each to form the first part of the Strategic framework which is the Design. This layered approach of strategies combines to form a holistic design for the city. This holistic design further calls for the co-operation of various disciplines and an effective stakeholder engagement program. This becomes the second part of the strategic framework. The chapter discusses a stakeholder engagement program which proposes a method of creating a winning coalition platform for accessing and implementation of strategies and projects. This platform acts as a middle ground that links the local stakeholders from the physical environment to decision-makers at the top. The third part of the framework is events and project phasing where the strategic design and projects are phased over 25 years. Specific events are included in this phasing which will trigger the implementation of certain projects. The following pages will explain the layered approach which formed the holistic strategic design for Varanasi city.

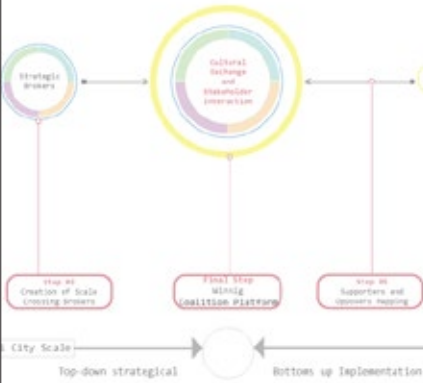
1 Strategic Design

Strategic Design for the city of Varanasi by a layered approach of 4 strategies.



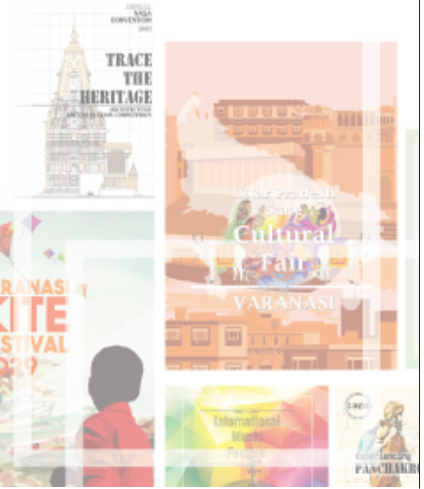
2 Stakeholder Engagement

Stakeholder engagement program where it proposes the formation of middle ground facilitated by strategic brokers where the top-down and bottom-up approaches meet.



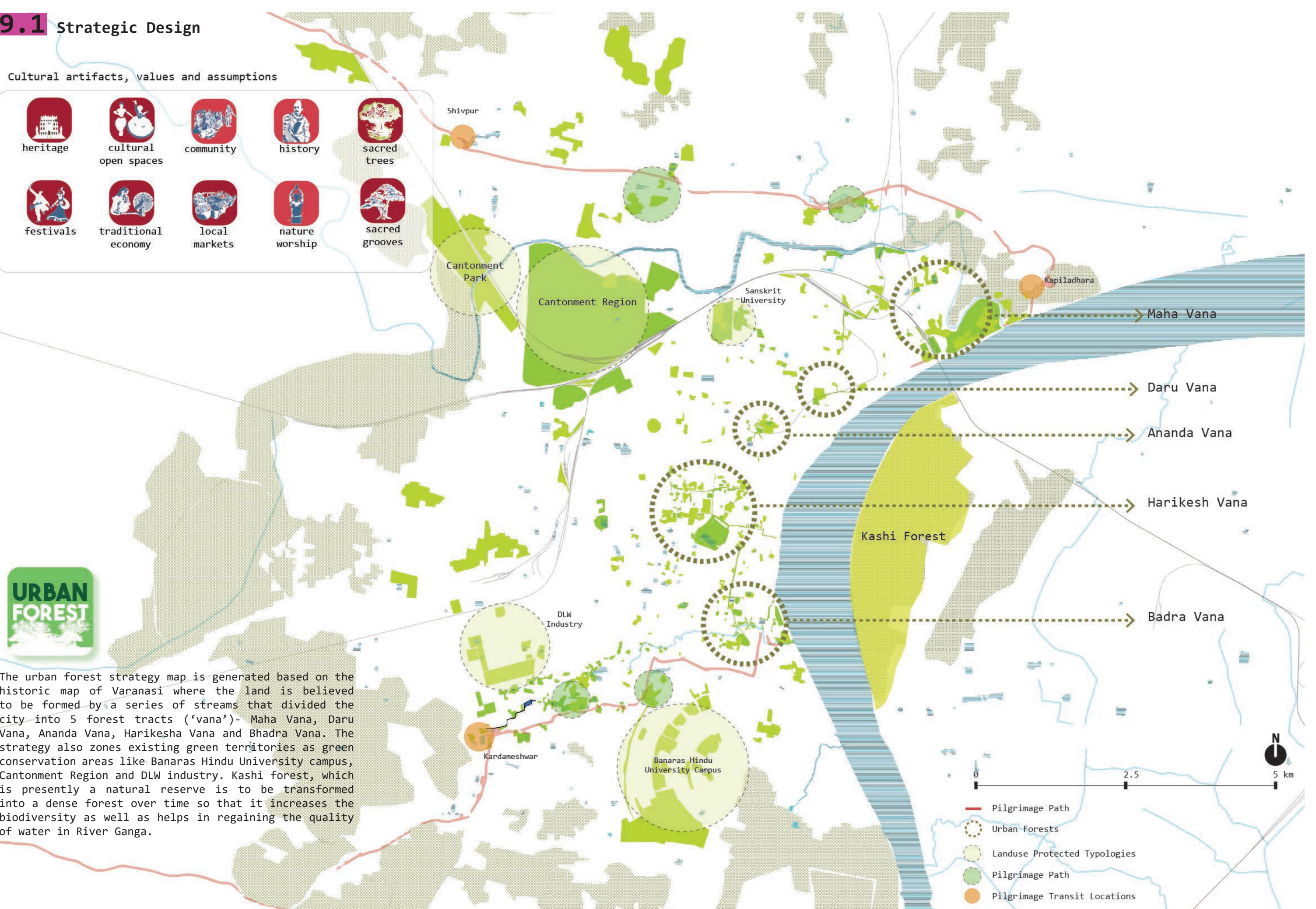
3 Events & Project Phasing

Cultural events proposed along with the project phasing in which the framework visualizes a culturally sustainable Varanasi in 25 years



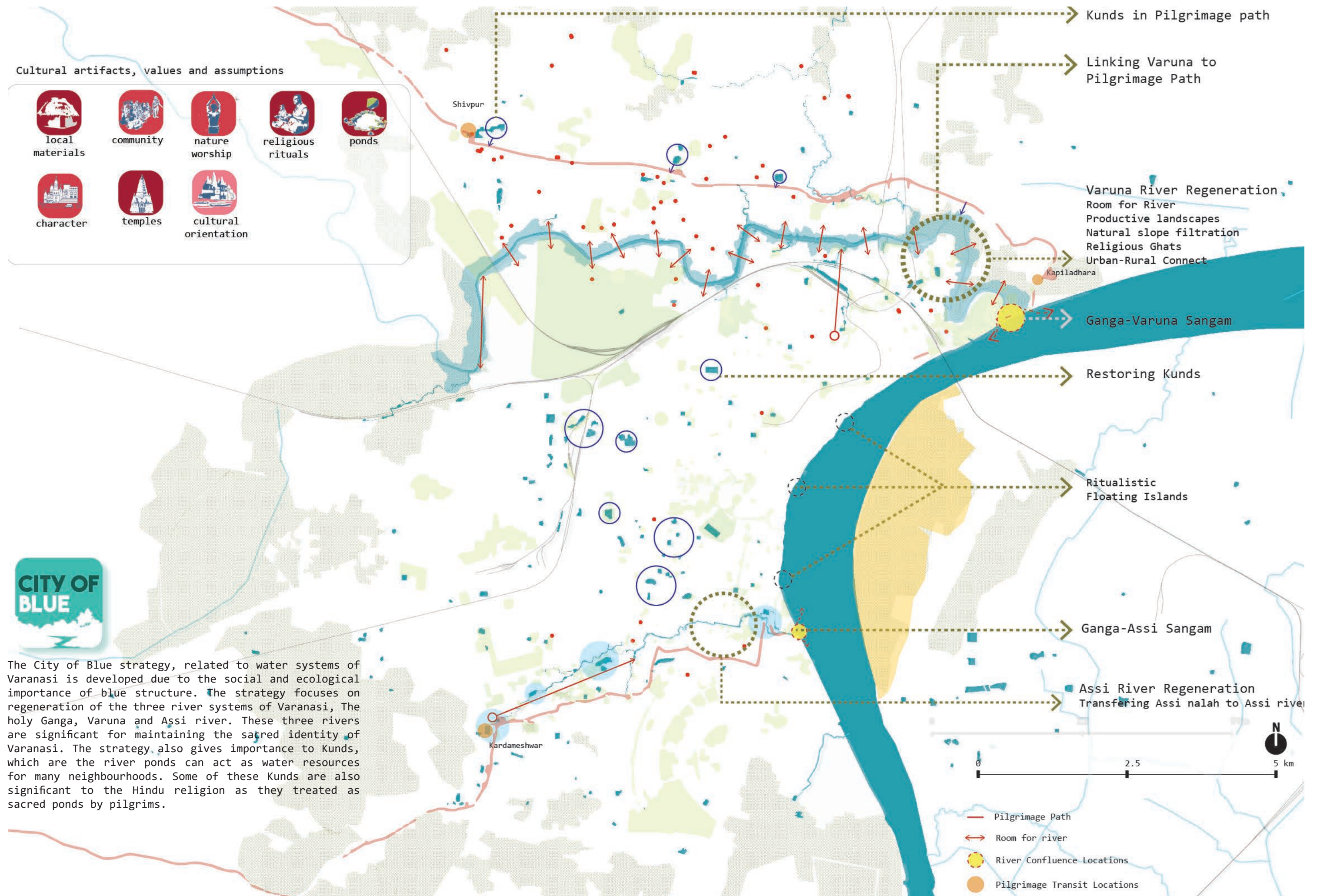
9.1 Strategic Design

Cultural artifacts, values and assumptions



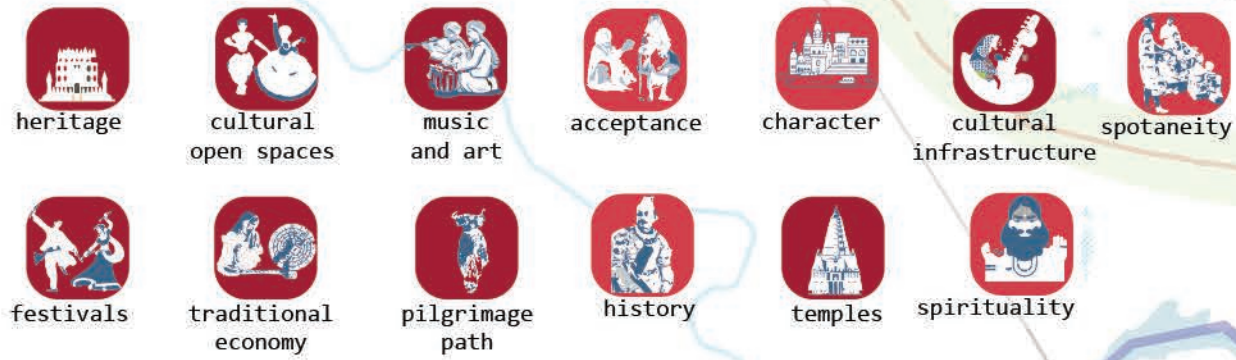
The urban forest strategy map is generated based on the historic map of Varanasi where the land is believed to be formed by a series of streams that divided the city into 5 forest tracts ('vana')- Maha Vana, Daru Vana, Ananda Vana, Harikesh Vana and Bhadra Vana. The strategy also zones existing green territories as green conservation areas like Banaras Hindu University campus, Cantonment Region and DLW industry. Kashi forest, which is presently a natural reserve is to be transformed into a dense forest over time so that it increases the biodiversity as well as helps in regaining the quality of water in River Ganga.

- Pilgrimage Path
- Urban Forests
- Landuse Protected Typologies
- Pilgrimage Path
- Pilgrimage Transit Locations

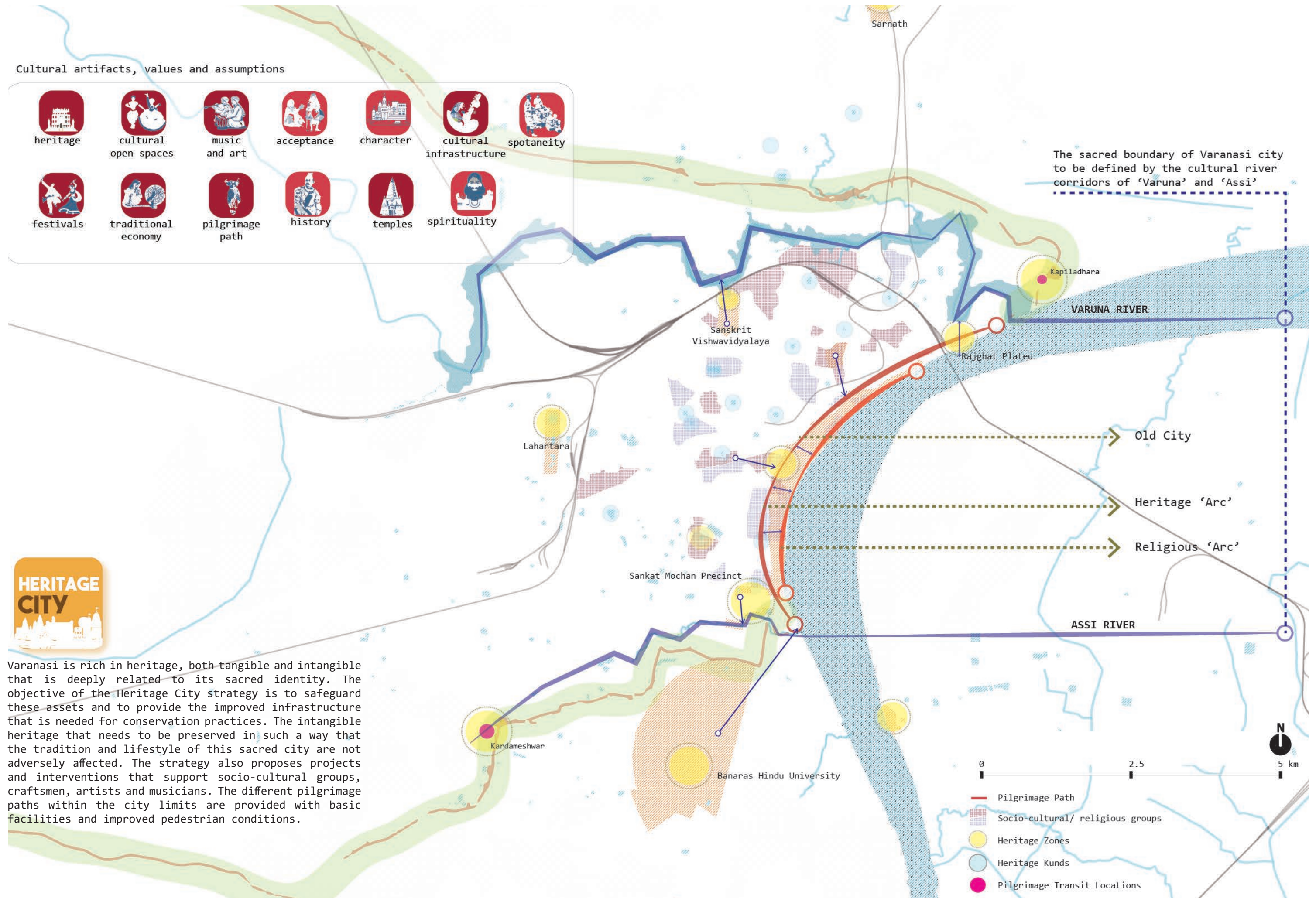


The City of Blue strategy, related to water systems of Varanasi is developed due to the social and ecological importance of blue structure. The strategy focuses on regeneration of the three river systems of Varanasi, The holy Ganga, Varuna and Assi river. These three rivers are significant for maintaining the sacred identity of Varanasi. The strategy also gives importance to Kunds, which are the river ponds can act as water resources for many neighbourhoods. Some of these Kunds are also significant to the Hindu religion as they treated as sacred ponds by pilgrims.

Cultural artifacts, values and assumptions



Varanasi is rich in heritage, both tangible and intangible that is deeply related to its sacred identity. The objective of the Heritage City strategy is to safeguard these assets and to provide the improved infrastructure that is needed for conservation practices. The intangible heritage that needs to be preserved in such a way that the tradition and lifestyle of this sacred city are not adversely affected. The strategy also proposes projects and interventions that support socio-cultural groups, craftsmen, artists and musicians. The different pilgrimage paths within the city limits are provided with basic facilities and improved pedestrian conditions.



Cultural artifacts, values and assumptions



character



cultural infrastructure



traditional mode of transport



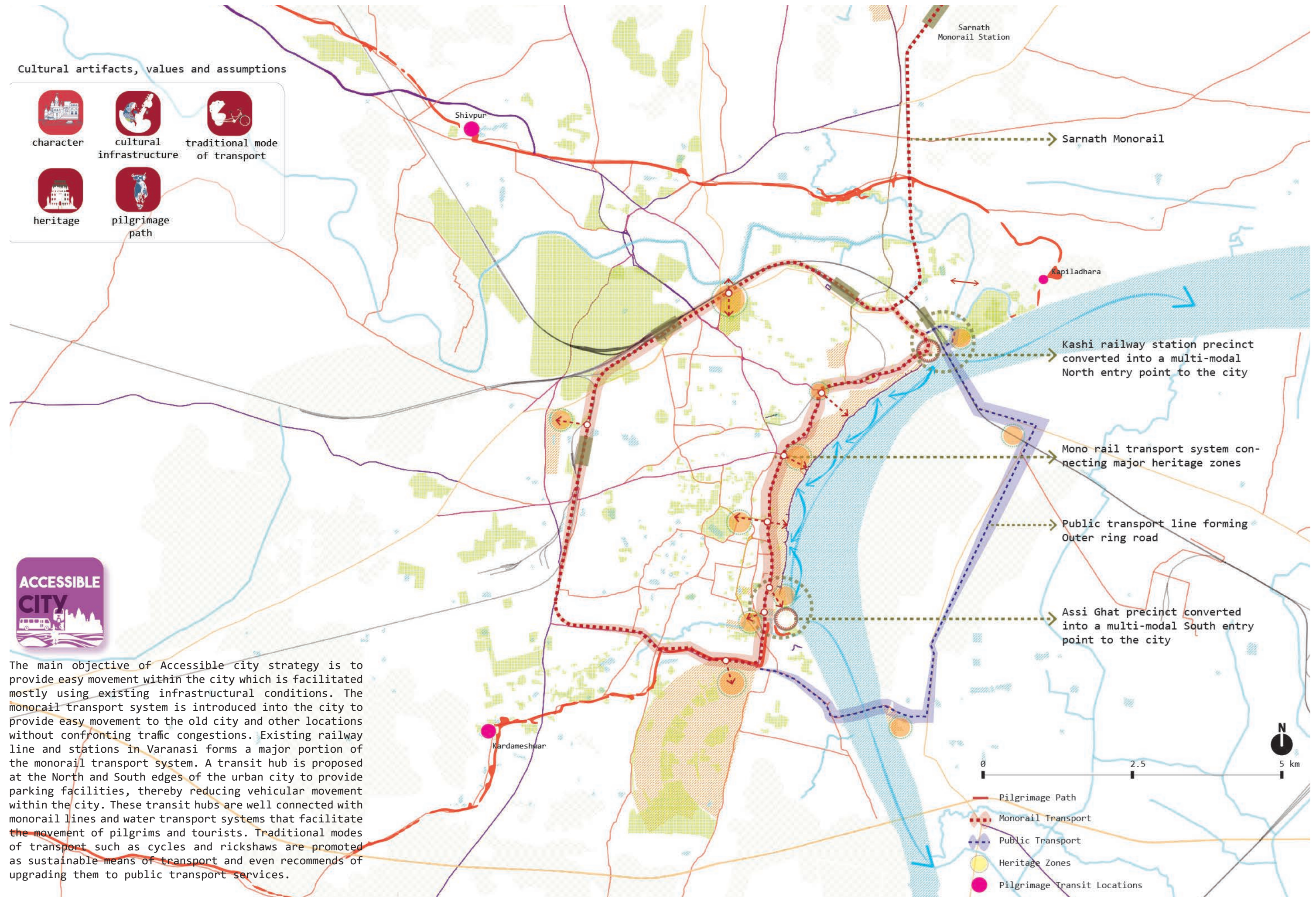
heritage



pilgrimage path



The main objective of Accessible city strategy is to provide easy movement within the city which is facilitated mostly using existing infrastructural conditions. The monorail transport system is introduced into the city to provide easy movement to the old city and other locations without confronting traffic congestions. Existing railway line and stations in Varanasi forms a major portion of the monorail transport system. A transit hub is proposed at the North and South edges of the urban city to provide parking facilities, thereby reducing vehicular movement within the city. These transit hubs are well connected with monorail lines and water transport systems that facilitate the movement of pilgrims and tourists. Traditional modes of transport such as cycles and rickshaws are promoted as sustainable means of transport and even recommends of upgrading them to public transport services.



Strategic Design



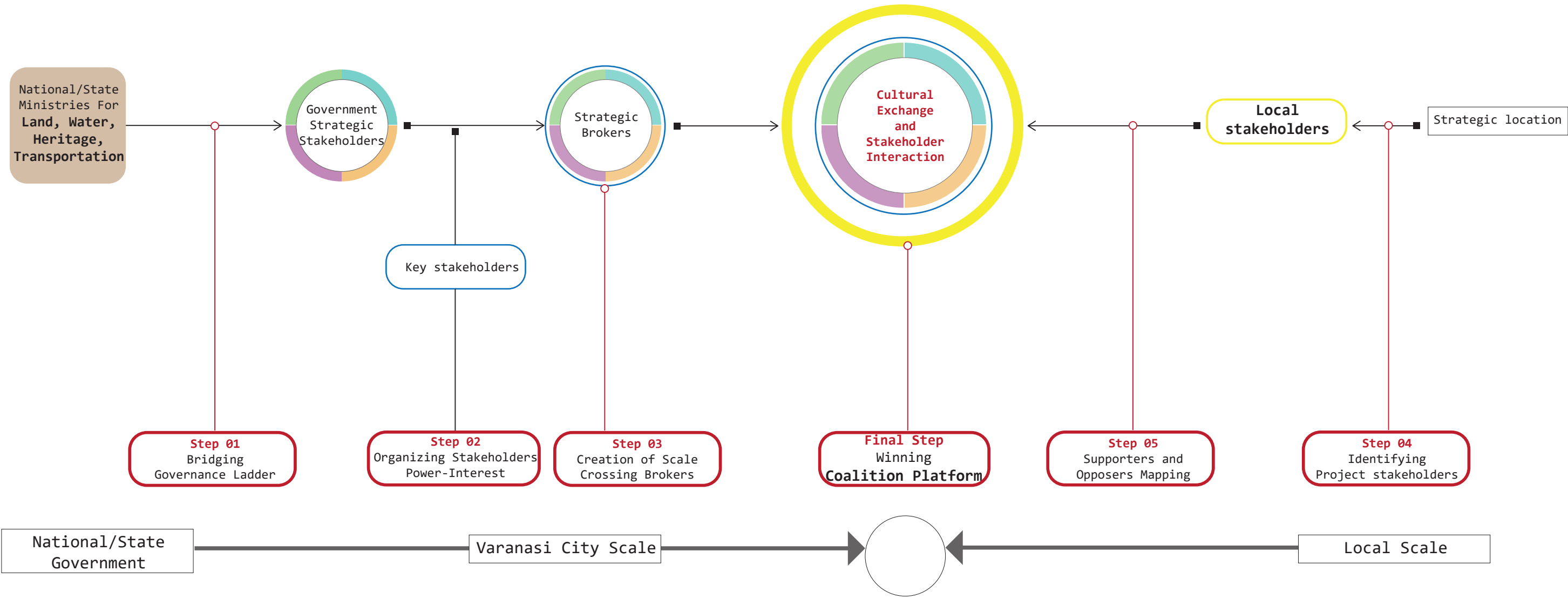
The overlapping of all the four strategy layers provides the final Strategic Design for Varanasi city. Detail analysis of this holistic strategy help in understanding the interrelationships between various disciplines. For further detailing of this strategic design, specific locations are chosen and the relationships between various projects and stakeholders are sorted.



9.2 Stakeholder Engagement

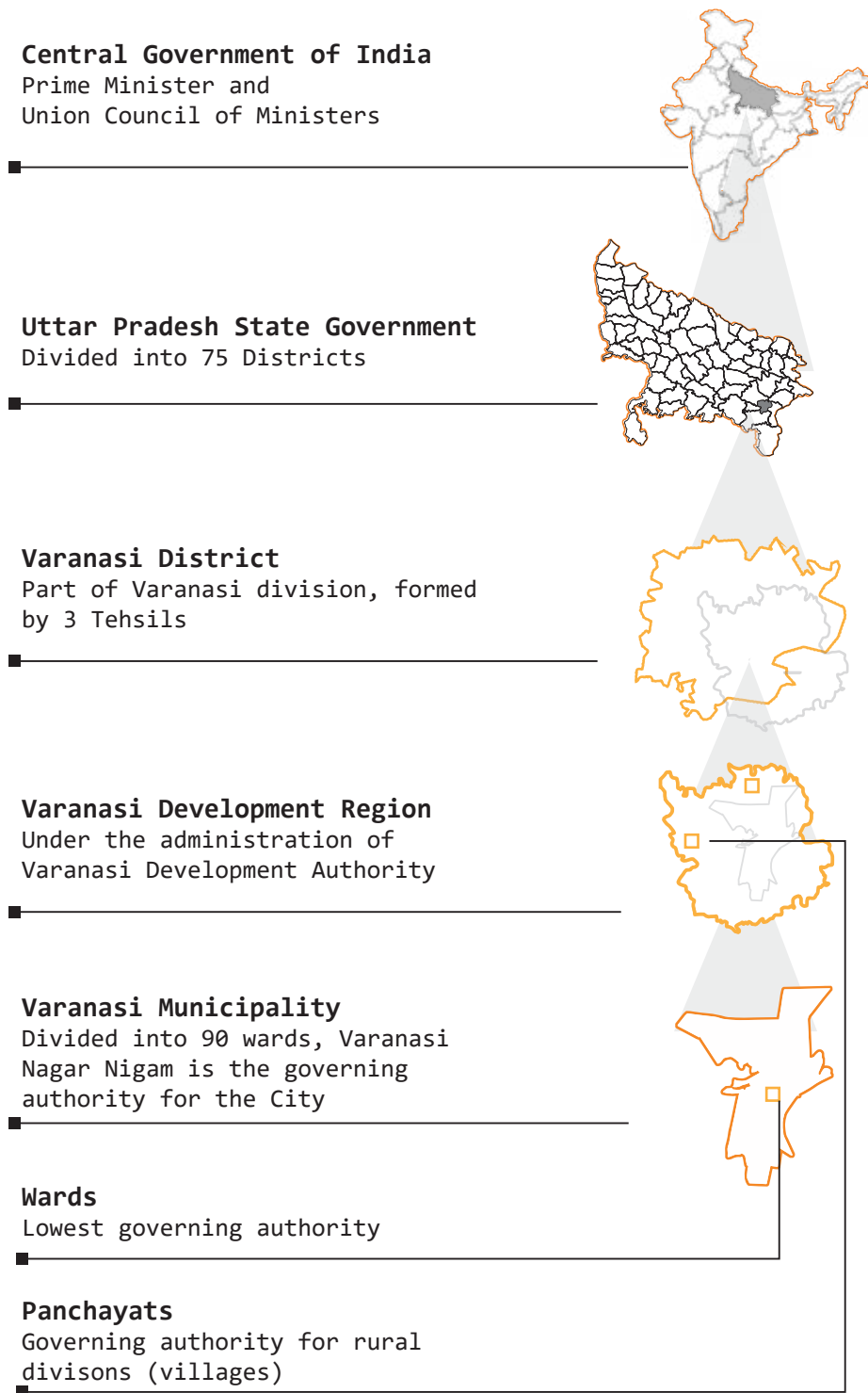
The stakeholder engagement strategy is a crucial step for any urban design due to increasing interconnectedness of everything to a global scenario (Bryson,2004). Broken connections between various disciplines of Government authorities and lack of participatory planning process makes stakeholder participation in Varanasi highly weak. This forms the basic framework of my stakeholder engagement process. Creating a public value is one of the underlying concepts of any stakeholder engagement process (Bryson,2004). Being a cultural city, there is a necessity to keep up the cultural values of this city that can only be attained through the participation of various stakeholders as after all the social structure forms the strong layer for cultural identity. Hence the design strategies proposed need to be supported by stakeholder participation. For efficient implementation of the program, key stakeholders were grouped to form scale crossing brokers where they act as midscale managers who can connect local stakeholders (Stein et al,2011).

The stakeholder engagement program uses a two-way process in which the higher levels of governance are connected to the government authorities amongst the strategic brokers and form a winning coalition platform where they will have interactions with local stakeholders.



Bridging Governance Ladder

There exist a cycle inverse relationship between planning and availability of resources in India which means more preparations and planning is made when the economy is dull or budget is less and vice versa (Sivaramakrishnan, 2011). Varanasi is a ‘million-plus city’ by the population which falls under various consideration for many central Government schemes for urban development. But from expert interviews and various policy analysis, it can be noted that none of the schemes gets its intended outcome due to a lack of understanding of other related issues to it. The layers of governance into strategic stakeholder discussion can support and prioritize the projects according to what the city requires.



Benefits across Scales

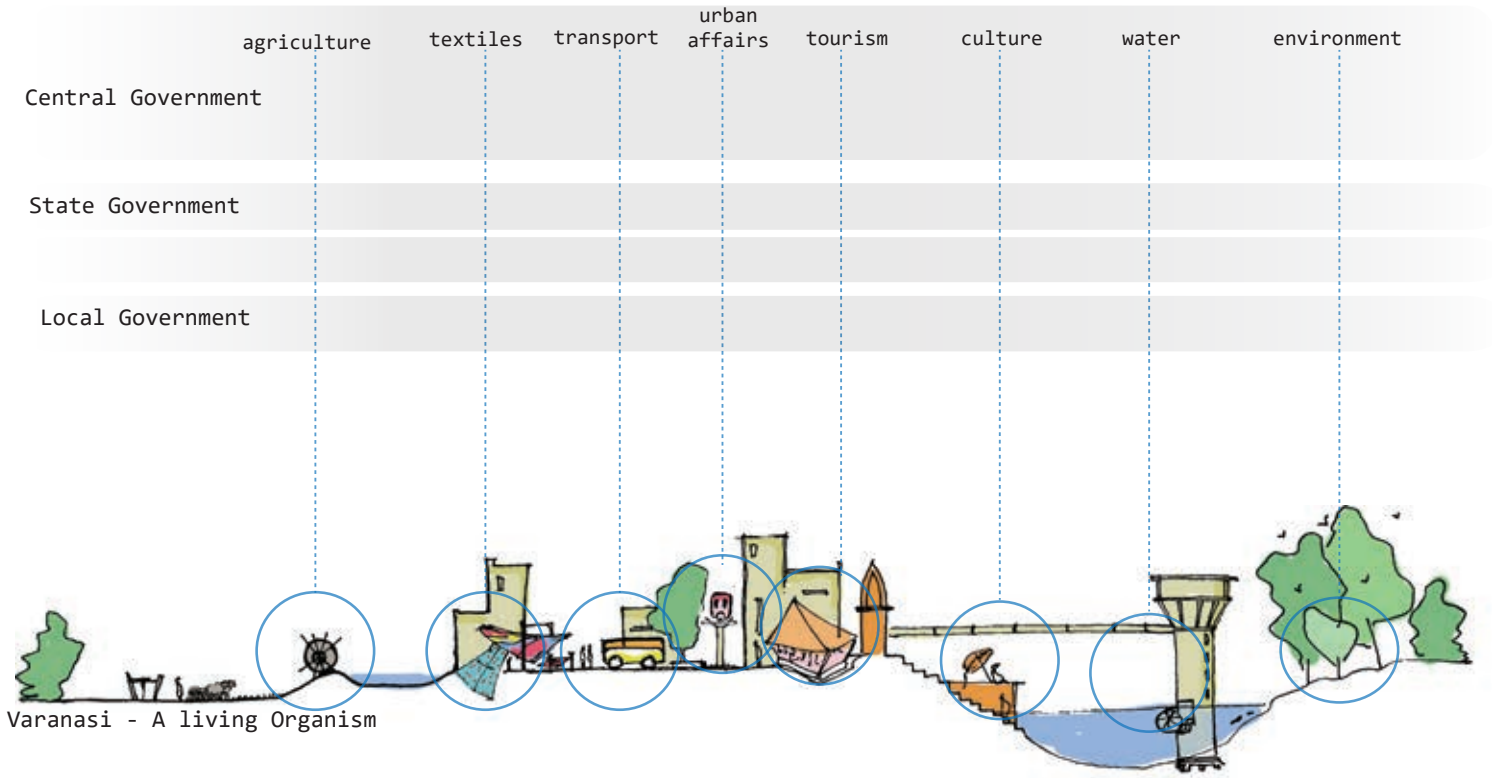
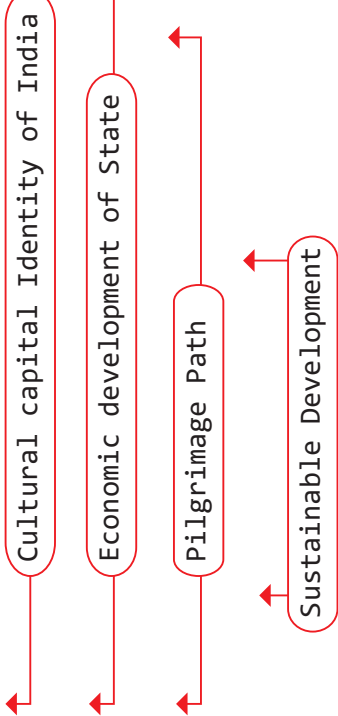
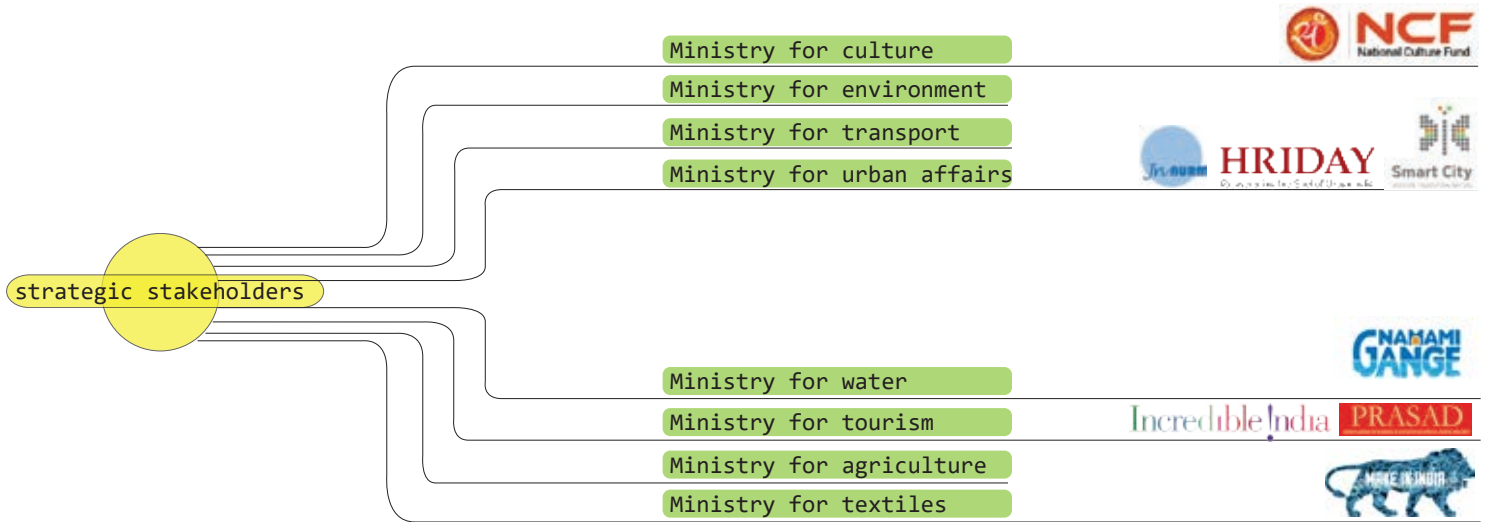


Fig 9.1: The schematic representation connecting various ministry lines towards the holistic development of Varanasi. Source: Author

Given below are Various schemes by the central government of India that is intended to support the development of urban and rural areas. JNNURM is an urban development scheme aiming at infrastructural developments. Hriday aims at rejuvenation of historic and heritage cities of the country. Prasad is introduced with intentions to harness pilgrimage and related economy.



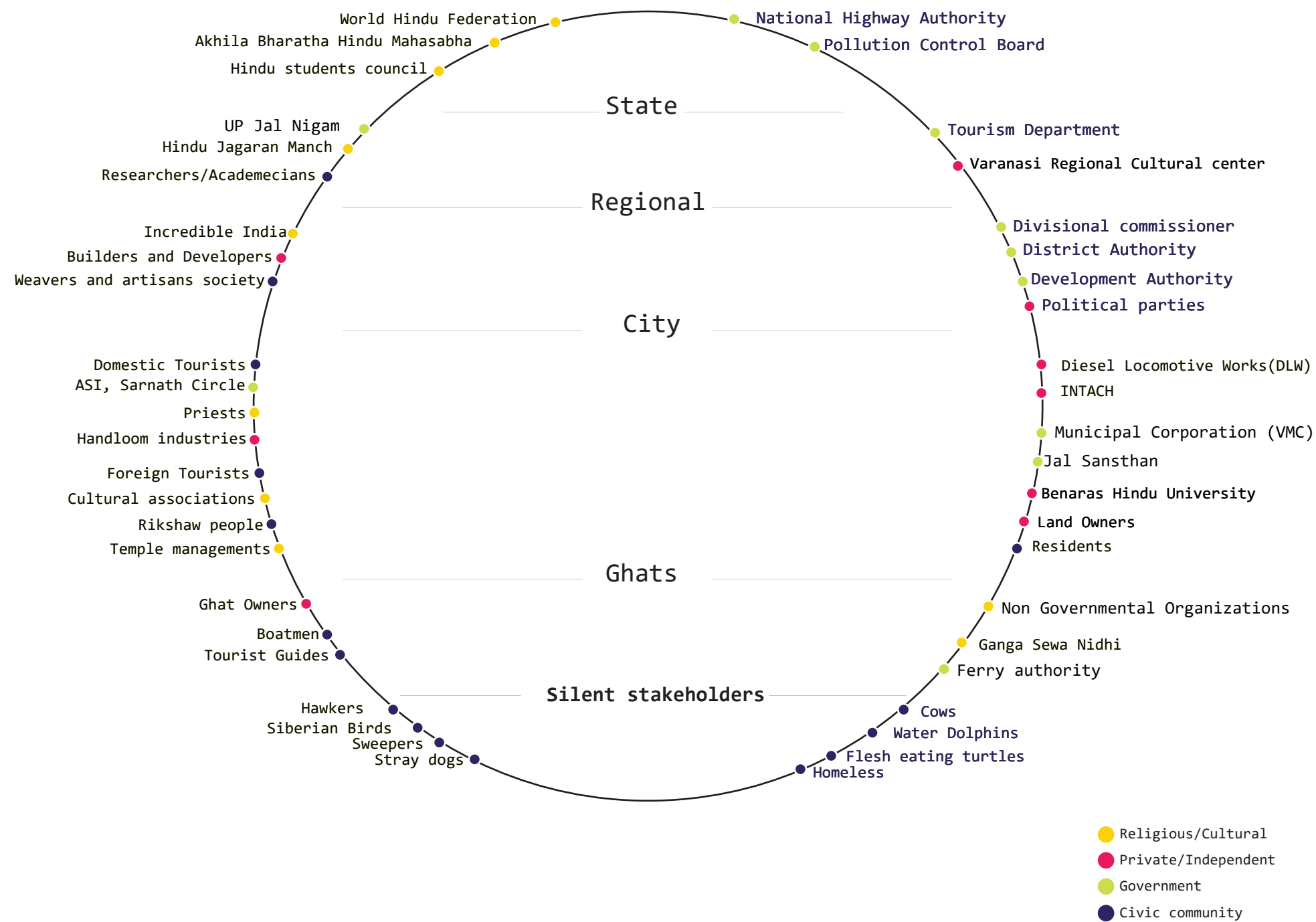
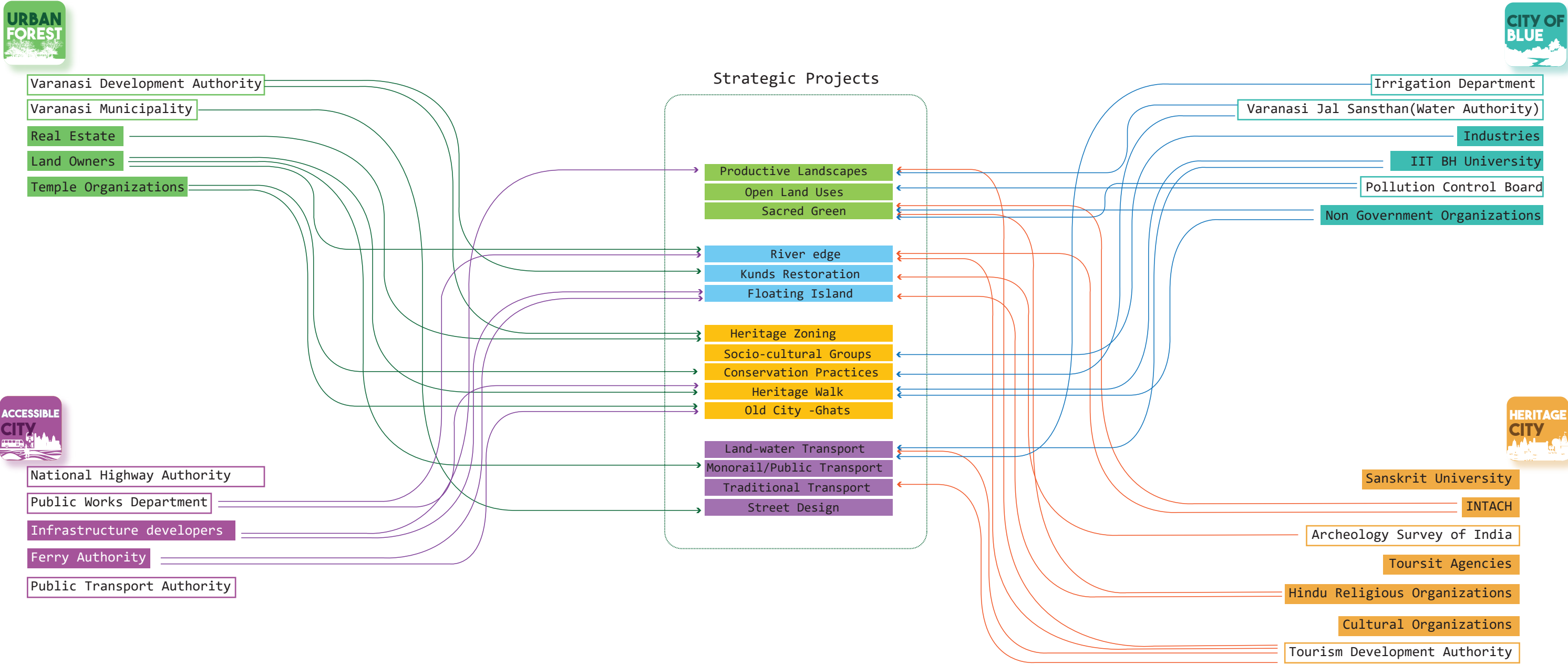


Fig 9.2: Figure showing all the stakeholders of Varanasi.
Source: Author

A stakeholder analysis of a city like Varanasi where every person or community in the city becomes a stakeholder in the cultural lens, there is a need to identify all stakeholders at all scales. Continuing the process, certain stakeholders were clustered as groups (eg. Hindu Religious Organizations), certain stakeholders were identified as key strategic brokers, some formed the local stakeholders and some were considered as actors for enabling interventions.

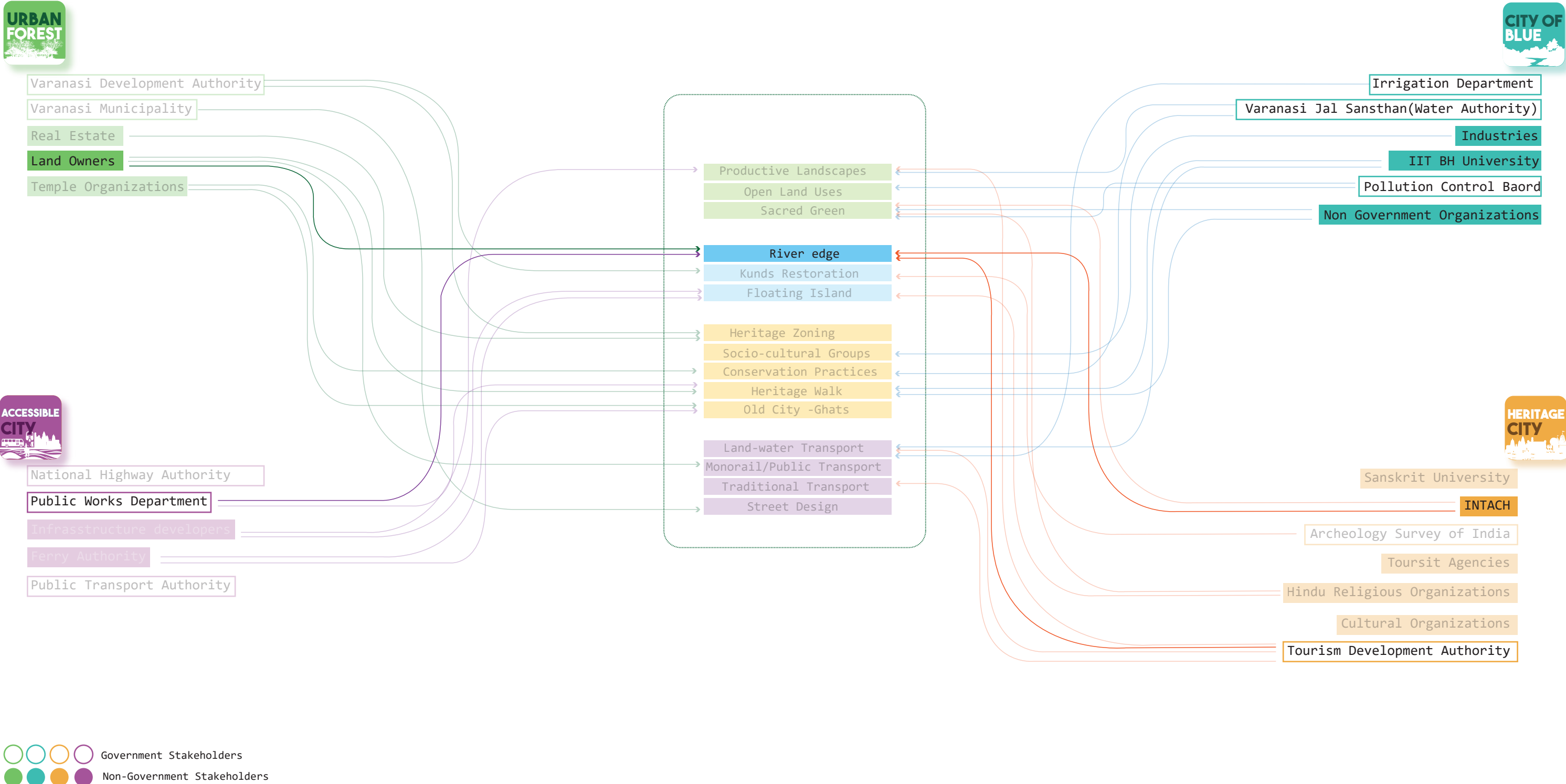
Creating Scale crossing Brokers

The top-down approach on preserving the ecological systems fail as there are actors at local scales that interact with the physical environment through their social ways which can fail many projects. As the four strategies, namely urban forest, city of blue, heritage city and accessible city aim to produce a culturally sustainable Varanasi, there is a need to create a position in the network which strengthens the link between the local stakeholders and the key stakeholders. For this purpose, the key stakeholders are identified into strategic stakeholders where they act as scale crossing Brokers.



Scale crossing Brokers enabling interdisciplinary development: An Example

The following diagram shows how the scale crossing brokers interact on different projects like in the example shown, which is the river edge where all the ‘city of blue’ stakeholders along with related stakeholders from other strategies will be responsible for project planning and implementation. These stakeholders will be interacting with the local stakeholders associated with different sites like in the example below where the river edge project will identify the local stakeholders from sites and the winning coalition platform will be the discussion between these local stakeholders and key stakeholders from these projects.



Power-Interest Mapping

Classification of key Stakeholders in various strategies will help in clarifying the motives and objectives of various stakeholders. This will also create a constructive competition between stakeholders in the realization of different projects. But the biggest challenge to this process is the differences in interest and powers vested upon various stakeholders. Although higher levels of governance are connected to the coalition platform of these strategic stakeholders through specific government authorities, the interest of these government stakeholders should be to bridge the government funds and schemes towards the holistic development of these strategies. Through power-interest mapping, the need for clarifying the role of each stakeholder for a culturally sustainable Varanasi can be derived.

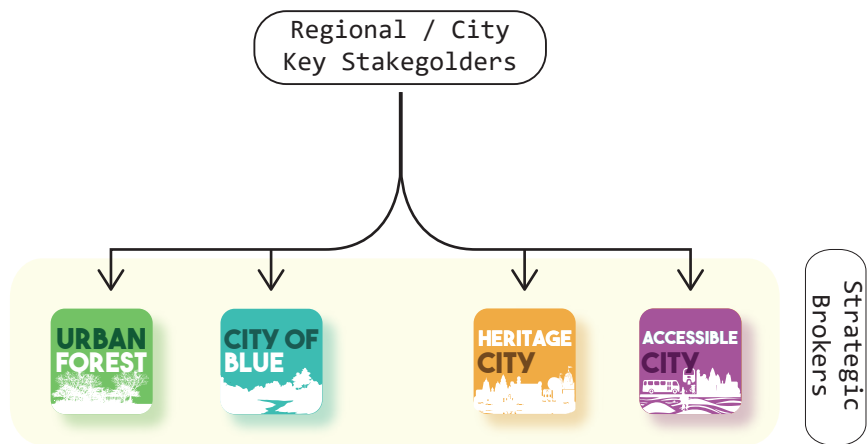


Fig 9.3 shows for a culturally sustainable Varanasi, government authorities relating to land and water are the crucial stakeholders whose position should be stable throughout the development process. The power vested in researchers, academicians and non-profit organizations is very less. From the fieldwork and interviews it was understood that there is no significant link between government and universities. And the sad factor is that these Universities keep doing a lot of research that can favour sustainable development of the city. Hence, there is a need to increase the power of these groups and create a strong link between the government as shown in the figure above. It is also important to increase the interest of religious and temple organizations as they are crucial in impacting a lot people.

Interest for a culturally sustainable Varanasi

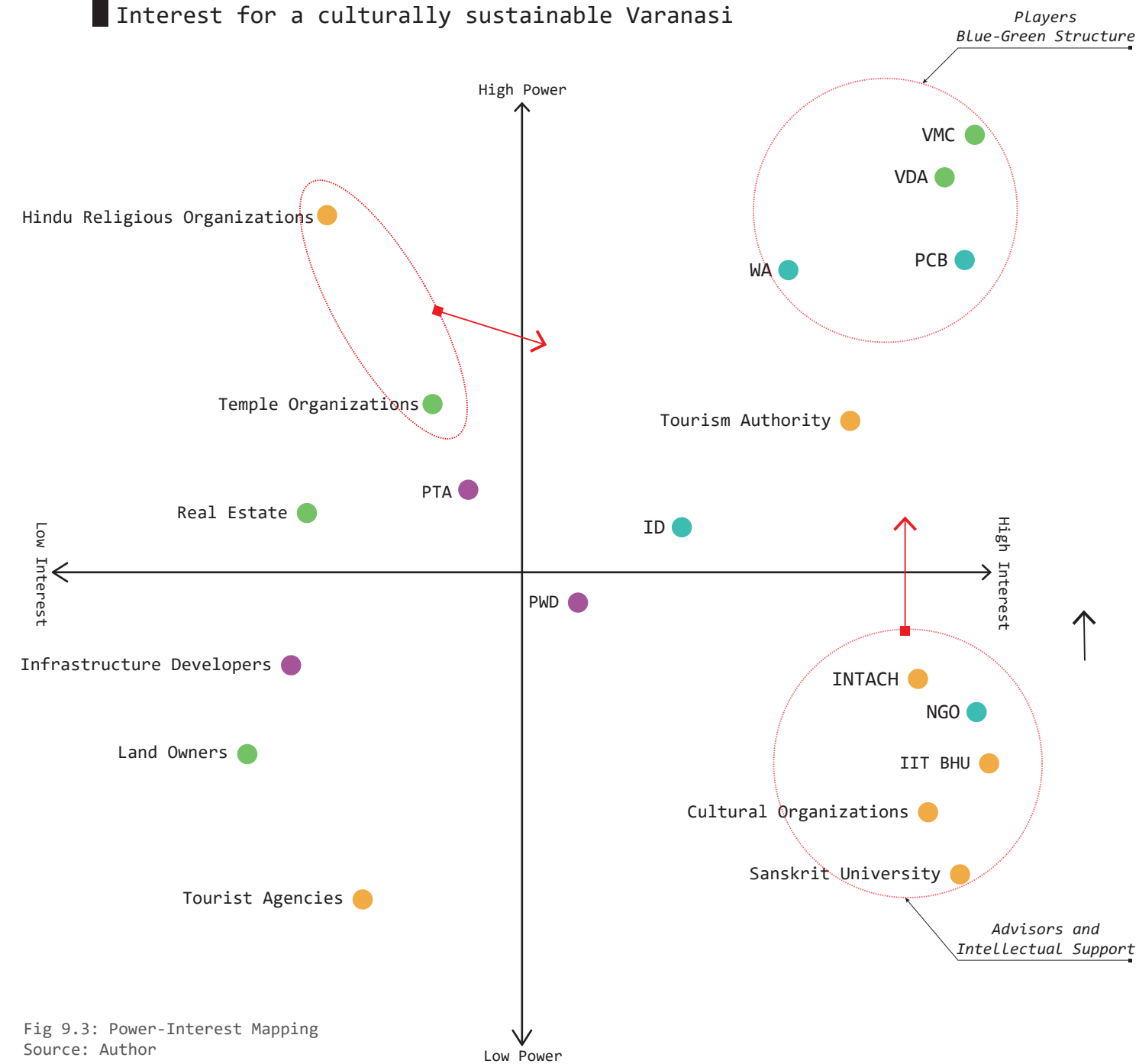


Fig 9.3: Power-Interest Mapping
Source: Author

- Urban Forest Stakeholders
 - City of Blue Stakeholders
 - Heritage city Stakeholders
 - Accessible city Stakeholders
- VMC -Varanasi Municipal Corporation
VDA -Varanasi Development Authority
PWD -Public Work Department
PTA -Public Transport Authority
NGO -Non Government Organization
ID -Irrigation Department
INTACH - Indian National Trust for Art and Cultural Heritage
IIT BHU-Indian Institute of Technology Banaras Hindu University
WA -Water Authority
PCB -Pollution Control Boards

This power-interest map also becomes the basis of deciding roles in the winning coalition platform. Municipality and Development Authority, whose interest and power are higher than any other stakeholders, takes the role of a facilitator in the planning process. Chapter 10.6 discusses in detail the applicability of the stakeholder roles in this winning coalition platform.

10

Strategic Zoom-Ins

As explained in the previous chapter, the socio-spatial analysis of Varanasi concluded with SWOT analysis that was followed by a TOWS analysis that framed the strategies that can make Varanasi culturally sustainable. Summarizing the outcomes and the strategies derived, the research project formulated a Vision for Varanasi that mainly incorporates the 4 strategies into achieving cultural sustainability. Chapter 4 argued that the aim of the research project which is to bring back the socio-ecological balance in Varanasi can be achieved through a process of cultural sustainability

10.1. Strategic Locations

10.2. Location 01 - Assi Ghat

10.3. Zoom Ins - Assi Ghat

10.4. Location 02 - Varuna Confluence

10.5. Zoom Ins - Varuna Confluence

10.6. Conclusion

10.1 Strategic Locations

Regional Pilgrimage Path Design Site Kapildhara Halt Location

Design of a rural hub as explained in the previous chapter which is one among the 5 halt locations along the *pilgrimage path*. Its connection with the north transit hub is also an important aspect of the design.

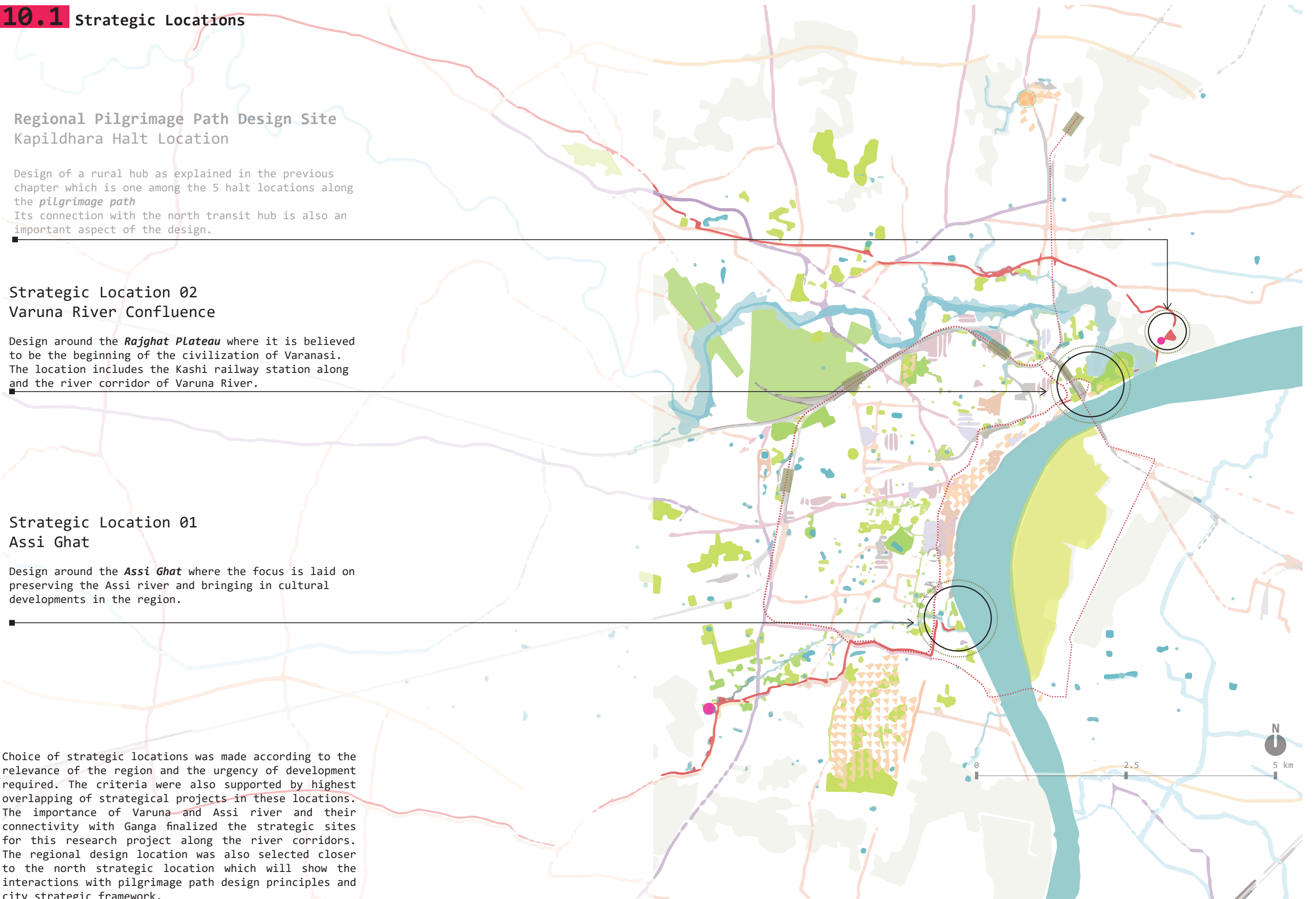
Strategic Location 02 Varuna River Confluence

Design around the *Rajghat Plateau* where it is believed to be the beginning of the civilization of Varanasi. The location includes the Kashi railway station along and the river corridor of Varuna River.

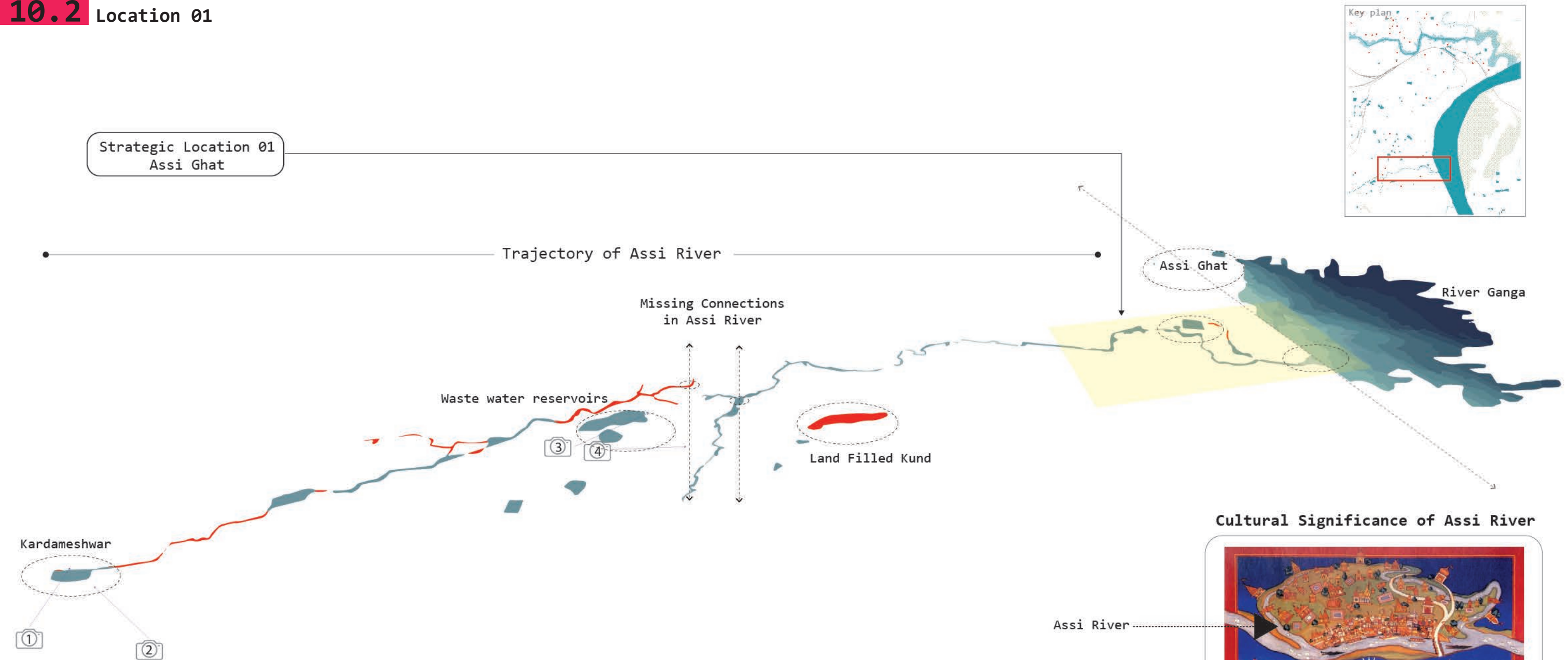
Strategic Location 01 Assi Ghat

Design around the *Assi Ghat* where the focus is laid on preserving the Assi river and bringing in cultural developments in the region.

Choice of strategic locations was made according to the relevance of the region and the urgency of development required. The criteria were also supported by highest overlapping of strategical projects in these locations. The importance of Varuna and Assi river and their connectivity with Ganga finalized the strategic sites for this research project along the river corridors. The regional design location was also selected closer to the north strategic location which will show the interactions with pilgrimage path design principles and city strategic framework.



10.2 Location 01



Cultural Significance of Assi River

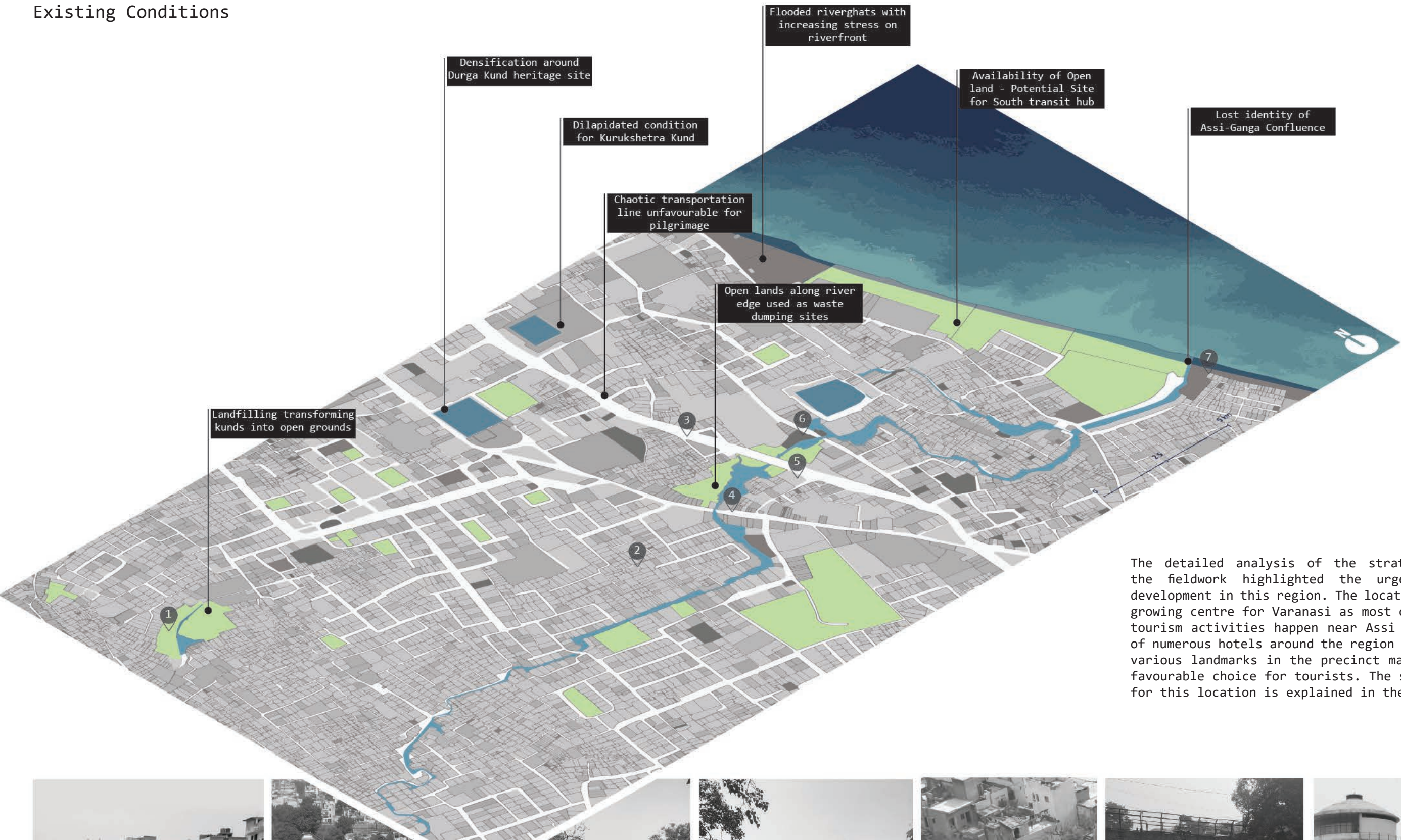


Mythological impression that shows that Varanasi is the abode of Lord Shiva. The picture also shows the existence of Assi as a river and not as a stream.
Source: (Singh, 2012)

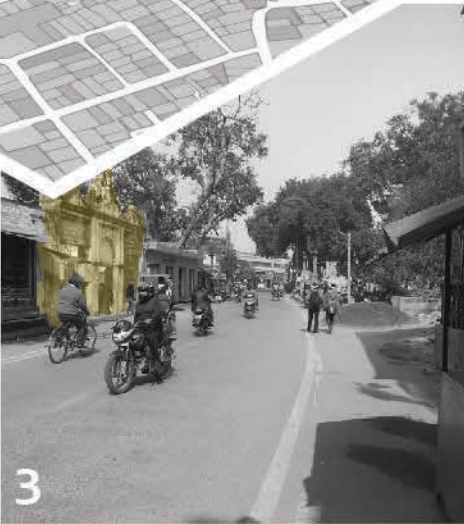
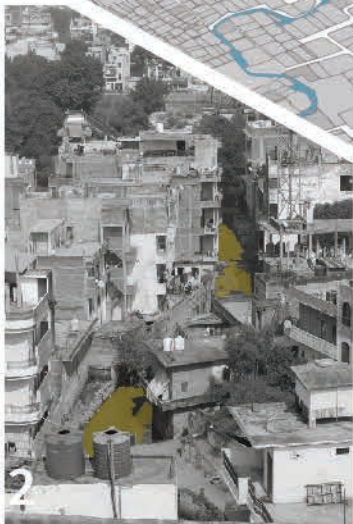
Varanasi believed to be the adobe of Lord Shiva is a land formed between the rivers Assi and Varuna by the banks of Holy river Ganga. The trajectory shows that the existence of Assi was never a nalah (stream) which is how it is seen today rather it existed as a river from history. The urgent need for the city is to restore the ecological capital that the city possessed years ago. The process which uses culture should also have the aim to restore the social capital through the process.



Existing Conditions



The detailed analysis of the strategic location and the fieldwork highlighted the urgency of strategic development in this region. The location is economically growing centre for Varanasi as most of the recreational tourism activities happen near Assi ghat. The presence of numerous hotels around the region and the presence of various landmarks in the precinct makes the location a favourable choice for tourists. The strategic planning for this location is explained in the following pages.



Projects Explored in Assi Ghat Region

Productive Landscapes

Terrace farming practices along the corridor of river Assi
Community Garden in the precinct of Durga Kund

Sacred Green

Badra Vana (Southern Urban Forest)



Panoramic View of edges of Assi River

River edge

Assi river and riverbed regeneration

Kunds Restoration

Conservation strategies for Kurukshetra kund, Durga kund and Pushkar talab

Floating Island

Assi floating ghats design



Panoramic View of Assi river Confluence

Heritage Zoning

Zoning followed by policies for Durga Kund location and Sankat Mochan Temple

Heritage Walk

Proposed path connecting Assi ghat to Sankat Mochan via Durga Kund Temple



Panoramic View of Assi Ghat

Land-water Transport

South transit hub, the land-water transit hub along Ganga riverfront

Monorail/Public Transport

Durga Kund Monorail station

Hop on hop off public transport connecting north and south transit hubs

Traditional Transport

Micro Transit stations for rikshaws near Durga Kund Monorail station

Street Design

Vendor's Street along the edge of Durga Kund



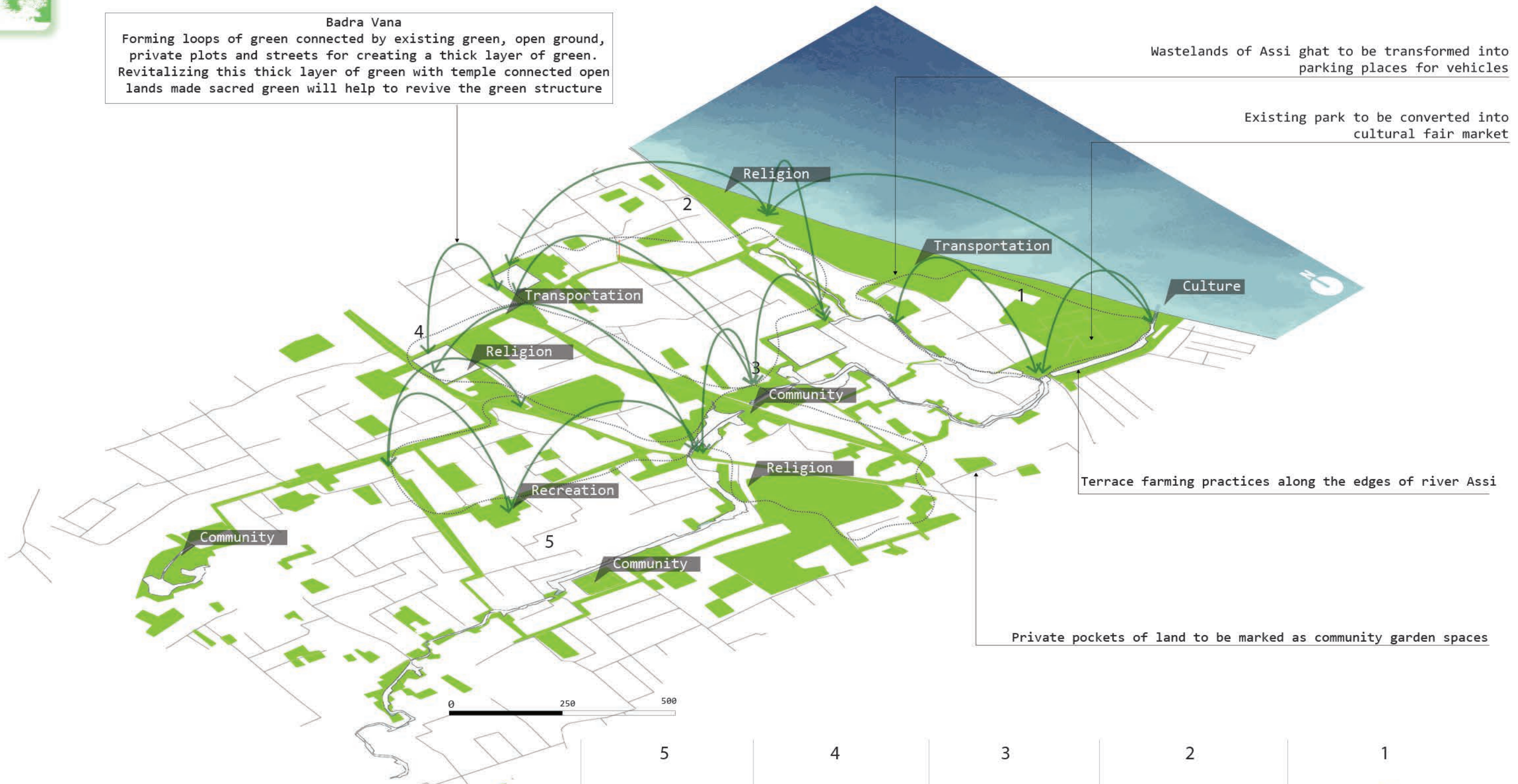
Panoramic View of Assi Region

Panoramic photos of Assi Ghat Location
Source: Author

Badra Vana
Forming loops of green connected by existing green, open ground, private plots and streets for creating a thick layer of green. Revitalizing this thick layer of green with temple connected open lands made sacred green will help to revive the green structure

Wastelands of Assi ghat to be transformed into parking places for vehicles

Existing park to be converted into cultural fair market



Existing Landuse

Residential
Religious
Parks
Water
Mixed Uses
Commercial



Residential



Heritage



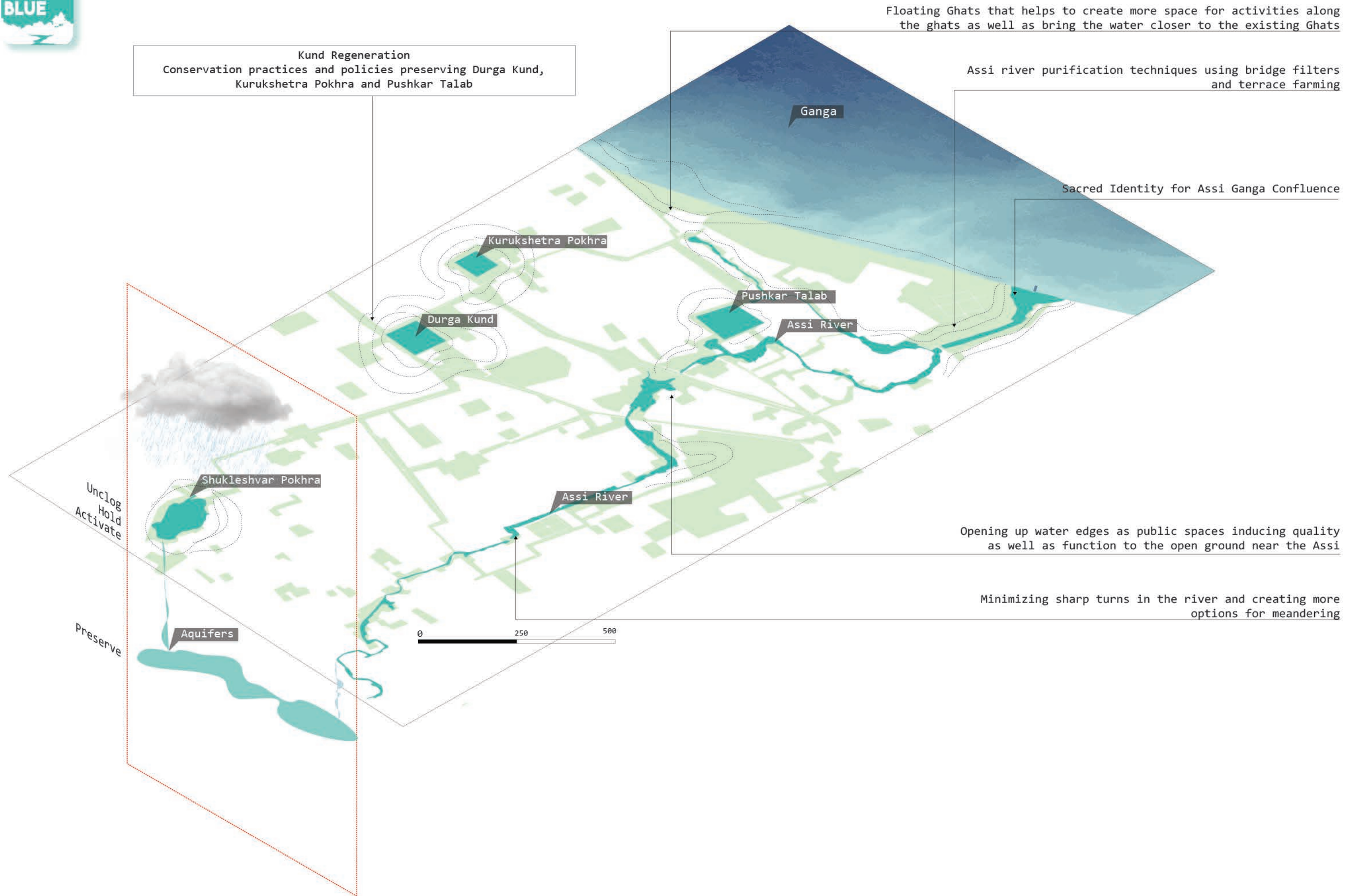
Commercial-wasteland

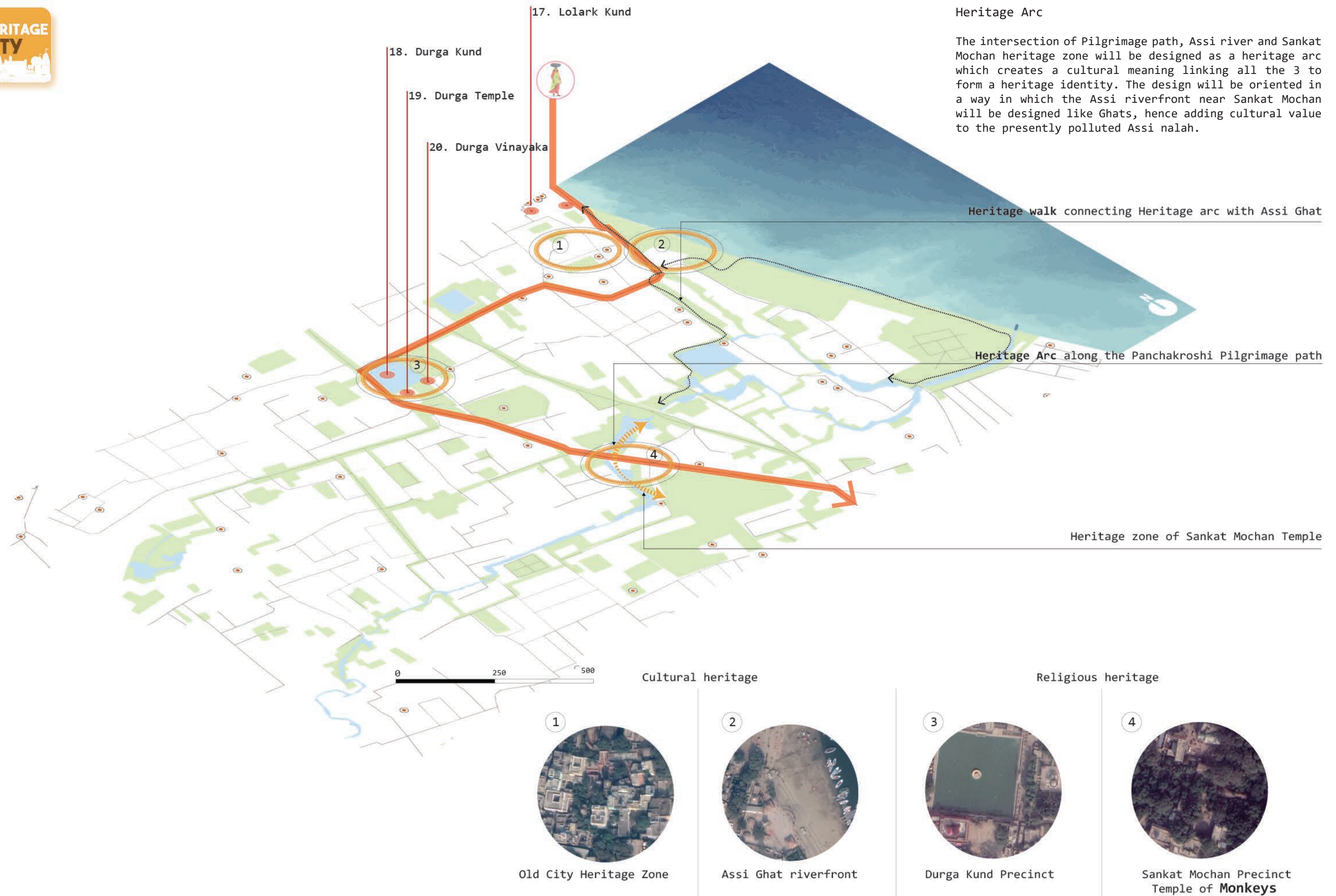


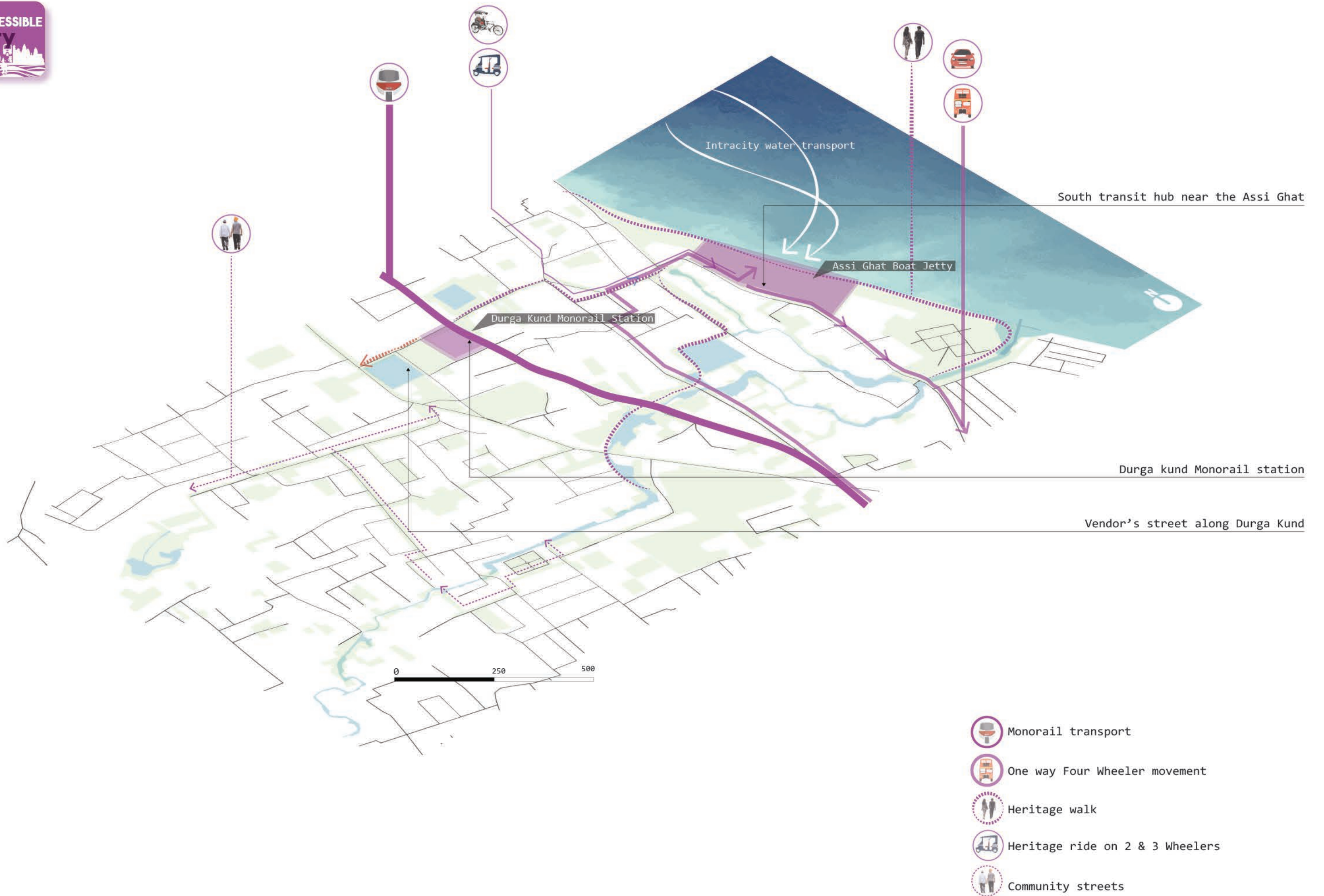
Commercial-Mixed use
Assi Ghat



Riverfront-Park
Residential

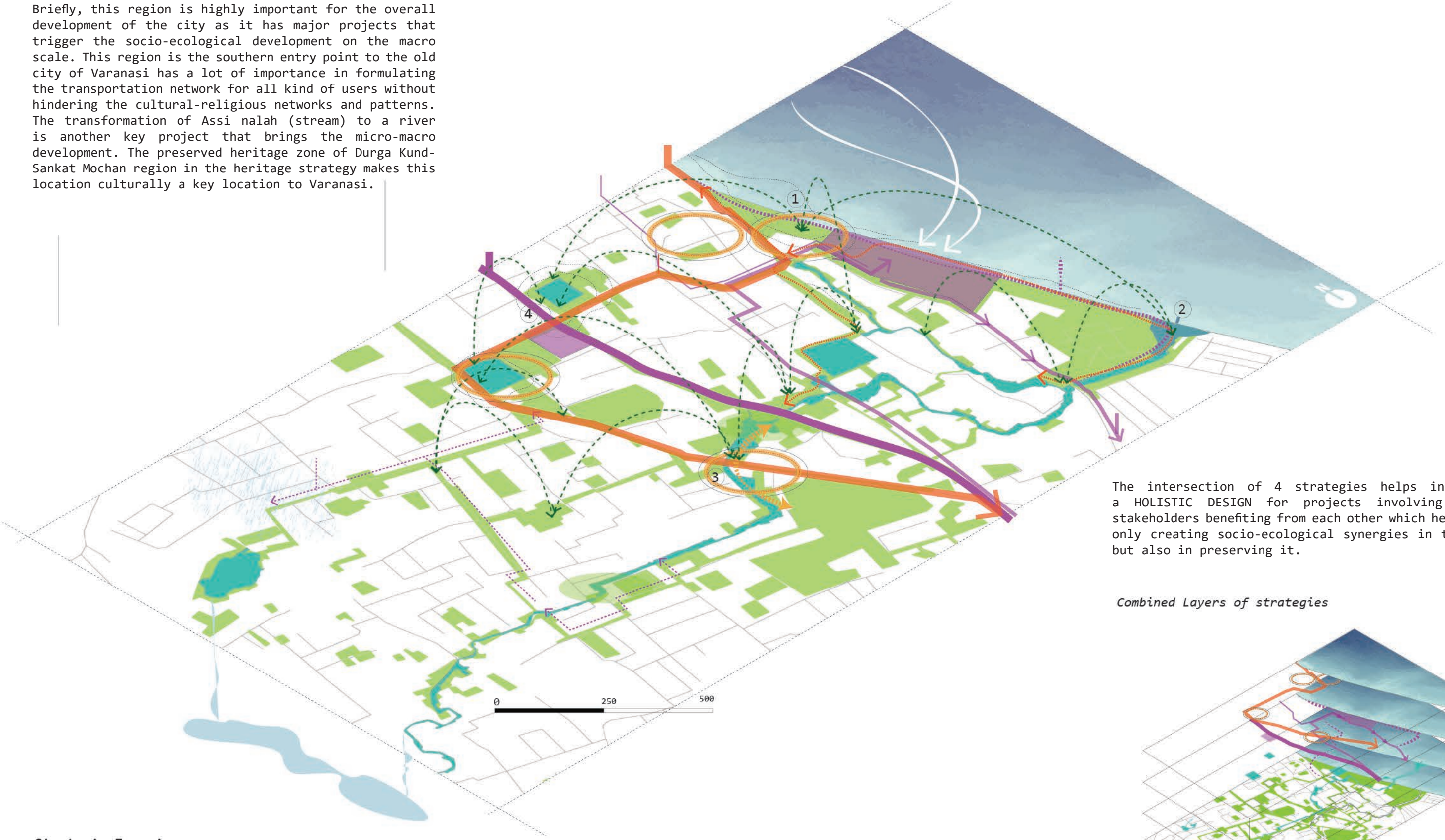






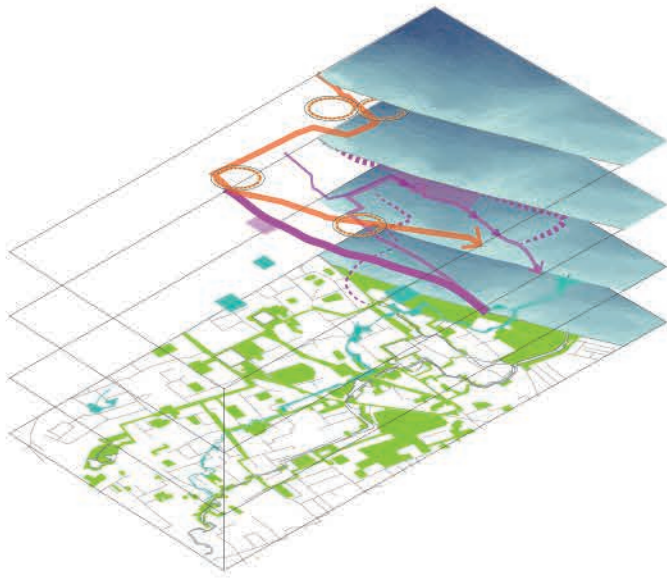
Strategic Design for Assi Ghat Region

Briefly, this region is highly important for the overall development of the city as it has major projects that trigger the socio-ecological development on the macro scale. This region is the southern entry point to the old city of Varanasi has a lot of importance in formulating the transportation network for all kind of users without hindering the cultural-religious networks and patterns. The transformation of Assi nalah (stream) to a river is another key project that brings the micro-macro development. The preserved heritage zone of Durga Kund-Sankat Mochan region in the heritage strategy makes this location culturally a key location to Varanasi.



The intersection of 4 strategies helps in creating a HOLISTIC DESIGN for projects involving different stakeholders benefiting from each other which helps in not only creating socio-ecological synergies in the region but also in preserving it.

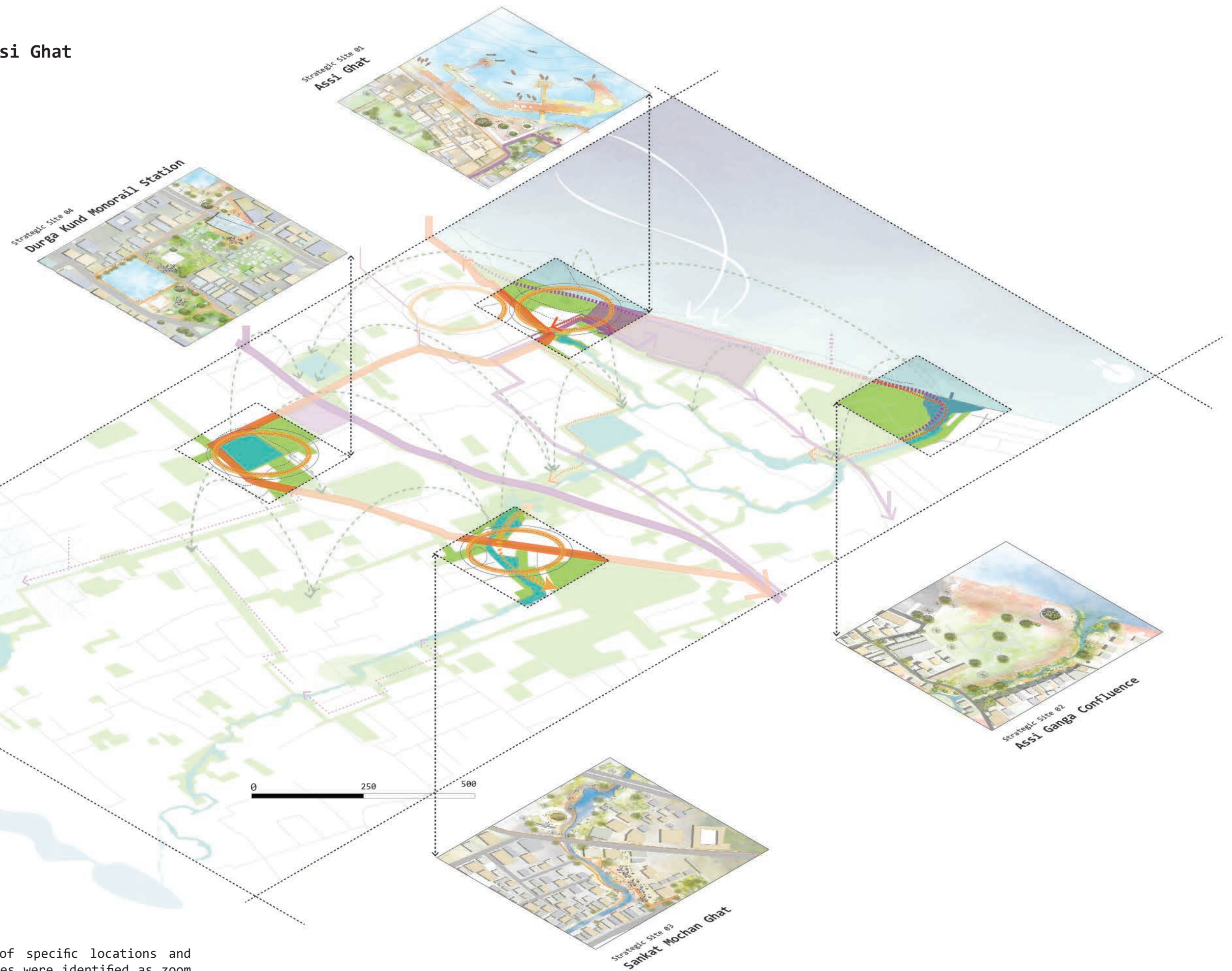
Combined Layers of strategies



Strategic Zoom-ins

- 1 Assi Ghat
- 2 Assi Ganga Confluence
- 3 Sankat Mochan Temple
- 4 Durga Kund Monorail Station

10.3 Zoom ins - Assi Ghat



Considering the significance of specific locations and the number of projects, 4 sites were identified as zoom in location. These zoom in location were designed in detail and the stakeholders were analysed and grouped as local stakeholders who would be involved in project formulation and implementation in a winning coalition platform with the key stakeholders.



Strategic Zoom in 01
Assi Ghat

Stakeholder engagement

Strategic Brokers of Assi Ghat Site

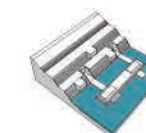
Public Works Department	Varanasi Jal Sansthan(Water Authority)
Varanasi Municipality	Pollution Control Board
Ferry Authority	*INTACH
Temple Organizations	Hindu Religious Organizations
	Non Government Organizations
Tourism Development Authority	

Winning Coalition Platform
for Strategic Location

Assi Region Strategic location
Local Stakeholders

Stakeholders - Assi Ghat Site
Yoga Centres Guides Ganga Seva Samithi
Cafe's Sadhu Sankat Mochan Foundation Residents
Ghat Owners Hotel Owners Tourist(Foreign)
Tourist(Domestic) Restaurants

Projects



Floating Ghats

Designed along the curve of Assi Ghat
following the Ghat archetype



Sacred Green Garden

Preserving Sacred banyan tree at Assi
Ghat and planting neem trees for
creating a green sacred zone



Pilgrimage Path

Increased importance of pilgrimage path and
facilities such as toilets installed into
existing fabric and in cultural outliers



Heritage Restoration

Cultural outlet and heritage walk along the
Assi region are major initiatives from
heritage strategy

- Open Bathhouses
- Boat Dock
- Ritual Platform
- Peepal Tree- Sacred Tree
- Heritage walk
- Activating Open Land
- Facilities
- Pilgrimage path
- One way traffic

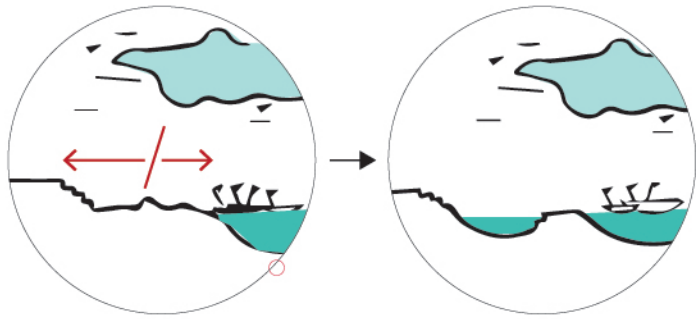
Creating more space for Ghat activities
to reduce stress from floating
population on the riverfront

*INTACH - Indian National Trust for Art and Cultural Heritage



Panoramic view of Assi Ghat
Source: Author

Floating Ghat Reasoning



The sharp curve of Ganga river along Assi Ghat accumulates mud along the edge of Ghat cutting the Ghat-water interaction. The floating Ghat supported by deepening of the watercourse in between the existing ghat and floating ghat allows water to reach closer to the people for performing rituals and also keeping the boats away from causing hindrance.

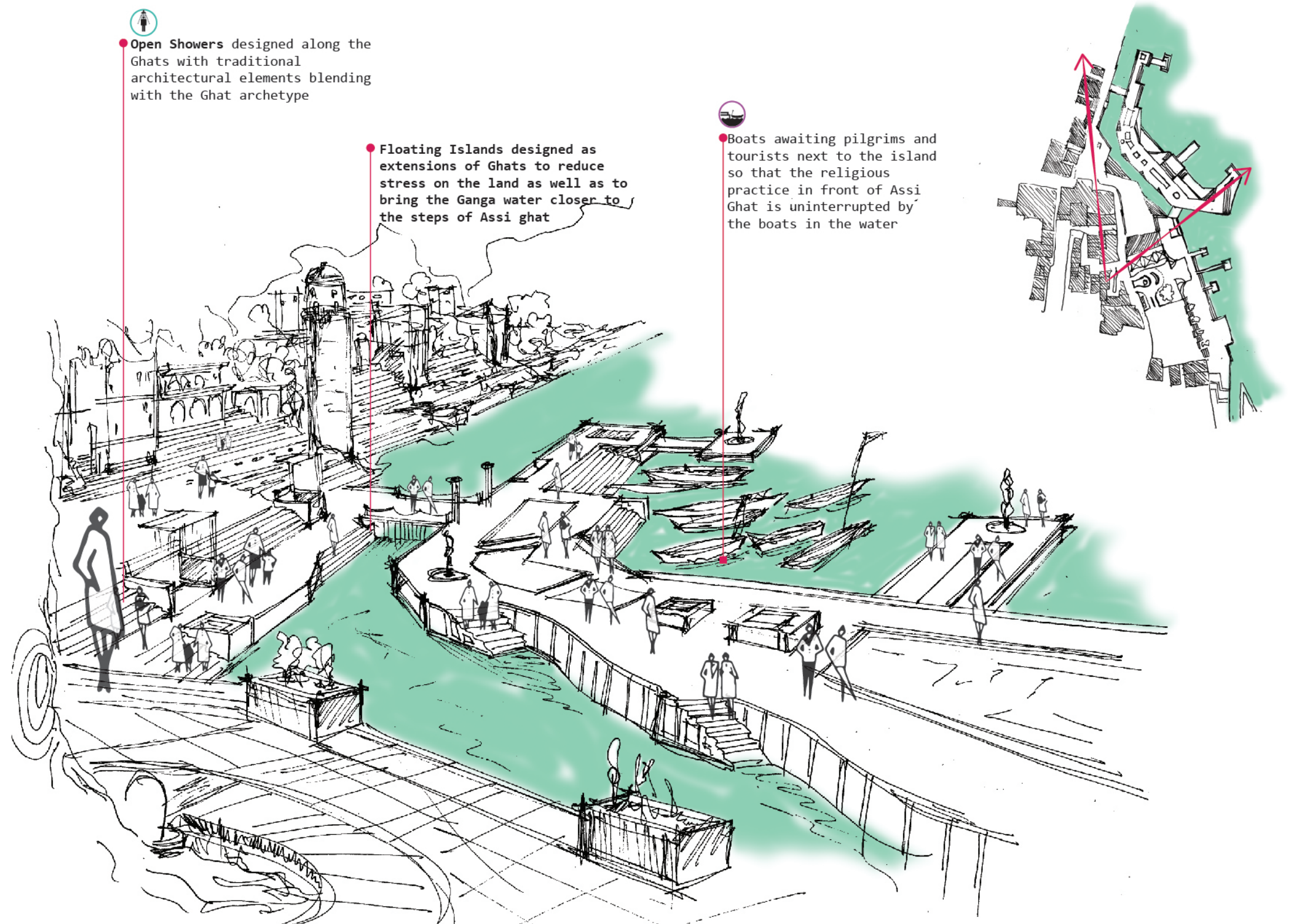
Activities at Assi Ghat



● Open Showers designed along the Ghats with traditional architectural elements blending with the Ghat archetype

● Floating Islands designed as extensions of Ghats to reduce stress on the land as well as to bring the Ganga water closer to the steps of Assi ghat

● Boats awaiting pilgrims and tourists next to the island so that the religious practice in front of Assi Ghat is uninterrupted by the boats in the water





Strategic Zoom In - 02 Assi Ganga Confluence

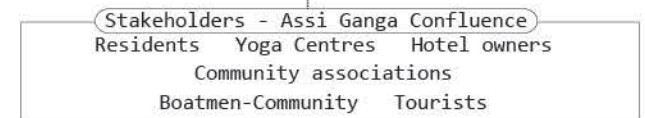
Stakeholder engagement

Strategic Brokers of Assi Ganga Confluence Site



Winning Coalition Platform for Strategic Location

Assi Region Strategic location Local Stakeholders



Projects



River Edge

Rejuvenation of edges of Assi river using cultural activities and agriculture



Banyan Tree

Creating a sacred identity with a Banyan tree at the confluence location and with Ghat design



Cultural Fair Site

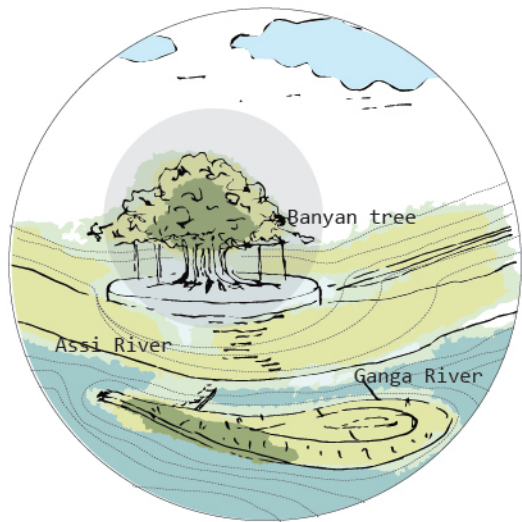
Transforming Sant Ravidas Smarak park into a cultural active space supporting the South Hub

- Banyan Tree
- Public Park
- natural filtration
- Bridge Filter
- Ghat Construction
- Waste Collection
- Heritage Walk
- Transit Hub
- Hop-On Hop Off Public Transport

Southern most heritage landmark of the city. Defining a sacred identity and transforming it to a culturally active space

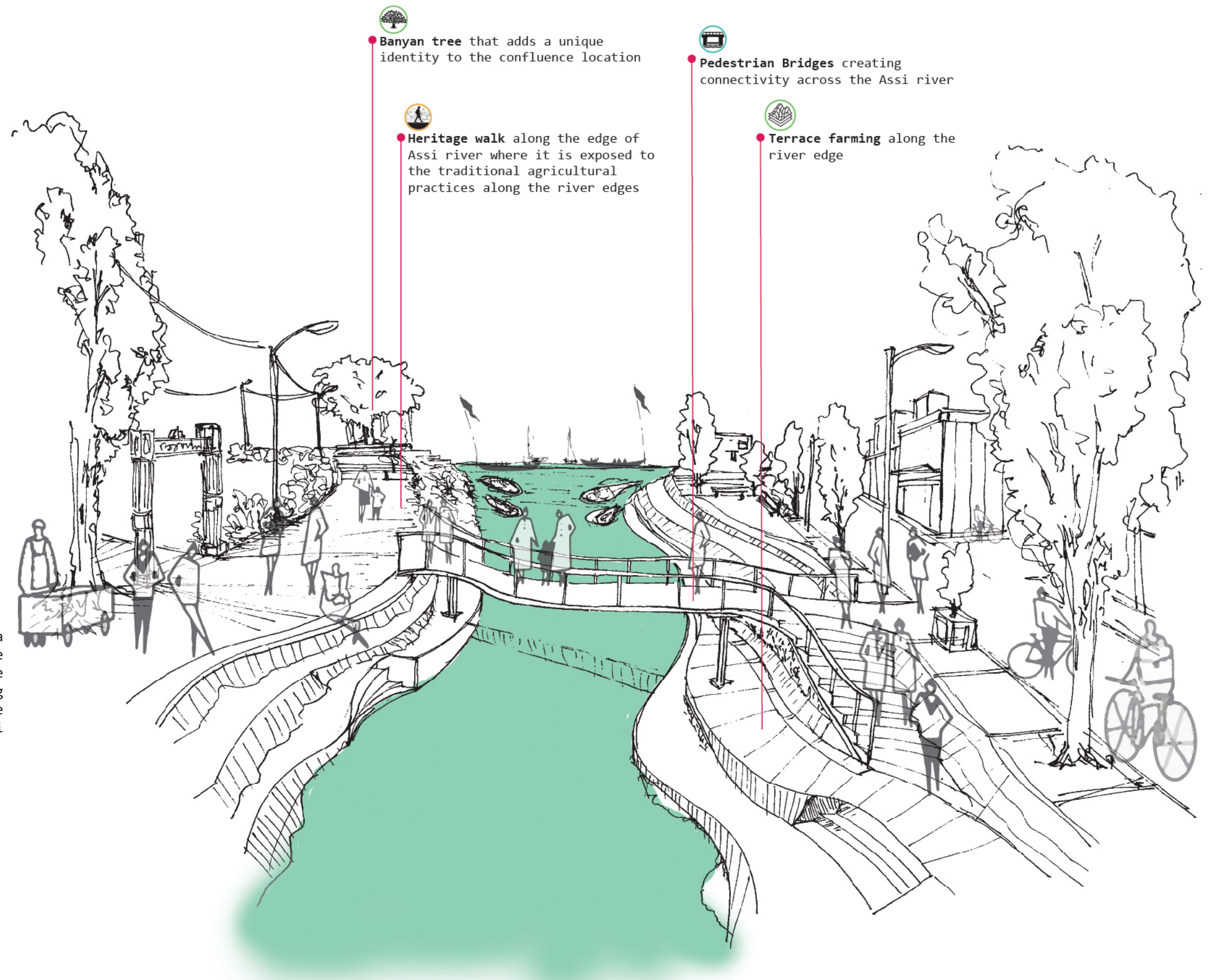
*INTACH - Indian National Trust for Art and Cultural Heritage

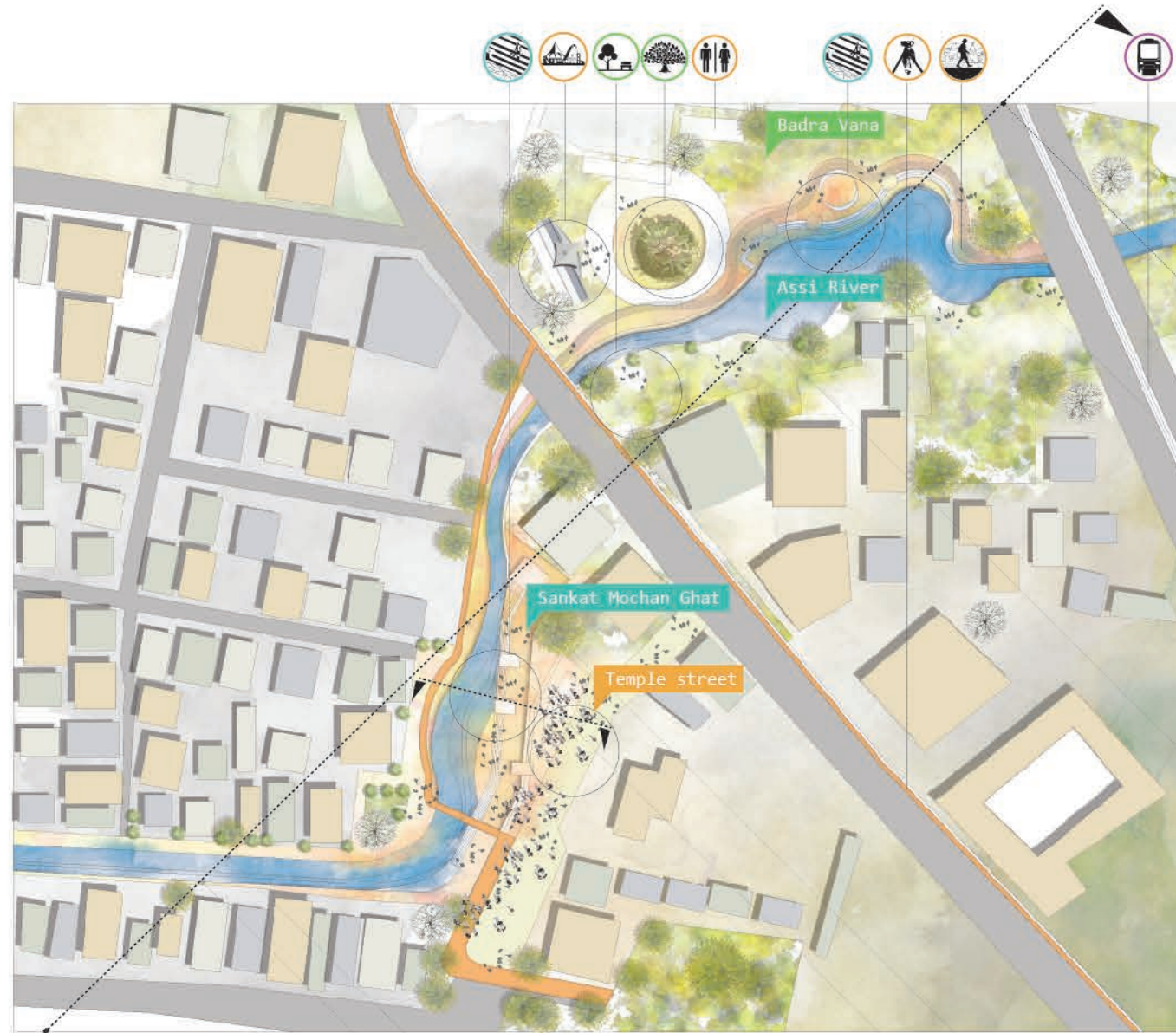
Sacred Identity for Assi Confluence



Restoring the significance of Assi River by creating a sacred identity to the confluence using green and blue strategies in which the presence of Banyan tree along the curve of confluence and the natural wetland islands along with the flow of Assi river. These wetland islands are also functionally intended to remove waste before Assi converging into Ganga.

Activities

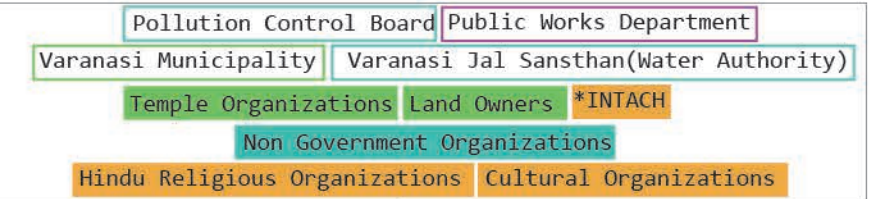




Strategic Zoom In - 03 Sankat Mochan Ghat

Stakeholder engagement

Strategic Brokers of Sankat Mochan Site



Winning Coalition Platform for Strategic Location

Assi Region Strategic location Local Stakeholders

Stakeholders - Sankat Mochan

Sankat Mochan Temple Association Pilgrims
Rikshaws Residents Street Hawkers

Projects



Sacred Green

Peepal tree that becomes the focus of the Badra Vana Amala, Neem and Champa tree planted to bring in the sacred nature of the Urban forest



Pilgrimage Path

With the construction of Ghats and facilities, the site becomes another resting location for the pilgrims after Durga Kund Temple



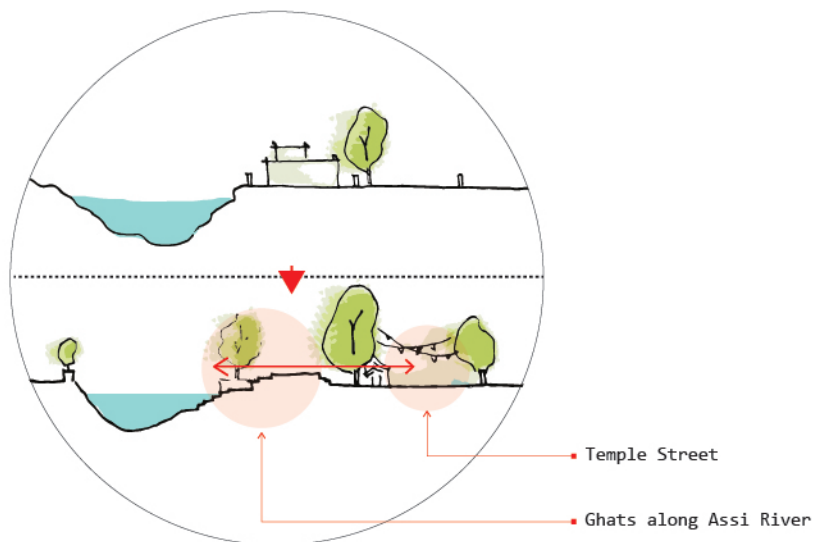
Sankat Mochan Ghats

The urban fabric that hides the Assi river behind is taken down and the regained edge is transformed into Ghats, with an idea to give a sacred identity to Assi River

- Sacred tree
- Public Park
- Ghat Construction
- Cultural Outlet
- Facilities
- Pilgrimage Path
- Heritage Walk
- Monorail line

*INTACH - Indian National Trust for Art and Cultural Heritage

Opening up the edges of Assi near Sankat Mochan Temple



Sankat Mochan Hanuman temple is a significant religious landmark in Varanasi. Combining the religious importance with Ghat construction along the Assi river in the precinct of the temple creates a active religious location which in turn helps in revitalizing the identity of Assi river which is presently existing as waste sewage line.

Activities



• **Heritage Walk** along the Assi river experiencing the Ghat activities at newly designed Sankat Mochan Ghat



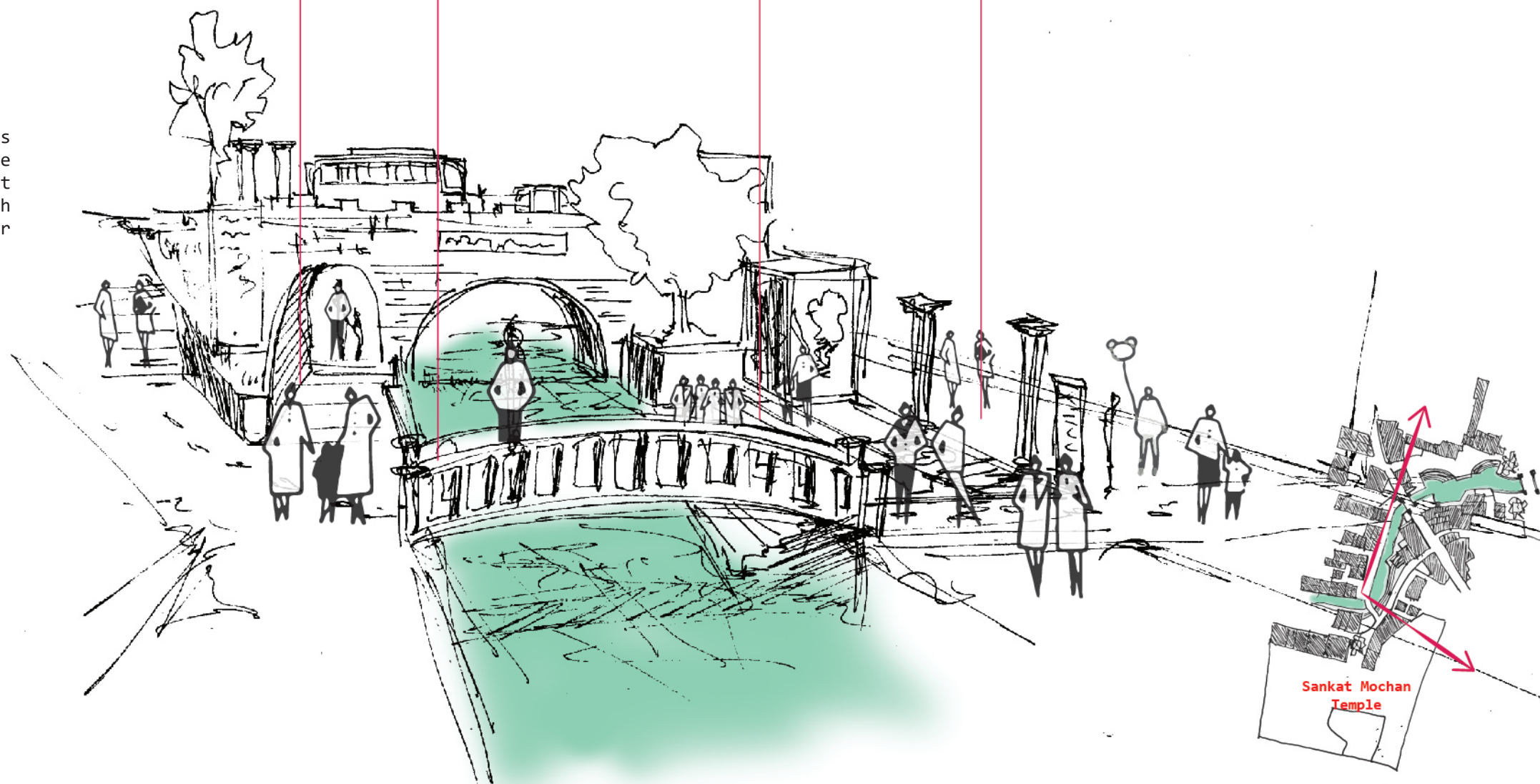
• **Pedestrian Bridge** connecting pilgrimage path towards the Sankat Mochan temple along the side of Ghats



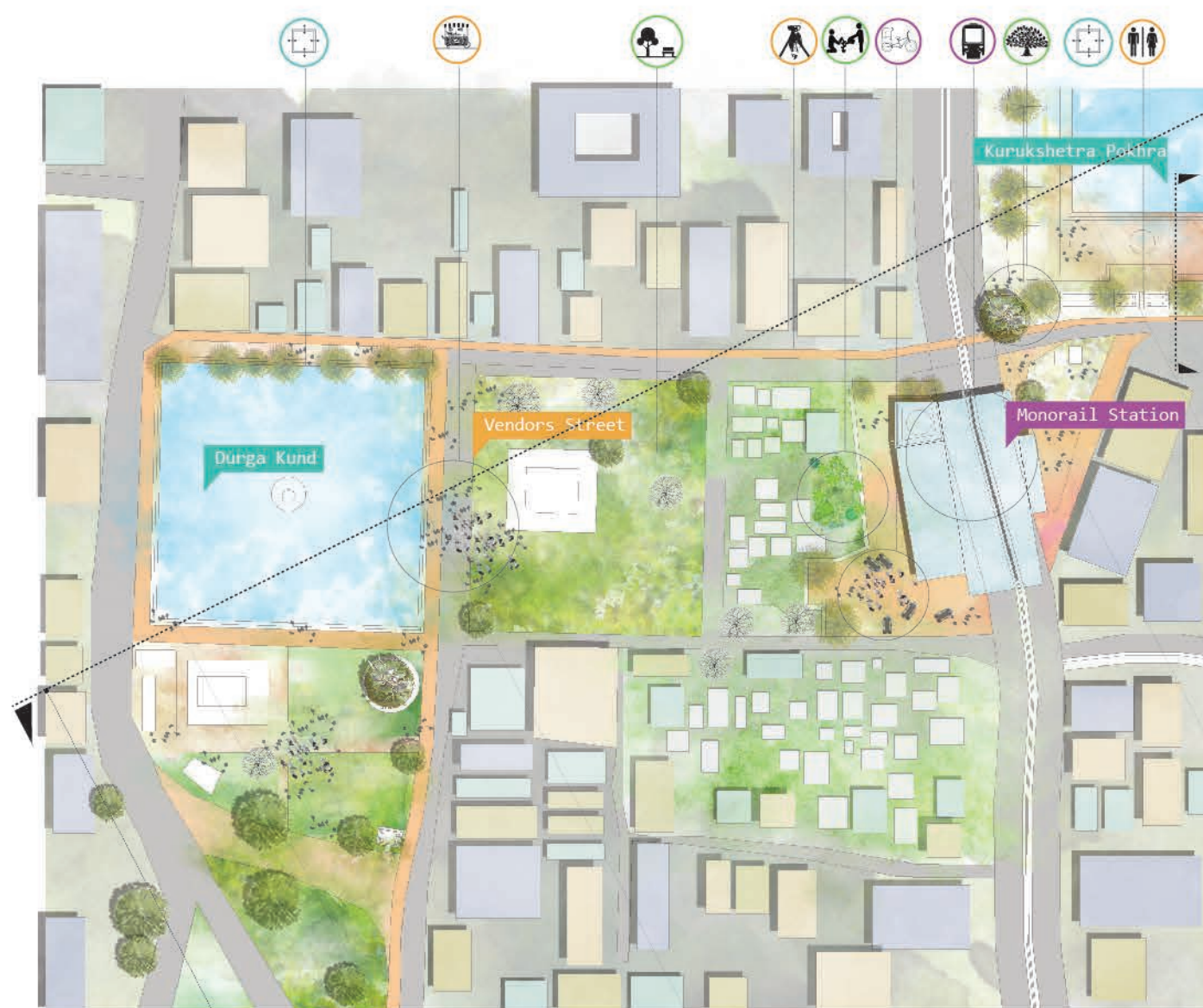
• **Opening up** the edges of Assi river in front of Sankat Mochan temple to construct **Ghats** to revive the identity of Assi River



• **Temple street** where the road in between the temple and river is transformed into a religious street which facilitates only pedestrian movement with vendors and street hawkers making the space vibrant

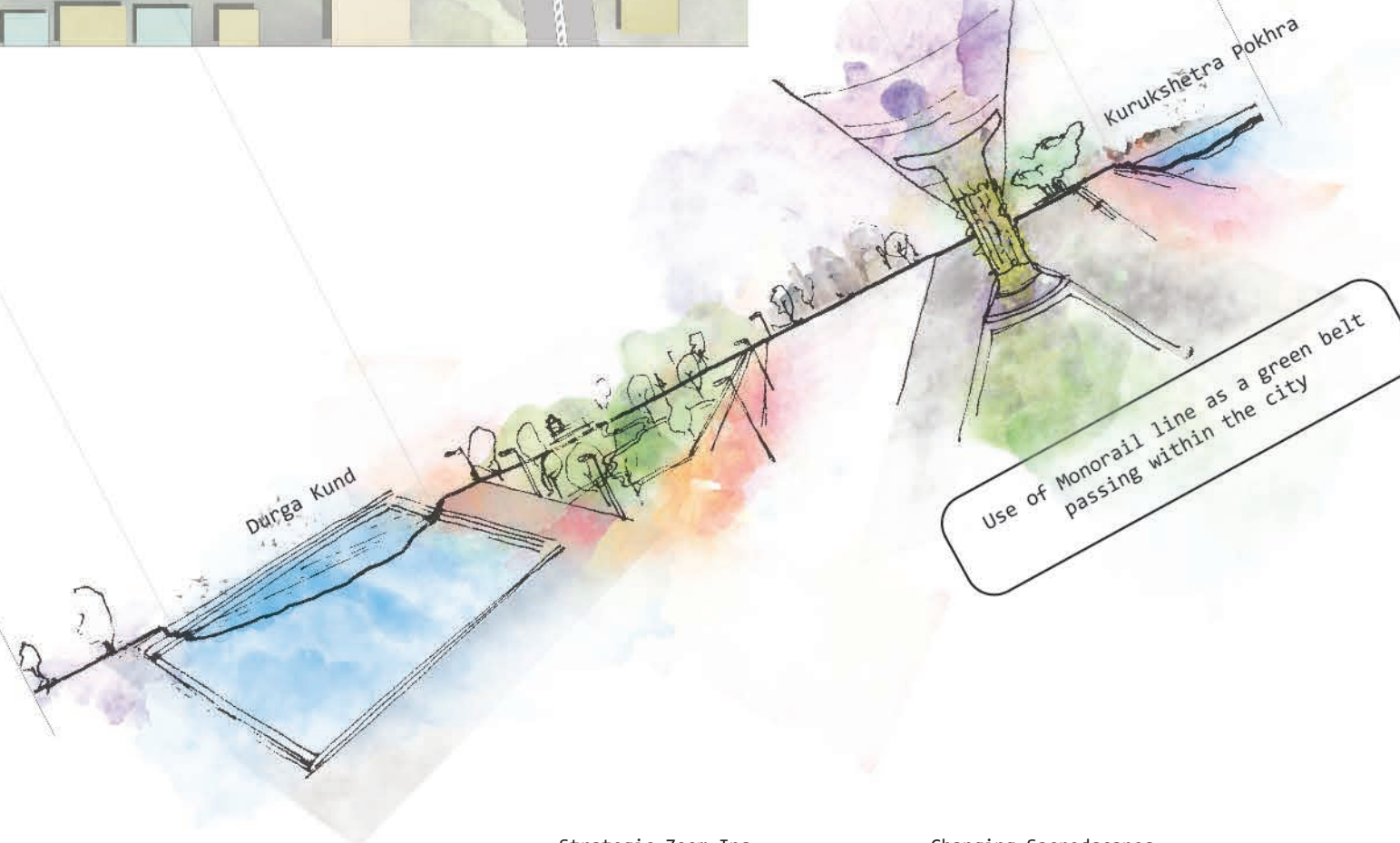


Sankat Mochan Temple



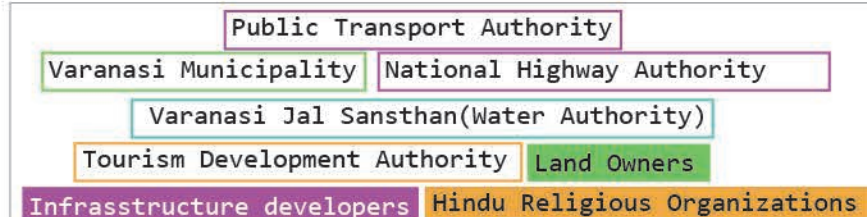
- Sacred tree
- Community Garden
- Recreation
- Kund Restoration
- Vendors Street
- Pilgrimage Path
- Facilities
- Traditional Transport
- Monorail line

Strategic Zoom In - 04 Durga Kund Station



Stakeholder engagement

Strategic Brokers of Durga Kund Station Site



Winning Coalition Platform
for Strategic Location

Assi Region Strategic location
Local Stakeholders

Stakeholders - Durga Kund Site

Pilgrims Residents Tourist(Domestic)
Durga Temple Organization Cycle Shops
Vendors Taxi-Associations Slums

Projects



Durga Kund Monorail Station

Main monorail station closer to the South transit Hub and Assi Ghat



Durga Kund and Kurukshetra Kund Regeneration

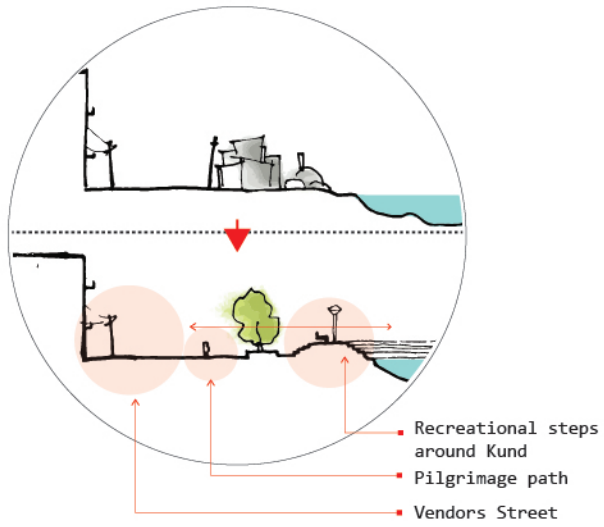
Designing Kund as a sacred public space where the area around the Kund become an active recreational spot for the neighbourhoods



Vendors Street

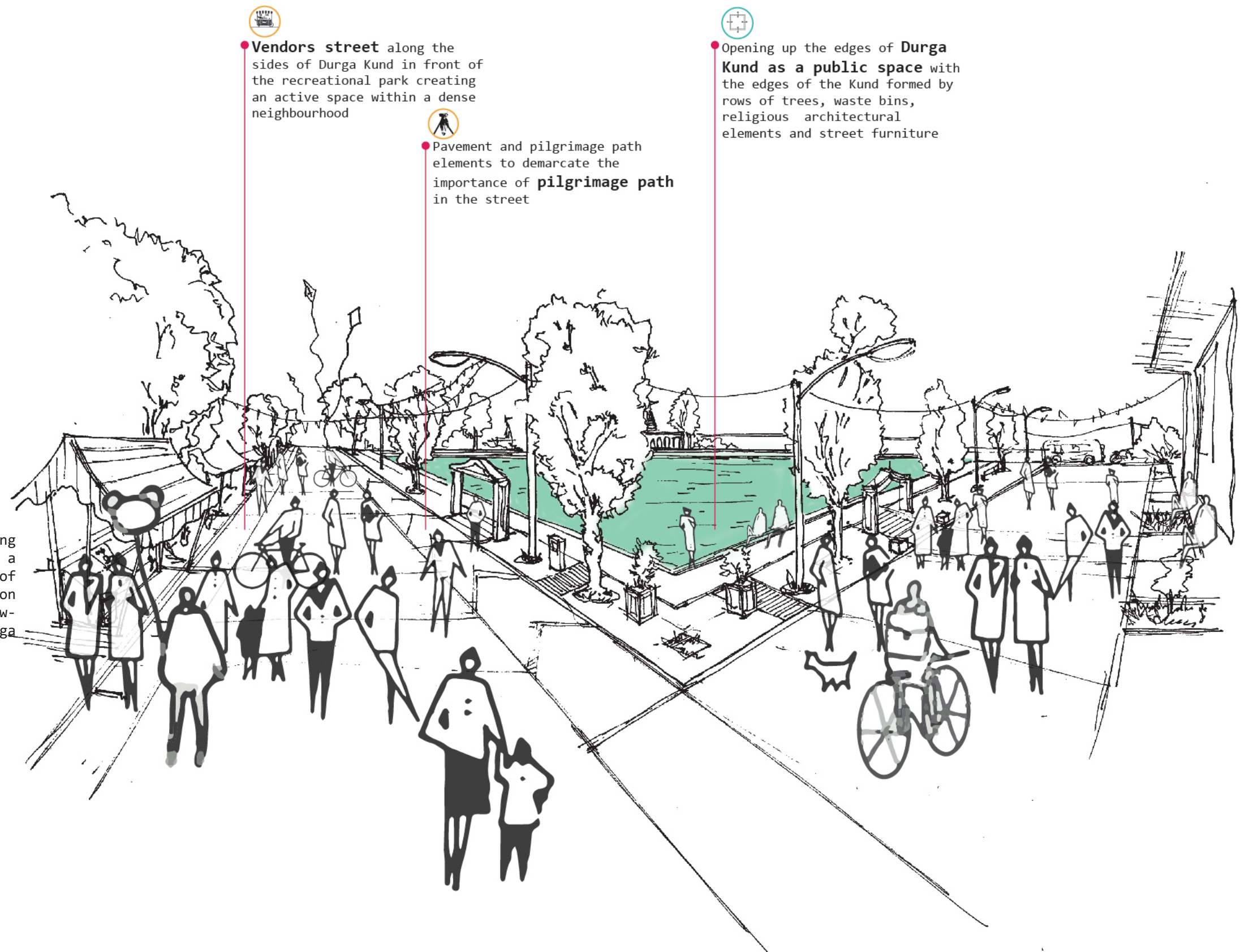
An evening vendors street along the public edge of Durga Kund in front of the park

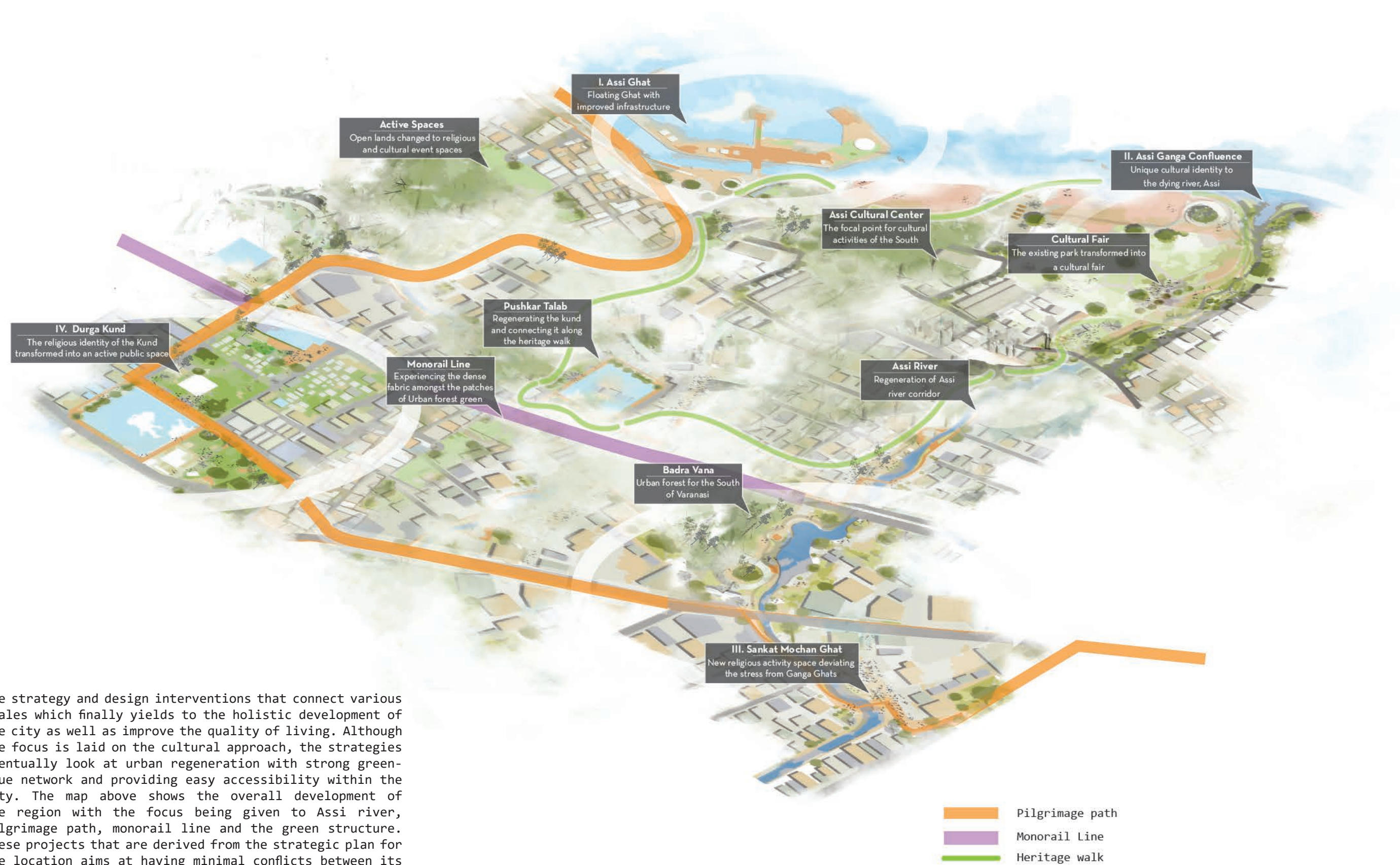
Restoration of Durga Kund



This importance of this strategic site is the overlapping of various projects from the four strategies within a dense urban fabric of the city. The major projects of this site are Durga Kund Monorail station, regeneration of Kurukshetra Pokhra, community garden within the low-income housing neighbourhood and the precinct of Durga Kund.

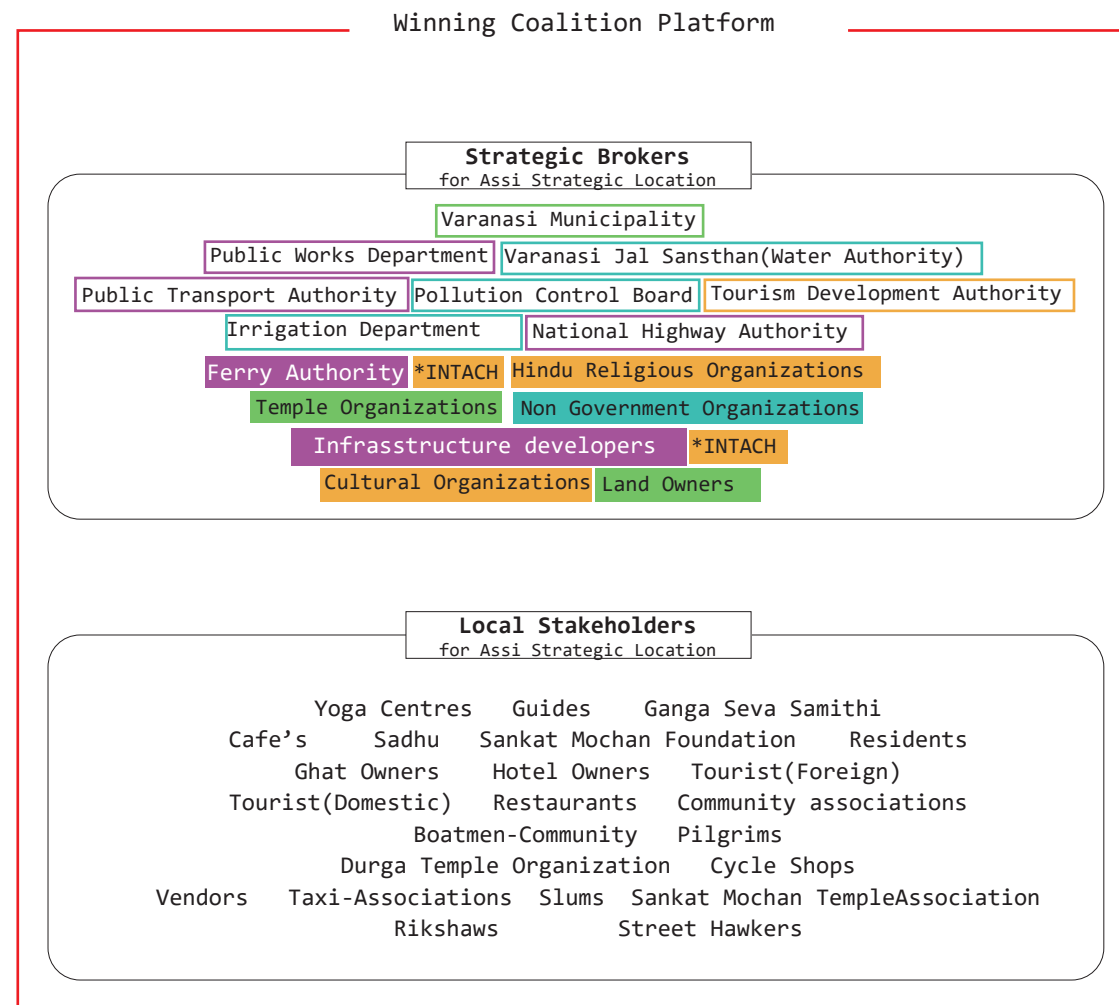
Activities at the site



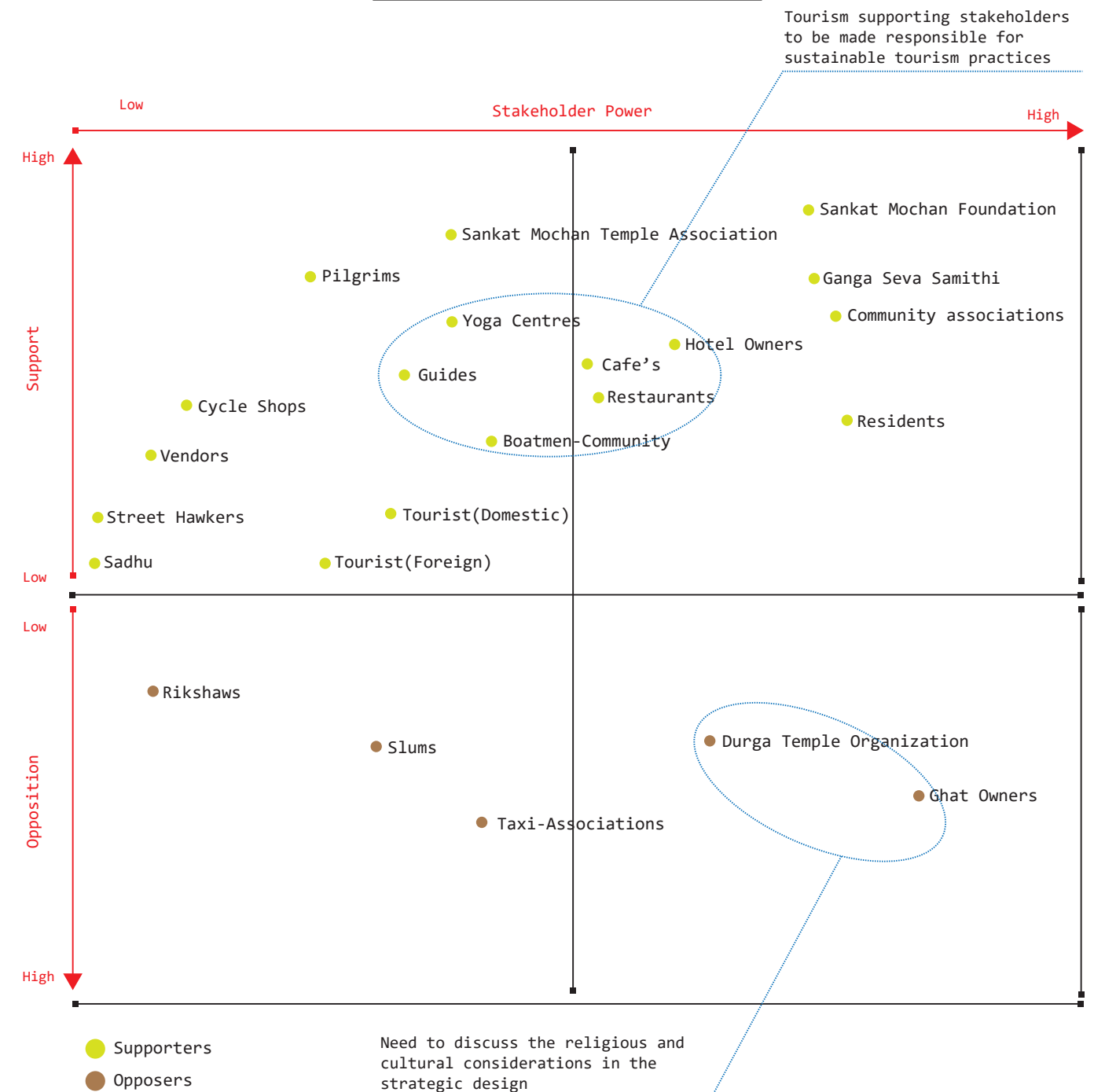


The strategy and design interventions that connect various scales which finally yields to the holistic development of the city as well as improve the quality of living. Although the focus is laid on the cultural approach, the strategies eventually look at urban regeneration with strong green-blue network and providing easy accessibility within the city. The map above shows the overall development of the region with the focus being given to Assi river, pilgrimage path, monorail line and the green structure. These projects that are derived from the strategic plan for the location aims at having minimal conflicts between its users or activities and to utilize various stakeholders to support for the holistic development.

A 3D perspective view of a city map. Four specific locations are highlighted with red arrows pointing to them from a common point above the map. Each location is marked with concentric circles in blue, green, and yellow, and a dashed black square boundary. The map shows a grid of streets, green parks, and blue water bodies. The background is a dark blue sky with white clouds.



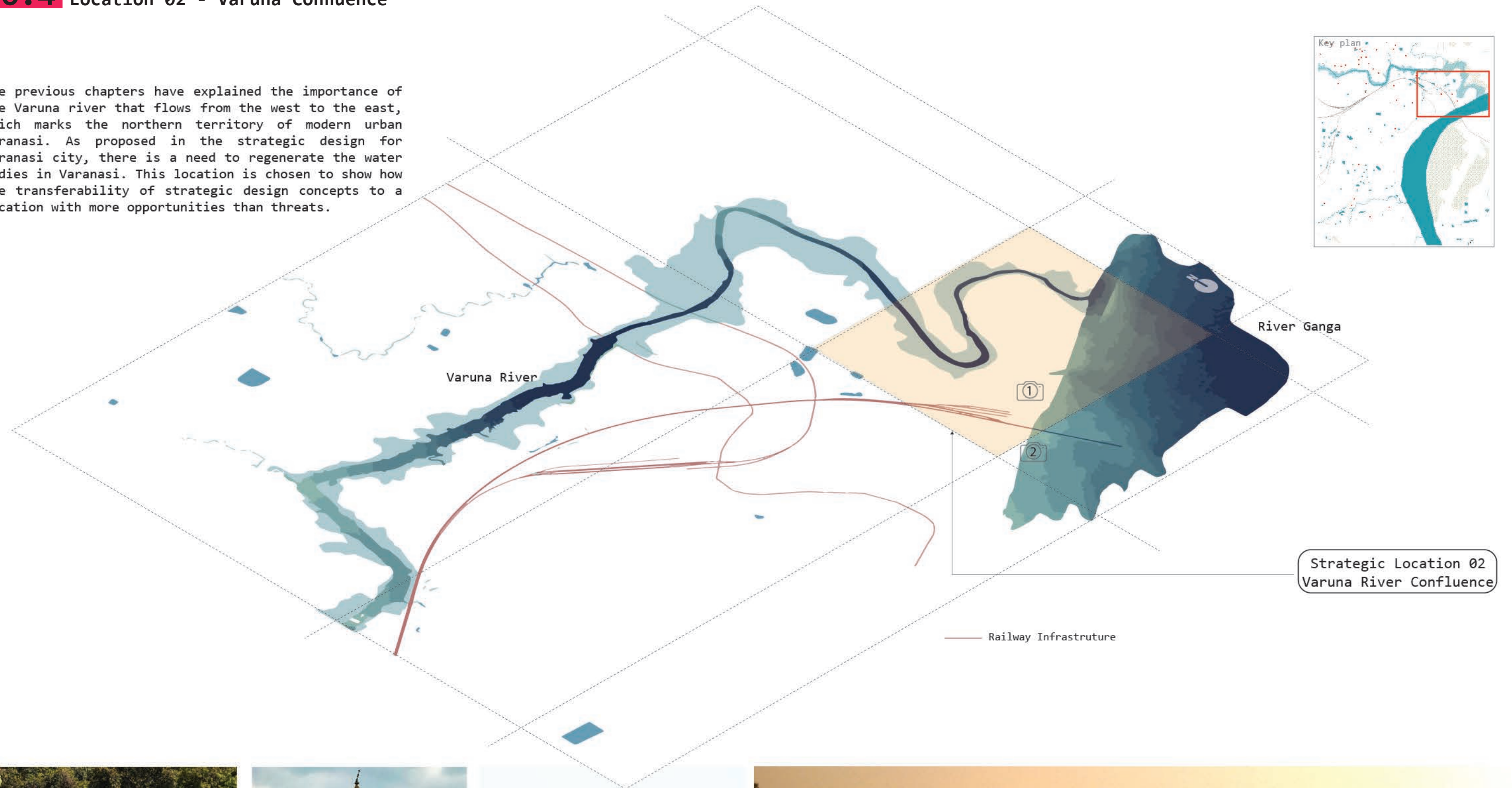
Supporters - Opposers Mapping for Local Stakeholders



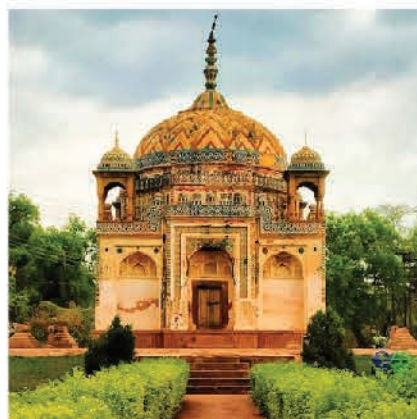
The winning coalition platform which will be facilitated by Government strategic brokers will discuss the project outlines where information will be shared and considerations of local stakeholders will be noted for further improvement of projects. The strategic brokers will focus more on the opposers to understand what special considerations can be carried out in the design to make it completely participatory.

10.4 Location 02 - Varuna Confluence

The previous chapters have explained the importance of the Varuna river that flows from the west to the east, which marks the northern territory of modern urban Varanasi. As proposed in the strategic design for Varanasi city, there is a need to regenerate the water bodies in Varanasi. This location is chosen to show how the transferability of strategic design concepts to a location with more opportunities than threats.



1 Rajghat archaeological site towards the north of Varanasi has taken site of Kashi back to 800 B.C.
Source: kevinstandagephotography.wordpress.com | googleearth



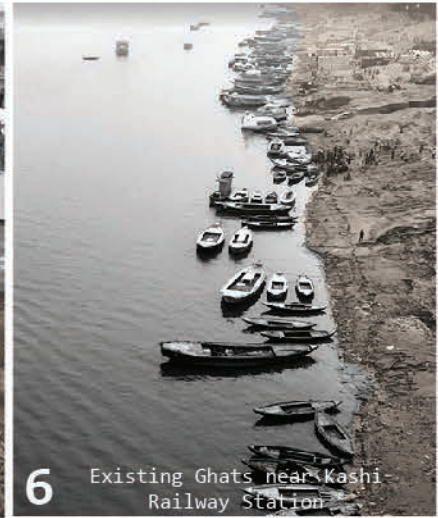
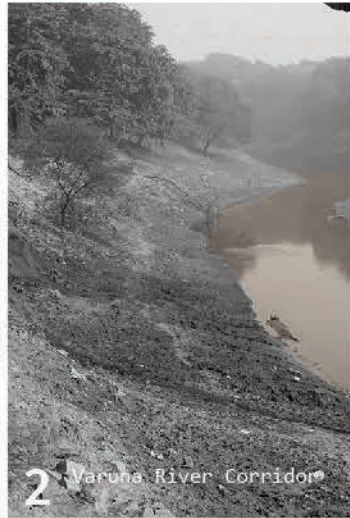
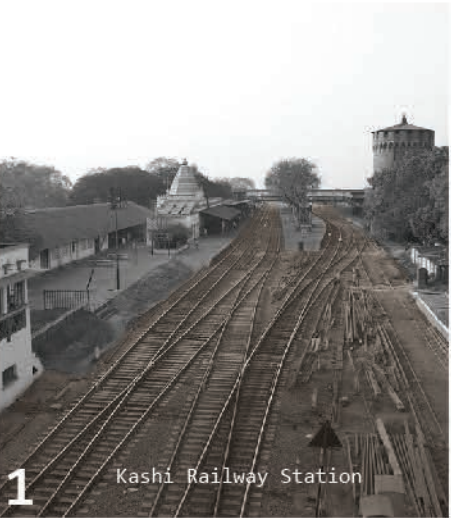
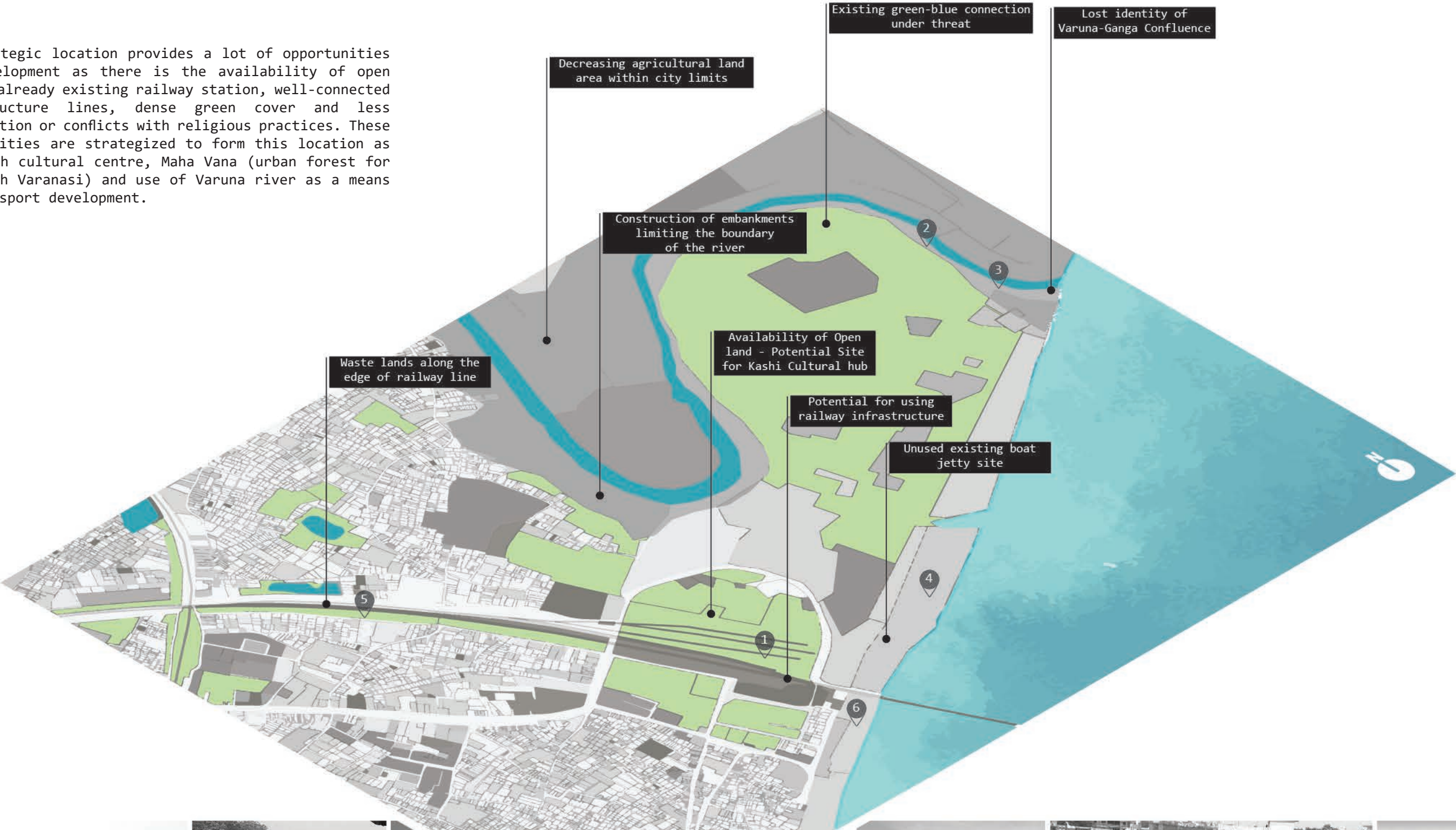
The Malviya Bridge
Source: Googlemaps/abhisheksingh



2 The Malviya bridge is a hard border that separates the present day Varanasi urban city from the rural landscape and Varuna-Ganga Confluence. Source: flickr.com/avishek-d-images

Existing Conditions

The strategic location provides a lot of opportunities for development as there is the availability of open lands, already existing railway station, well-connected infrastructure lines, dense green cover and less intersection or conflicts with religious practices. These opportunities are strategized to form this location as the north cultural centre, Maha Vana (urban forest for the north Varanasi) and use of Varuna river as a means for transport development.



Projects Explored in Varuna River Location

Productive Landscapes

Reclamation of agricultural lands along the edges of Varuna river
Seasonal terrace farming to restore the green along the Varuna river corridor

Open Land uses

Promoting market fairs and creating recreational spaces over unused private plots and wastelands

Sacred Green

Maha Vana (Northern Urban Forest)



Panoramic View of agricultural farms

River edge

Creating more room for Varuna river to flow during monsoons
Regenerating green along the Varuna river



Panoramic View of Varuna River

Heritage Zoning

Heritage zoning of Rajghat archaeological site with improved supporting infrastructure

Heritage Walk

Pedestrian pathway loop connecting Kashi cultural Hub , Varuna river, Maha Vana(urban forest), Varuna-Ganga confluence and Ganga Ghats

Socio-Cultural Groups

Recognizing various socio-cultural groups in the location and incorporating design proposals supporting the economic as well as cultural upliftment



Panoramic View of entry to Rajghat Archeological site

Land-water Transport

Kashi Dock - Ganga ghat boat jetty supporting connectivity along river Ganga
Varuna Dock - Varuna boat jetty as a city corridor to the rural areas

Monorail/Public Transport

Kashi Main Metro station - Transformation of existing Kashi railway station into Kashi Transit Hub. The hub links metro to Kashi dock water transport, public bus service and traditional transport. The hub also provides parking facilities to prevent vehicular entry to the inner city

Traditional Transport

Rikshaw stands near Varuna Dock, Kashi Dock and Varuna Ganga Confluence to allow sustainable movement of people to ecologically sensitive regions and the inner city of Varanasi

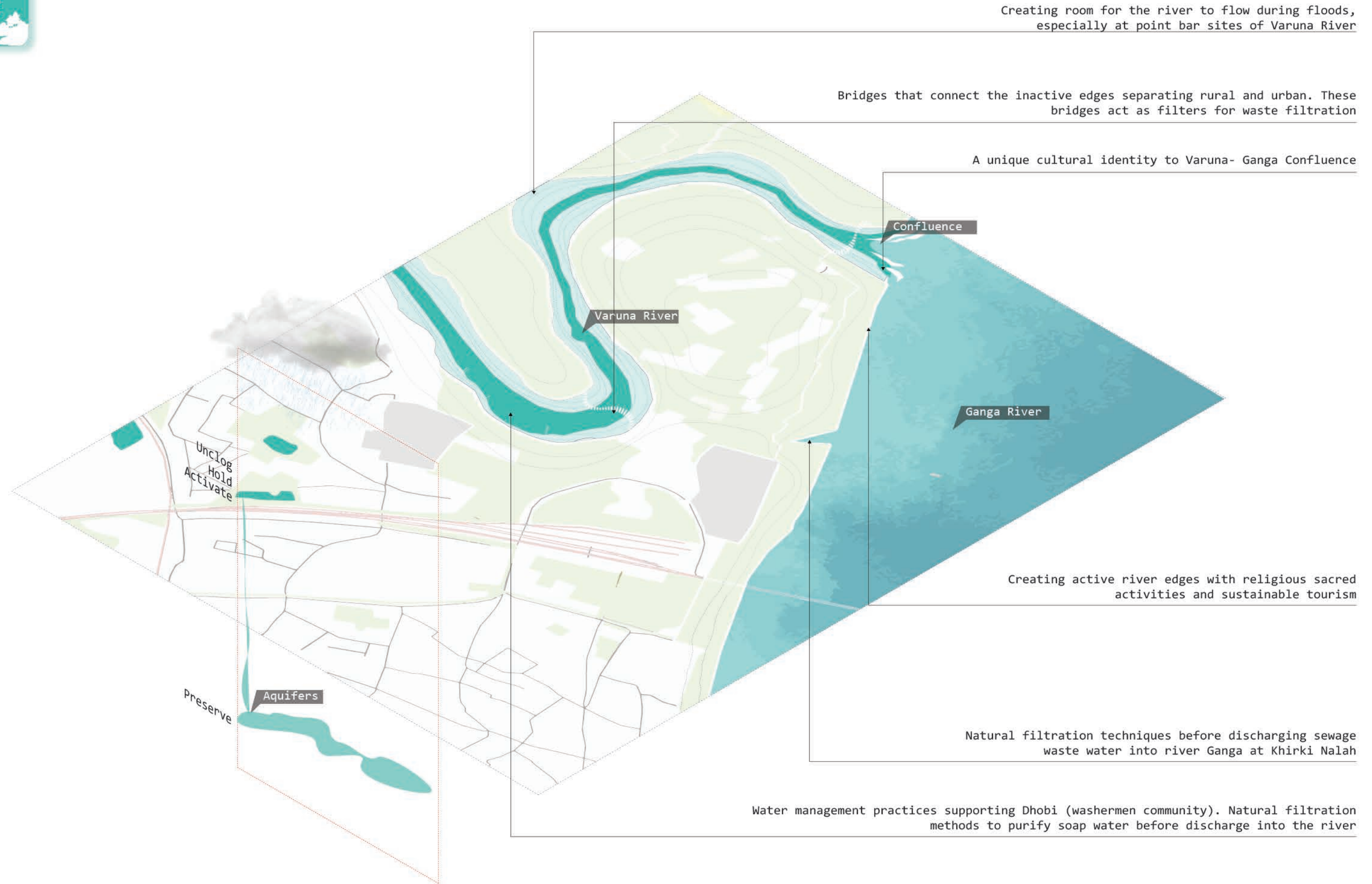


Panoramic View of Varuna-Ganga Confluence

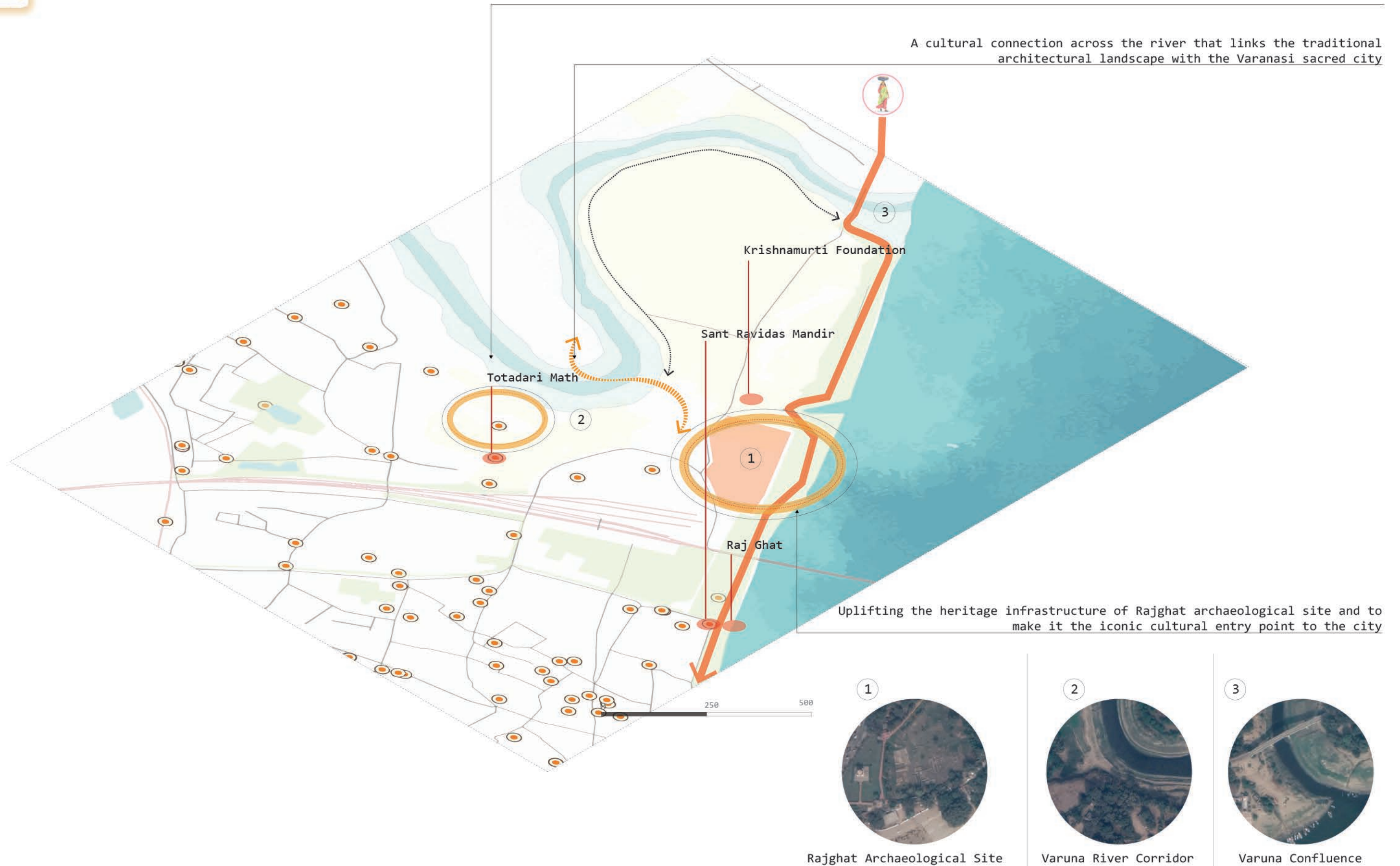
Panoramic photos of Varuna River Confluence Location
Source: Author

Wastelands to be transformed as cultural spaces promoting the social-religious lifestyle of Varanasi people along the banks of river





A cultural connection across the river that links the traditional
architectural landscape with the Varanasi sacred city







Monorail transport that connects various parts of the city and connection with Sarnath along the existing line of railway infrastructure

Pedestrian connectivity that blends with the landscape of the river corridor

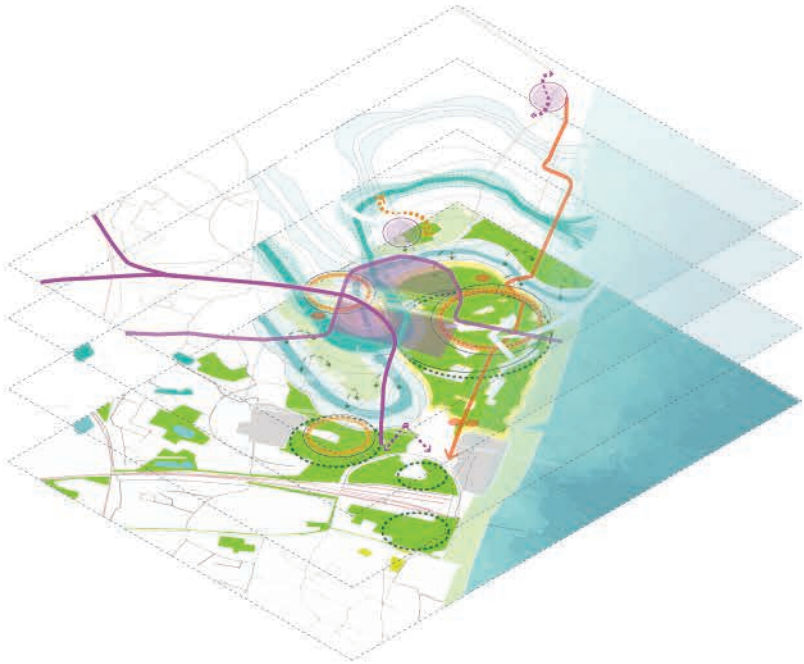


Multi-modal transit hub that links monorail, public bus transport, water transport and traditional transport means

-  **Monorail transport** - Part of City Development strategies
-  **Four wheeler path** following one way system
-  **Heritage walk**
-  **Heritage ride on 2 & 3 Wheelers**

Strategic Design for Varuna River Location

Briefly, the North transit hub and Varuna river corridor are highly important for the overall development of the city. In a condition when the city is struggling with congestion and lack of cultural infrastructure, the opportunities provided by this location becomes very crucial for re-imagining this cultural landscape. Although present Government planning does give focus on the Varuna river corridor, the design is just about creating embankments and walking paths along the edge of the river. But during 2016 monsoon floods, Varuna river flooded over the embankments awakening the authorities to think over the corridor project. Through this design, the Varuna river has been given room to flood during the monsoons as well as it connects to the land with green cover and activities which also revive the cultural identity of this water body.



10.5 Zoom ins - Varuna Confluence



Considering the significance of specific locations and the number of projects, 3 sites were identified as zoom in locations. These zoom in locations were designed in detail and the stakeholders were analysed and grouped as local stakeholders who would be involved in project formulation and implementation in a winning coalition platform with the key stakeholders.

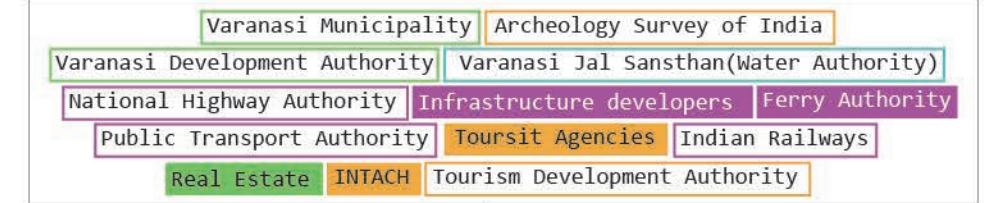


- Pilgrimage Path
- Traditional Transport
- Cultural Outlet
- Underground Parking
- Recreational Green
- Bus Bay
- Heritage Zoning
- Sacred Green
- Vendors Street
- Boat Dock

Strategic Zoom In - 01 Rajghat Archaeological Site

Stakeholder engagement

Strategic Brokers of Rajghat Archaeological Site



Winning Coalition Platform for Strategic Location

Varuna Location Strategic location Local Stakeholders

Krishnamurthi-Foundation | Tourists
Boatmen Community | Rikshaws | Pilgrims
Street Hawkers

Projects



Rajghat Archaeological site

Conservation practices and infrastructural development that not only preserves the heritage site but also showcases it to the visitors



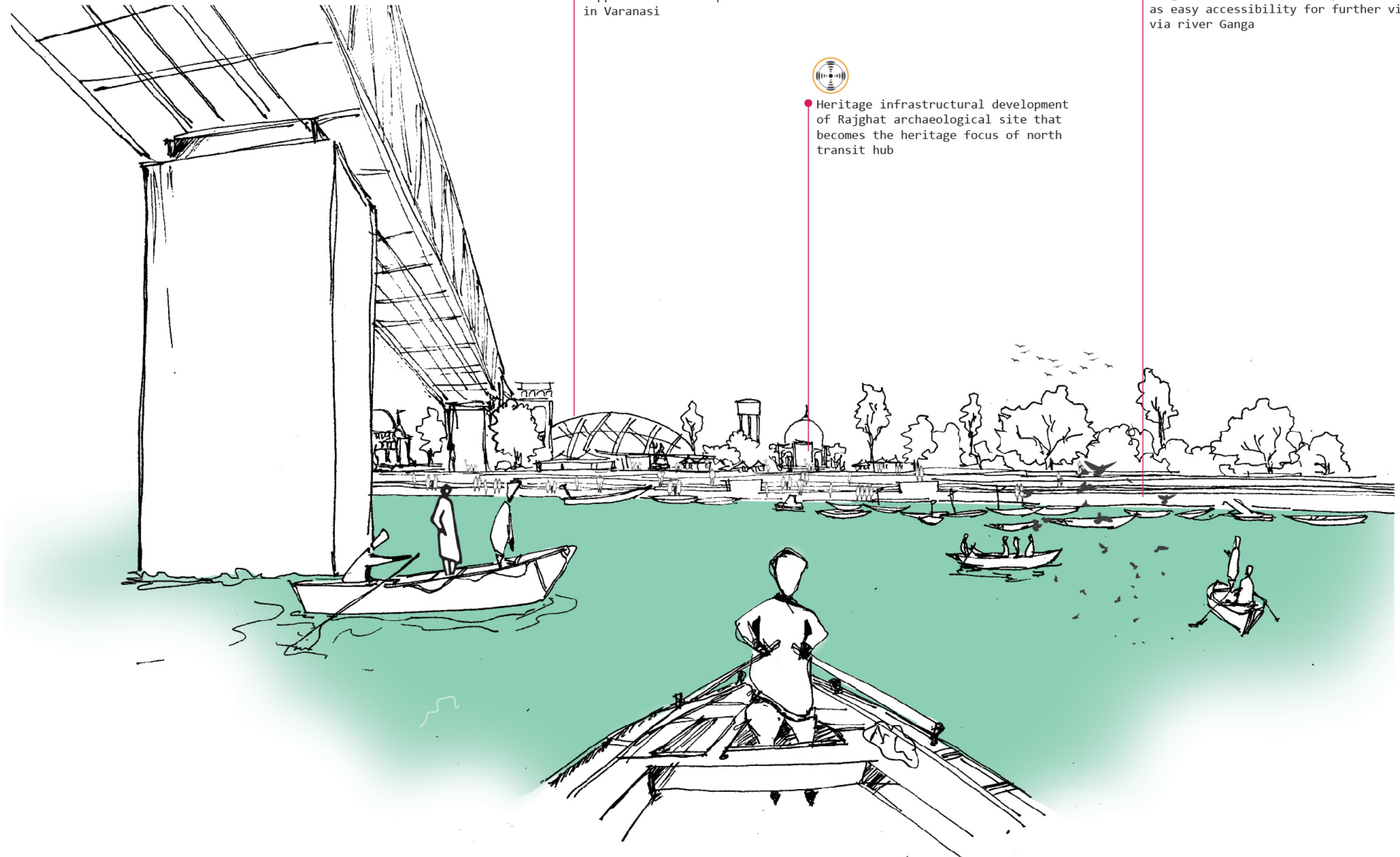
Kashi Cultural Center

Cultural interpretation centre with facilities such as a museum, theatres and cultural exhibitions that promote the cultural history of Varanasi



Kashi Dock

Transformation of riverfront towards the north of Varanasi into a dock designed with an imbued architectural quality of Ghats



• **Kashi Cultural Center** acts as the cultural interpretation centre that supports the development of culture in Varanasi



• **Heritage infrastructural development** of Rajghat archaeological site that becomes the heritage focus of north transit hub



• **Kashi Dock** that supports water-land transportation with the idea of reducing congestion in Varanasi city limits as well as easy accessibility for further villages via river Ganga



Strategic Zoom In - 02 Varuna River Jetty

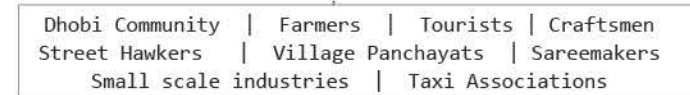
Stakeholder engagement

Strategic Brokers of Varuna River Jetty Site



Winning Coalition Platform for Strategic Location

Varuna Location Strategic location Local Stakeholders



Projects



Market Fair

Transformation of urban entry point via water transport into a festive mode with fairs and markets along the corridor



Dhobi Ghat

Design of a Dhobi Ghat (washerman community) space where the activity becomes an exhibition of the socio-cultural life of Dhobis. The design incorporates soap water natural filtration techniques that mitigate the pollution of river bodies. Ghats along the river Varuna can also regain a similar cultural identity as Ganga river Ghats with dhobi activities and drying of colourful clothes



Varuna Boat Jetty

Creating a corridor for water transport line through Varuna river into the Varanasi city

- Room For River
- Boat Dock
- Sacred Tree
- Washerman Community
- Market Fair
- Ghat Construction
- Agricultural Landscapes
- Terrace Farming



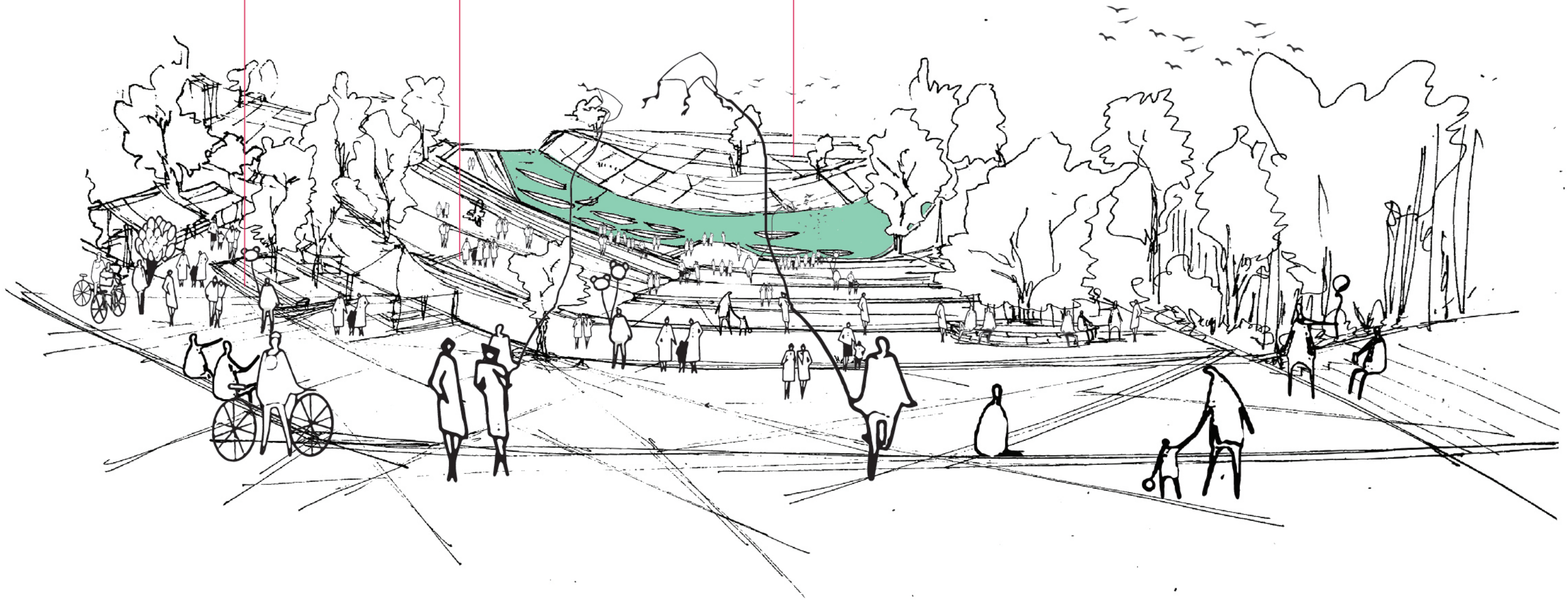
- **Market Fairs** near the entry corridor from Varuna river to Varanasi city that adds a festive vibe to the rural-urban interact



- **Stepped Ghats** define the architectural style of the corridor with activities defining the vibrancy similar to river Ganga Ghats



- **Agricultural farms** along the outer edge of the Varuna river that projects the traditional lifestyle of rural Varanasi. Replacing embankments with a stepped farming technique that allows more room for the river to flood during monsoons

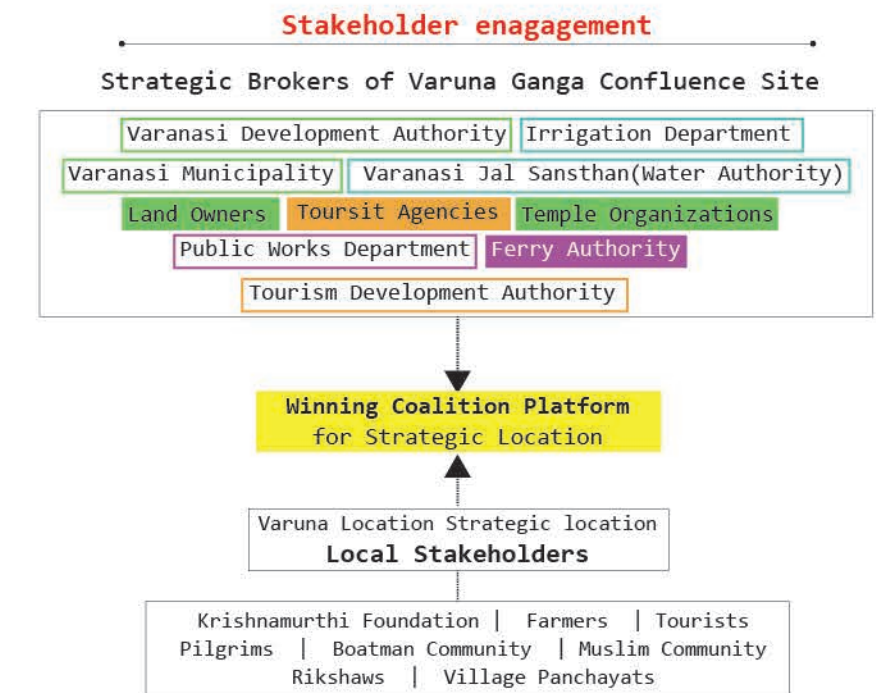




-  Pilgrimage Path
-  Kund Restoration
-  Heritage Walk
-  Ghat Construction
-  Bridge Filters
-  Agricultural Landscapes
-  Terrace Farming

Strategic Zoom In - 03

Varuna Ganga Confluence



Projects



Sacred Green

Propogandize the existing dense green into Maha Vana, the northern urban forest. Peepal, Amala, Neem and Champa tree planted to bring in the sacred nature of the Urban forest.



Varuna Bridge

The connectivity that has high social, economical and ecological value. The bridge links urban and rural regions as it becomes the connecting path of pilgrimage route over the Varuna river. The design of the bridge blends with the landscape allowing tourists to experience the natural landscape



Confluence Ghats

Considering the territory of Varanasi, these Ghats become the foremost Ghat along the river Ganga. Construction of ghats that architecturally highlights the unique style as well as functionally acting as a dock for pilgrims travelling via Ganga river



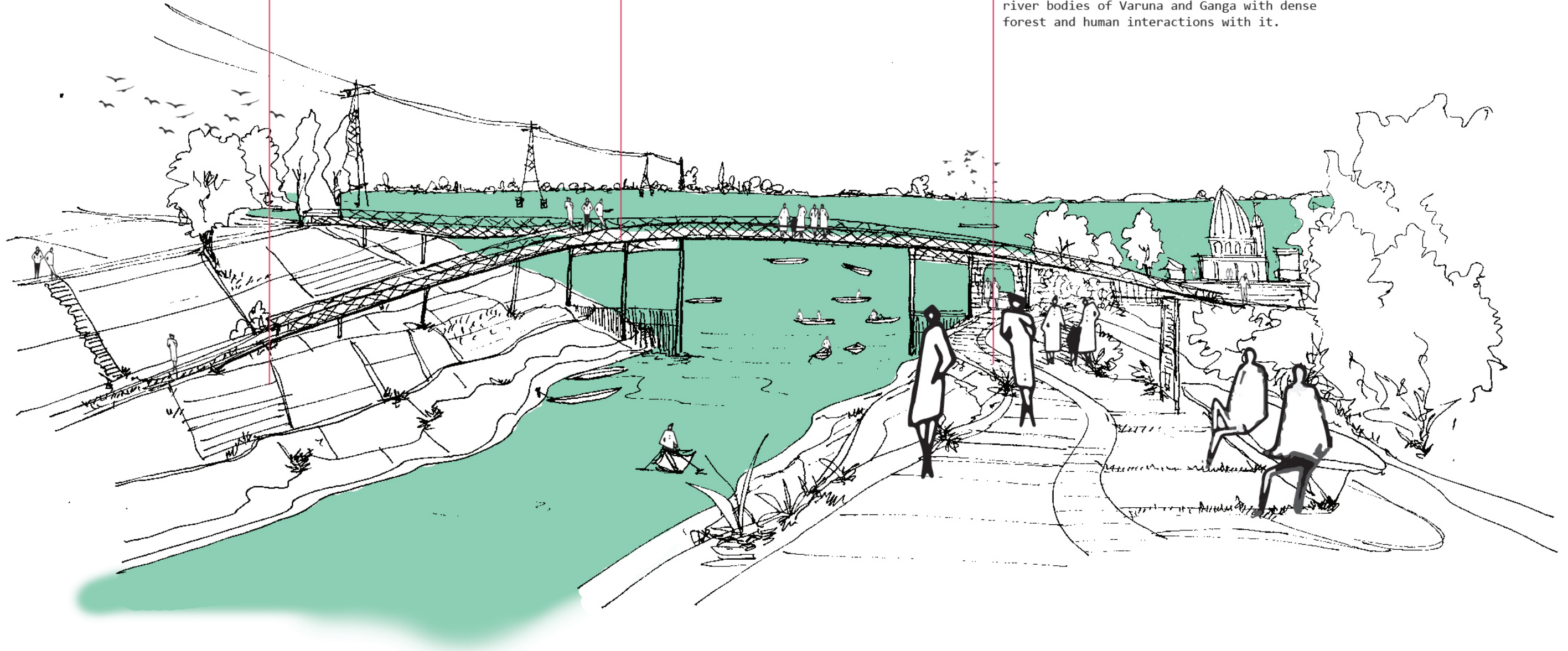
• **Varuna Bridge** that connects the two parts of land blends with the landscape linking it to multiple points which adds not only an ecological value but also considers the social importance of this link. The bridge connects the pilgrimage path, also allowing tourists to interact closely with the landscape



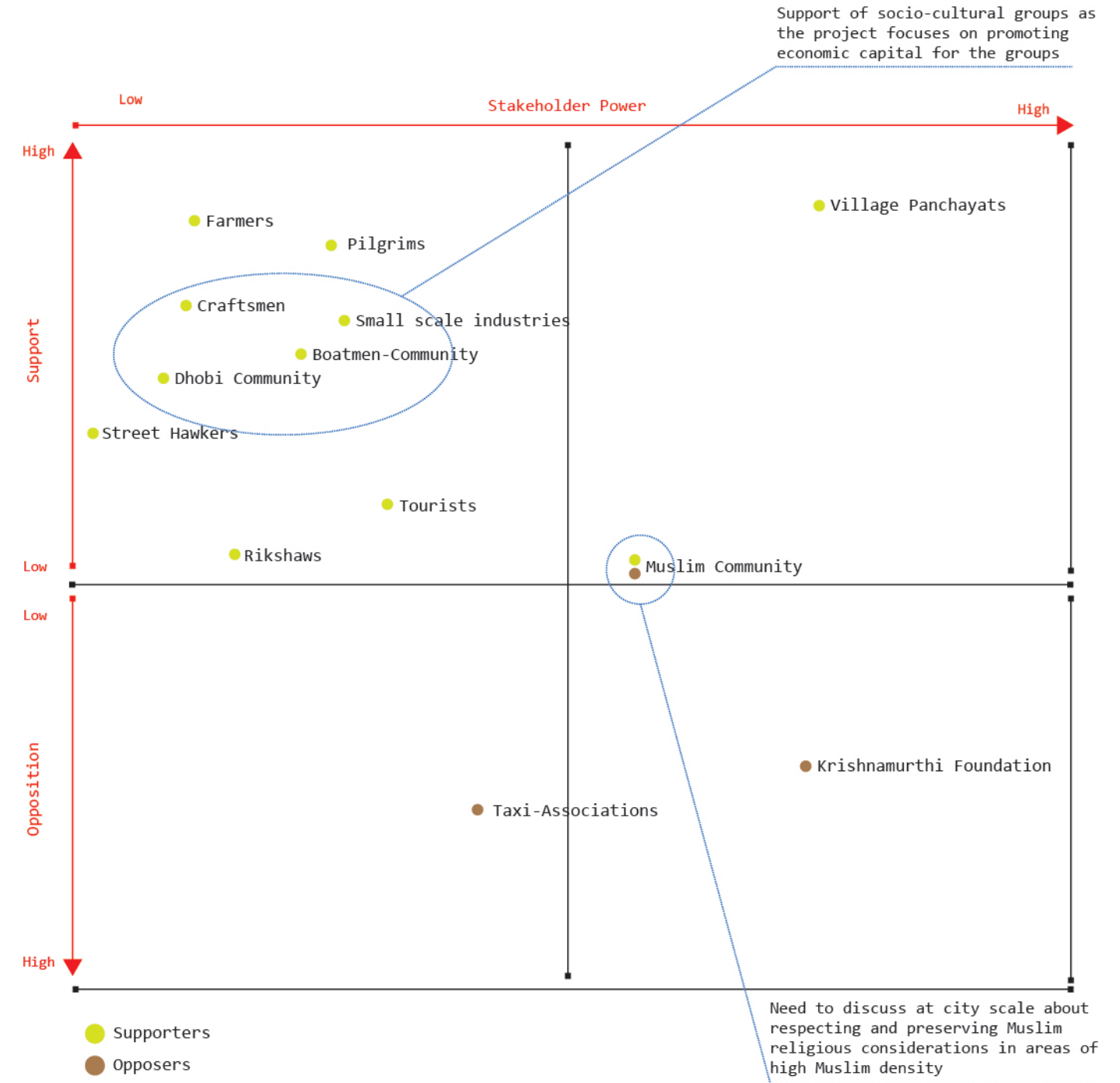
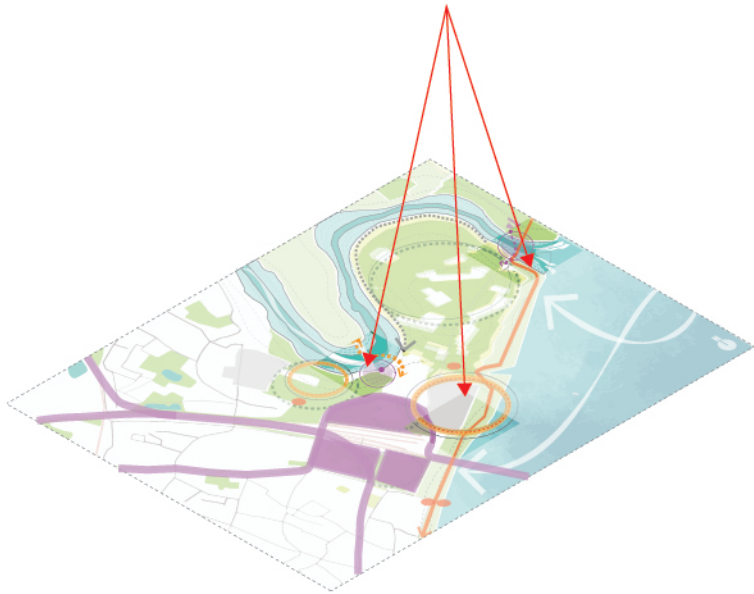
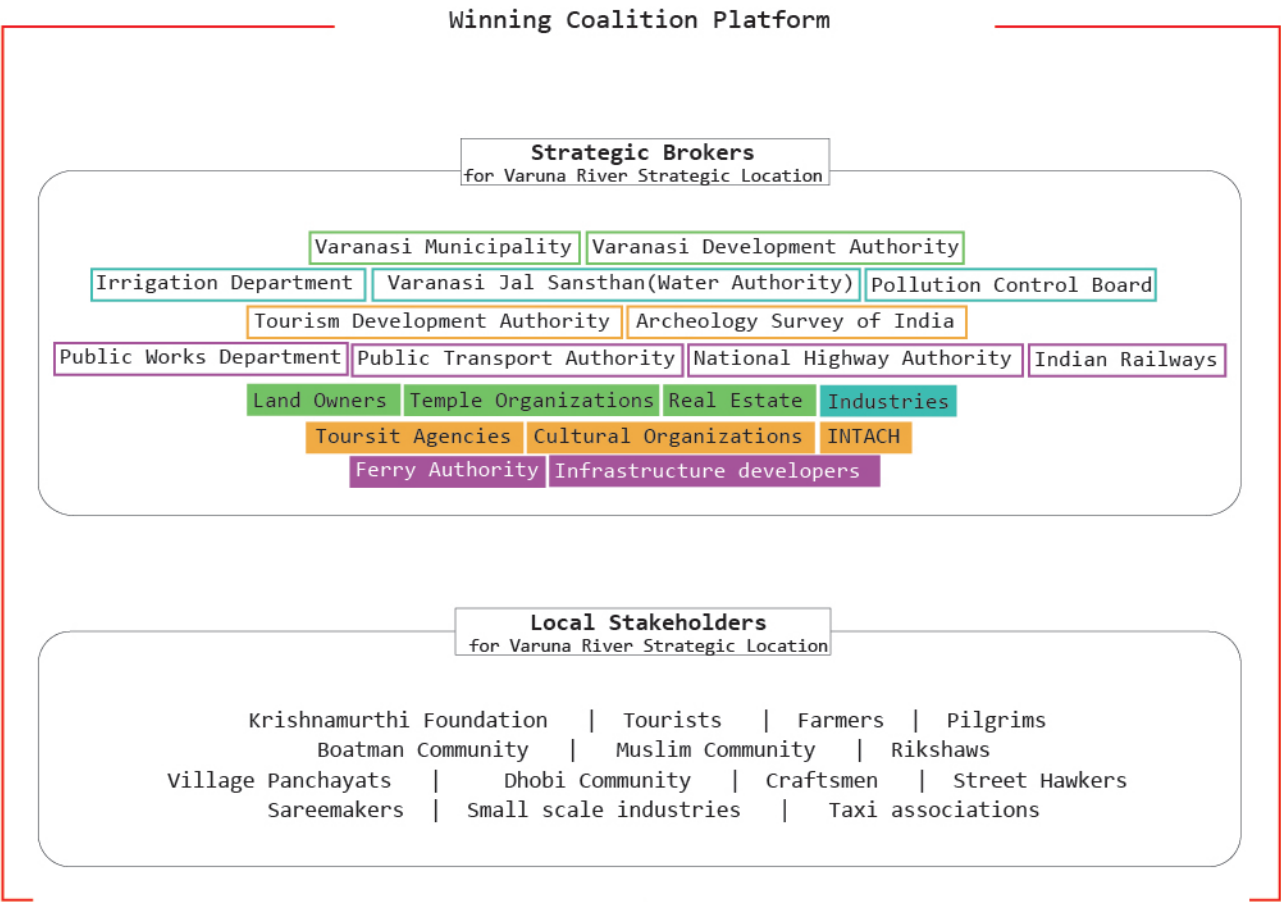
• Replacing embankments with a stepped farming technique that allows more room for the river to flood during monsoons



• **Heritage walk** that connects the Varuna Boat jetty to the river confluence and back to the Kashi cultural Hub through Maha Vana (urban forest) gives the tourist the understanding of the unique sacred landscape along with river bodies of Varuna and Ganga with dense forest and human interactions with it.



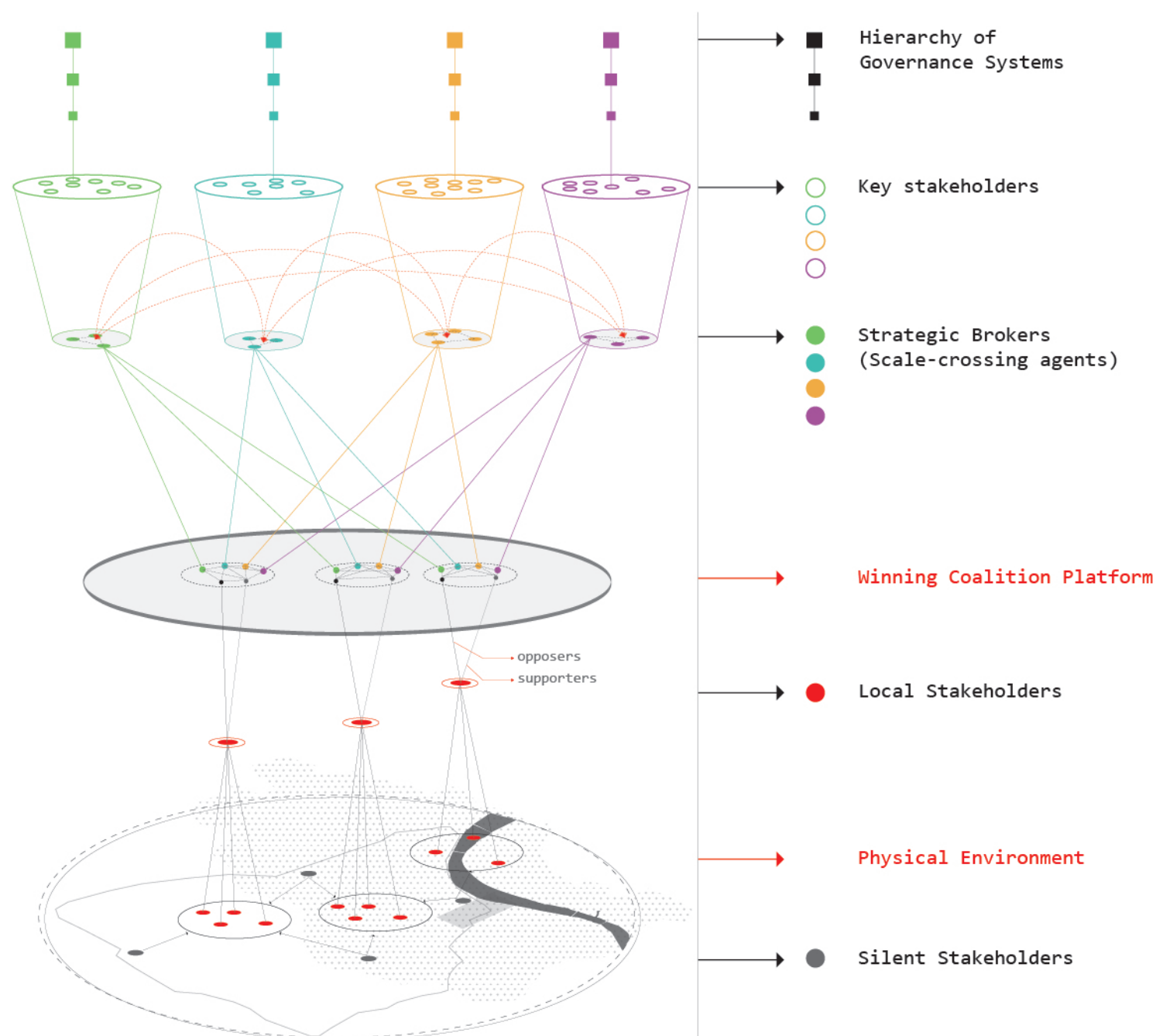
As discussed in Stakeholder engagement chapter, the project proposes the use of strategic brokers to form a middle ground for top down and bottoms up approach in Varanasi. Following this framework, strategic brokers and local stakeholders for Varuna river strategic location were identified.



The winning coalition platform which will be facilitated by Government strategic brokers will discuss the project outlines where information will be shared and considerations of local stakeholders will be noted for further improvement of projects. The strategic brokers will focus more on the opposers to understand what special considerations can be carried out in the design to make it completely participatory.

10.6 Conclusion

As explained in Chapter 9, the stakeholder engagement program follows a structured approach that aims at creating a middle ground for top-down and bottom-up approaches. Following the program in Chapter 10, different strategic brokers and local stakeholders were identified for the two strategic locations. This section explains the role of specific stakeholders in the program



Schematic diagram showing the stakeholder engagement program which proposes a winning coalition platform that links local stakeholders with strategic stakeholders
Image source: Author I Theory Source: (Ernstson et al, 2010)

1. Role of Varanasi Municipality and Varanasi Development Authority

Although strategic stakeholders play a vital role in the formulation of projects, there is a need for a facilitator whose interest and power can be used for effective discussions and outcomes within the winning coalition platform. Varanasi Municipality and Varanasi Development Authority whose interests focus on sustainable development of the city as well as the region play the role of facilitators in the winning coalition platform where the interests of strategic brokers, as well as local stakeholders, are taken into consideration in reaching an agreement and leading to project implementation. The two government bodies that function over different scales can together look into the development of the city as well as the region as Varanasi scaredscape. These Government bodies also act as the crucial bridge between higher levels of Governance system along with the key Government stakeholders from other sectors.

2. Institutions and Academicians in the Planning process

Varanasi's legacy in academics is evident from institutions like Banaras Hindu University, Mahatma Gandhi Kashi Vidyapeeth, Sampurnanand Sanskrit Vishwavidyalaya etc. which have been the source of education and culture over in this sacred land over for more than a hundred years. Lots of research has been done on the culture, tourism, demographics, music and landscape of Varanasi by many academicians and researchers from these auspicious institutions. The lack of participation of this knowledge into the planning process of Varanasi is a major drawback of the Government institutions. In this research project, the academicians and researchers play a pivotal role by acting as an advisory board to the facilitators as well as to the local stakeholders.

3. Supporters and Opposers amongst Local stakeholders

Through the involvement of identified local stakeholders, the engagement program imagines a participatory process in the planning and implementation of projects. The local stakeholders who are mostly the users of the city provide sensitive and specific details that need to be considered while developing strategies. The strategic brokers for specific locations along with the facilitators initiate discussion platforms at various stages of the project with local stakeholders who are grouped under supporters and opposers. The idea of the grouping is to give due importance to the consideration of opposers and to make necessary adjustments or compensations following discussions. The role of local stakeholders in this process is highly important as they reflect the socio-ecological systems of the scaredscape and are mostly the representatives for silent stakeholders

Strategizing, designing and testing through various scales, the implications of different projects on the overall development of Varanasi city was achieved in with the use of culture as its approach. Through strategic locations, the Vision was transformed into specific spatial interventions. Further detailing of these interventions was carried out through Zoom-ins, which were micro sites selected from these strategic locations.

The application of these design interventions that help in re-imagining these landscapes only take full shape when people and various stakeholders become a part of those specific culturally oriented projects. By creating a winning coalition platform to discuss and find solutions from stakeholders varying from the local scale to higher levels of governance welcomes a participatory planning process for the strategic locations. To activate certain projects and to invite investors and stakeholders, the following chapter discusses event engagement strategies which intent to trigger the developments as well as the phasing of projects. Section 11.2 will further explain on how the winning coalition platform acts as an implementation platform through the phasing of the projects.



Increasing pressure on the riverfront with floating population and deteriorating conditions of heritage structures, with lack of accessibility issues, are primary concerns of Varanasi Old city
Source: wmf.org/ Nicolas Chorier



Restoration of heritage structures with improved accessibility using monorail line that connects old city easily with other parts of the city with a focus to spread the floating population to other parts of the city becomes the major projects for the old city. Source: Author

11

Events & Phasing

With a cultural approach, phasing of projects have also cultural orientation where activities and use of people can only bring in these strategies into effect. Certain projects need some activation to initiate. With all these requirements to be satisfied, this chapter proposes certain events that can trigger the start of some culturally oriented projects in strategic zoom in sites. Phasing part that follows in this chapter explains the interconnectivity of projects and the time phasing of projects over 25 years.

11.1. Events

11.2. Phasing

11.1 Events

Specific events and engagement strategies are formulated that are culturally important to Varanasi. These events are intended to activate projects or involving community participation for its implementation. The main objective is to introduce projects for public attention and attracting investors. Some of the events are discussed in this section.



Organizing Team



Objective



Heritage Walk with Eminent Architects

E1



INTACH & Banaras Hindu University



Explore the heritage of Varanasi Old city for better documentation of its assets. Creating awareness amongst the dwellers the importance of the conservation of the old city.



Experience Panchakrosh Parikrama

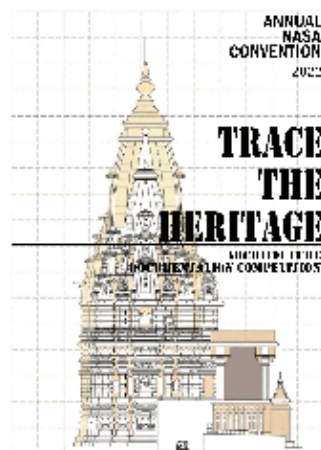
E2



Varanasi Hindu Associations
Ministry of Culture and Panchayats



Showcasing the cultural significance of Panchakrosh Pilgrimage path. It aims to initiate the development of the path as well as the five Halt locations.



Architecture Documentation Competition

E3



National Association of Student Architects (NASA)
INTACH* & Varanasi Municipality



Prepare detail documentation of Varanasi Old city to study and increase the chances for enlisting Varanasi amongst the UNESCO World Heritage Cities.

E4

Uttar Pradesh Cultural Fair

Ministries of Culture, Agriculture and Tourism
Varanasi Development Authority



The main objective of these cultural fair for Varanasi is to activating specific places close to Assi & Varuna river. These fair also aim in boosting the cultural economy thereby providing support to socio-cultural and rural people.



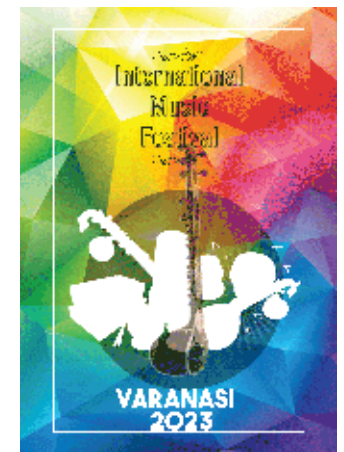
E5

International Music Festival

Ministry of Culture & Tourism
Music associations of Varanasi



A showcase of the exclusive music culture of Varanasi which is recognised as a UNESCO creative city in the category of Music. The event intends to gain worldwide attraction for including the city in the Heritage list of UNESCO.



E7

Plant a Sacred tree Campaign

NGO's** , Religious Organizations
Varanasi Municipality



Adding green to the city and creating awareness of the importance of nature and its relation to religion.



E8

Kite Festival

Ministry of Tourism



To create exclusive activity in the river corridor of Varuna.



Fig 11.1 (top) : www.artzolo.com by Bhuwan Silhare
(middle) : cdn.vectorstock.com by Olya Tropinina
(down) : Sonali Jaiswal (2018)

*Indian National Trust for Art and Cultural Heritage
**Non-Government Organization

11.2 Phasing

Phasing of different projects is spread over 25 years where the benchmark years are selected as years when Kumbh Mela and General Elections in India happen. The major reasons for the selection of these benchmarks are due to the conclusions that development projects in India speed up if it is related to religion as well as supported by political parties. Generally, development process speeds up in the last 2 years before the election. Other elections that happen at city scale and village scales can also be added for assessment of projects. General elections for Indian parliament are taken due to importance of Varanasi on a national scale.



**Kumbh
Mela**

In every 3 years



**General
Elections**

In every 5 years

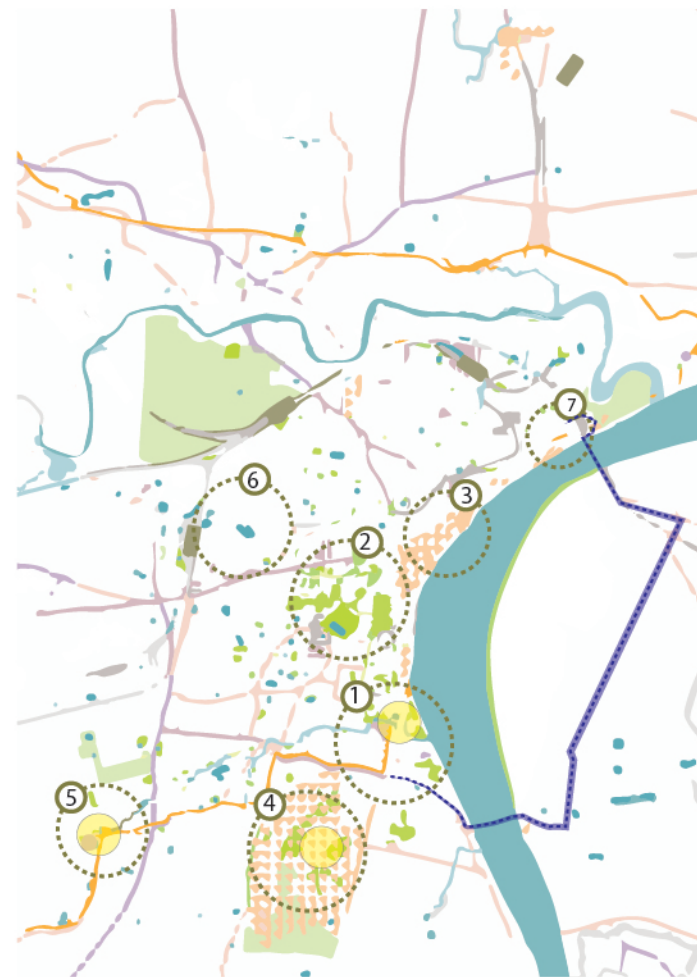
Engagement
Strategies

Projects
Phasing

The strategic design is initiated with developments along the ghats providing facilities for the Kumbh Mela which happens in 2021. The Urban forest that will be regained towards the south will be activated with the intension of providing temporary facilities during the time of Kumbh Mela, after which the place will be restored as Sacred Green for the city. Although there are many types of Kumbh Mela* that happens in different year intervals, the Kumbh Mela festivals that follow after the first 5 years are not crucial benchmarks for the phasing of projects.

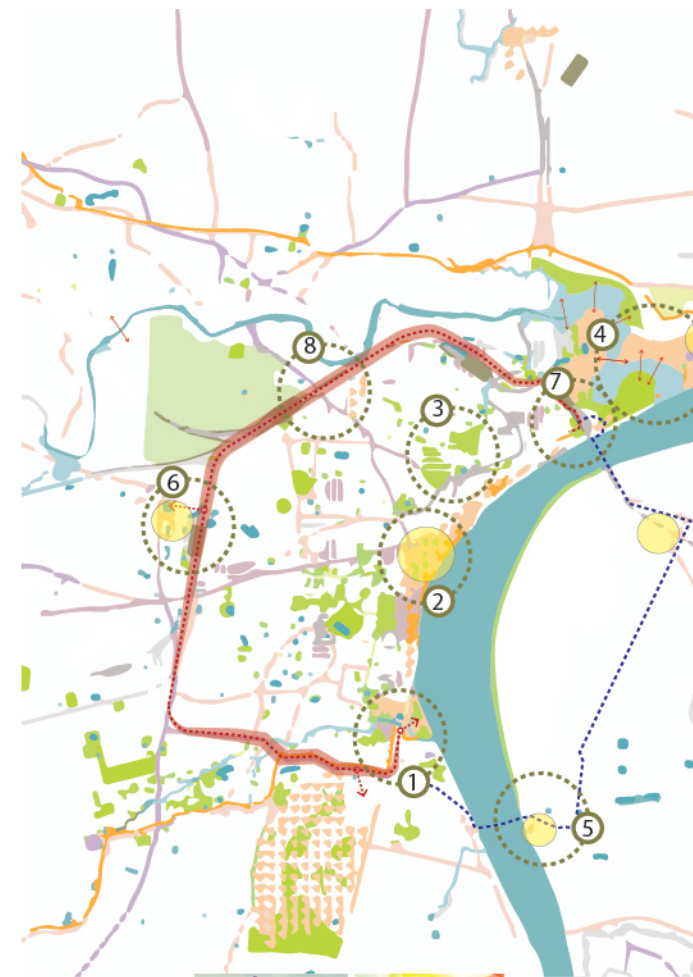
*Types of Kumbh Mela- Maha Kumbh Mela(144 years), Purna Kumbh Mela (12 years) & Ardh Kumbh Mela (6 years)

5 year
Short term Plan



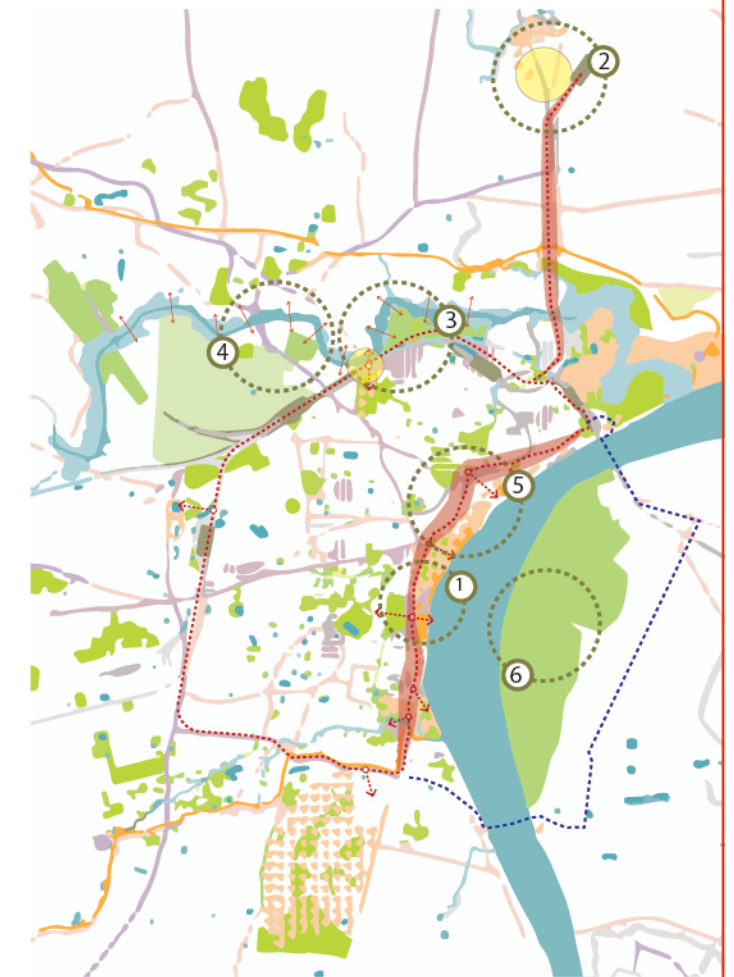
1. Badra Vana
Floating Ghats at Assi Region
South Transit Hub
(Supporting facilities for Kumbh Mela 2021)
2. Harikesha Vana
(Supporting Facilities for Kumbh Mela 2021)
3. Facilities along the Ghats
(Supporting Facilities for Kumbh Mela 2021 as well as for Pilgrimage path along the Ghats)
4. Zoning of Banaras Hindu University precinct as a Green zone for reviving the water shed of Assi River
5. Kardameshwara Halt Location
(Pilgrimage path and Halt location Development)
6. Restoration of various Kunds in City
7. North transit Station

10 year
Long term Plans

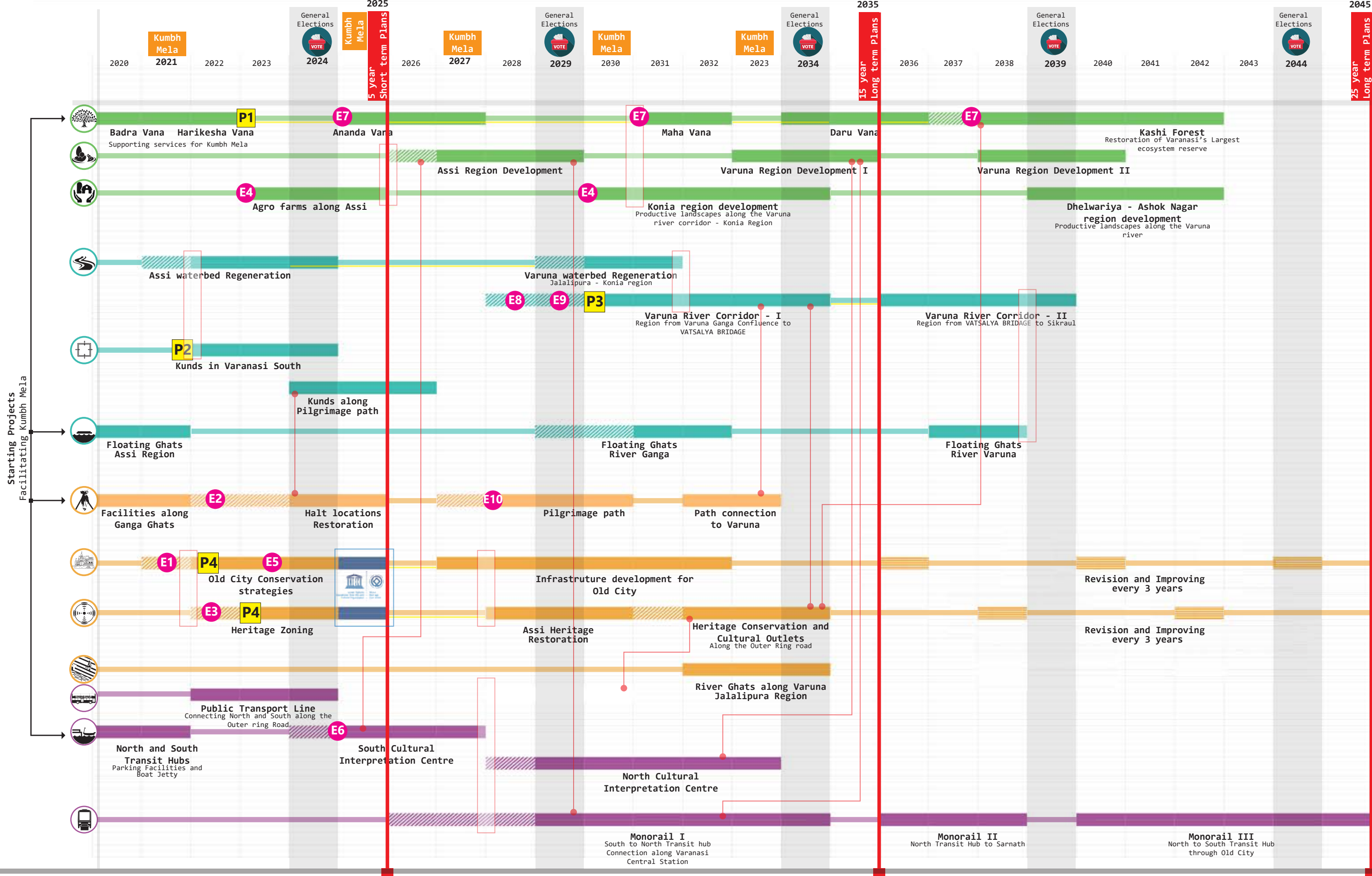


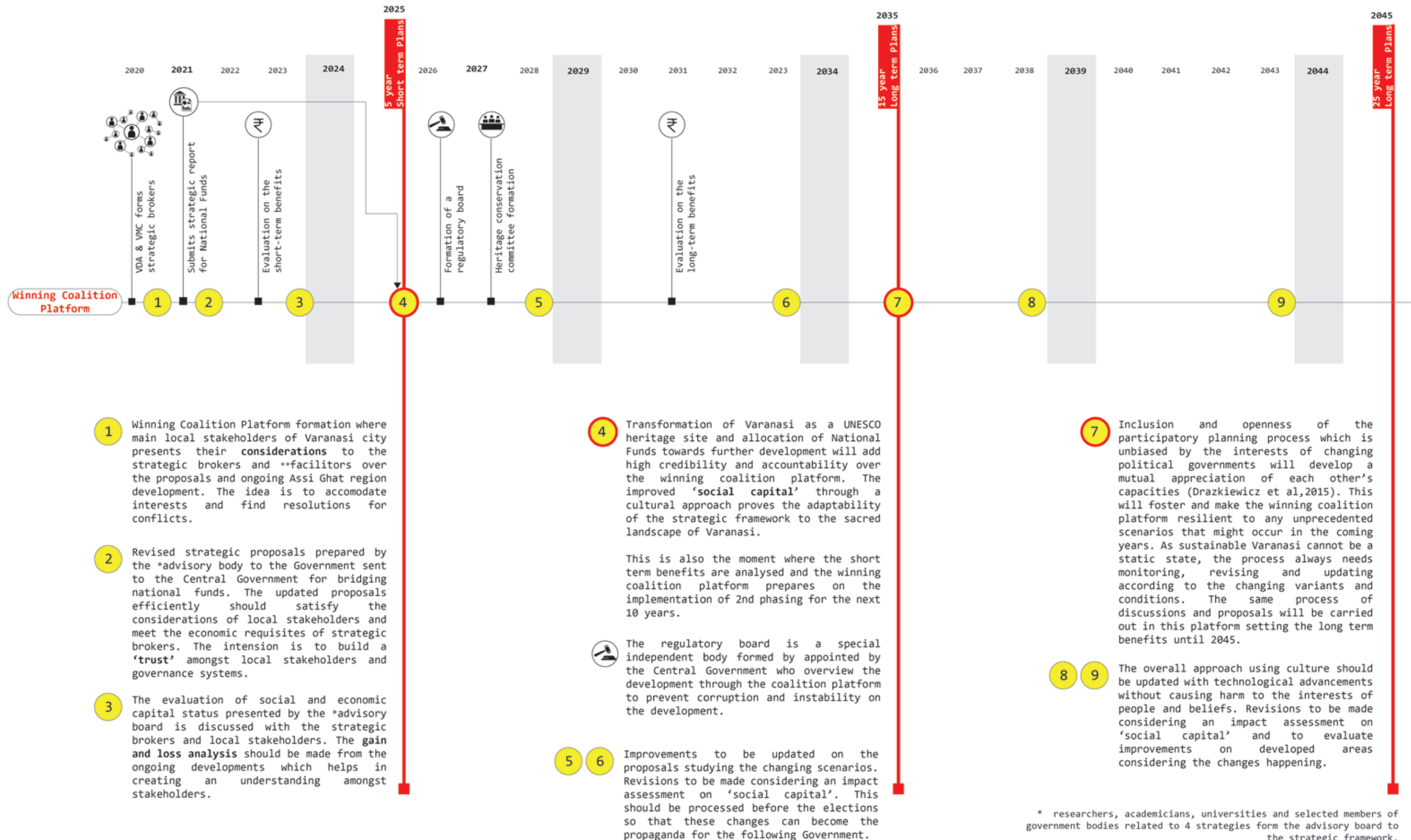
1. South Cultural Interpretation Centre
(Transformation of Assi South transit Hub into Southern cultural entry to the city)
2. Old City Restoration
3. Daru Vana
(Adding green belt along the dense northern part)
4. Maha Vana
Konia Region Development
(River corridor projects and productive landscapes along the edge of Varuna)
5. Heritage development along the outer ring road
6. Heritage development along the new Monorail Corridor
7. North Cultural Interpretation Centre
8. Monorail Phase 1
Along the existing line of infrastructure

25 year
Long term Plans





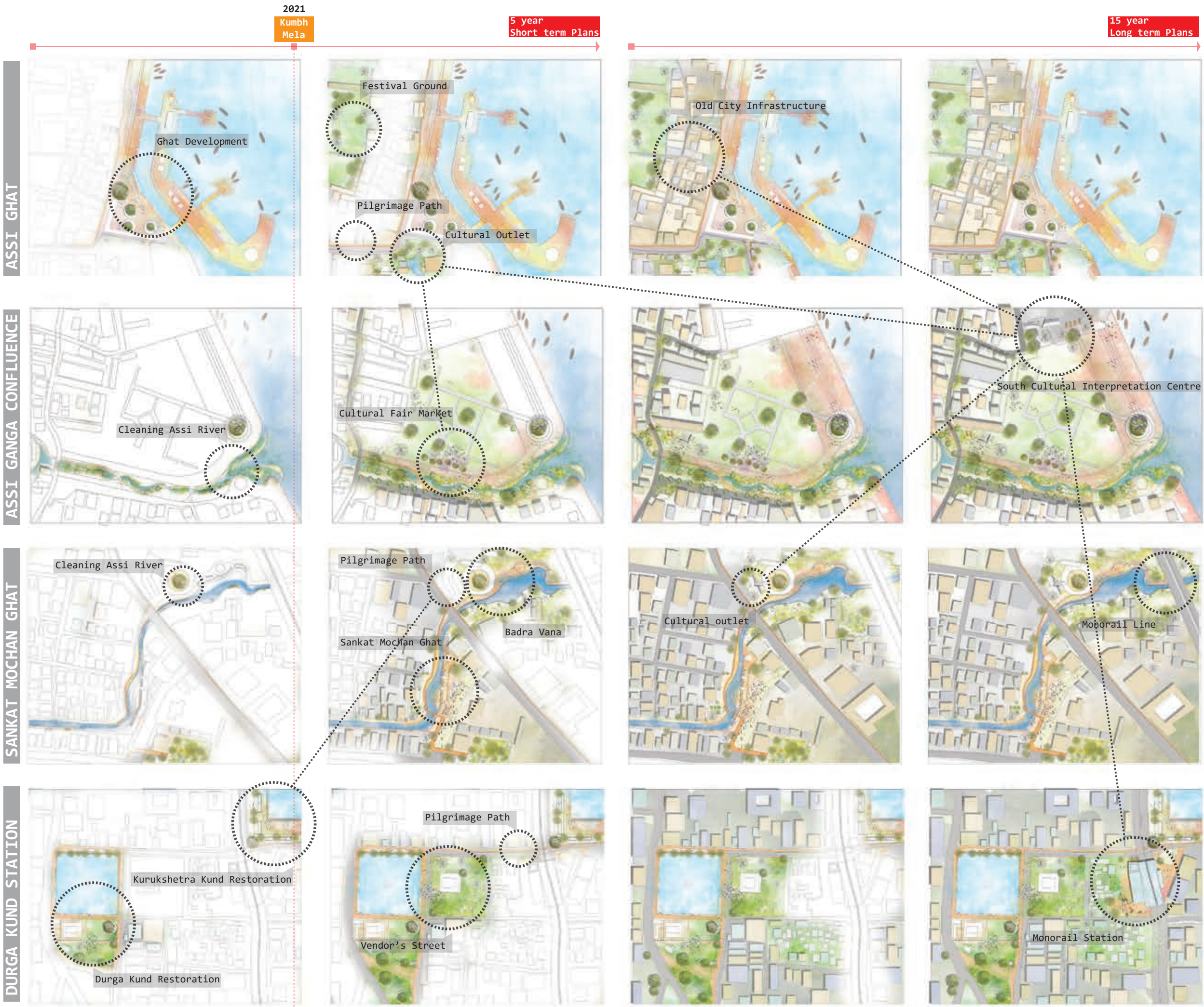
1. Floating Islands along the River edge of Ganga
2. Monorail Phase I
(Sarnath station development and monorail along the existing railway line connecting Sarnath heritage site and North Cultural Interpretation Centre)
3. Dhelawariya -Ashok Nagar Region Development
(Productive landscapes along the river edge and creating a cultural zone connecting Varuna river and Sankshiti University)
4. Varuna River Corridor Phase II
(Region from VATSALYA bridge to Sikraul)
5. Monorail Phase III
(Connecting North and South Cultural centers through Old City)
6. Kashi Forest





The strategic phasing of projects focus in its initial part at Assi region where the complete development of the location is expected to be completed in the first **15 years.**

-  Projects
-  Project Interconnectivity



12

Conclusions & Reflection

The chapter highlights the major conclusions by evaluating the process of the project. The chapter concludes with reflection on the project methodology, relevance, ethical considerations and limitations

- 12.1. Evaluations
- 12.2. Conclusions
- 12.3. Reflections

12.1 Evaluation

Throughout the project, the use of culture as an approach was found to be effective for urban regeneration in a sacred city like Varanasi. The strategies that were based on cultural concepts were the guiding principles for forming the vision for Varanasi. The scope and flexibility of strategies were tested in strategic locations and zoom in sites.

As explained in the conceptual framework in Chapter 4, the main research question of restoring socio-ecological synergies of Varanasi found definite answers with strategic solutions at the regional scale to zoom in locations.

With these findings, the project contributes to the scientific knowledge on how culture can be a guiding framework for not only urban regeneration but also explicitly for restoring the socio-ecological synergies of cultural cities.

Fig 12.1: Design across scales
Source: Author



12.2 Conclusions

This section explains about the conclusions that have been derived out of this research project. Transferability of the design, as well as opportunities for further research, are being discussed in these conclusions



Fig 12.2: Sacred cities in India
Source: Author

1. Transferability of Cultural Approach

Cultural approach for planning 'Imaginary Territories'

Use of culture as an approach was the most intriguing part of this research where the learning curve about the sacred landscape of Varanasi provided a diversity of sustainable solutions to most of the 'what' and 'how' questions of my research. Looking outward, the process that the research outlined for understanding this cultural landscape is the most significant part of this research that can be adapted to other sacred-cultural landscapes.

Examples of Transferability

Evaluating the above process in other sacred cities, and in other religions gives indications possibilities of transferability of the cultural approach. This chapter highlights 4 examples to show the transferability of design to other Hindu sacred cities and beyond.

2. Sacredscapes to Cultural Landscapes (Further Research)

The use of the term cultural landscapes has been problematic and contradictory for various disciplines. (Jones, 2003) But more than that, the notion of how it is referred over time, geographies and the various institution has increased the complexity of understanding cultural landscapes. Defined by religious concepts, sacredscapes are a kind of cultural landscapes that has a very strong socio-cultural layer that has been the cause for the existence of these unique landscapes over centuries. The idea of reading sacredscapes as a cultural landscape opens up various concepts and propositions that prove the practical applicability of culture as an approach to other cities of the world.

3. Middle Ground to Planning Process in India

The strategic framework derives a winning coalition platform where the key stakeholders engage with local stakeholders who are primarily the major users of the space. The potentiality of this stakeholder engagement process is that it finds a middle ground for bottoms up and top-down approaches that can be adapted, evaluated and refined for planning process connecting different levels of governance in India.

4. Urban-Rural Sustainable Practices (Further Research)

There is numerous research that is happening on that looks into the rural and urban areas for bridging sustainable development of both. But in research for understanding the flows of rural and urban regions, the striking opportunity that formulated some of my strategies was also the adaptation of certain cultural practices that have been the part of either the tradition or lifestyle of rural and urban people. Extracting the sustainable practices out of both, mainly supported in generating economy for the rural areas and preserving the ecology in the urban areas. There is much more to be defined and researched on how to use these practices in a systematic way that these can be used as a toolbox of design interventions that provides not only development but also looks into the possibilities of generating a circular economy linking the urban and rural regions.

1. Transferability of Design

Planning 'Imaginary sacredscapes'

Sacredscapes are defined by the landscape(nature, built, unbuilt etc) with the moral meaning of religion and mythology forming a layer of imaginary territory around the scape (Singh,1995). For planning and design, the important process is to translate these imaginary boundaries into territories that are defined by nature and human systems without compromising on any loss of cultural assets. It is important to see these sacredscapes as a single organism that has existed due to its complexities of natural and godly phenomena passed on from mythologies to the modern world. To access and plan for such an intriguing and sensitive landscape, there is a need to follow a specific process that decodes the interrelationships of all elements (living & non-living, tangible and intangible) that forms the microbial atoms of this complex system.

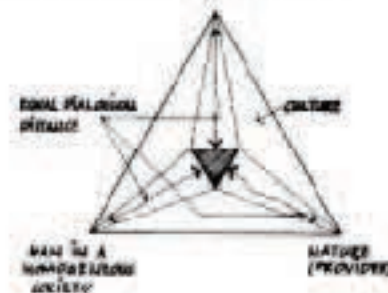
Fig 12.2: Five Step Process for transferability of Design



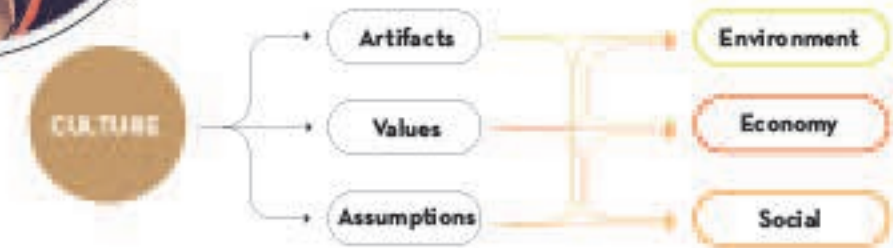
1 Spatial transformation of the imaginary sacred boundary defined by myths, religion and history into tangible interrelationships between land, water and religion that forms the 'sacred geography'.



2 The realistic value of the sacred geography is defined by human relationships with nature and its elements that have been either derived through mythology, beliefs or by socio-religious organizations. Identification of the 'socio-ecological systems' is the key concept of this step



3 Following the theoretical framework used in this project, culture is a complex phenomenon to be measured or analysed. For attaining cultural sustainability, it is important to segregate and analyse culture as artifacts, values and assumptions and their interactions with the 3 pillars of sustainability



4 For a cultural approach, the underlying concept is that the place along with its people inherits the culture of any sacredscape. It is important to understand the role of different socio-cultural, ethnic and religious groups in the cultural landscape.



5 The sacred landscape defined by religious and social boundaries needs a cultural vision. The process of vision making eventually gets derived from the conclusions from the early steps. The spatial and social strategies that support the vision helps in reimagining this landscape as a sacredscape

Sources : (1,2,3,4) dribbble.com & behance.com / ranganath kishnamani
(4) dribbble.com/asiwinmenon & (5) artstation.com

Mathura, India Braj Sacredscape, Hindu Religion

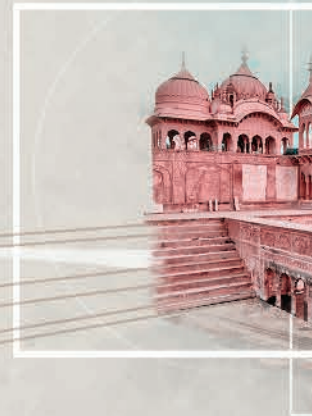
The sacred landscape of Braj which is located 150 km away from the capital city of India, New Delhi is believed to be a sacred place associated with Lord Krishna, one among the 10 avatars of Lord Vishnu. The sacred landscape is located in Uttar Pradesh with its focus on two main cities, Mathura and Vrindavan. The religious importance for this sacred geography is the circumambulatory pilgrimage which covers a distance of 300km known as the Braj-yatra. The route is composed of 73 sacred places which include 12 sacred forests and 36 kunds (Shinde,2010).

Apart from urbanization impacts, the city is facing negligence and political conflicts that are breaking down the sacred identity of this region. A similar cultural approach aiming for regeneration of this dying cultural layer and a cultural vision can help in reviving this landscape into a sacredscape that preserves not only the social structure but also the ecological quality of this landscape.



Cultural Assets

Cultural artifacts, values and the assumptions of this sacred land associated with the life of Lord Krishna are defining assets of these cities that must be considered for any further development



VRINDAVAN

River Yamuna

Human-Nature Relations

Pilgrims urge to experience the land of Lord Krishna as described in mythological texts

Sacred Geography

The sacred territory formed by the river Yamuna, the landscape and the holy cities of Mathura, Vrindavan, Govardhan etc.



MATHURA



Culture and its Actors

The sacred identity of this landscape has remained intact due to sacred performances, rituals and lifestyles of people and generations over the years



This sacred land located by the river Sarayu, where the agricultural landscape of Yamathara Manjha represents a boat-shaped figure which is eulogized as a symbolic representation of ship made by Manu (first human progenitor of mankind according to Hindu mythology) for saving life at the time of mythic dissolution-flood on the earth surface. (Kumar, 2017)

Although highly recognised as a Hindu sacredspace, this land has distinct traditions for Jainism, Buddhism and Islam. Archaeological findings prove that the city has been continuously settled since ca 1000 BCE (Kumar, 2017)

The site has always remained as sacred for Hindu devotees for pilgrimage and taking Holy baths in Sarayu river. The land is also famous for various festivals that attract a large number of floating population into the city every year

AYODHYA

River Sarayu

Human Nature Relations

Lhasa in the ethnic legends is glorified as the 'Land of Gods' (Larsen, et al, 2001). Being the ancient capital of Tibet, it is a most traditional city living with impressive architecture that explains the lifestyle of the people who have occupied this higher land over centuries.

Sacred Geography

The territory that is fringed by the mighty Himalayas, with the Kyichu River flowing across makes this oasis of land on the Tibetan plateau a pure sacred site for Tibetan Buddhists.

Cultural Assets

The ethnic people living on the Qinghai-Tibet Plateau mostly influenced by the ancient Bon religion and Tibetan Buddhism with their unique lifestyle and customs form the basis of the culture of this sacred city.



The Himalayas

Kyichu River



Lhasa in Tibet is one of the highest altitude cities of the world situated at 3600 m above sea level. Lhasa is the capital of Tibet Autonomous Region which is almost an oasis amid the large stretch of mountains on the Tibetan plateau which is drained by the Kyichu River. The Tibetan King, Songtsän Gampo adopted Buddhism as the official religion of Lhasa, when Hinduism was sweeping away Buddhism in India where it originated (Landon, 1978).

2. Sacredscapes to Cultural landscapes

Sacredscapes although defined by imaginary concepts of territories, human practices have decoded the sacredness in a tangible landscape where the culture has been the code. Although religion is the main variant that defines the sacredness, human perception has broadened from religion to lifestyle, values, ethics, perceptions and considerations which becomes more cultural to the entire landscape.

In India, sacred cities have been mostly studied following Vidyarthi (1961) model where he defines the sacredness of a pilgrimage site is the interaction between sacred geography, sacred specialists and sacred performances (Shinde, 2010). A lot of focus has been given socially and economically to the latter two aspects, and the landscape often remains unidentified. The further territorial divisions of this landscape into various governmental boundaries under various jurisdictions of varying political interest becomes an added conflict in re-imagining this sacred landscape into its past glory. This research project focused on creating a strategic framework that projected the sacred geography as a sacred landscape with the sensible placing of layers of extracted culture in the environment, society and economy for proposing a holistic design. An effective stakeholder engagement program was also proposed as a part of the framework for resolving territorial conflicts and social differences. Considering sacredscapes as a cultural landscape, can this approach be extended to other landscapes outside the spectrum of religion?

As explained in the transferability of the design section, the applicability of the cultural approach used in this project can be practical to other sacred cities of the country and outside. But looking a step ahead, there are similar opportunities of using some of these concepts into re-imagining other cultural landscapes. But what are cultural landscapes?

A cultural landscape is an integrated complex of cultural and natural resources, whose physical qualities as well as social relationships and traditions define the quality of the landscape (Shackley, 2001).

The term cultural landscapes gained importance when UNESCO replaced the category 'mixed sites' in World Heritage List to cultural landscapes in the 1990s (Shackley, 2001). Further on many researchers and organizations have classified these cultural landscapes into various categories based on its associations with religion, art and natural resources. But as I explained in my previous chapters, there has been a knowledge gap on how to re imagine or regenerate these landscapes using planning principles. Although I have conclusions for a cultural approach for sacredscapes, some of the outcomes can be easily used for further research on other categories of the cultural landscape.



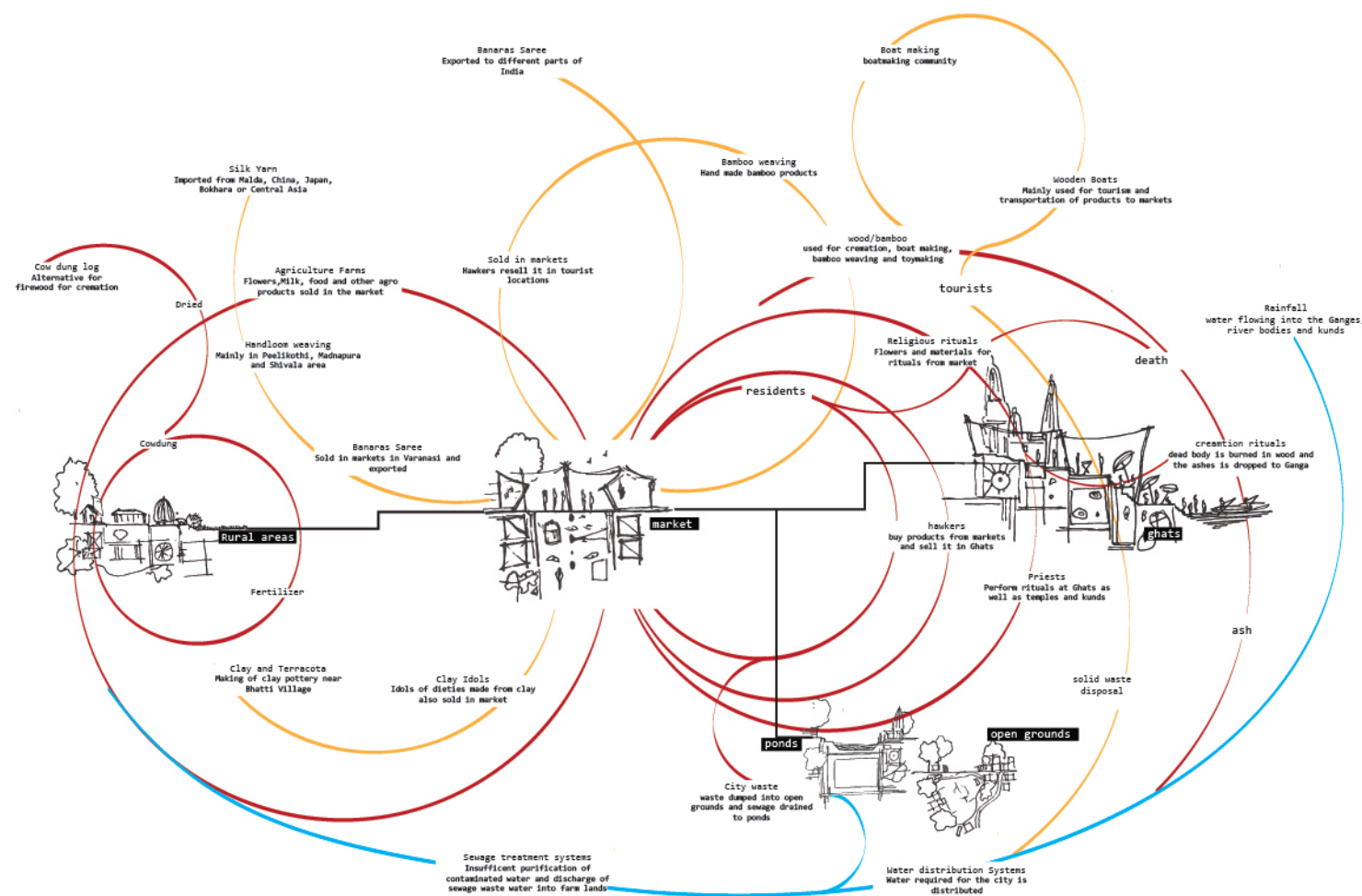
Fig 12.3: How to plan a vision for regenerating a cultural landscapes? The above Vision map for 2031 by Varanasi Municipality shows land use and infrastructural development but lacks the cultural assets. The map below as proposed in the vision of this project shows the cultural assets and proposals that intend to re-imagine the sacred landscape. Source (Right): Varanasi Development Authority (Left) : Author

From my conclusions and findings, I mainly reflect on 2 concepts that can be adapted for the planning of cultural landscapes. Firstly, through sustainable practices, we promise to provide a better world for generations to follow. But what we also need is ways of re-imagining these cultural landscapes that have kept the identity as not just a landscape but also about generations and the history that survives. Now this concept should not completely be confused with heritage. According to Singh, the concept of heritage is more about creating a notion of sense and accessibility of symbol or tradition that has its roots in the historical past either associated with nature or human craftsmanship (Singh,2011). Heritage conservation and practices can act as a strong tool for re-imagining these cultural landscapes but for a holistic approach, it needs a much broader perspective on looking at the landscape, its flows and interrelationships with its users and considering all the tangible and intangible assets that define the identity of the cultural landscape.

Secondly, more than any land use or vision plans, cultural landscapes firstly require a 'narrative cultural mapping' that explains all about its culture, human nature relationships and resources. It is important to place this as the main base layer in planning process to avoid conflicts of any development projects with these cultural assets and also to understand the opportunities that are hidden in this cultural mapping.

The participatory planning process has been rhetorically discussed over platforms in India over decades but in reality, the presence of participatory planning has only remained in remote areas or low levels of governance jurisdiction like panchayats. In India, some of the major problems being the applicability of such an approach with huge populations, the rationality of political interests and inequality of the society. But, as explained in previous chapters, for a sacredscape, the identity of these landscapes are defined by not only the place but also the people and their culture that completes the identity. In this context, the project demanded a participatory process to uphold the socio-ecological quality of this sacredscape. The research led to the establishment of a winning coalition platform in the design process which connected the top down and bottoms up approaches. This middle ground acts as a discussion cum evaluation forum where the risk assessment, considerations as well as compensations were finalized. The forum consisted of identified local stakeholders who hold a strong social connection with the physical environment and strategic brokers who were key stakeholders identified at regional and city scale. This form of the participatory process can be effective in reaching to an agreement where the interests of different social groups and dwellers are considered in regeneration projects.

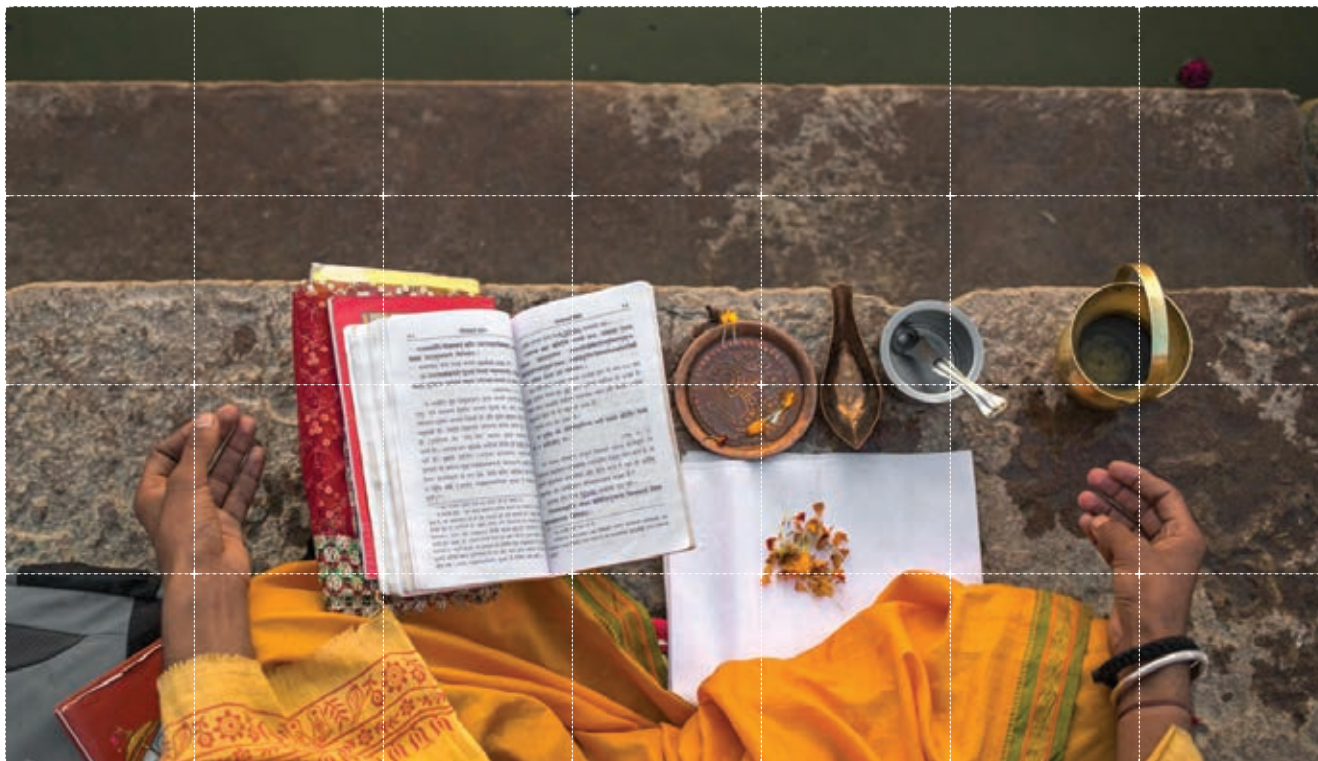
The flexibility of using this platform in not only a decision making, but also in revising the updating for long term benefits that builds a trust amongst the stakeholders is what makes this stakeholder engagement program more adaptable. In Chapter 11.2, this research explains how this middle ground can support in increasing the social capital of the city, specially in an urban regeneration process that uses culture as an approach.



In the research that included regional scale connecting rural areas around the city of Varanasi highlighted many sustainable and circular economy practices that can be adapted to city regeneration programs. As explained in Chapter 6, studying the flow of the same materials in an urban and rural context explained the differences in sustainability practices. For example, the cow dung that was produced in rural areas were used as agriculture manure as well as dry dung fuel that is used for cooking and can be even used for cremation, an alternative for wood. Whereas, the same cow dung in cities are washed to the storm water pipes where it leads to water pollution. Many examples were seen analyzing urban practices with the traditional rural lifestyle. This opens up a possibility for further research on how these rural practices can be adapted as a part of urban regeneration in a process where it can also yield an economy for the rural areas.

12.3 Reflection

*"Kashi: thou of many names, many glories, philic and phobic both.
Banaras: where the juice is ready every time, yet people thirst all the time.
Varanasi: city between Varuna and Asi rivers, where people enjoy the flowing sewers.
Kashi: known as City of Light, also of delight and plight.
Smasana: the city of burning corpses, making the pits of garbage-ashes.
Jnanavapi: where the well of wisdom lies, however always the rumour flies
Holy Tirtha: the city of the divine realm, now changing to the devil's helm.
The adobe of Vishweshwara - Lord of the Universe, where the people are diverse.
Here Police inspector Bhairava lies, but all the time people weep!
Annapurna assures for giving alms, however, the dwellers enjoy hemp!
Ganesh watches the deeds as a witness, who can measure people's dullness!
This is Shiva's 'Forest of Bliss' yet the motto is to kill and kiss!
The following Ganga calls for eternity, worshippers follow the path of disparity!
Good and bad: both the apexes everywhere, one is free to march anywhere
O Kashi: Bowing we thy personality, bliss and wish for our stability"
-- Rana P B Singh (2009)*



Varanasi is where the spirit of the place and the valuation of the human environment are deeply rooted and maintained by means of sacred ways which is reflected in layers of religious practices and spatial use. But to brief what this landscape has become over the past years is as quoted above from the book Banaras: Making of India's heritage city (Singh,2009). It has become a land of contradictions and paradoxes where the sacred and profane co-exist. Varanasi (Banaras/ Kashi) is a unique identity as the most sacred city for Hindus with historical data that relates to it being one of the oldest cities of the world. My graduation project is a quest into the religious setting, the historical data, the ecological pattern and the socio-spatial structure that kept the cultural identity of this land intact over the centuries.

Source: [toehold.in/Rajiv Shyamsundar](https://toehold.in/Rajiv-Shyamsundar)

Ethical Considerations

The Hindu way of living has high respect for nature. This creates a synergy amongst humans and nature. Over the years, this same ideology has completely shifted the concept of humans from co-existence with nature to consumerism. Ganga river completes the holiness of Varanasi, now exists as a physically polluted moral purifier. Human minds of the present generation have now been used to worshipping polluted Ganga river to an extent that they fail to see the line that separates the impure and the polluted. It is sad to come to the realization that these contradictions are the driving elements that draw tourists to this holy city to see how the sacred and profane co-exist harming nature. As an urbanist, after experiencing what Varanasi is, the dilemma disturbs my mind that how can a city with century-old culture be placed back in its past glory? Can the culture of Varanasi not only bring enlightenment for the Sadhus (Hindu monks) but help the city reach the state of balance between human and nature? Hence **respecting the religious and cultural beliefs of people of Varanasi** becomes the major ethical consideration of this research project. The mythological aspects are not scientifically studied and questioned as nevertheless it is accepted belief of millions of people. This research understands the complexities of issues involved in Varanasi and the time frame limits the study focus on immediate and important dimensions for analysis. Hence the intentions through this research is not to bring in a complete revelation of the Hindu mythology, but to **understand the values and to uphold the cultural identity** that has been the heritage of the city.

Being a Hindu myself, I will completely agree to the present exploitation of the platform of religion with misinterpreted religious literature and known mythology for personal and economic benefits where nature or its elements is never a consideration. How did one of nature-friendly religion like Hinduism reach this stage of ecological exploitation? This question leads to the second ethical consideration where the study is focused around **nature and human relationship** with religion as a vector. The intension of this research project is not to produce a new approach of interventions or design a complex program for human-nature relationship, rather understanding in depth the connections in socio-ecological synergies for improving adaptability and resilience.

Understanding the ethical considerations of this sacred religion and culture shaped my graduation project. My focus was on the contradictions and paradoxes that revolved around the spatial and social dimensions of the city that had strong links with the ecological system. After researching about the essence of the city and the religion, the important aspect was not place myself as a complete designer or planner but to **become a student of learning** what and how 'Varanasi' was? Understanding not only the traditions but the science behind the formulation and acceptance of religious practices motivated me to explicitly use culture as an approach to my graduation project.

Scientific and Societal Relevance

As the cultural capital of India, Varanasi has been researched by academicians, students, and planners over the years. The literature reviews and fieldwork gave me the insights that this sacred land possess deep knowledge in not only the physical environment but even from everyday life.

Over the years, culture has become a relevant topic to urban planners and designers around the globe with its addition as a fourth pillar of sustainability. Through my graduation project, I attempt to understand Varanasi as a living organism with a diversity of cultural and traditional practices that are old, but sustainable which becomes the guiding principles for my strategic framework. Many literatures and city manifestos around the world have adapted culture in promoting tourism, landscape regeneration and community development, but the planning discipline lack an explicit knowledge on how culture can be used as the underlying concept for formulating vision and strategies in a systematic way. The methodology of this project adapted a structural framework which **deciphered the applicability of ‘culture’ as an approach** for urban regeneration. The project provides a practical method to link the complexity of culture into the planning domain for sustainable development, where it tries to achieve some of the Sustainable Development Goals (SDG’s) This can be an additional contribution to the initiation of using Culture for Sustainable Development (UNESCO,2016).



Related SDG’s to the strategies proposed (UNESCO,2019)

Although sustainability and inclusion are globally accepted goals, Indian cities are far away from achieving these as many cities even lack basic facilities for all. This project gives importance to social and cultural dimensions in the urbanization process for a long-term solution for keeping these cities resilient from losing its cultural identity. In a city like Varanasi, there is a high influence of societal factors on spaces. The role of governance in planning and participation of local stakeholders to form a holistic cultural design was the integral part of the vision. The outcomes that formed various cultural layers of strategies for Varanasi connected the design and planning of macro and micro scales through scale crossing brokers.

The strategic framework derives a winning coalition platform where the key stakeholders engage with local stakeholders who are primarily the major users of the space. The potentiality of this stakeholder engagement process is that it finds **a middle ground for bottom-up and top-down approaches** that can be adopted in many parts of the country.

Another significant scientific contribution of this project is the **transferability of the design process** to other sacred cities (Fig 12.2). Other sacred cities that hold a strong link between religion and environment can adapt the cultural approach for reviving the socio-ecological systems. The project concludes with a five-step process that can be adapted to not only sacredscapes but also to cultural landscapes in achieving cultural sustainability. It can be seen from the report that cultural approach does not imply old and outdated way of planning. Rather, the approach investigates the context studying the cultural past and the present following which the design for Varanasi **adapts sustainable cultural concepts** that brings in the holistic development for improving the quality of life also. The project also imagines the rural areas as hinterland that enhance the socio-ecological systems of Varanasi. Hence, it addresses the regional development through pilgrimage path design as a connecting corridor between urban and rural. This concept of linking the entire region in the visioning process through cultural dimensions can bring in sustainable developments causing less environmental damage over a long term.

Methodology

The research on Varanasi that was supported by the theoretical and analytical framework provided an overview of the complexity that existed with various spatial and social systems. Further on, the religious dimension that over arched the physical setting with cosmological and anthropogenic setting making Varanasi as not just a place, but as a sacred territory that is the “Kashi Kshetra ‘’. This was the crucial point to my graduation project where it was an understanding of the changes happening to Varanasi as a sacredscape and hence the title ‘Changing sacredscapes’.

The aim of the project was to restore the social and ecological systems as these layers formed the basis of the cultural essence of Varanasi. The analytical framework uses three variants which are land, water and religion for investigating the changes that have been happening to Varanasi. The theoretical research focused on religion and culture and how culture could be used as an approach in creating a balance between human and nature. As explained in my ethical considerations, culture is not a separate layer, rather it is formed by an interlinking spectrum between social, ecological, economic and political layers of Varanasi. Varanasi has always been rich in ecological and social capital, all that it required was to restore and regenerate what the city possessed.

Although complex, decoding the cultural links and patterns was the key to my graduation project. Application of culture in a strategic framework was confusing, but the outcome to the cultural concept took final shape when I could visualize the changes happening during my fieldwork. The value-based design could easily explain this phenomenon as how culture as an approach, could bring in urban regeneration for a city like Varanasi. The knowledge gained from the Dutch approach to Urbanism from TU Delft and my internship at Veldacademie gave me the motivation as an urbanist to not only plan for achieving physical and social capital but to aim for values that shape the quality of life. Enlightening discussions and interviews with various individuals at my fieldwork helped me in understanding the interrelationships between different users in a cultural approach. I was lucky enough to finish my fieldwork before the pandemic lock down and get back safe to Delft to complete my research. Beyond my graduation research, visiting Varanasi was a lifetime experience. It was fascinating to see how a world with a traditional unique lifestyle existed parallelly to busy worlds of urbanization.

Data Collection

Many scholars and travelers have written about Varanasi for many years as it has been the center of culture in India. Although many of these literatures transferred a diverse and interesting visualization of Varanasi in my mind, the feel of experiencing and expectations of this sacred city was completely beyond imagination. The research faced less scarcity of data in understanding the cultural and social dimensions of Varanasi. But for completing a coherent and practical planning process, it is very important to spatially examine the region. The mapping in this thesis mostly relied on data that was provided by Municipality of Varanasi and policy reports by INTACH (2016), CRISIL (2015) and Ernst & Young Pvt Ltd. (2009). Various literatures written by Rana P B Singh of Banaras Hindu University was highly useful in having an urbanist perspective on Varanasi. According to the Gospel of Sri Ramakrishna, hearing about Varanasi is different from what one would read about the city. He also adds that seeing Varanasi is completely different from what one had read or heard about the city (Ramakrishna & Math, 1942). Visiting and experiencing Varanasi as a part of my fieldwork was beyond the data I collected during my desk analysis. Enough knowledge on Hindi language was helpful in carrying out conversations and interviews during the fieldwork formed a major part of data for this research.

Relation with Graduation Studio

I have always been curious about knowing and experiencing places which have much more to tell from the past. When sustainability speaks about future generations, I always believe there is a need to preserve and learn from what has been left by our ancestors. My quest to understand such unique spaces was the motivation for choosing an architecture bachelors graduation project about a Tibetan

settlement in the Northeastern part of India. Now again, I am being given a bigger opportunity through my graduation studio to explore and understand another unique city like Varanasi. Planning complex cities studio has a wide knowledge in spatial planning, strategic designing and stakeholder engagement. It highly focuses on the socio-spatial relationship in reading the real essence of spaces through the scales. The focus of complex cities on the global south with expertise in governance and spatial conditions of this geographical region has highly helped in placing myself in reading the conditions through various lenses of research.

The studio examines your skill and persuades you to be more innovative and challenging in developing a unique approach and methodology for the project. In the case of Varanasi, this platform along with my desire to explore the past has been the crucial factor that formed the backbone of my project. The continuous cycle of data collection, analysis and design have helped in producing finer products for my project. Pursuing the urbanism course at Delft University of Technology has opened wide the spectrum of questioning ‘what’ and urging answers to find ‘how’. Through this research project, I don’t intend to produce a new approach to intervention or design to the complex systems of human-nature relationship, but I create in-depth connections between them so that this project could help in providing methods for improved adaptation and resilience.



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Cultural sustainability as an approach

Role of culture in creating an analytical framework for sustainable development

Abstract

Countries all around the globe are facing challenges such as climate change, increasing urban population, growing inequalities, pollution etc. and the planning systems and policy domains have placed its concern for future as the central topic responding to these challenges. Achieving sustainable development has been the general agenda for all countries, mainly developing countries over the years. Culture and sustainability have been widely discussed across different policies and disciplines over the last few years after it was recognized as the fourth pillar of sustainability. The idea of cultural sustainability has been debated through various works of literature as an independent aspect which exists parallel to the other three pillars of sustainability as well as an inclusive concept within economic, environmental and social sustainability. Although culture being a relevant topic to urban planners and designers, there is a lack of knowledge in which culture is used and implemented as a planning approach in a systematic way. My graduation project on proposing a spatial strategic framework for sacredscapes in India, focusing on Varanasi has adopted cultural sustainability approach in which the concepts connecting culture and sustainability will be used as a guiding tool for sustainable development.

Keywords

Culture, sustainability, cultural sustainability, sacredscapes, indicators, Varanasi

1. Introduction

The world is urbanizing at a faster rate than ever with changing societies and reshaping the needs for the present as well as for the future. With this paradigm shift, the cultural dimensions are evolving with new concepts which are in turn affecting the domains in which sustainability can be achieved. However, there will be no sustainable future for any cities without understanding the power of culture that can address all the social needs of the people of the city for a better living environment. (UNESCO, 2016) But what is the role of culture in sustainability? The goal of achieving a sustainable future has taken up different approaches and methods over the years. Over the past half-decade, culture has become a widely discussed topic amongst policymakers, academicians and researchers. Culture, being a complex phenomenon has been broken down into tangible and intangible components using different indicators for understanding cultural components in depth. Understanding the concepts of culture has opened up a new spectrum of policies and practices for achieving economic, environmental and social sustainability(Abram,2016) Although it is widely debated and discussed across various forums and planning policies, there is a lack of knowledge in which culture could be used as an approach in a practical as well as systematic way for achieving sustainability. How can culture be used as an approach to bridging the three pillars of sustainability? What is the link between culture and sustainability? What are the implications of culture on economic, social and environmental aspects of sustainability? These are complex questions as culture is an evolving phenomenon, the meaning of which changes across cities, landscapes and people. Even though, through my graduation project, I use culture as a methodological approach for analysis as well as proposing a strategic spatial framework for reviving socio-ecological systems of Varanasi. Viewing culture as a process rather than a product helps in understanding the changing conditions due to rapid urbanization by comparing it with its evolution over the years. Culturally rich assets on one side and growing slum populations on another side tells two different stories of Varanasi, which is thriving for development. Understanding the link between culture and sustainability in the planning process could help me in proposing a strategic framework for not only Varanasi but for other sacred cities of the country. This paper explains the steps which can be used in the application of culture as a methodological approach to the urbanization process. The first part of this paper explains the steps involved, following which I try to explain in detail each step that has been used for my graduation research. Through this paper, I intend to conclude with the method in finding the relationship between culture and sustainability in a systematic way for a particular context referring to various works of literature.

2. Setting the framework

The integration of sustainability and culture into the planning process is a highly favoured concept by researchers and policy-makers which usually requires frameworks and methods as the two are complex phenomena with a wide range of interpretations in different contexts. These challenges create different perspectives for a culture where usually it is seen as just a way of living for specific groups or as an asset for cultural activities or as a layer of promotion of arts and ethnicities or as protection of heritage in the policy making process. These challenges arise mainly due four main reasons; first, there is a lack of understanding about the aims and goals of 'sustainability' worldwide; secondly, culture being a complex term adds extra complexity to the vague notion of sustainability; thirdly, culture exist independently as well as within the 3 pillars of sustainability lacking clarity of expression and finally the perspectives of culture is highly contextual. (Soini & Dessein, 2016; Nadarajah & Yamamoto, 2007) Due to these complexities, I derived 3 important steps for my research methodology for the use of culture as an approach for sustainable development. These steps helped me in understanding the importance of the use of culture as not only as a methodological approach but also for the better analysis of the problems of the city.

a. Understanding culture - This is the initial step in the framework where the tangible and intangible elements of culture are realized.

b. Defining the role of culture to sustainability- This step involves linking culture to sustainability. It is necessary to understand the perspective in which culture will be used for achieving sustainability. This step is important as it helps to contextualize the importance of culture and its relationships to economic, social and environmental aspects of the region.

c. Analysing cultural concepts- In order to finally use culture as a planning approach, this step introduces different dimensions and indicators for measuring as well as analysing the different cultural concepts relating to the economy, social, environment, communication, governance and heritage.

3. Understanding Culture

Over the past few years, culture has become the most contested and debated term for anthropologists and sociologists in global vocabulary. Culture is related to an everyday concept and hence it is interpreted in different dimensions and through multiple definitions. (Soini & Dessein, 2016). Culture is born where the man had to build a relationship with nature as well as amongst themselves. (Nadarajah & Yamamoto, 2007) It is a multidimensional phenomenon that includes a fuzzy set of values, assumptions, lifestyle, art, policies, process, behavioural patterns, nature relationships etc. (Naibei, 2014). It is difficult to understand the relationship between culture and the other 3 components without understanding the different dimensions of culture.

According to Schein, culture is manifested in 3 fundamental levels; artifacts, values and assumptions. Artifacts include visible products, patterns of culture, technological, artistic and architectural creations in the physical environment. (Schein,1990). These artifacts are easy to be observed but difficult to decipher the meaning. The meaning of these artifacts differs with the context. Values and beliefs help in understanding the quality of the community and the ideology in which they have existed and is still evolving. The level of assumptions provides a sense of identity about a place and the understanding of the fundamental ways of lifestyle. The degree to which cultural phenomenon is expressed by people is the basis of the classification of these 3 layers. Structuring culture in these 3 levels into different components will give a clear image of what culture means to the place and people. Structuring culture in these 3 levels into different components will give a clear image of what culture means to the place and people.

Urbanization has been provoking threats to culture over the past few decades. Cultural heritage and values are in danger in many cities and globalization are bringing in new concepts of cultural transformations into the societies. But the importance of human-centered developments as well as recognizing culture as the fourth pillar of sustainability is developing a paradigm shift in policy domains and scientific researches about sustainable urbanization process across the globe. However, the role of culture in the framework of sustainable development is vague in practice and policies. It is necessary to bridge each level of culture towards the domains of economic, social and environmental concepts for better analysis of the relationship within. Historical pieces of evidence of cultural landscapes, heritage, traditions and socio-ecological synergies prove that culture is the key that makes cities attractive, creative and sustainable. (Soini & Dessein,2016). For analysing sacredscapes in India, which are diverse in culture and traditions, it is also necessary to study the relevance of religion as a cultural cause that has shaped these landscapes and its values. In this context, the meaning, as well as cultural concepts, differs from any other city which explains that culture is not static and it is highly contextual. But as explained before, culture can be still analysed in different levels and its relationship to social, economic and environmental domains will help in structuring the cultural synergies that have been existing in these landscapes.

4. Linking culture and sustainability

Sustainability is a term that has gradually evolved with the addition of cultural elements in the sustainable development paradigm which mainly composed of three major domains - economic, environmental and socio-cultural. (Nadarajah & Yamamoto, 2007) Brundtland report of 1987 enshrined the three dimensions of sustainability which set the platform for planners and designers to think of a new way of looking at development.

The following Earth summits consolidated these three pillars until in 1995 cultural sustainability was discussed by the World Commission on Culture and Development(WCCD) and defined cultural sustainability as inter and intra-generational access to cultural resources. (Axelsson, 2013) Culture that was treated passively and ignored over the past few decades was placed at the heart of global sustainable agenda in 2012 by UNESCO. According to UNESCO, culture and sustainability can be related in two ways; firstly, cultural development and secondly, culture applied in public policies relating to the economy, education, social, technology etc. (Naibei, 2014) But how can we analyse and implement concepts of culture in achieving sustainability? To understand the role of culture in sustainable development, this paper summarizes the approaches for exploring culture-sustainability relationship. It is important to explicitly define the role of culture for creating better frameworks and tools for understanding the human accounts, actions and behaviors which are in turn culturally embedded. (Soini and Dessein, 2016)

Before defining the role of culture in sustainable development, it is necessary to understand the cultural aspects of the 3 levels of culture as I have explained in the above section. A clear overview of culture helps to explicitly define the role in which culture can be used for achieving sustainability. Culture being a complicated phenomenon, it is necessary to focus on the cultural role and approaches relating to the context of the region. Rather than focusing on culture as the fourth pillar of sustainability, which limits the culture to assets and arts, literature reviews on understanding the role of culture in sustainability proposed 3 ways towards sustainable development. The initial concept proposed in Culture in, for and as sustainable development (Dessein et al., 2015) was peer-reviewed in many publications for linking the complex phenomenon of culture to sustainability. The first representation (culture in sustainable development) sees culture as the fourth pillar of sustainability which is independent and is parallel to economic, environmental and social sustainability. The second representation (Culture for sustainable development) explains how culture takes a mediating role in achieving the other 3 pillars of sustainability. In the third representation (culture as sustainability), culture forms an overarching dimension over the economic, environmental and social sustainability. (Soini & Dessein, 2016) (Fig 1)

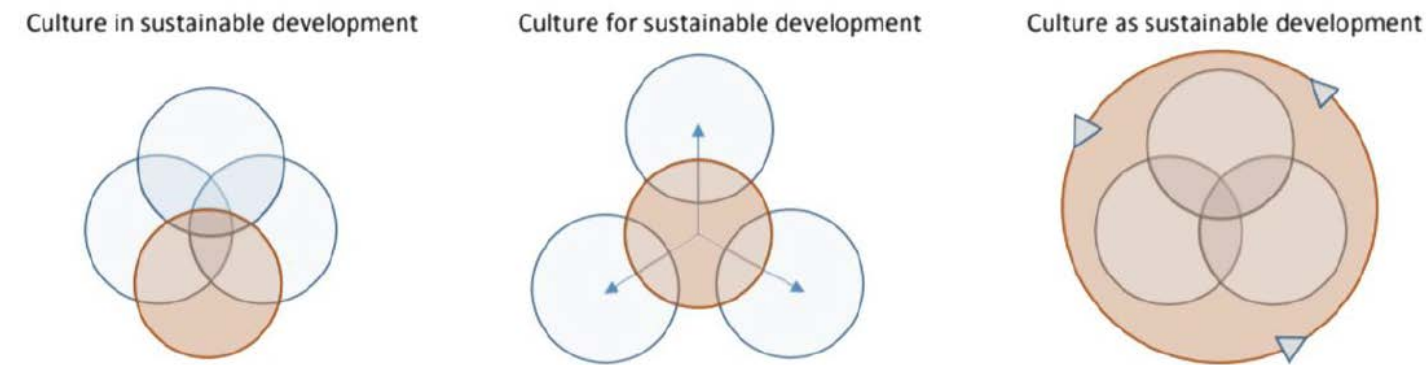


Fig 1. The three roles of culture (represented in orange) in sustainable development (the three circles represent the three pillars) (Dessein et al., 2015)

In my graduation research, where I am using a methodological process involving culture as an approach tries to link back the balance between nature and humans in the process of achieving sustainable development. Sacredscapes in India, which has a centuries-old relationship between the socio-ecological systems are undergoing rapid changes due to unplanned urbanization. From the understanding of cultural elements in Varanasi, the research for analysis places culture for sustainable development as the approach in which culture plays a mediating role in linking the other three domains of sustainability. For strengthening, the concept for using culture for sustainable development in Varanasi, the theoretical framework for my graduation research used Morley's triangle where nature, man and economy form the triangular concepts. Figure 2 explains the relevance of diagonal relationships where a rural culture has a more balanced sustainable character than an urban culture. The equation of diagonal strength of the three basic players; nature, man and economy are dominated by economic activities in an urban setting. (Tiwari,2007) According to Tiwari, nature is physically as well as psychologically distanced as economic actions get deviated from primary activities and get focused on value addition and creation of surplus wealth. Following the heterogeneous nature of society reduces interpersonal relationships and replaces them with institutional relationships. (Tiwari,2007) The concept of using culture for sustainability as well as placing culture at the centre to diagonally balance the relationship between nature, man and economy becomes my methodological approach for my research as shown in Fig 2

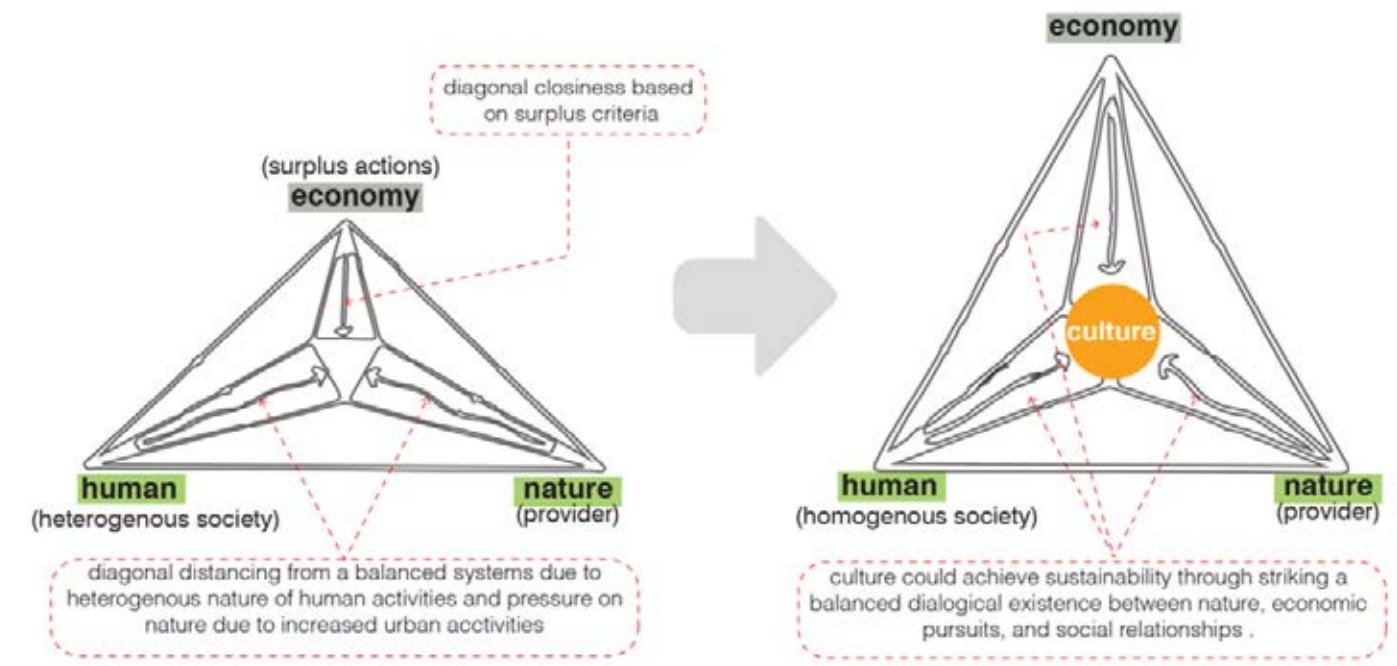


Fig 2. Moreley's Triangle explaining the relationship between human, nature and economy (on the left) and culture as an approach in creating balance within the elements. (on the right)(Tiwari, 2007)

5. Culture as an approach

Sustainability being a broad multidimensional concept, the addition of culture makes it difficult to operationalize in terms of a single model. (Nadarajah & Yamamoto, 2007) Even studying the components of sustainability makes it still hard to understand the shifts happening in the areas of development. But the best possible ways to analyse in a systematic way would be to measure the changes in different dimensions using indicators. Various literature has studied through different lenses of changes happening to economic, environmental and social aspects to propose various indicators for cultural sustainability. Even then it should be noted that culture is an evolving phenomenon and hence these indicators are not permanent. Hence the criteria for these indicators to be used should be that they not only assess the value today and future but also to access the what these future values would mean for us today. (Nadarajah & Yamamoto, 2007)

In order to study the cultural concepts, multiple analytical frameworks have been proposed by organizations and researches over the years such as Culture 2030 Indicators by UNESCO(2019), Culture for development Indicators Suite by UNESCO(2014), seven storylines of cultural sustainability by Soini and Birkeland(2014) etc. All these literature have overlapping ideas in which culture is linked to other dimensions of sustainability. For my graduation research, my analysis is based on the literature Culture 2030 Indicators by UNESCO(2019) where culture is studied over 4 dimensions and 22 indicators. Although there are differences in priorities of the selection of various indicators considering the context and planning methods, the agenda for achieving sustainable development within these dimensions are highly effective using culture as an approach. The four dimensions are environment & resilience, prosperity & livelihoods, knowledge & skills and inclusion & participation. Through the framework of the four dimensions and the 22 indicators by UNESCO, culture creates a strong link in measuring quantitatively as well as qualitatively tangible and intangible elements for achieving economic, social and environmental sustainability.

a) Culture and Economic interactions

The thematic dimension of Prosperity and Livelihoods provides indicators which can help in creating a revenue through cultural goods and services. Seeing culture as a system of beliefs, values and identities which results in shared benefits can help in promoting inclusive economic development. Culture also creates a greater contribution to poverty reduction, generating income, heritage conservation, cultural infrastructure and increasing resilience. (UNESCO, 2016) Cultural and creative industries are one of the rapidly growing sectors in developing countries which can cater to equality and inclusion amongst different social groups.

b) Culture and Environmental interactions

Through the thematic dimensions of Environment & Resilience, the framework creates a method for measuring the implications of culture in addressing nature, heritage and urban environments. Culture links to environmental sustainability at different levels through cultural-ecological systems, the evolutionary pattern of humans on nature as well as how ecological values and beliefs exist within the cultural diversity. (Opoku, 2015) The importance of understanding the links of cultural heritage to the environment is crucial when it comes to historic cities and cultural landscapes

c) Culture and Social interactions

Inclusion & participation theme promotes the culture in building social cohesion, cultural participation, inclusion as well as social interactions. Culture together with social sustainability creates community capital which helps in achieving better living conditions where creativity and social interactions add quality to life. Culture and social sustainability creates a sense of place for all and adds identity for different socio-cultural groups within the society.

d) Culture and Education

Even though culture is related to social, environmental and economic domains in achieving sustainability, there is a need for promotion and awareness of these concepts and values through education, communication, policies, stakeholder involvement as well as through organizations. This is the reason for the inclusion of the fourth theme, Knowledge & skills in the connecting culture to sustainability. It mainly focuses on the transfer of knowledge and skills from local cultural values. The need for promoting a culture within the knowledge community as well as social groups are highly important for the implementation of cultural sustainability, especially in a paradigm shift where participatory planning and stakeholder involvement are taking a strong position in the development process. (UNESCO, 2019)

The analysis of the urbanization problems of sacredscapes in India projects topics which are critical and needs immediate attention. The use of these four dimensions in analysis with the help of indicators helps in finding solutions to problems in a sustainable way. The biggest advocacy of cultural sustainability is that the new should not be built on anything rather it contextualizes the cultural framework that houses it. (MTG,2019) Varanasi, being one of the oldest cities of India with deep-rooted culture through multi scales require a cohesive approach for urban regeneration. Using culture as a planning solution opens up a wide range of possibilities and opportunities for sustainable development comprehensively.

5. Culture as an approach

Culture, which was once included in the social dimension of sustainability has gained importance in a way that it has become the central concept of sustainable development. The paradigm shift in the planning process to include cultural sustainability for protecting our ecosystem, increasing social inclusion and promoting economic development has gained worldwide importance over the past few years. By stressing on cultural sustainability, importance is being given to human-centred development as well as participatory planning process which are presently seen as fundamental requirements for any policy-making domains. The relationship between all the 4 pillars of sustainability is highly necessary but through this research process, it is proven that without the cultural aspect being addressed, none of the remaining three pillars of sustainability can be achieved. Therefore it is necessary to include the cultural aspect of sustainability in formulating policies for sustainable development. There is a need to uphold and strengthen the values and beliefs relating to culture as these form the glue for a stronger relationship between man and nature.

Although many efforts have been taken for the qualitative as well as quantitative analysis of culture, there is still a lack of knowledge in which these cultural contributions can be used for achieving sustainability in developing countries. In the context of India, where culture has prevailed as the overarching factor of development over the centuries is focussing on different methods of planning for achieving sustainability. From the initial understanding, these frameworks are not systematised and the planning process is leading to inequalities, sprawls, slums, pollution, loss of biodiversity, economic loss, social exclusion etc. This is the motivation of using culture as an approach in my graduation project which focuses reviving the socio-ecological synergies of Varanasi. Socio-ecological systems, economic growth, ecological balance, social inclusion and values of this sacred city is deeply connected to culture. Understanding the role of culture and finding its links to sustainability can help in proposing a strategic framework which can be adapted to many other cities of the country. To take it forward, I intend to use culture as not only an approach but also as a design tool for inclusive interventions within communities. Through this process, I hope to stabilize the socio-ecological synergies that have been the backbone of these culturally rich cities..

7. References

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Changing Sacredscapes
A cultural approach for a sustainable Varanasi
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