Citizen Engagement in river management and Economy: A case study of Kanpur, India.

A thesis submitted in partial fulfilment of the requirements for the award of the degree of

BACHELOR OF PLANNING

By

Ujjawal Singh

Scholar No. 2018BPLN009

SCHOOL OF PLANNING AND ARCHITECTURE, BHOPAL

NEELBAD ROAD, BHAURI BHOPAL (MP)-462 030

May 2022

Declaration

I, Ujjawal Singh, Scholar no. 2018BPLN009, hereby declare that the thesis titled 'Citizen engagement in river management and economy: A case study of Kanpur, India' submitted by me in partial fulfilment for the award of Bachelors of Planning, at School of Planning and Architecture, Bhopal, India, is a record of bonafide work carried out by me. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

_____

Signature of the Student

Date: 2020

Certificate

This is to certify that the declaration of Ujjawal Singh is true to the best of my knowledge and that the student has worked under my guidance in preparing this thesis.

RECOMMENDED

_____

Signature of the Guide

(Anuradha Chakrabarti)

ACCEPTED

_____

Head, Department of Planning

July, 2020, Bhopal

Acknowledgement

Completing this thesis is not only my doing but rather it is a reflection of many people that have been in my life over the last four years and they deserve my utmost gratitude. I would like to express my gratitude to my Thesis Guide: Ms Anuradha Chakrabarti, for her constant support and valuable input in the study. A special thanks to my Niua mentor Mr Banibrata Chawdhary for their suggestions and encouragement to pursue the topic. A sincere thanks to the National Institute of Urban Affairs and Namami Gange for providing the opportunity to work with them as a sponsored thesis student. I would like to thank thesis coordinators, Dr Nikhil Ranjan Mandal and Ashfaq Alam for providing their valuable guidance, comments and suggestions throughout the semester and for keeping us informed about our thesis completion timeline.

I would like to express my gratitude to the citizens of Kanpur, Mr Raju Saini, Mr Nikhil Saini who helped me in the primary survey and officials of Kanpur smart city & Development authority for their time and effort to talk and take the survey. I am grateful to my school friend Shivam Pandey, who helped me with the survey and collecting data.

I am in debt to my friends Daman, Abhradeep, Kakoli, Sumit and Chinmoy for their support and encouragement. The support from these guys in the form of a long thesis discussion helps me to complete my thesis. My dearest juniors, Yash Jaiswal and Vansh Gulati provided a lot of Software-based help and analytical insights for the thesis. I enjoy our planning meetings together, and I appreciate their assistance in developing my thesis. They put in a lot of effort with me and were always willing to help hand. Interactions with them regularly helped me get through the most stressful parts of the research. Without them, it would not have been possible. Lastly, it is all possible because of my family, especially my sister Ruscehana and my cousins Devendra and Abhaya, who bear with me on hectic surveys and made themselves available at all times of the day as constant companions.

Thank You

Ujjawal Singh

Thesis Abstract

Urban regions are home to around 34% of India's population. The number and size of Indian cities have grown in recent years. Increased urbanisation is virtually usually related to economic growth potential. These development initiatives, however, frequently have a detrimental influence on the environment. One of these effects is on riverine systems as a result of indiscriminate abstraction and pollution in rivers and bodies of water. Citizen Involvement becomes critical for the long-term viability of urban river bodies and the effectiveness of any urban local government effort. This support is significantly easier to obtain when folks are aware of the challenges at hand and how they may assist in addressing them. It is critical to change from "citizens as spectators" to "citizens as actors." In recent years, there has been a huge surge in community-based river management. Citizens benefit from the river's ecological, social, and economic importance. Citizens are increasingly becoming involved in the management of their rivers and watersheds, through organisations ranging from watershed associations to citizen action groups to municipal advisory committees. The realisation that surface water degradation is a combined effect of land-use change and human alteration of the landscape has increased the need for stakeholder and resource user engagement and collaboration to better identify the sources of the problem and contribute to the development of workable solutions. The thesis intends to identify strategies to promote citizens' engagement in river management and sustainable use of the river economy in the Ghat of Kanpur, India. The livelihood and activity mapping have been done to understand civic engagement and their relationship with the river. This will lend insights into how deteriorating citizen-river connection impacts the citizens' behaviour toward the river and the livelihood of the riverine community. The research also intends how a river economy as a catalyst can bridge the gap between citizen-river connections. The assessment and analysis of citizen engagement are based on Arnstein’s model of the ladder of participation. Primary surveys such as the Perception survey and the DFID livelihood framework for the household survey have been used for understanding the Real ground scenarios of participation and development scenarios. Based on the analysis, site-specific and policy specific recommendations have been given for civic engagement and improving the connection between citizens and the river.

Thesis Abstract (In Hindi)

शहरी क्षेत्रों में भारत की लगभग 34% आबादी रहती है। हाल के वर्षों में भारतीय शहरों की संख्या और आकार में वृद्धि हुई है। बढ़ा हुआ शहरीकरण वस्तुतः आमतौर पर आर्थिक विकास क्षमता से संबंधित होता है। हालाँकि, इन विकास पहलों का पर्यावरण पर अक्सर हानिकारक प्रभाव पड़ता है। इन प्रभावों में से एक नदियों और जल निकायों में अंधाधुंध अमूर्तता और प्रदूषण के परिणामस्वरूप नदी प्रणालियों पर है। शहरी नदी निकायों की दीर्घकालिक व्यवहार्यता और किसी भी शहरी स्थानीय सरकार के प्रयास की प्रभावशीलता के लिए नागरिक भागीदारी महत्वपूर्ण हो जाती है। यह समर्थन तब प्राप्त करना काफी आसान होता है जब लोग मौजूदा चुनौतियों से अवगत होते हैं और उन्हें संबोधित करने में वे कैसे सहायता कर सकते हैं। "नागरिकों को दर्शकों के रूप में" से "नागरिकों के रूप में अभिनेता" में बदलना महत्वपूर्ण है। हाल के वर्षों में, समुदाय आधारित नदी प्रबंधन में भारी उछाल आया है। नदी के पारिस्थितिक, सामाजिक और आर्थिक महत्व से नागरिकों को लाभ होता है। जलसंभर संघों से लेकर नागरिक कार्रवाई समूहों से लेकर नगरपालिका सलाहकार समितियों तक के संगठनों के माध्यम से नागरिक अपनी नदियों और जलसंभरों के प्रबंधन में तेजी से शामिल होते जा रहे हैं। यह अहसास कि सतही जल क्षरण भूमि-उपयोग परिवर्तन और परिदृश्य के मानव परिवर्तन का एक संयुक्त प्रभाव है, ने समस्या के स्रोतों की बेहतर पहचान करने और व्यावहारिक समाधानों के विकास में योगदान करने के लिए हितधारक और संसाधन उपयोगकर्ता जुड़ाव और सहयोग की आवश्यकता को बढ़ा दिया है। थीसिस का उद्देश्य भारत के कानपुर घाट में नदी प्रबंधन और नदी अर्थव्यवस्था के सतत उपयोग में नागरिकों की भागीदारी को बढ़ावा देने के लिए रणनीतियों की पहचान करना है। नागरिक जुड़ाव और नदी के साथ उनके संबंधों को समझने के लिए आजीविका और गतिविधि मानचित्रण किया गया है। यह इस बात की अंतर्दृष्टि प्रदान करेगा कि नागरिक-नदी संबंध कैसे बिगड़ते हैं, नदी के प्रति नागरिकों के व्यवहार और नदी समुदाय की आजीविका को प्रभावित करते हैं। शोध का यह भी इरादा है कि कैसे एक उत्प्रेरक के रूप में एक नदी अर्थव्यवस्था नागरिक-नदी कनेक्शन के बीच की खाई को पाट सकती है। नागरिक जुड़ाव का मूल्यांकन और विश्लेषण अर्नस्टीन के भागीदारी की सीढ़ी के मॉडल पर आधारित है। भागीदारी और विकास परिदृश्यों के वास्तविक जमीनी परिदृश्यों को समझने के लिए घरेलू सर्वेक्षण के लिए प्राथमिक सर्वेक्षण जैसे धारणा सर्वेक्षण और डीएफआईडी आजीविका ढांचे का उपयोग किया गया है। विश्लेषण के आधार पर, नागरिक जुड़ाव और नागरिकों और नदी के बीच संबंध में सुधार के लिए साइट-विशिष्ट और नीति विशिष्ट सिफारिशें दी गई हैं।

Table of Contents

Table of figures

1. Introduction -

Long-term sustainability of urban waterways and the efficacy of city government initiatives depend on citizen participation. When people are aware of the issues at hand and what they can do to help address them, it is much simpler to get this kind of assistance. "Citizens as actors" must replace "citizens as observers." In recent years, there has been a dramatic increase in community-based river management. Ecological, social, and economic benefits accrue to local residents as a result of the river's presence. Watershed associations, citizen action groups, and municipal advisory committees are just a few of the organisations that are getting more and more citizens involved in river and watershed management. In light of the fact that land use change and human manipulation of the landscape are both contributing factors to surface water degradation, the need for stakeholder and resource user engagement and collaboration has intensified. Living and activity mapping in Kanpur's ghat will be used to identify and promote people involvement in river management in this thesis. As a result of the link between citizens and rivers, the role of citizens in river management has been altered. It has an effect on how people view the river. It is hoped that the river economy would act as a catalyst for improving citizen-river interactions.

1.1 Background-

By 2051, 68 percent of the world's population is expected to reside in cities or metropolitan areas, up from 55 percent today. City growth increases demand for natural resources both inside and outside of urban watersheds. While hydrological and administrative borders may not always coincide, water links sectors, places, and people, as well as geographical and temporal aspects. Several global issues, such as urbanisation, climate change, increased resource demand, and conflict among water users, have a direct impact on our daily lives. As a result of these variables, cities confront water dangers such as floods, water shortages, and pollution. Flooding has the potential to cause significant damage to people, property, and infrastructure while also having a negative influence on local economies. Floods frequently disrupt and restrict city residents' access to basic necessities including clean drinking water, food, and power. Dry weather can lead to costly, capital-intensive procedures aimed at securing water supplies, or it can lead to the detrimental use of unreliable, perhaps hazardous alternative sources. Declines in water quality can have an effect on water supply and long-term viability, as well.

1.2 Citizens’ engagement in river management-

"Citizens as actors" must replace "citizens as observers." This also conveys a message that river management is not primarily the government's duty. In order

to succeed, residents will have to take charge and face the weight of responsibility themselves. There is some variation of this ruling paradigm to be found in the majority of civilised societies today. It will have a long-term impact on people's perceptions of the city's natural resources. Citizens can take part in a variety of ways in river management activities and choices. Depending on the level of danger that the city or community faces, the burden is shared by all who participate. Citizens can get involved in a variety of ways, including river health monitoring, river cleanups, citizen conservation groups, and committees that make river-related decisions.

1.3 River economy and citizen's livelihood-

The importance of the Ganga River to the people of India may be broken down into three categories: ecological (biodiversity), social (Gangatva), and economic (livelihood). In addition to the regenerative and adaptative powers that rivers possess naturally, economic agents rely on river resources to make a living. The state's financial assistance in the form of subsidies encourages private parties to make greater use of river resources for the purpose of wealth production and accumulation. As a direct consequence of this, the state of Uttar Pradesh's natural resources, in addition to certain stretches of river, are running low.

The direct river economy of the state concentrates on flow activities (ferries and tourism) and non-flow activities (farming in riverbeds), respectively. One of the initial assessments of the project found that the 80 Ghats in Varanasi, which are made up of 193 boats, brought in a total of Rs. 55.26 million in revenue over the course of eight months (i.e., October to May 2010-11). Similarly, 170.30 million pilgrims travelled to Mega Pilgrimage Sites (MPSs) in Uttar Pradesh (UP), such as Allahabad, Varanasi, and Vindhyachal, which resulted in revenue of Rs. 7,11,448.54 million being generated between 2006 and 2010; and 286.25 bighas of Riverbed Farming resulted in profits of Rs. 5.9 million being generated for 89 households in five villages located in the Kanpur District during the 2010-

The Ganga River is important to both commercial and nonprofit activity, and it plays a role in both flow seasons and lean flow seasons. The pristine nature of the river will lead to positive consequences and externalities. It is a river that holds important meaning for the culture. The Hindu religion holds the belief that drinking river water can cure illness and release a person from the cycle of rebirth. The holy water will be utilised throughout the Poojas (Sathyanarayan Vratam). River resources are also helpful to commercial activities in many ways. There are three different kinds of connections that may be made between river resources and the way people living along rivers make a living: direct, indirect, and induced.

The well-being of people is the responsibility of Ganga River Resources, which is responsible for both flow and non-flow resources. People who live along rivers will step up their efforts to make better use of resources in ways that are good for the economy, improve the amount of sustainable product they produce, and establish open access policies. Further reductions in the costs of people's labour are brought about not just by advances in science and technology but also by subsidies provided by the government. As a direct consequence of this, people are obligated to make considerable use of the resources provided by the river. In point of fact, the prosperity of the riparian communities is reliant on the harvesting efforts of the riparian villages, and the prosperity of the river is reliant on the harvesting efforts of the riparian villages. However, the tragedy of the commons, subsidies supplied by the state, and shortsighted behaviour on the part of the community all work together to limit the river's resource sustainability, which has an effect on the biological, physical, human, and management systems across the river in India. For the sake of the health of the river's ecosystem, it is necessary to do research on the engagement and behaviour of the riparian community in relation to river management, both on an individual and an institutional level.

2. Study Design -

2.1 Introduction-

This study investigates the prospects for river economy and how it might be used as a river management strategy, namely by building on a growing interest in the connection between river and citizen, the ghat built environment, and economic opportunity present along the Ghat. The study then looks ahead to long-term river management approaches and how they may be implemented successfully. The study also encourages citizens to become involved in different types of river economy such as Religious tourism, Navigation, and riverbed farming. It suggests that understanding a river-citizen connection, citizen awareness, demography, citizen behaviour, citizen capital, socio-culture, the economic, and political background is critical for the growth of engagement in river management and economy. Engagement in the decision making will help to preserve and ecology of the river.

2.2 Aim and Objective-

Aim-To formulate the strategies for enhancing civic engagement in river management.

Objective-

- **To understand the symbiotic relationship between human livelihood, river economy and river management.**
  To map the economic activities along the selected stretch.
  To study the impact of economic activities on citizens' livelihood.

- **To establish the relationship between the citizen's engagement and river management.**
  To understand the role of citizens' engagement in river management.
  To study the participation of citizens in river management through the Ladder of Participation model.

- **To suggest measures for strengthening the civic engagement in riparian management**

2.3 Limitation-

- The thesis will not assess the impact of economic activities on river ecology. The scope of studying the river economy is limited to the direct economy.
- Due to the time constraint, only six ghat is selected for studying the river and citizens' connection and their direct livelihood dependency.

Scope of Work-

From these three objectives, the identified scope of work is-

- Analysing the citizen-river relationship, the dependency and connection of citizens to the river.
- Assessing the direct river economy and citizen livelihood dependency.
- Analysing civic engagement in river-related decision making and governance.
- Reviewing the existing land use of riverbanks and Ghats.

2.4 Expected Outcome-

- The thesis's expected outcome is to identify and promote river management activity through citizen-river connection and Identify and promote river management activity through citizen-river connection and their engagement.
- Provision of livelihood enhancement and river economy opportunity for the riverine community through policy level and spatial intervention provisions.

2.5 Methodology-

The chapter describes the methodology of an extensive step-by-step strategy for achieving the study's goal. The methodology is divided into three sections based on the three objectives. The first step involves analysis, thesis preliminary steps, such as livelihood and activity mapping of citizen's engagement, conceptualization, data collecting, site visit, formulation of aims and objectives, questionnaire preparation, and data compilation. The research started with a review of the literature and the understanding of concepts to establish the purpose and scope of the research. The site visit and Primary survey aimed at documentation of riverine community participation in river management. The quantitative analysis was carried out using tools like MS Excel, and the geographical representation was created using ArcGIS and Google Earth.

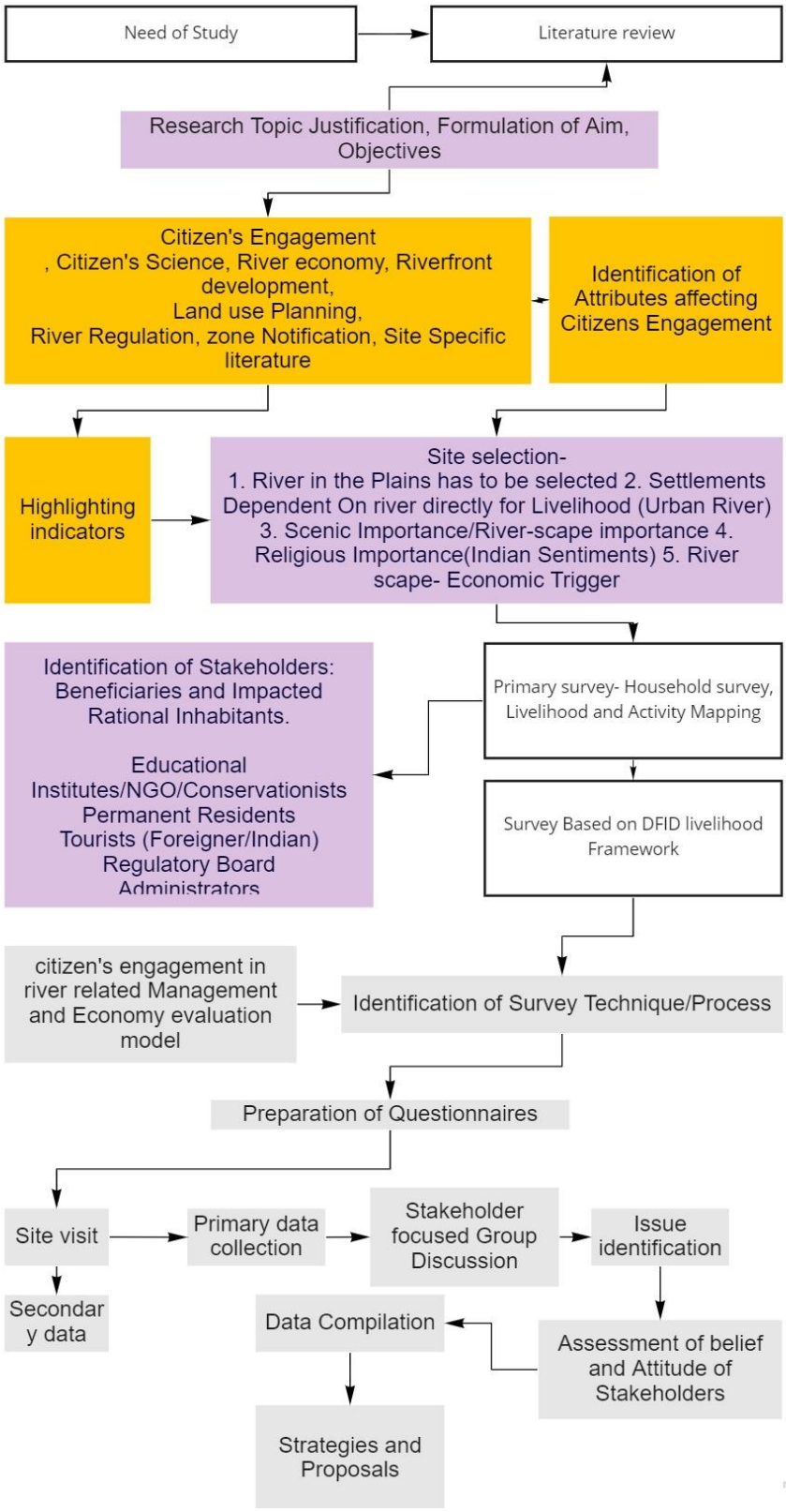


Figure 2.1 Methodology

2.6 Data Checklist-

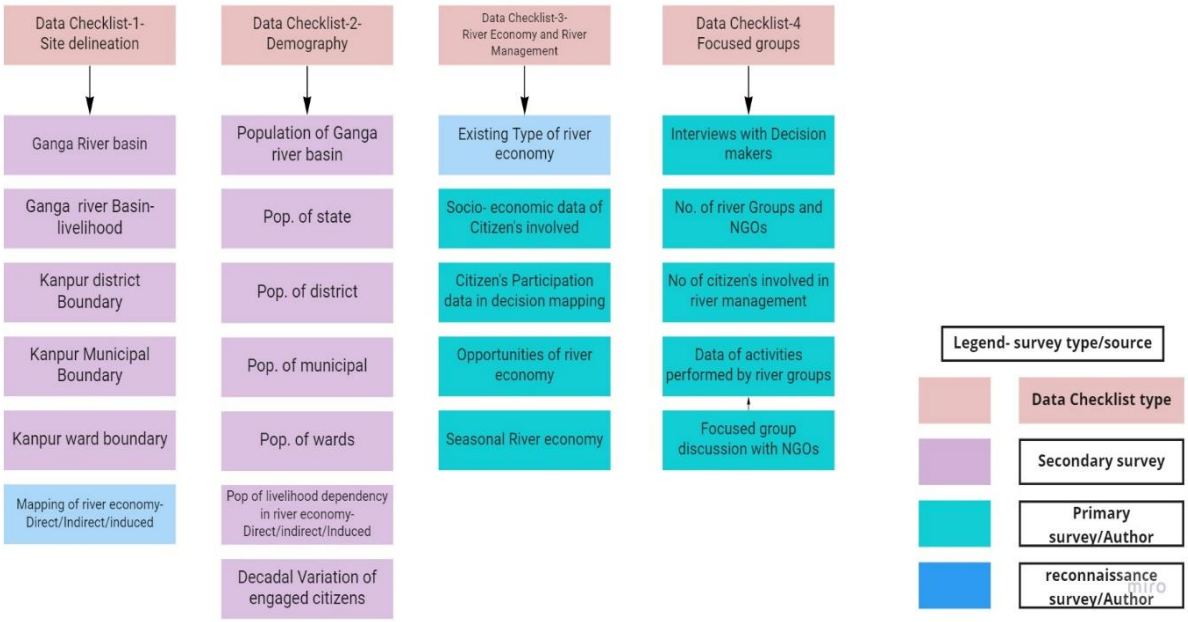


Figure 2.2 Data Checklist

3. Literature study -

3.1 Ladder of citizen participation-

Introduction-

The citizen involvement ladder is utilised in the process of establishing the level of engagement that citizens have in the activities pertaining to river management and river economy as well as the decision-making process. In her book "The Ladder of Citizen Participation," Sherry Arnstein details the ways in which citizens' authority is undermined by powerful public institutions and politicians, as well as the steps that can be taken to give citizens more agency, control, and power. The Ladder of Citizen Engagement is one of the most widely recognised and relevant models in the field of democratic public engagement. It was first presented by Sherry Arnstein in 1969. The fundamental notions of public engagement and participation, as well as the ways in which empowered public institutions and officials deny citizens authority, are of interest to the local leaders, organisers, and facilitators who are interested in learning more about these topics. The concept went on to influence a great deal of other models, including Elizabeth Rocha's Ladder of Empowerment and Roger Hart's Ladder of Children's Participation, amongst a great deal of others. The central thesis is just as relevant today as it was forty years ago: in order for public engagement in democratic processes to be termed "participation" in any sense that is true or meaningful, power must be transferred. According to Arnstein's theory, public involvement is equivalent to citizen power. Participation, in the absence of an actual reallocation of power (such as in the form of money or decision-making authority, for example), just "permits the powerholders to claim that all sides were consulted, but allows only some of those sides to gain." [Citation needed] Maintaining the status quo is one of its effects.

The Ladder-

Arnstein's public involvement typology is depicted as a metaphorical "ladder," with each climbing rung reflecting greater degrees of citizen agency, control, and power. Arnstein offers a descriptive continuum of participatory power that extends from nonparticipation (no power) through degrees of tokenism (counterfeit power) to degrees of citizen participation in addition to the eight "rungs" of involvement (actual power).

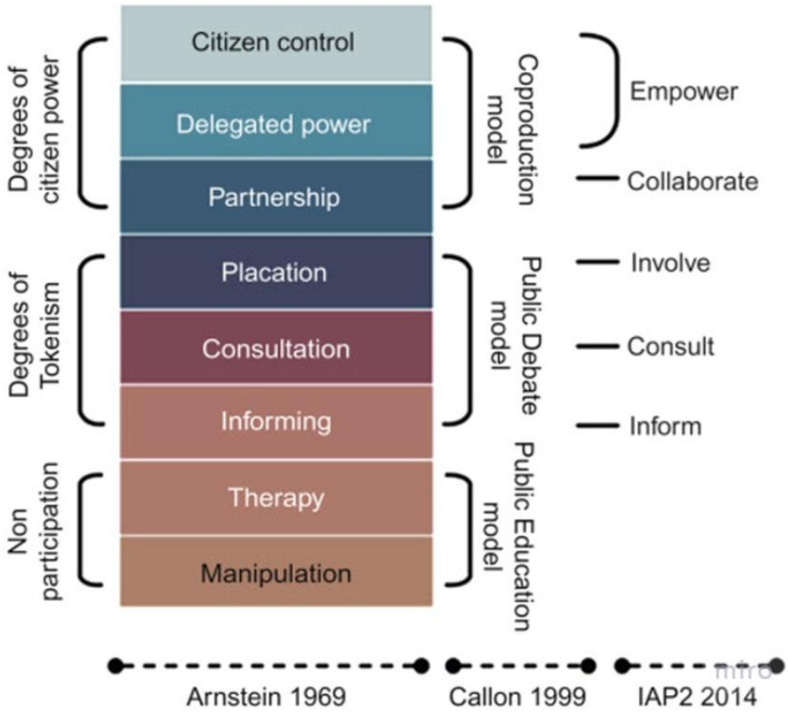


Figure 3.1 The Ladder of Participation

1. Manipulation-

Manipulation is a "illusory" kind of involvement that occurs when public institutions, authorities, or administrators deceive individuals into believing they are being granted power in a process that has been designed to deprive them of power. Manipulation is a "illusory" kind of involvement that occurs when public institutions, authorities, or administrators deceive individuals into believing they are being granted power. According to what Arnstein writes, "people have put on rubber stamp advisory panels or advisory boards for the specific objective of 'educating' or engineering their support." This is done under the pretext of "public involvement." The first rung on the ladder depicts the powerholders' distortion of participation into a public relations vehicle rather than genuine citizen interaction.

2. Therapy-

When public officials and administrators "believe that helplessness is synonymous with mental illness," they design pseudo-participatory programmes that attempt to convince residents that they are the problem when, in reality, it is pre-existing institutions and policies that are the root of the problems citizens

face. "What makes this kind of 'participation' so invidious is that citizens are engaged in significant activity, but the focus is on healing them of their 'pathology' rather than eliminating the racism and victimisation that generate their 'pathologies,'" writes Arnstein. "What makes this sort of 'participation' so invidious is that it makes the focus on healing them of their 'pathology' rather than eliminating the racism and victimisation that generate their '

3. Informing-

While Arnstein recognises that informing "citizens of their rights, responsibilities, and options can be the most important first step toward legitimate citizen participation," she also observes that "too frequently, the emphasis is placed on a one-way flow of information—from officials to citizens—with no channel provided for feedback and no power for negotiation... Meetings may also be used for one-way communication by offering shallow information, discouraging questioning, or presenting irrelevant responses." Citizens in informative circumstances are "intimidated by futility, legalistic language, and official prestige" to believe the facts supplied as true or support the initiatives put forward by people in authority.

4. Consultation-

Arnstein also makes the observation that "inviting people's ideas, like teaching them, may be a sensible step toward their full engagement." [Citation needed] However, when consultation methods are not coupled with other modes of interaction, this rung of the ladder continues to be a sham since it does not guarantee that the concerns and ideas of the public will be taken into consideration. The most frequent methods for soliciting comments and suggestions from members of the public include opinion polls, community gatherings, and public hearings. When those in authority restrict the public' thinking to this level, participation in the process is reduced to nothing more than a formality. Individuals are, for the most part, considered as statistical abstractions, and engagement is measured based on the number of people who attend meetings, take fliers home, or reply to a questionnaire. The benefit that citizens take away from all of this activity is the knowledge that they have "participated in participation," whereas the advantage that powerholders take away is the testimony that they would have gone through all of the necessary motions of include "those people."

5. Placation-

Participation as placation happens when individuals are given a limited amount of control in a process, but their involvement is primarily or wholly tokenistic:

citizens are only participating to show that they were active. "An example of a placation technique is to install a few hand-picked 'worthy' people on boards of Community Action Agencies or governmental organisations such as the board of education, police commission, or housing authority," writes Arnstein. If they are not answerable to a public electoral district and the conventional power elite maintain a majority of seats, the have-nots may be easily voted down and outfoxed."

6. Partnership-

When public institutions, politicians, or administrators allow citizens to negotiate better bargains, veto decisions, share financing, or submit demands that are at least partially realised, this is referred to as participation in a partnership. "At this rung of the ladder, power is transferred through bargaining between citizens and powerholders," writes Arnstein. They agree to delegate planning and decision-making authority through institutions such as joint policy boards, planning committees, and conflict resolution processes. The basic rules are not open to unilateral alteration after they have been established through some type of giving and receiving." However, Arnstein observes that power is not freely given by public bodies in many partnership circumstances but is instead grabbed by individuals through acts such as rallies, campaigns, or community outreach.

7. Delegated power-

When public institutions, authorities, or administrators assign at least some degree of control, administration, decision-making authority, or money to citizens, this is referred to as participation as delegated power. A citizen board or company, for example that is entrusted with directing a community programme rather than just participating in a programme controlled by the city is an example of delegated power. "At this stage, the ladder has been climbed to the position where citizens possess the crucial cards to ensure responsibility of the programme to them," writes Arnstein. To resolve disagreements, powerholders must initiate the negotiation process rather than react to pressure from the opposing side."

8. Citizens Control-

According to Arnstein, participation as citizen control happens when "participants or residents may run a programme or an institution, be in full command of policy and management elements, and be able to negotiate the circumstances under which 'outsiders' may modify them." In a citizen-control arrangement, for example, public funds would proceed freely to a community group, which would have complete discretion over how that revenue is used.

3.2 Basin connected cities handbook-

The purpose of the IWA-INBO Handbook on Basin-Connected Cities is to provide decision-makers with guidance that will aid them in enhancing the city's connection and integration with its river basin.

The principles and aims of INBO, which are to: 1. encourage the exchange of experiences among organisations that are responsible for river basin management; and 2. promote public education about water resource management, are also essential to the success of the Handbook.

The Action Agenda and the Handbook both consist of three primary components:

3. Foundations for Action describes the elements that are required to create an enabling environment in order for the pathways to be implemented. 1. Drivers for Action describes how basin-wide risks affect urban areas from an economic, environmental, and social perspective. 2. Pathways for Action shows how cities and their basins can actively collaborate. 3. Foundations for Action shows how cities and their basins can actively collaborate.

Opportunities for further action-

The Pathways for Action emphasise a number of different strategies that drive stakeholders to take action and solve water challenges in the greater watershed. These tactics play a crucial part in ensuring both the quality and quantity of the water that is available. Assessment, planning, and carrying out the plan are the three subheadings that make up their structure. Urban stakeholders have a responsibility to recognise their reliance on the upstream watershed and their role in the conservation of ecosystem services provided by both the upstream and downstream areas, including estuaries, deltas, and coastal receiving waters. What immediate steps do communities need to take in order to address the factors that are driving action? What part can cities play in the long-term management of basins in the future, and how can they play that role? How might utilities take a more proactive part in the governance of water resources?

The assessment analyses several ways for evaluating a problem as well as potential solutions to the problem. This comprises the following: establishing principles and concepts that can act as guides toward the accomplishment of shared objectives; putting money into data and information systems because only things that can be measured (and analysed) can be managed; and integrating local and traditional water knowledge to supplement what is being observed and

analysed scientifically. Investing in data and information systems because only things that can be measured (and analysed) can be managed.

The development of basin-connected cities can benefit from having a commonly held set of values that serve as a source of inspiration and guidance for activities. These values may be articulated and then systematised into a written set of principles that can serve as a road map for achieving common objectives for water use within the city and the basin as a whole. This set of principles may serve as a road map for achieving common objectives for water use within the city and the basin. The establishment of common principles has the potential to bring together local governments, urban specialists, and individuals in order to encourage active participation in the process of addressing and locating solutions to water concerns in their respective areas. Developing a strategy or plan can also provide an opportunity to reach a consensus on a shared set of future beliefs and values.

In one of the basin tales, for instance, which focuses on the Guandu Basin in Rio de Janeiro State, Brazil, it is explained how the basin committee and water agency came up with a Strategic Water Resources Plan, which is then subdivided into eight Thematic Agendas and various courses of action. This particular basin tale focuses on the Guandu Basin. These thematic agendas put out a strategy that stakeholders are expected to follow in order to accomplish the goals that have been agreed upon in the future. Shutterstock Porto For the effective management of water resources on an ongoing basis, decision-makers at all levels—from the city to the basin to the transboundary—need to have access to data. For the purposes of regulatory compliance, sound planning, effective risk management, and increased public awareness, water resource managers are required to have access to and make use of information that is reliable, current, and pertinent.

The process of accumulating knowledge is of the same significance to a company's operations as the utilisation of its data and the upkeep of its records. As a result of this, holistic information systems that aggregate data and information from all parts of a basin provide a strong platform for working together and making decisions. According to the information provided in the Handbook, the city of Guas do Porto, Portugal, developed such a system and equipped it with a one-of-a-kind real-time management platform for the complete water cycle. This integrated management system improved the efficiency of water network operations and maintenance operations. As a consequence, the asset management approach shifted from being reactive to being proactive, which led to fewer instances of pollution occurring in urban streams.

The management of water has to make use of all available information, including scientific findings as well as traditional and local wisdom. Citizen science has the

potential to improve management practises by making available more frequent monitoring and data collection opportunities. This strategy has the potential to increase participants' knowledge and awareness, which in turn has the potential to increase participants' faith in both the water's quality and the water company. The use of more conventional water-saving technology could potentially provide valuable insights on water management. For instance, a fundamental narrative in the Handbook about Huzhou, China, describes how the ancient Lougang system has been repaired to regulate water drainage, irrigation, and offer canal transit, as well as to promote historical and cultural values. This narrative is included to highlight the significance of Huzhou to China.

Organizing (our Strategy) -

Improving planning involves concentrating on methods that facilitate collaboration between cities and the watersheds that they are located in to ensure sustainable water management. This includes the following: a risk-based approach to planning from the watershed to the consumer; water allocation mechanisms that balance the needs of those downstream and those upstream while also exploring alternate sources of water; alignment of urban development with basin resources and management; and the active participation of many stakeholders in the development of water resource management plans.

When it comes to the management of water resources for cities and their basins, prevention and preparedness are two effective ways that may be used to enhance resilience. Using risk-based planning, which emphasises taking a proactive approach to identifying, controlling, and monitoring key risks, it is feasible to achieve this goal.

Risk-based planning and preparation Actively connecting urban stakeholders (such as water utilities and industry) with the watershed on which they rely for water supplies is an important part of water safety planning, as well as flood and drought planning. These plans involve the participation of stakeholders from across the water value chain in the management of drinking water quality and flows. In one of the examples provided in the Handbook, it is described how Melbourne Water worked together with the three water retailers in the city to develop drought response plans and coordinate the management of the water supply system. Controlling supply and demand measures were also a part of the plans, along with monitoring storage levels, streamflow into reservoirs, the conditions of the watershed, and climate projections for the future.

Disputes over water allocation regimes can arise as a result of increased pressure from urbanisation, conflicting requirements, and climate change. This highlights

the significance of long-term water-sharing mechanisms between urban and rural populations. The principles of integrated water resources management (IWRM), which recognise the interconnection between upstream and downstream regions, urban and rural areas, and how changes in water quality and quantity in one area affect the availability of resources in another, ought to form the basis of the mechanisms that are used to allocate water. According to the story told about the San Francisco basin in the Handbook, the majority of the city's water supply is located in the upstream catchment, which is more than 250 kilometres away from the city.

The gathering of rainfall, the utilisation of groundwater, and the collection of wastewater and greywater for non-potable purposes like irrigation and toilet flushing were all components of the strategy that was developed for the management of water resources with the goal of ensuring their long-term resilience and dependability. France, Boubre SMABB The first step in achieving long-term economic, social, and environmental relationships is to coordinate the expansion of urban areas with basin management. The urban-rural interface has the potential to make a substantial contribution, in both the present and the future, to the process of safeguarding cities from water-related risks like floods by fostering collaboration between users located upstream and downstream. The case study of the Double Basin in France is an example of this in the Handbook. Over the years, continuous urbanisation and development inside the basin has led to a rising risk of flooding.

The Flood Prevention Action Programme brought together partners from both urban and rural areas across the basin. The goal of the programme was to improve farmers' awareness of and acceptance of flood protection measures on their farms, which protect communities farther downstream. Discussion between those who have an impact on, and are affected by, the quality and availability of water supplies to cities and other users may be facilitated by the participation of stakeholders in the planning and management processes. Collaboration among stakeholders include not just researchers and government officials, but also members of the general public.

Because communities have a greater grasp of the local issues, these strategies boost efficacy, create public awareness, and provide a place for the public to voice their concerns. All of these factors contribute to an increase in available options. The story of the Büyük Menderes River basin in Turkey describes how a multi-stakeholder committee was formed to develop river basin plans, flood and drought management plans, and monitoring plans. The committee was comprised of representatives from various sectors, including water utilities, municipalities,

representatives from the Ministry of Environment and Urbanization, universities, and the organised industrial zone. These numerous water stewards are located in close proximity to the issues at hand and are also aware of the current state of the contaminants.

3.3 Stakeholder and public participation in river basin management—an introduction-

Participation of the public and stakeholders in river basin management is becoming more popular since it is believed to improve resource management and allow people to engage in management freely and fairly (support democratic processes). Participation is expected to improve river basin management through three overlapping and interacting mechanisms: (1) providing space for deliberation and consensus building for better quality decisions, (2) mobilising and developing human and social capital for better quality decisions and their implementation, and (3) raising the legitimacy of decisions to facilitate their implementation. Each of the techniques has various difficulties that make it difficult to meet the expectations of participation.

Case Study-

1. Lake Ontario ST. LAWRENCE RIVER OPERATING SYSTEM (FROM CARR ET AL.[24])

The North American Great Lakes are the world's biggest freshwater system. They also house millions of people with a variety of stakes in the system and have a lot of threatened natural ecosystems. The International Joint Commission commissioned a significant evaluation of the Lake Ontario and St. Lawrence River water level operating system (the LOSL Study) in 1999. The 5-year LOSL Study's purpose was to develop an operating strategy for the system that was acceptable to everyone who was affected by the water levels and flows in that region. Public meetings played an important role in informing the public and stakeholders about the requirements and difficulties of the water system, as well as providing a forum for people to express their demands and concerns.

The LOSL Study generated three prospective management plans, however, due to the polarised perspectives of the interest groups, a conflictive environment with negotiation-type procedures frequently dominated the meetings and workshops, and a consensus solution was not discovered. The LOSL Study, on the other hand, produced a slew of other accomplishments in addition to its primary goals. Participant participation in the formulation of the operational plans encouraged

them to be more inventive and legitimate, especially when they were believed to be supported by strong science. Many participants appear to have increased their awareness and grasp of additional stakeholder concerns. The LOSL Study also recommended strengthening institutional procedures and making water-management decision-making more representative.

2. Multi-stakeholder workshops for river restoration, UK

A European-funded river rehabilitation project focused on an environmentally degraded urban river in Birmingham, UK. Its goal was to create and implement a method for better land-use planning that included active public participation. A collaborative method was chosen, bringing together technical specialists and local public interest groups in a series of workshops to co-create a river restoration plan. During the sessions, the group discussed how they imagined the perfect urban river ecosystem. For the general public, the values included emotional qualities such as tranquilly, relaxation, naturalness, and lightness. Values such as a variety of species, safety and flood-free zones, and diverse shapes and forms were crucial to the engineering specialists.
A set of 13 community criteria were developed and utilised as a checklist during plan preparation to verify that the restoration met the objectives of the community. Because the plan was coproduced, it was both technically sound and socially acceptable, embracing community values as well as engineering and environmental concerns. The author defines the context as cooperative, with information sharing between members nearly creating a partnership environment. The author identified many aspects of the involvement process as critical to the project's success. These included wide representation, neutral facilitation, identifying shared principles that everyone understands and agrees on, and ensuring that the information presented is intelligible and accessible.

Citizen's Jury in the Netherlands (from HUITEMA ET AL[84])

During a legally mandated regional land-use planning process for a Dutch province, the provincial parliament, which was in charge of adopting the plan, commissioned citizens juries to hear the opinions of expert witnesses from various stakeholder interest groups and give recommendations. Over seven months, three juries were formed, each comprised of 12–14 local citizens who were representative of the broader public in terms of gender, age, and education level. Their mission was to debate the concerns raised by the expert witnesses, form a consensus, and produce recommendations for the parliament, a process that would very certainly include collaboration and discussion among the jurors.
The authors discuss how elected officials viewed the jury recommendations as support for draught policies but did not base final policy on them (the process could therefore be defined as consultative). Nonetheless, the final land-use plan

authorised by parliament was found to be remarkably similar to the one suggested by the people's juries.

Role of citizen engagement in river economy-

When the potential to resolve conflicts of use and sustainable river management is realized, the general public must be more involved in their management. Participation in water management activities usually occurs in three situations: formal discussion; public involvement; or factual direct participation by the public. Formal consultations frequently leave the public on the part of the " objector " and ignore the " silent maturity " fastening on the further blatant nonage of the population. Public involvement is less formal and can take a variety of forms. Although not allowing the public to be directly involved in the decision making processes, it provides the public with the occasion to note upon plans for a swash workshop or the redevelopment of a swash position or to indicate what they want from the gutters that flow through their original area and which they use for recreation and amenity. True participation is where the public is laboriously involved in the decision making processes. Citizen participation in all three situations provides environmental education, still, particular experience promotes lesser environmental mindfulness and understanding by the public.
Water governance isn't a new conception both in literature and practice. Over the erstwhile decades, water governance has played a vital part in sustainable development including poverty reduction, especially in developing countries. It has transitioned over time under the principles of transparency, responsibility, decentralization, and participation.
The survey respondents also linked lack of finance as being the main obstacle to the perpetration of participatory processes; this was followed nearly by time constraints and the limits of human resources.

Active involvement clearances a further nuanced appreciation; while on average assessed to be of limited machinery, variation in this assessment is considerable. This suggests that particular points and problem settings bear environment-acclimated governance strategies and that the targeted involvement of organized non-state actor groups may or may not help. Agriculture is overall rather critically assessed as having a limited productive donation to the planning process while having too strong an influence; this, combined with the perceived productive benefactions of other actor groups(especially environmental groups) suggests that while, in the proposition, involving the most important polluters may be a good idea, in this case little is gained for either planning or perpetration. Rather, the identification of a lack of fiscal coffers as the main handicap to perpetration may suggest that substantial financial compensation may be needed for the reduction of contaminating conditioning and of all other conditioning that negatively impacts the ecological status of foundation areas. Our study doesn't seal the end

of participation in sustainable water governance; rather, we need a clearer notion of which instruments work and which do not. While our study centred on the independent variable of participation and its donation to good water status, unborn exploration should more easily target the dependent variable of what contributes to attaining good water status.

3.4 DFID Livelihood Framework

The notion of 'Sustainable Livelihoods' serves as the foundation for several 'Sustainable Livelihood Approaches' (SLA) and has been adopted by many development organisations such as the British Department for International Development (DFID). The Department for International Development (DFID) has created a 'Sustainable Livelihood Framework' (SLF), which is one of the most extensively utilised livelihood frameworks in development practice. In 1997, the SLF was incorporated into its development partnership programme. DFID adopts a variation of Chambers Conway's definition of livelihoods: "A livelihood consists of the capacities, assets, and activities necessary for a means of subsistence." A livelihood is sustainable when it can cope with and recover from stressors and shocks, as well as preserve or improve its skills and assets today and in the future, without jeopardising the natural resource base."

The primary goal of DFID is to eradicate poverty in developing nations. DFID, on the other hand, emphasises that livelihood initiatives may be used in a variety of ways. Although the livelihoods method is flexible and adaptive to unique local conditions and participatory aims, it is founded on a few fundamental concepts.

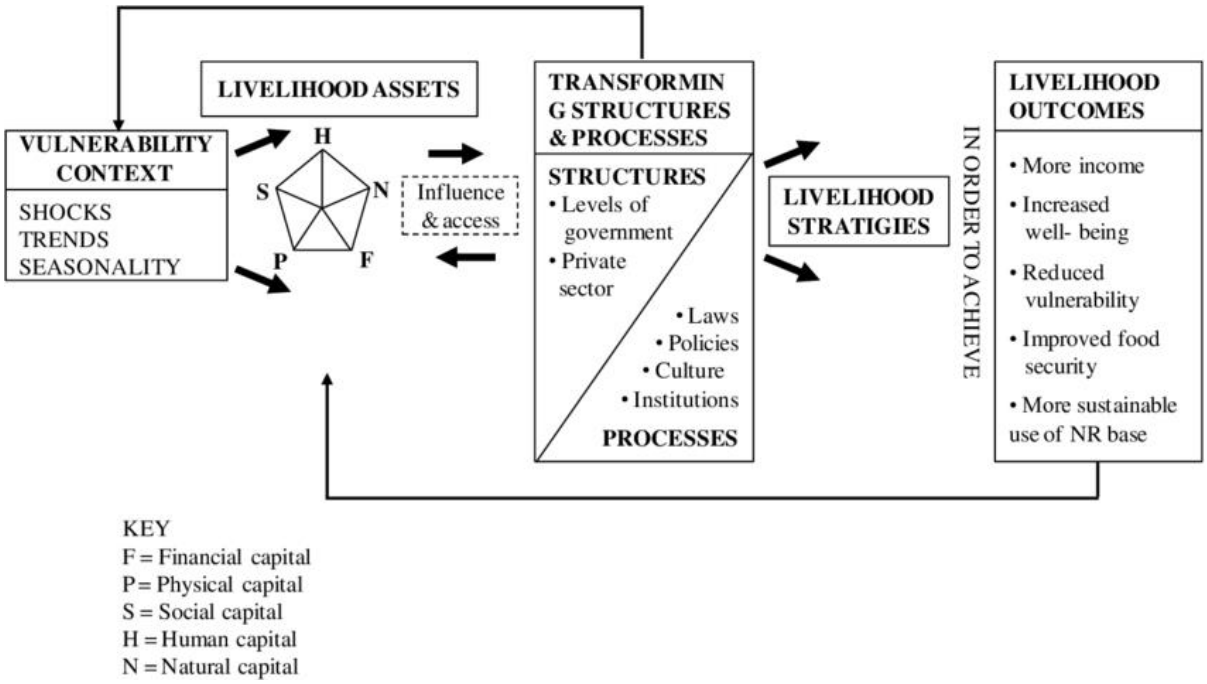


Figure 3.2 DFID framework

Type of Capital	Elements
Human capital	Education/Working Status/Sources of Raw materials/Selling of Finished Products/Total Household Income/ Monthly income/Yearly Income
Social capital	a member of Co-Operative Society, River Groups.
Natural Capital	Total Land owned, River, Soil, Forests and Fisheries
Physical capital	Basic Infrastructures such as Roads, Water and Sanitation, Schools, Including Tools, Livestock and Equipment.
Financial Capital	Financial resources, Including savings, Credit and income.

Figure 3.3 Types of Capital

3.5 Urban River Management Plan (URMP)-

The overarching goal of the URMP is to help cities along the Ganga River in improving the status of the river in their respective stretches. While the Ganga is the primary emphasis, the agreement also applies to other rivers that pass through these towns. The suggested planning framework, known as the Urban River Management Plan (URMP), will be used to attain the overall goal. The URMP

will assist river cities in methodically and comprehensively planning actions necessary to revitalise and sustainably manage the rivers within their boundaries. The URMP is based on the basic notion that keeping healthy rivers is critical to improving urban liveability and production.

Potential Interventions for to inculcate river sensitive behaviour among citizens-

The effectiveness of any river management programme will be determined by how well residents are engaged. It is commonly known that some initiatives have failed because the intended beneficiaries were not included in the design and execution stages of the project. IEC is a method of changing or reinforcing good behaviour in a specified target audience over a certain length of time. Creating IEC in the current environment aims to instil more river-sensitive behaviour in inhabitants and re-establish the river's connection, which has weakened over time. To allow important stakeholders to have an active part in protecting and sustaining river health, the IEC plan should mix multiple techniques and explore various media.

Setting up a community-based river health monitoring mechanism-

In several nations, communities and the general public are being involved in river health monitoring programmes. The goal is to encourage the formation of a personal connection between communities and the river, which will lead to more citizen-driven proactive river management initiatives. Some instances from both emerging and rich nations are shown below. The International Centre for Environmental Management (ICEM) devised a community-based method in 2016 to monitor the health of Myanmar's Ayeyarwady and Thalawin rivers, spearheaded by riparian communities on both rivers. The indicators were chosen to be simple to monitor and relevant to river conditions.

- The flow of the river (by taking fixed-point photos with a cell phone over time)
- River elevation (using a measuring pole)
- River channel condition (documented by photographing a fixed spot in the same area throughout time and marking the date and a description of noteworthy occurrences)
- Riverbank condition (documented by photographing the same spot from a fixed place throughout time and documenting the date and description of major events)
- The standard of water (recording colour, taste and smell of river water and recording significant events)

- Water turbidity (using the Turbidity Chart or the Hydro colour (App) with photographs taken with a phone or camera)
- Counting the amount of solid garbage and debris floating down the river (from a fixed point over time)
- Fish monitoring (the recording of the amount, kind, and size of fish taken by both groups and individuals)
- Event monitoring (recording key events linked to the river's condition and use to offer an overview and synthesis of occurrences in several sectors on an annual calendar).

4. Research methodology -

This part of the report describes the complete research process. This chapter discusses the different approaches used to appraise the selected Kanpur Ghats. The study is broken into two sections. These are visitors and riverine communities since their connections to the river differ according to the livelihood and activity mapping. Different frameworks and theoretical notions are employed to comprehend their participation more precisely.

4.1 The Method of Data Collection-

The majority of the evidence for this study was gathered through a primary survey to gain a deeper understanding of the residents, as well as semi-structured interviews with them. The interviews were done using an open-ended questionnaire that allowed individuals to react in their way. In addition to interviews with local leaders, officials from the public administration and other relevant organisations, such as the researcher from the National Institute of Urban Affairs and the Namami Gange, were considered.

This was done to collect background information and to confirm the citizens' replies to numerous descriptive questions. The interview information was combined with quantitative and qualitative data from published literature, newspapers, and other sources.

Methods used to collect primary data are as follows:

1. Riverine community- Household survey based on the DFID livelihood framework.

2. Visitors- Perception survey and questionnaire.

3. Riverine community and visitors- Questionnaire based on the Arnstein's the Ladder of Participation model.

A sample size calculator may be used to calculate the appropriate sample size. The Cochran formula was used for deriving the sample size and the sample size calculation takes into account the confidence level and confidence interval.

Riverine Community- the DFID livelihood framework is used for building questionnaires and personal interviews to understand the riverine community's dependency on the river economy. The sample size is 120, and the confidence level is 90 while the margin of error is 10. The sample size is calculated through the Cochran formula. The sample size is calculated through the random sampling method for the approx. 500 families.

Visitors- The perception questionnaire and survey were used for understanding the visitor connection and perception of Ghat and the river. The sample size for the perception survey is 80. The 40 surveys were collected using Google forms while the other 40 surveys were taken on Sarsaiyya Ghat discussion with the visitors.

The Arnstein's Model for evaluating the citizen engagement-
Arnstein's the ladder of participation is used for identifying the citizen's level of engagement in the river management and the river economy. The sample size is 40 for the questionnaire. The main stakeholders are NGOs, the riverine community and visitors. Using this theoretical concept the practical questionnaire was formed for analysis.

Content analysis is used using software to examine the interviews and find flaws. The programme analyses the frequency of the repetitious terms uttered by the persons questioned once the interviews are uploaded. The content analysis identifies the subjects that require more attention, which may then be addressed in the proposal.

4.2 Identification of themes-

Content analysis is used using software to evaluate the interviews and identify problems. The programme analyses the frequency of the repetitious terms uttered by the persons questioned once the interviews are uploaded. The content analysis identifies the subjects that require more attention, which may then be addressed in the proposal.

4.3 Study area for analysis-

Six Ghats are taken into account from the land use limitation of these Ghats. The Sarsaiyya Ghat has studied the In-depth Ghat politics and citizen relations. The six Ghats are taken into account while assessing the current land usage. The Sarsaiyya Ghat is being considered for new planning imperatives that can improve its sustainability and bring economic value to Kanpur.

5. Introduction to study area -

5.1 Brief Introduction of the city-

Kanpur is an industrial city in Uttar Pradesh. It is the twelfth most populated city in India and the second-most populous city in the state. It is located 90 kilometres southwest of Lucknow, the state capital of Uttar Pradesh. Kanpur, located on the Ganga's left bank, is one of North India's oldest industrial cities. It is surrounded to the north by the Ganga River and to the south by the Pandu River. According to the 2011 Census, the city has a population of 27, 65,348 (2.7 million). However, according to KNN official data, there were a total of 5, 22,242 homes in the year 2019-20, translating to a total population of about 32, 50,000 (3.2 million). This equates to a nearly 19 per cent increase in population growth over the previous eight to nine years, which is fairly significant. Slums are projected to house between 25 and 30 per cent of the population, owing to rapid population expansion.

Kanpur has a mild and moderate climate. The temperature fluctuates from a low of 2°C in the winter to a high of 48°C during the summer. The monsoon season lasts from July through September, with total rainfall ranging between 450 and 750 mm in the area. However, Kanpur city’s (urban area) rainfall is fairly low, ranging from 250mm to 350mm. The highest amount of rain recorded is 600mm. Kanpur has 40 rainy days per year on average.

The city's terrain is primarily flat. The centre section is high land where minor drains/Nalas begin and run to the Ganga or Pandu rivers. The whole Kanpur district/Nagar is made up of newly deposited alluvium. Kanpur and its environs are characterised by rivers, alluvial plains, water bodies, marshes, cliffs, and ravines. Because of the cliffy sides, the Ganga River's flood plain is not visible within the city boundaries. Outside the municipal limits, however, a well-defined floodplain may be seen.

Kanpur has Municipal Corporation status and is governed by the Kanpur Nagar Nigam (KNN), which covers an area of 260 kilometres. There are six administrative zones and 110 wards in the KNN. The city population density is 105 PPH and the literacy rate is 79.65%. The sex ratio of the city is 857. The city is commonly regarded as the commercial hub of the state of Uttar Pradesh. It serves as a focal point for the state's economic and educational endeavours. It is well-known for its textile and leather industry. Although these businesses have helped the city's and region's economies, they are also partially responsible for

polluting the Ganga River. However, thanks to the government's proactive initiatives, river pollution has been greatly decreased.

5.2 Introduction to sites-

The six ghats were selected among 24 ghats to study the citizen engagement in river management and economy on the bank of the Ganga river in Kanpur. These Ghats are Sarsaiyya Ghat, Bhagwat Ghat, Parmat mandir, Bhairav Ghat, Magzine Ghat, and Atal Ghat.

The stretch of Ganga River in Kanpur is almost 21 km. However, apart from ghats, there are no other riverfront structures. Most of the ghats within the city limits are used for religious purposes. The most recently constructed Atal Ghat, however, is being used for recreational activity. Among the 24 ghats, Atal Ghat, Sarsaiya Ghat, and Bhairon Ghat receive the maximum footfall.

The following are the criteria for the selection of Ghats-

1. The Ghats selected for the study of Land use and citizen livelihood activities are sources of maximum and distinguished types of river-related economic activities.

2. The historic shreds of evidence of community involvement in river-related management and economy were also considered in the selection of Ghats.

3. The Ghats receive a high number of visitor's footfall reckon with the Ghats selection.

4. The citizen-river connection of Ghats was considered while selecting the ghats for studying the land use and citizen livelihood activities.

The selected Ghats varied in terms of the purpose of utilisation. The two selected Ghat Sarsaiyya Ghat and Permat mandir are religious ghats while Bhagwat and Magzine Ghat are the city's cremation Ghat. The Atal Ghat is the newly made Ghat for entertainment purposes.

5.2.1 Selection of 500m buffer- The 500 m selection of buffer is done through the reconnaissance survey and livelihood mapping. The riverine community's residential area is spread under a 500 m buffer and the physical infrastructure e.g. Primary schools, primary healthcare etc is spread mainly under the 500 m. This observation enables marking the land use of Ghat and its vicinity under the 500 m buffer.

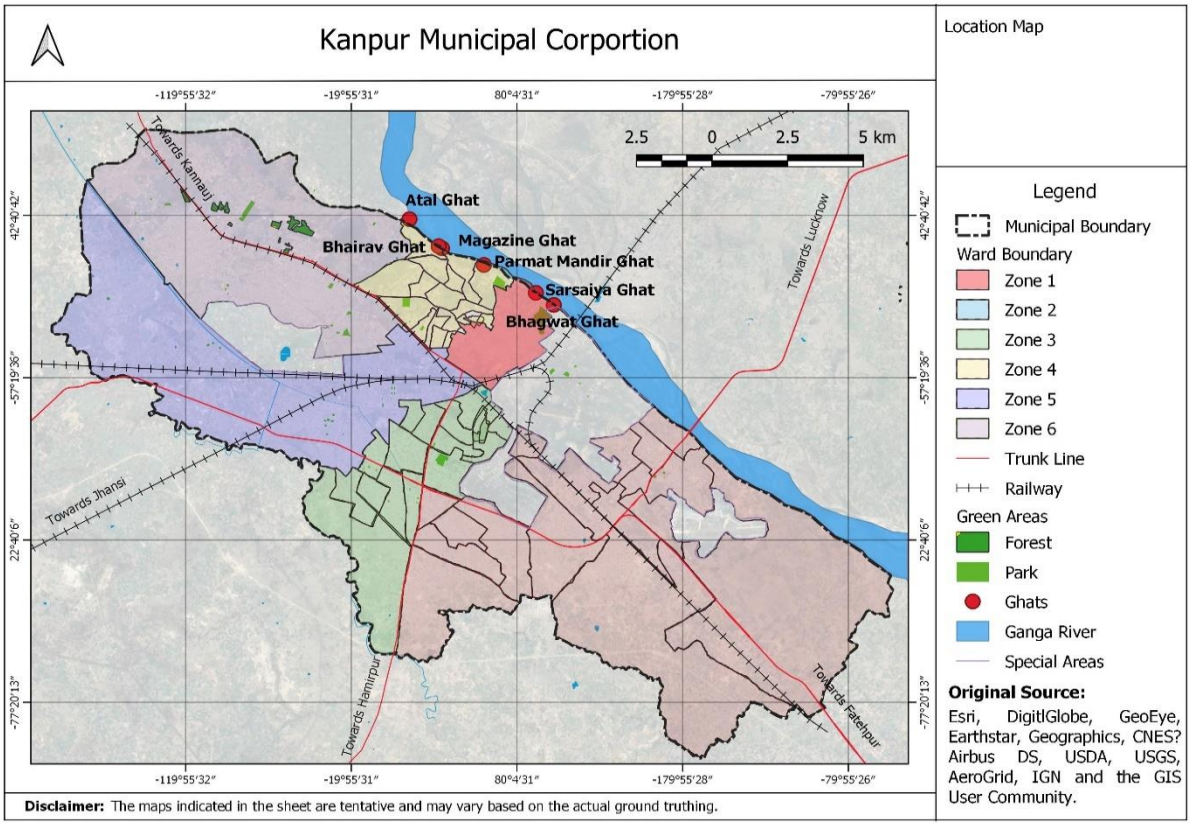


Figure 5.1 Kanpur Municipal Corporation

Activities	Sarsaiyya Ghat	Bhagwat Ghat	Permat Mandir	Bhairav Ghat	Magzine Ghat	Atal Ghat
Visitor/Tourist, Footfall	High	Low	High	High	Low	High
Purpose of visit- Religious/Recreational	Religious	Cremation	Religious purpose	Cremation	Religious	Recreational
Boating	Yes	No	Yes	-	No	Yes
Shops	Yes	No	Yes	No	No	No
Type of shops	Flower shops	Wood Shop	Gift shops, Flower shops, Eatery	_		Eatery
Land Ownership	Govt.	Private	Govt.	Govt.	Govt.	Govt.
River management (cleanliness activities)	Namami Gange (Contract Basis)	Namami Gange (Contract Basis)	Namami Gange (Contract Basis)	Namami Gange (Contract Basis)	Namami Gange (Contract Basis)	Namami Gange (Contract Basis)

Figure 5.2 Different activities that take place in Ghats of Kanpur

5.2.2 Sarsaiyya Ghat and Bhagwat Ghat-

The Sarsaiyya Ghat are the major destination for religious purpose. In the vicinity of Sarsaiyya Ghat, the Ram Janki Mandir is there, working as a pull factor for visitors for many years. The Land-use of Sarsaiyya Ghat is divided into residential, commercial, mixed-use and religious. The religious space is occupied by the riverine community working in Sarsaiyya ghat and as labour in the city. The mixed-use and commercial shops are small general stores, flower shops and puja shops. The eatery and restaurants are not present in the Sarsaiyya Ghat vicinity. The small patch of green space built by Kanpur Nagar Nigam functions as Park for the visitors and the riverine community. The Kanpur central jail is also operating in the 500 m buffer of Sarsaiyya ghat.

Bhagwat Ghat is the cremation ghat in Kanpur city. The major land use in the 500 m buffer of Ghat is the Industrial. The below presented industrial area in the map is the closed industries of Kanpur. Earlier, it was the source of tha economic generation, now rusting with the time. Few wood shops are present in Ghat is the source of economic generation. The auto stand is there to provide the transport services. Few public and semi-public space is also present in the vicinity of Ghat.

Demography- The Sarsaiyya Ghat and Bhagwat Ghat lie in ward no. 59 and Zone 1. The Total population of Ward No. 59 is 27,687 according to the 2011 census of India. The population below 6 years is 1,597. The total worker population in ward no. 59 is 14,151. The WFPR is 54.25.

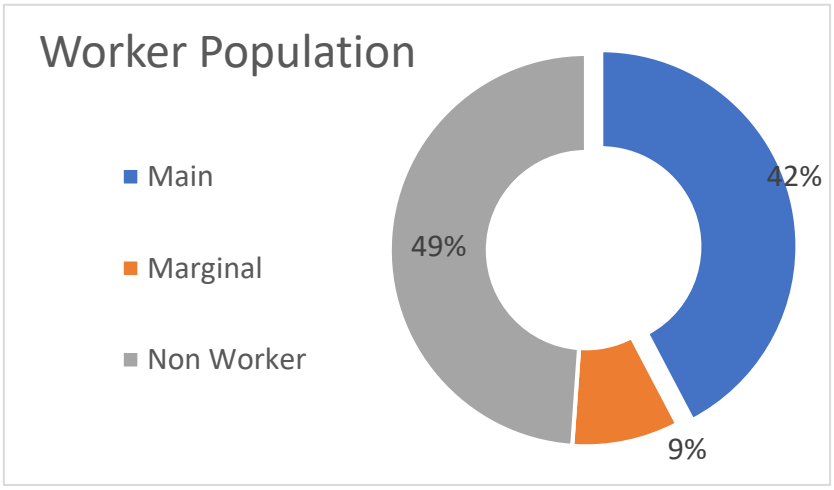


Figure 5.3 Share of worker's population as main, marginal or non worker in Sarsaiya and Bhagwat Ghat

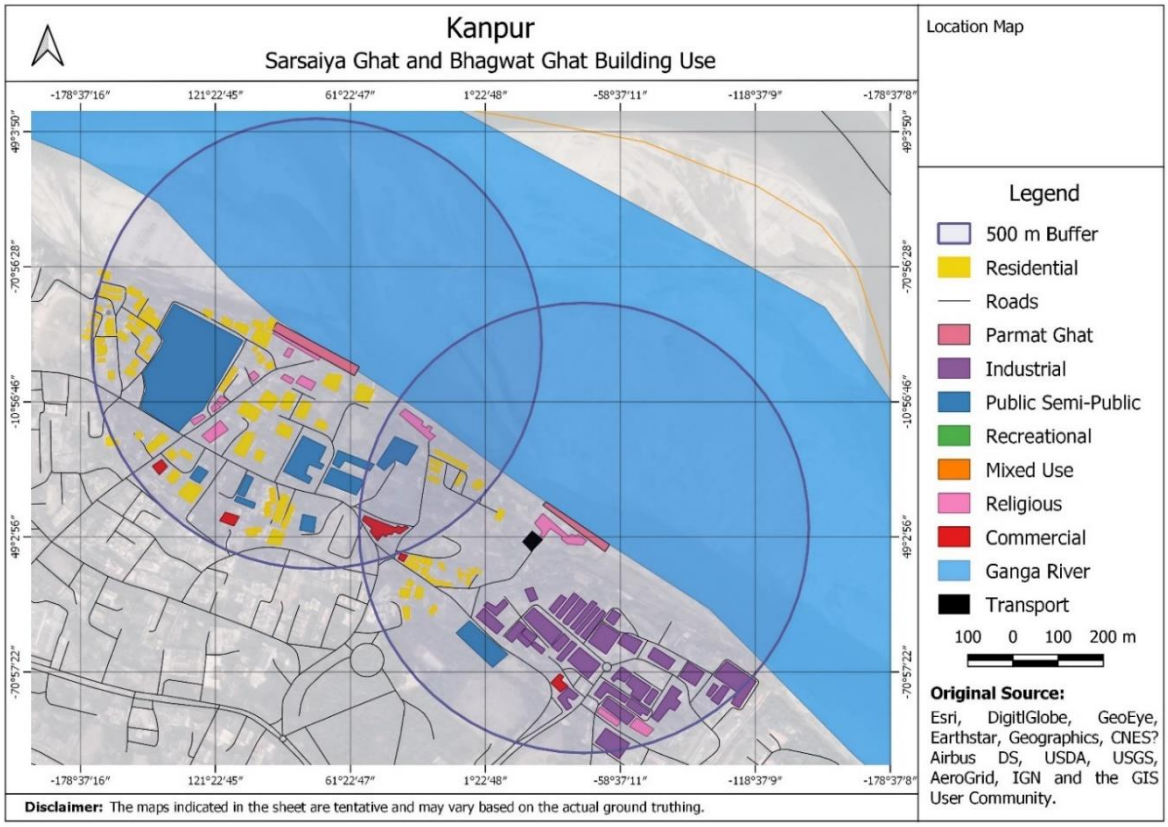


Figure 5.4 Land use map of Sarsaiya Ghat and Bhagwat Ghat

5.2.3 Permat Ghat-

The Permat Ghat is famous for the Baba Anandeshwar temple. The temple attracts numerous tourists and visitors from the town and out of the town. The tourist and footfalls vary by occasion and festivals. The Climate and rain also play an important role in tourist footfall. The major livelihood activities around Permat Ghat are Boating, Shops such as General stores, Eatery, Puja Shops and riverbed farming.

Permat Ghat's land use is classified as residential, commercial, mixed-use, and religious. The sacred area is used by the riverine people, who work in Permat ghat and as city labourers. Small general stores, flower shops, and puja shops are among the mixed-use and commercial enterprises.

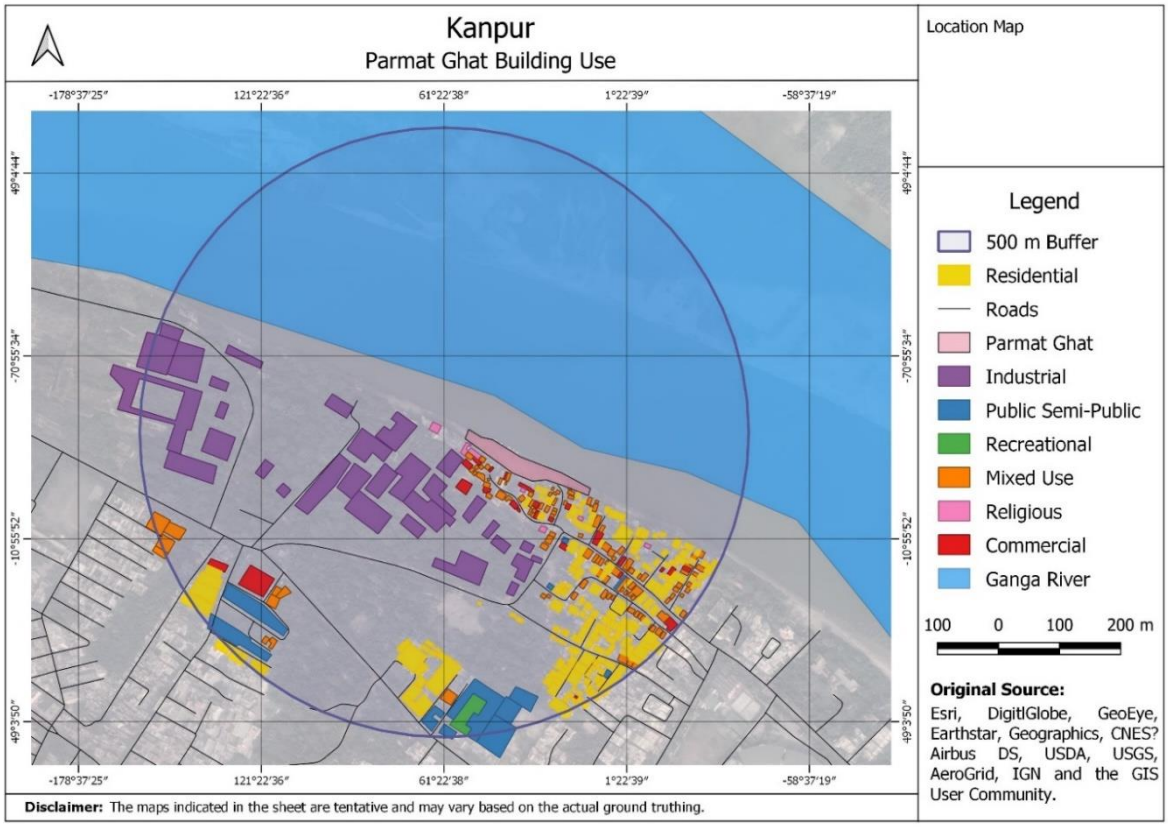


Figure 5.5 Land use map of Parmat Ghat

5.2.4 Bhairav and Magzine Ghat-

Under the vicinity of Bhairav and Magzine ghat the land use is mostly Residential and commercial. The Bhairav Ghat is the crematory ghat while the magazine ghat is the Puja Ghat. The Magzine Ghat has its presence in the pages of India's Independence Movement. The root of this Ghat joined with the revolution of 1857. The freedom fighter "Nana Ji Deshmukh" use this Ghat to manufacture the Rifle's Magazine.

Bhairav Ghat is providing the largest crematorium space to the citizen of Kanpur. The connection between the citizen and the river edge is very different from other Ghats of Kanpur. The citizen's livelihood activities in this area revolve around the wood cutting to wood distribution. The priest's livelihood was also adjoined with the Ghats. Small Puja shops and general stores also find space in the Ghat premise.

Demography- The Bhairo and Magzine Ghat are inward no. 15 and zone no. is 4. The total population of ward 15 is 17,599 according to the census of India. The population below 6 years is 1,617. The total worker population inward no. 15 is 6,338. The WFPR is 39.66.

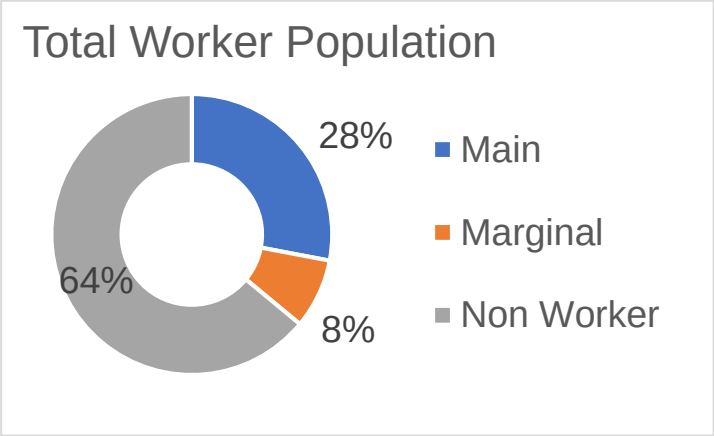


Figure 5.6 Share of worker's population as main, marginal or non workers in Magazine and Bhairav Ghat

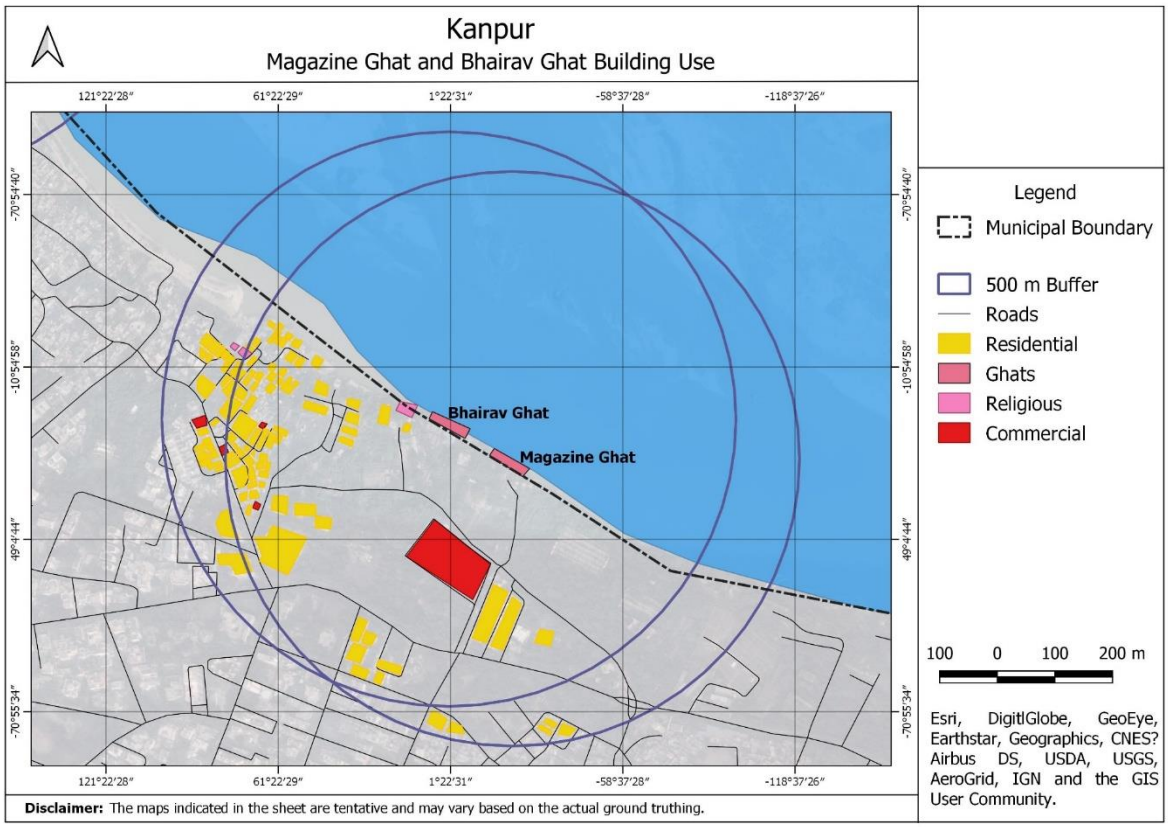


Figure 5.7 Land use map of Bhaurav and Magzine ghat

5.2.5 Atal Ghat- The Atal Ghat is the newly built Ghat by Kanpur Nagar Nigam and under the Namami Gange. The Atal Ghat is accessible to all and facilities like Park and eateries in the surroundings are the new attraction point for visitors. Under the 500 m buffer the main land use is the Residential whereas the STP is also existing in the buffer. It is marked as Utilities and services on the below-showing map. Recreational space such as parks and green space is also near

Sarsaiyya Ghat. At a distance of a few meters, the Ganga Barrage also works as a pull factor for citizens and

Demography- The Atal Ghat is inward no. 1 and zone no. 4. The total population of ward no. 1 is 25,534 according to the census of India. The population below 6 years is 2,593. The total worker population is 8,596. The WFPR is 37.47.

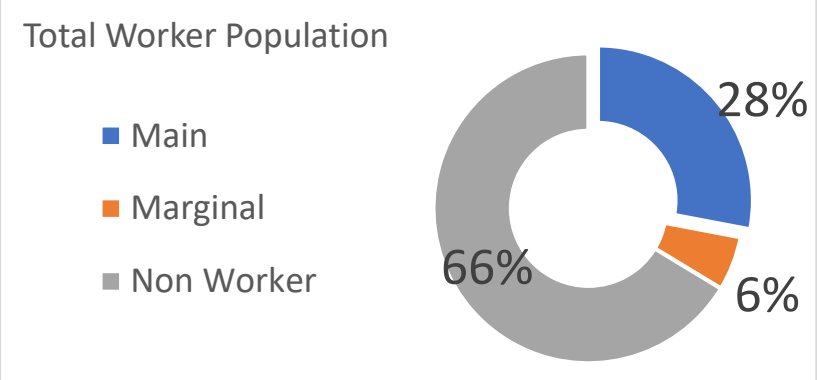


Figure 5.8 Share of worker's population as main, marginal or non workers in Atal Ghat

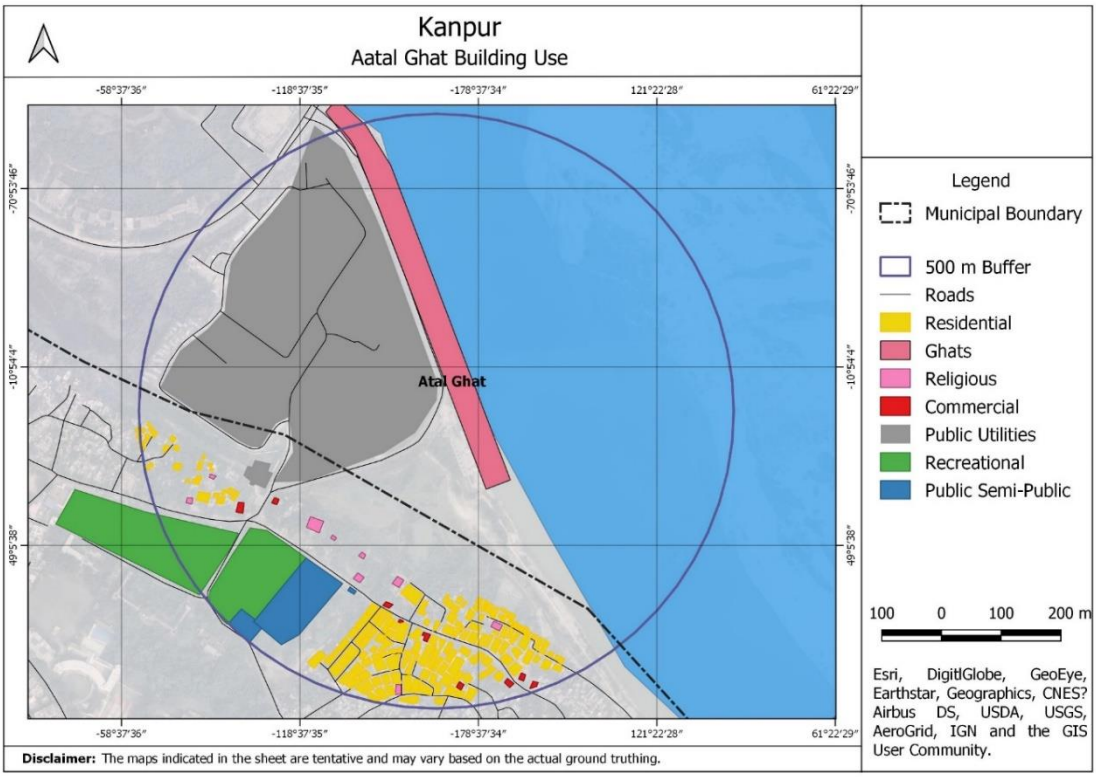


Figure 5.9 Land use map of Atal Ghat

5.3 Selection of Ghat For livelihood and activity Mapping-

Kanpur has various Ghats, including Sarsaiyya Ghat, Magzine Ghat, Bhairav Ghat, Permat Ghat, and Atal Ghat, but Sarsaiyya Ghat is the most notable. According to primary surveys and tourist feedback, the number of livelihood activities and visitors is higher in the Sarsaiyya Ghat than in the other Ghats. The perception survey of visitors and the riverine communities were studied to determine the most popular Ghat and it revealed that the Sarsaiyya ghat was the most visited. Other Ghats, on the other hand, either supply limited forms of livelihood activities or have a low footfall. From these inferences, Sarsaiyya Ghat was the further focus of the study for livelihood and activity mapping. To Understand the Ghat politics and visitors and riverine communities' partly dependency on the river economy Sarsaiyya Ghat was taken into the account for the study.

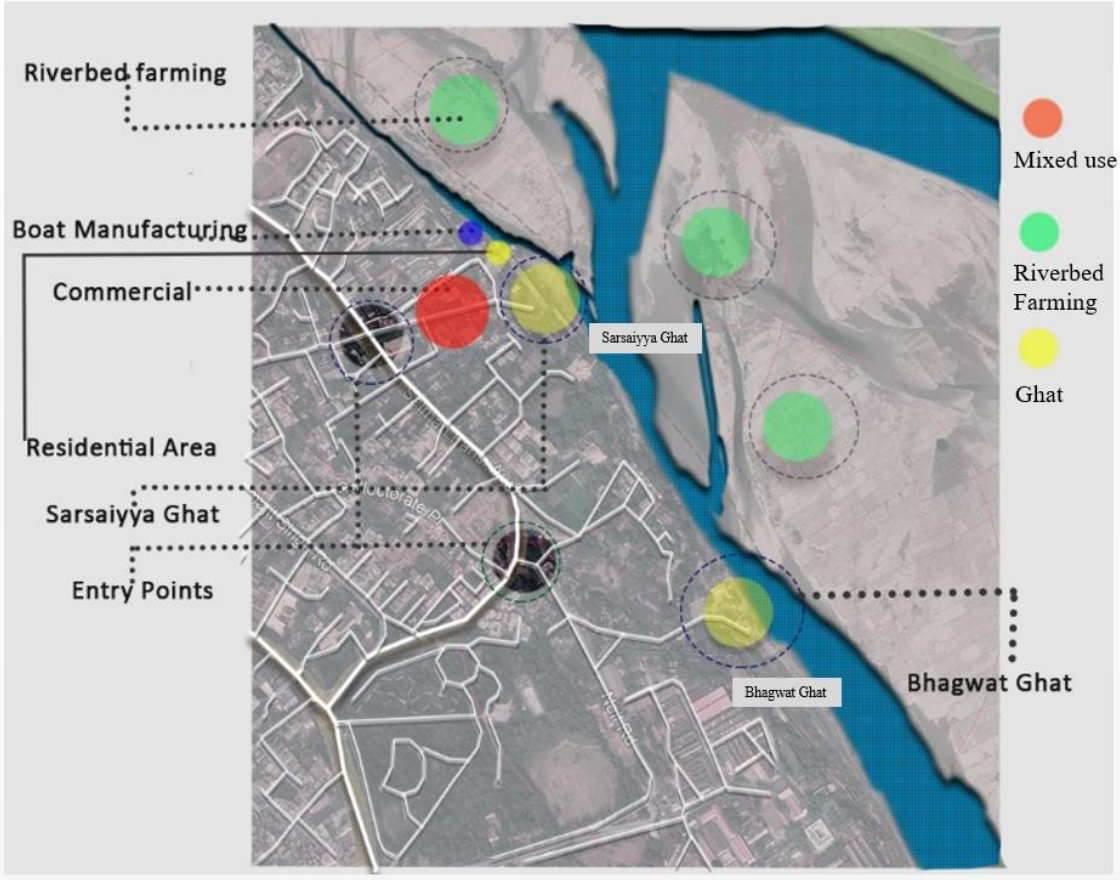


Figure 5.10 Livelihood and Activity Mapping in Sarsaiya Ghat

Sarsaiyya Ghat is a famous destination for its religious purposes. The visitor's footfall varies throughout the year. The main economic activities surrounding Sarsaiyya Ghat are Boating/navigation, Shops (general stores, Puja Shops, and Flower shops), and Riverbed farming. Mostly these shops are Kachha housing. Bhagwat Ghat is a cremation Ghat. The main economic activities are wood shops, Boating, and Deh Sanskaar.

The riverine community finds their livelihood intact with the river. It is the group of most affected citizens from river ecology. Every aspect of their livelihood is impacted by the river directly or indirectly.

5.4 riverine community livelihood assessment-

The DFID livelihood framework was used to prepare the questionnaire for household and livelihood assessment of the riverine community to understand the livelihood dependency on the river economy and participation of the citizen in river management activities.

Type of Capital	Elements
Human capital	Education/Working Status/Sources of Raw materials/Selling of Finished Products/Total Household Income/ Monthly income/Yearly Income
Social capital	a member of Co-Operative Society, River Groups.
Natural Capital	Total Land owned, River, Soil, Forests and Fisheries
Physical capital	Basic Infrastructures such as Roads, Water and Sanitation, Schools, Including Tools, Livestock and Equipment.
Financial Capital	Financial resources, Including savings, Credit and income.

Figure 5.11 Types of Capital and their elements

5.4.1 Human Capital-

Human capital is the ability and qualities of human beings that influence their productivity. It includes education, skillset, or knowledge and it affects their job and income.

Education- The education of the people of the riverine community ranges from no formal education to graduation which infers that there are people with varying

levels of education. There are 22% of people who have no formal education. The reasons can be deprivement condition of their economic status, lack of interest, or family background. There is more share of males around than females among people having no formal education which infers that due to economic conditions male members of the family are encouraged to earn from a very young age. The people having education up to 8th standard is highest which is around 37.5%. This infers that most people have completed their primary education and then have been dropped out of their education. Also, there is a higher percentage of the male population who have primary education. The next level is 12 standard which accounts for around 27% of the sample size, which is the second-highest on the list. The number of graduates in the area is relatively low as people don't prefer to go for higher studies due to their economic conditions and traditional mindset.

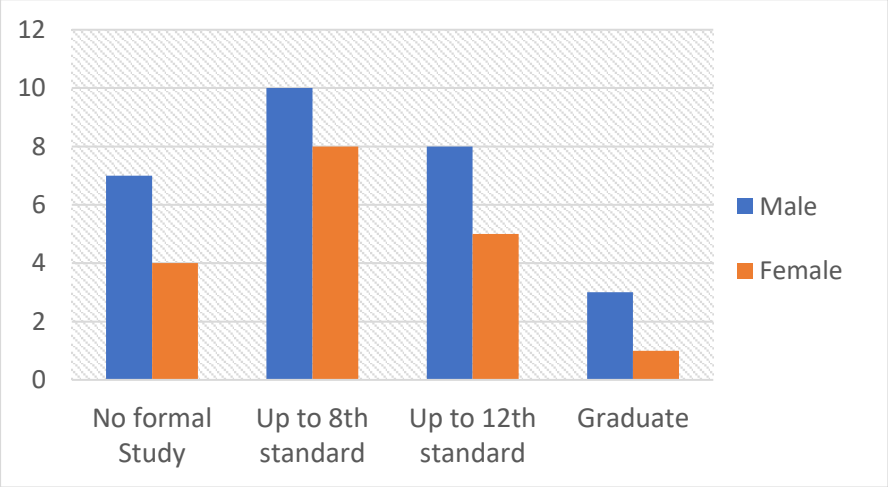


Figure 5.12 Education Staus of the riverbed communities in Kanpur

Working Status-

The working status of the people is very deprived when compared to other people in the same type of area. The reasons for low income are low education level, un-regulated economic activities, middlemen for the trade of river bed farming products, and fewer job opportunities. Both primary and secondary earnings were used to calculate the total household earnings of the family. Around 54% of the population is fully dependent on the Ganga River, these activities include boating, agriculture, shops, etc. Even though their livelihoods are not in jeopardy, all occupationally independent males and females in the urban areas have reported significant changes in the river water. Water's physical characteristics, its interaction with ecological balance, community behaviour and development, livelihoods, policy framework, and climatic change are all part of their interpretation of change. The water quality has greatly impacted their livelihood.

It was seen that communities are barely able to make a livelihood from their main source of income. In Uttar Pradesh, 65 per cent of them live on a monthly salary of Rs 5000 or less. Only roughly 3% to 4% of all respondents said they had a monthly income of between Rs 10,000 and Rs 20,000.

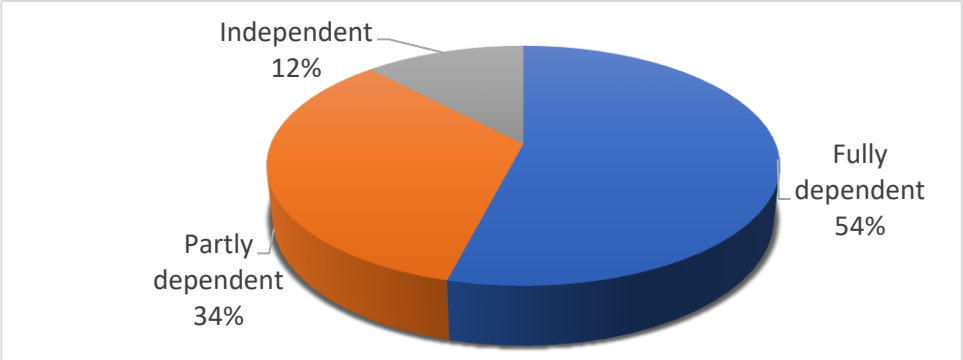


Figure 5.13 Working Staus of the riverbed communities in Kanpur

Source of Raw Materials- The materials which are the basic need for economic activities like boat making and seeds for river bed farming in the river basin of Ganga in Kanpur are referred to as raw materials. All raw materials are brought from local markets due to easy accessibility, time-saving and less distance need to travel to buy the products.

Selling of Finished Products- The finished goods from various economic activities like agriculture and boat making need to be sold and earn their living. The products are sold through middlemen which is one of the main issues for fewer earnings the people. the middleman discriminates against the local people and has a monopoly in the market. The middlemen brought the goods at a low price and sell them at higher prices. The reasons for the inability of the local people to sell the products directly at the market are less accessibility to the market, and low human and capital resources.

5.4.2 Social Capital-

One of the major needs of any society is a community that can look into the needs and requirements of the society. It is also much more required for backward societies like the local people of the Ganga river basin so that people living there are not discriminated against and also to regulate and plan for their development and growth. The study area lacks a formal social group that can help people to make decisions that could help them to grow. The people are not part of any type of social or community group which is one of the reasons for their deprived condition. One of the best examples of community participation in the clean Ganga project is the “Namami Ganga Project”, and people are also participating

in a good amount for this project, so it can be inferred that community groups can operate and helps in the prosperity of people.

5.4.3 Natural Capital-

Land ownership- The land ownership of the area is highly unregulated which leads to the discrimination of natural resources like pollution of the river by the fertilizers and other farm chemicals disposed directly into the river Ganga. The unregulated land ownership also leads to illegal sand mining.

Soil and Water Quality- The soil of the Ganga river basin is highly fertile and excellent for crop production, so it is highly discriminated against by the local people. Over-extraction and water contamination are also problems in the Ganga. Domestic sewage, industrial effluents, and farm chemicals are the main sources of contamination. Over-extraction of water has resulted in the extinction of a huge number of amphibians and aquatic wildlife, as well as a decrease in organic soil content, which has lowered farm output. The temperature of the river lies between 17 degrees Celsius to 20 degrees Celsius and the pH level ranges from 8.5 to 8.8 which makes the water little basic and also affects the life of the people as well as the water animals. The preponderance of skin disorders among the fishing and riverbed farming population has been attributed to the consumption of contaminated water and exposure to contaminated water, the rates of which have dramatically grown in the previous ten years. Medical professionals, on the other hand, claimed that there is no clear difference in the occurrence of skin illnesses among fishermen and non-fishers.

5.4.4 Physical Capital-

Physical capital is the assets that are used in the economic production process. Physical capital comprises the Basic Infrastructure such as Roads, Water and Sanitation, and Schools, Including Tools such as agricultural machinery, Livestock, and Equipment. The physical capital has been analyzed from the perspective of the visitors to the ghats. It is discussed later part of the report.

5.4.5 Financial Capital-

Financial Capital is the money that is used for purchasing productive materials or consumer goods, including personal credit. Anything can be a form of financial capital as long as it has a monetary value and is used in the pursuit of future revenue. On the site, the savings of the people is negligible due to lower incomes. They often take loans to sustain which increases the financial load on them to repay them. The average household income of the people is 5000-10,000 rupees per month. A considerable portion of the people in the densely populated river basin lives in poverty and is financially dependent on the river for existence, as

well as using the water for daily activities. 54 per cent of the family depend upon Ganga for their economic activities. Hence, in case of any flood, the economic condition of the community gets affected negatively. The fishermen who live along the river portions where fishing is prohibited by law and there are few other options for them to earn a living. As a result, they are pushed farther into financial insecurity and possibly destitution. Financial constraints of the people in the area prevent them from making any monetary contribution to community participation initiatives.

5.5 The livelihood Cycles of the Riverine community-

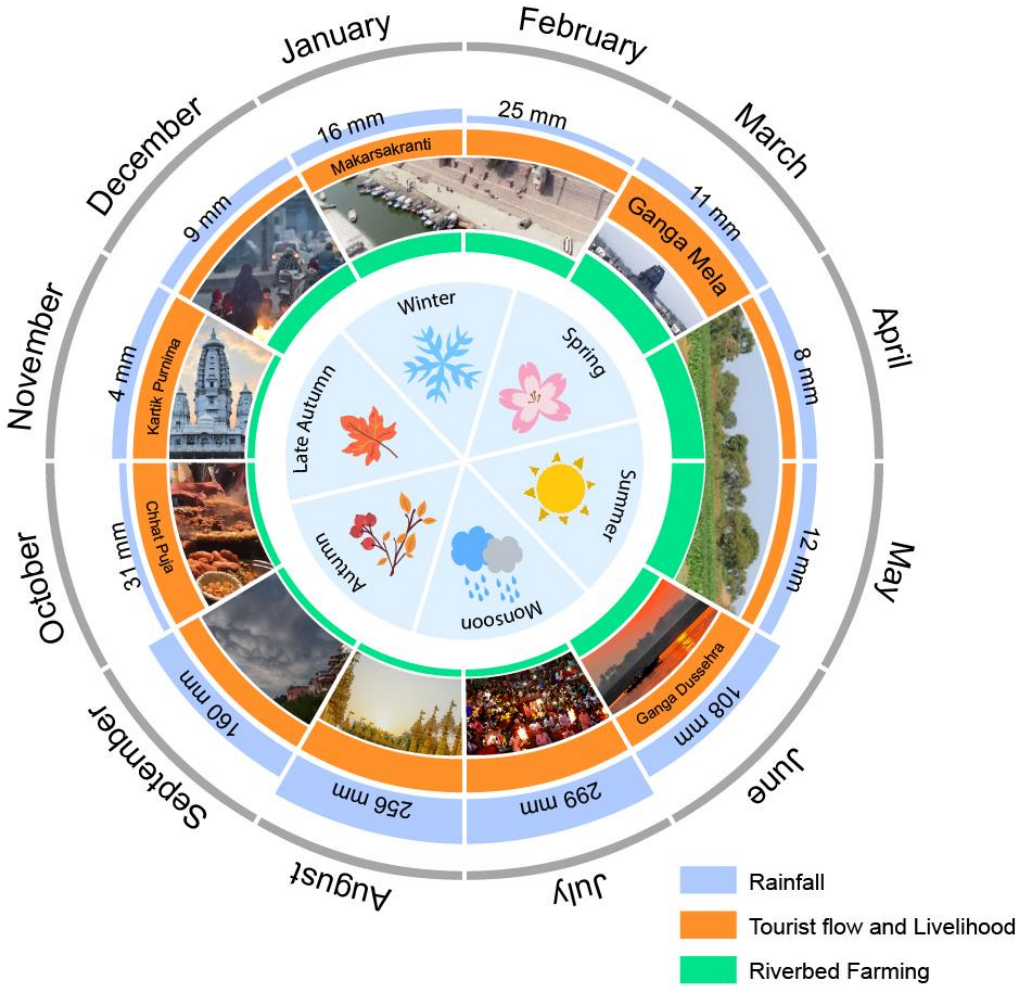


Figure 5.14 The livelihood Cycles of the Riverine community

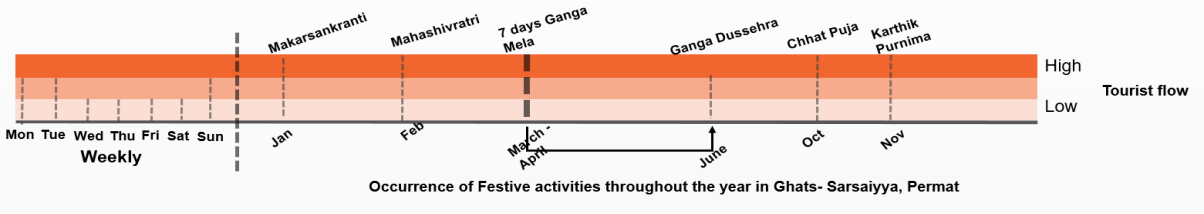


Figure 5.15 Occurrence of festive seasons throughout the year and tourist flow

From the working status of the riverine community's human capital, the data shows that citizens from the riverine community are engaged in multiple types of livelihood activities during the year. To understand their engagement and the livelihood activities of these citizens for a year have been traced for the Sarsaiyya Ghat by the consultation of the riverine community. The acknowledged actors to find out the community's interdependency on the river economy are the Rainfall, Riverbed Land, and Visitors and tourist inflow and Outflow in the Ghat.

5.5.1 Tourist Flow- The occurrence of festive activities throughout the year in Ghats and tourist flow are nexus to each other. The flow is widely impacted by the festivals whereas the Ghats are working as public spaces for religious purposes.

The tourist flow was found to be the most from March to April as there is a 7-day Ganga Mela during the duration. The occurrence of festive activities is high in January because of Mahasakranti, in February because of Mahashivratri, in October because of Chhat Puja and in November because of Karthik Purnima. The tourist flow in June was lower than other festivals but higher than the other remaining months of the year. The tourist flow was found to be low on Saturday and weekdays except for Monday and Tuesday and the flow was average on Monday, Tuesday, and Sunday.

5.5.2 Livelihood Cycles- When livelihood cycles throughout the year were analyzed based on the author's perception and questionnaire survey, it was found that the riverine community's livelihood activities were based upon climate, festivals, tourist flows and other economic opportunities. It was also inferred that in the monsoon season when rainfall was more than in July and August with the rainfall average of between 256 mm in august and 299 mm in July, the occurrence of festive activities and tourist flow was most, while the riverbed farming was least because of submergence of the riverbed lands. As the rainfall decreases, riverbed farming increases due to the reemergence of riverbed lands. The tourist flow and the occurrence of the festive activities decrease in April and May because of the lack of festivals and weather conditions as it is hot, and the rains are less too with an average of 8mm in April and 12 mm in May. At this time, riverbed farming is also maximum due to the lesser rains. The month of May shows an exception to this due to the presence of a 7-day Ganga Mela which attracts tourists and festive activities. However, riverbed farming is still more because of the absence of significant rains. There is a significant tourist flow during October and November as they have festivals of Chhat puja and Kartik Purnima respectively. The rainfall in these months is 31mm and 4mm respectively. The riverbed farming is lesser due to weather conditions of autumn

and late autumn season due to dryness. Also, it takes time for riverbeds to drain out and remerge. Hence, there is a transition from monsoon to summers with an increase in riverbed farming and again a transition from summers to monsoon, but this time decrease which is opposite to the previous scenario. From the livelihood tracing of the riverine community, the inference is that there is a need for other economic opportunities in another sector as they are mostly dependent upon the river and tourist flow. The riverine communities mostly face shocks when floods and draught happen. The uncertainty of their livelihood forces them to migrate in search of labour work.

5.6 River economy based livelihood dependency-

A primary survey is taken to understand the changing scenario of the riverine community's livelihood dependency on the river economy through the years. The respondents were from the population that belongs to the riverbed community. The livelihood types considered are Boating, Shops, Riverbed Farming, priests, boat manufacturing, and Janitor. There sample size of the primary survey was 120 respondents. These respondents were from 5 ghats, of which 4 were religious and 1 was an entertainment ghat that responded to the survey conducted.

The highest level of Livelihood dependency on the direct river economy at the household level was in the year 1980. The household-level dependency in percentage for the Parmat mandir was 72 per cent, 61 percent in Bhairav Ghat, 61 percent in Bhagwat Ghat, 65 percent in Sarsaiyya Ghat and 15 percent in Atal Ghat. For the year 2000 Livelihood dependency on the Direct River economy at the household level was found to be 45 percent in Parmat mandir, 52 percent in Bhairav Ghat, 48 percent in Bhagwat Ghat, 43 percent in Sarsaiyya Ghat and there happened to be no dependency in Atal Ghat. Lastly, for the year 2020 Livelihood dependency on the Direct River economy at the household level was found to be 38 percent in Parmat mandir, 36 percent in Bhairav Ghat, and 33 percent in Bhagwat Ghat, 39 percent in Sarsaiyya Ghat and 20 percent in Atal Ghat. Parmat mandir, Bhairav ghat, Bhagwat ghat as well as Sarsaiyya Ghat are religious ghats in terms of their land use and serving purpose while Atal ghat happens to be an entertainment ghat. It is observed that within 20 years the riverine community’s livelihood dependence has declined in the case that belongs to religious ghats. However, in the case that belongs to Atal ghat (entertainment), the citizen livelihood engagement increased. The possible three reasons behind the decline in of riverine community’s livelihood dependency in the case of religious ghats as well as the increase of citizen livelihood in the case of entertainment ghats could exist as

the river flow of the Ganga has been changed after the construction of the Ganga barrage. The Atal Ghat is upstream of the Ganga river while other ghats are downstream. The Atal Ghat's water quality and intensity of river flow are high. The entertainment options present in the Atal Ghat and Ganga Barrage attract more visitors than the other Ghats. After the construction of the Ganga barrage, the large chunk of riverbed land shifted towards Unnao's end. The declining Ganga River quality is one of the reasons behind the affected livelihood of the riverine community. The decline of the river quality of Ganga affected the spiritual connection between citizens and the river itself.

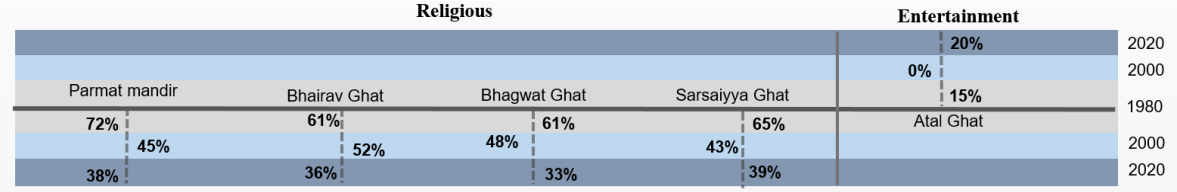


Figure 5.16 Livelihood dependency of riverbed communities through the years in Ghats

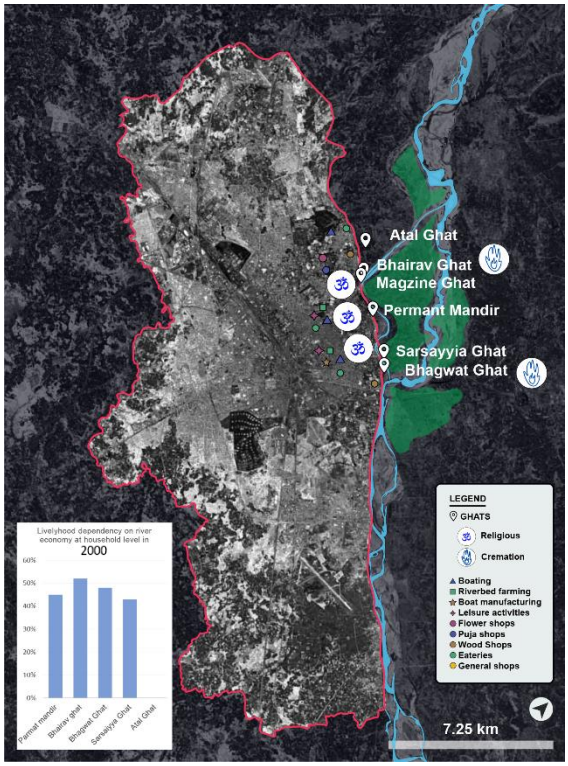


Figure 5.17 Livelihood dependency of riverbed communities in 2000

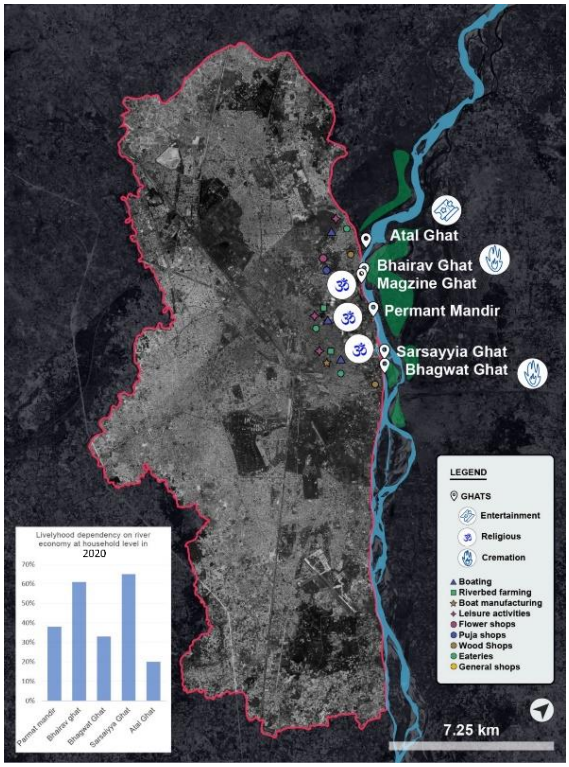


Figure 5.18 Livelihood dependency of riverbed communities in 2020

5.7 Citizen Participation level in the river-related governance-

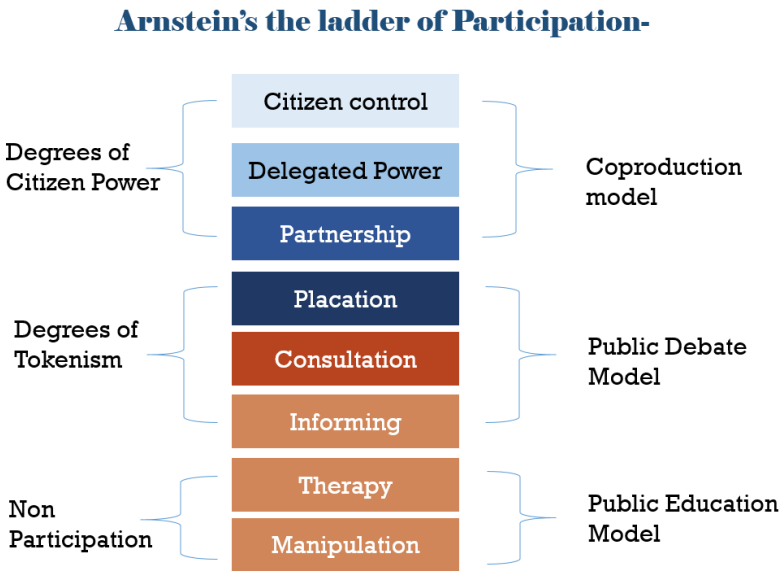


Figure 5.19 Arnstein's Ladder of Participation

Arnstein's public engagement typology is illustrated as a metaphorical" ladder," with each rung reflecting elevated attention to a community agency, control, and power. Arnstein offers a descriptive continuum of participatory power that extends from position (no power) through degrees of tokenism (fake power) to degrees of citizen participation, in addition to the eight "rungs" of involvement (factual power). Consequently, this model of citizen participation for primary data collection in the study area and further apply the model to uplift the citizen engagement in the governance and decision making of the river economy. To understand the engagement question related to every rung asked while for the responses the three options were there i.e. No, Yes, Sometimes. The total number of respondents was 40.

The eight rungs of the ladder of Citizen Participation are:

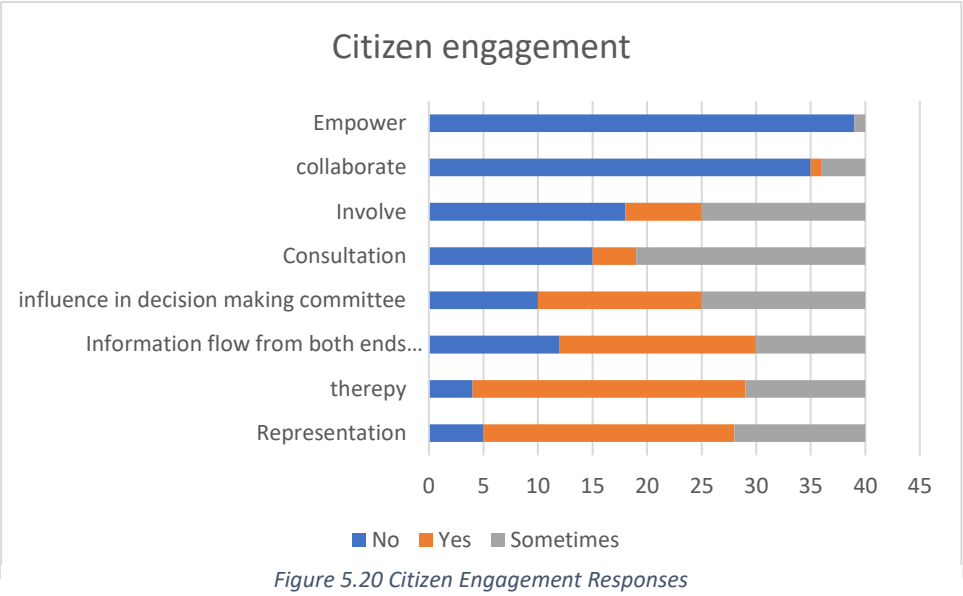


Figure 5.20 Citizen Engagement Responses

1. Manipulation

Manipulation is an "illusory" kind of participation in which public institutions, authorities, or directors deceive individuals into feeling they're being handed power through a process that has been designed to deny them authority. The questions that were being asked to understand this position of participation include representations in local government and river-related development.

Thus, rather than true citizen engagement, the bottom rung of the ladder represents power holders' metamorphosis of participation into a public relations tool. While doing the primary survey and having analyzed the data recorded, it shows that around 12.5% of the respondents agree that their participation is illusionary, while 57.5% think they get represented in the local government and the rest answer sometimes.

2. therapy

When public officers and directors "believe that helplessness is synonymous with internal illness," they design pseudo-participatory programmes that try to convince citizens that they're the issue, when, in fact, it's institutions and programs that are causing difficulties for citizens." What makes this kind of 'participation' so jealous is that citizens are engaged in significant exertion, but the focus is on healing them of their 'pathology' rather than altering the racism and victimization that induce their 'pathologies,' writes Arnstein. The therapy rung represents that the riverine communities are the problem for the river ecology and its Maintainance. It showcases that authorities are running awareness

programs through rallies, and signboards to teach and aware the citizen about river management and the economy.

This helped us to understand that the government and authorities are putting effrots into the awareness program for citizens. The responses show that 10% say they are not attended any awareness program by the government authorities for such while 62.5% of surveyors say they are being included while the others responded sometimes being involved in such discussions.

3. Informing

While Arnstein acknowledges that informing "citizens of their rights, liabilities, and options can be the most important first step toward licit citizen participation," she also notes that "too constantly, the emphasis is placed on a one-way inflow of information — from officers to citizens — with no channel handed for feedback and no power for concession. Meetings may also be made into vehicles for one-way communication by simply presenting superficial information, discouraging questioning, or furnishing inapplicable replies." In instructional circumstances, citizens are "bullied by futility, legalistic language, and sanctioned prestige" to accept the data supplied as true or support the enterprise put forward by those in authority.

This being the first step towards participating local citizens in the river economy, 30% of responses suggest that superficial data are being presented to them, while 45% think they are given and provided with the right information and data and thus are rightly interpreted leading to a meaningful information flow from both ends.

4. Consultation

Also, Arnstein notes that “inviting citizens’ opinions, like informing them, can be a licit step toward their full participation.” Still, when discussion processes are “not combined with other modes of participation, this rung of the ladder is a shame since it offers no assurance that citizen enterprises and ideas will be taken into account. The most frequent styles used for consulting people are station checks, neighbourhood meetings, and public sounds. When power holders circumscribe the input of citizens’ ideas solely to this position, participation remains just a window-dressing ritual. People are primarily perceived as statistical abstractions, and participation is measured by how many come to meetings, take leaflets home, or answer a questionnaire. What citizens achieve in all this exertion is that they have shared in participation. And what power holders achieve is the substantiation that they've gone through the needed movements involving ‘those people.

With local citizens being informed and taking into account their consent, they also need to be consulted for their opinions which is a precondition to citizen participation and may help decentralize it in the river economy. Around 38% of respondents say their consensus is not taken in these riverside developments while 53% say that the developments are consent driven.

5. Placation

Participation as placation occurs when citizens are granted a limited degree of influence in a process, but their participation is largely or entirely tokenistic; citizens are simply involved only to demonstrate that they were involved. In Arnstein's words "An illustration of placation strategy is to place a many hand-picked 'good' poor on boards of Community Action Agencies or public bodies like the board of education, police commission, or housing authority. However, the have- nots can be fluently outvoted and foxed, If they aren't responding to a constituency in the community and if the traditional power elite holds the maturity of seats."

Thus while asking the question of how much the residents think they are being convinced or appeased by the authorities, 38% of them think yes, they are being appeased for their developments while the other 38% say they are sometimes convinced of the same. Thus the major section of the society is inclined toward thinking the same.

6. Partnership

Participation as cooperation occurs when public institutions, officers, or directors allow citizens to negotiate better deals, prescription opinions, share backing, or put forward requests that are at least incompletely fulfilled. In Arnstein's words "At this rung of the ladder, power is redistributed through concession between citizens and power holders. They agree to partake in planning and decision-making liabilities through similar structures as common policy boards, planning panels, and mechanisms for resolving standstills. After the ground rules have been established through some form of give-and-take, they aren't subject to unilateral change." Arnstein does note, still, that in numerous cooperation situations, power isn't freely participated by public institutions, but rather taken by the citizens through conduct similar to demurrers, juggernauts, or community organizing.

To understand the citizen engagement at this level of the ladder, questions like "do citizens influence the decision making of river economy" answers that a very narrow section around 18% thinks are being involved while the rest incline towards the other side of the answer.

7. Delegated Power

Participation as delegated power occurs when public institutions, officers, or directors give up at least some degree of control, operation, decision-making authority, or backing to citizens. In Arnstein's words "At this position, the ladder has been gauged to the point where citizens hold the significant cards to assure responsibility of the program to them. To resolve differences, power-holders need to start the logrolling process rather than respond to pressure from the other end."

The level at which citizens are being collaborated with and getting a role to play in the decision making power of the river management committee is very limited and so does the respondents suggest that a major chunk of 88% of people agree with the question of "do they get a role to play in these activities".

8. Citizen Control

Participation as citizen control occurs, in Arnstein's words, when "actors or residents can govern a program or an institution, be in full charge of policy and directorial aspects, and be suitable to negotiate the conditions under which 'outlanders' may change them." In citizen-control situations, for illustration, public backing would flow directly to a community association, and that association would have full control over how that backing is allocated.

The survey shows that 97% of citizens think they are not empowered to have a controlling aspect in riverside development and economy.

The Arnstein model helped understand that participation of citizens and residents in the decision making powers or even at the lowest rungs of the ladder, is very limited in the riverside developments and economy and thus the authorities, to better engage its citizen need to decentralize its power at the local level so that people can have their share of opinions in the decisions being made for them. Thus we need to propose in line with this participatory model to better engage the riverine community that not only includes the citizens and residents, but also the shop owners, boatmen and other affected people who are directly involved with the river economy and its dimensions. These rungs or levels of Arnstein's ladder of participation give us an alignment to structure the proposal for citizen engagement. Along with this, the model helped in understanding who are the actors that govern the politics of ghats at the very local level and how we can manage and get citizens involved in the same.

From this model, it is evident that there were the responses that lie in the "sometimes" and even "yes" category. It shows that even in the riverine community the power in the representation, and earning opportunities are not

evenly distributed. It paved the way to understand the power dynamics of Ghat and the riverbed area.

5.8 Power Dynamics of Ghats-

The Ghats in the Kanpur is the public space wherein few places the inaccessibility of the representation decision making restrict the resources to the one part of the riverine community while few Power holders are enjoying these Public Assets. There is discrimination among the citizens whose livelihood depends on the river economy. To understand the power dynamics of Ghats some evidence and interview-based study through a primary survey was carried out. Sarsaiyya Ghat has been taken into the account for studying the Power Dynamics.

Landholding in the Sarsaiyya Ghat– The mostly land in the Sarsaiyya Ghat is taken by the priests in the order of power dynamics, it comes first as the major power holder. The 69% of Sarsaiyya Ghat is the occupied by the Priests, while 24% is occupied by the Boatsman the remaining the 7% is occupied by the small shopkeepers e.g. flower shops, which is majorly outside of the Ghat premise. When the question about participation in river management activities such as cleanliness was asked their responses were in the rung of the Non-Participation, while asking the same question to boatsman, they were participating in the Namami Gange project of Ghat cleaning.

Riverbed Farming- Riverbed Farming lands are unregulated land, few farmlands come under the jurisdiction of Unnao district and other Farmlands come under the jurisdiction of Kanpur district. Since the riverbed lands have no specific land ownership of riverine communities. It is subject to a land conflict between different Stakeholders. The riverbed land distribution happens through mutual decisions. Earlier the more powerful family takes control of a large chunk of land. Which affects the livelihood of other riverine communities. Using pesticides and fertilisers also affects the water quality and river ecology. The sustainable practice of urban and riverbed farming can be implied.

The distribution of land in a few spaces is based on a first come first serve basis. Which still causes land conflicts. These unregulated lands are both threat and an opportunity, the sustainable practice of these land can help to grow riverine communities and engage citizens (visitors) to be part of the economic generation.

Representations in local Governance- Few people from riverine communities have representation in the local governance, mainly these are a priest or economically strong, while others have no such presence in the Government. There is no union or cooperative society in these communities.

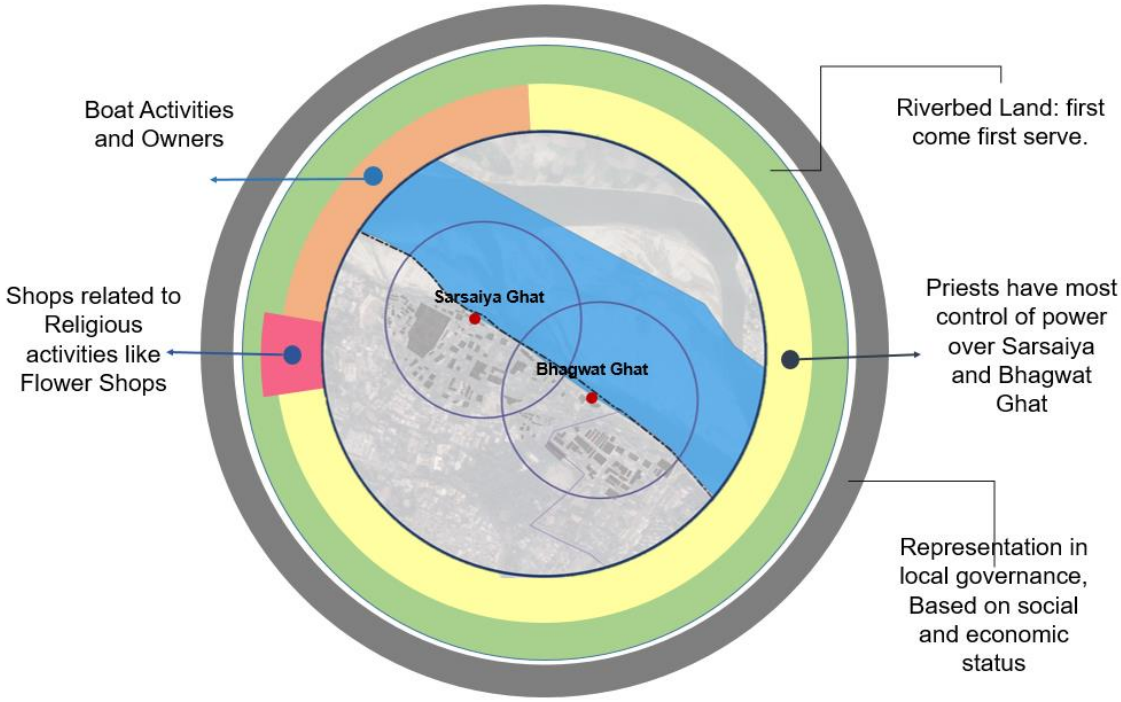


Figure 5.21 Power Dynamics of Sarsaiya Ghat

5.9 Role of different actors of river and Ghat-

The role of citizens plays a major role in riverine community participation. The general people must be more involved in river management if rivers are to be maintained sustainably and potentially resolve conflicts.

NGOs-

Non-Government Organisations are working to control environmental pollution and preserve the natural environment of the river. NGOs organise river conservation camps which aim to raise awareness regarding the conservation of rivers and riverbeds and work towards it. NGOs also organise cleanliness drives for the river Ganga.

River community-

The river community is engaged in activities such as flower shops, religious ornamental stores and general stores. People of the community are also engaged in riverbed farming and boating. Most of these activities are dependent on the river Ganga and their livelihood is impacted by bad management and the quality of water. Hence, few boatmen and residents from the riverine community are engaged on a contract basis in river and Ghat management by Namami Gange or the NGOs. When surveyed from the riverine community, it was found that there

is 80 percent of participants from the riverine community in the river management activities.

Visitors-
The frequency of visitors varies from ghat to ghat and also from season to season. Visitors' engagement in river management activities is quite less which accounts for 5 per cent of the visitors that were surveyed regarding the same. Policy frameworks and campaigns for river conservation can be implemented in several ways.

There is a **role of organisations** in doing the same.

Nomami Gange-
Organisations such as Namami Gange which aims at cleanliness, conservation, and pollution control have various initiatives such as cleaning the Ganga river and restoration of old buildings and murals. The initiatives by Namami Gange will have an impact on water use efficiency in farming and encouragement of citizens to participate in river management and conservation.

Kanpur Nagar Nigam-
Kanpur Nagar Nigam's present principal tasks include public health, sanitation, conservation, and solid waste management; urban poverty alleviation; and provision and upkeep of urban amenities and services such as parks, gardens, and playgrounds. Kanpur Nagar Nigam/Kanpur Development Authority looks into various projects such as Ghat development projects and also into licencing of the boats. For example, the development of ghats up to two kilometres is proposed with all entertainment facilities.

PWD-
PWD in Kanpur aims at the connectivity of ghats keeping in mind congestion relief, improved safety, improved air quality, improved quality of life and improved opportunities for economic development.

Jal Nigam-
Jal Nigam has been tasked with the responsibility of operating and maintaining the city's water and sewerage systems. Jal Nigam checks the quality of the water through a water quality monitoring system and standards. It also includes the lab testing of water.

5.10 Visitor's perception -
Demographic profile of respondents-

The primary survey was done to understand the visitor's perception of the ghats and river, the surveyed population was asked a few questions. The majority of the polled visitors (92.3) were adults which are in the age group category of 19 to 59 years while the remaining 7.7 per cent were found to be adolescent population who are in the age group of 13 to 18 years. 76.9 per cent of the surveyed population were males while the remaining 23.1 per cent was found to be females.

Frequency of Visiting Ghats-

It was discovered that the frequency of visiting ghats for most of the surveyed population (59 per cent) agreed that they visit Ghats a few times in the year. 28.2 per cent of the people agreed that they visit the ghats once a month while 4.3 per cent of people went to visit the ghats once a week. The remaining 8.5 per cent in total went to ghats for more than a week.

Form of Transport Visiting Ghats-

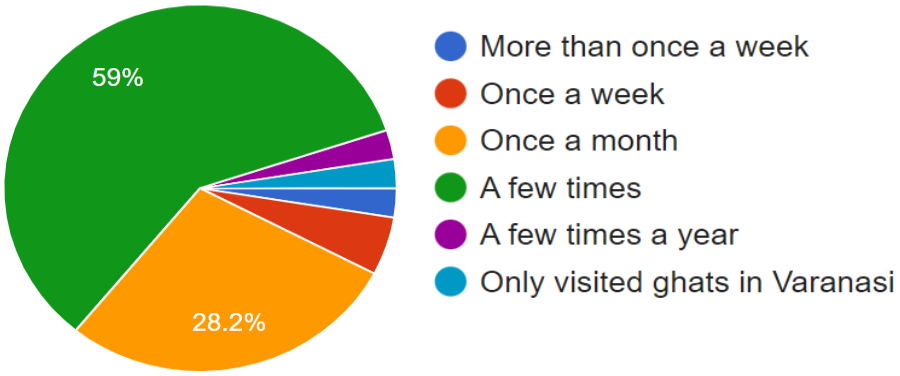


Figure 5.22 Pie Chart for Frequency of Visiting Ghats among respondents

When asked about the form of transport the surveyed population used to visit the Ghats, the bus was found to be most popular with 53.8 per cent population travelling by it. Next popular was the auto-rickshaw which constituted 33.3 per cent of the total share of all modes of transport. 10.3 per cent of the surveyed visitors visited the ghats on cycle and the remaining 2.6 per cent visited the ghats by train. Some negligible visitors visited the ghats by private vehicles or metro which clearly shows that people did not prefer these modes of transport for the visits to the ghats.

Visitors Perception survey-

A primary survey was also conducted to understand the perception of the visitors of the facilities in the ghat perimeter. Visitors were asked to rate various facilities on a scale of 0 to 5.

Travel convenience-

When surveyed regarding the travel convenience, 31 per cent of the visitors which is the most percentage of the surveyed visitors rated it 3, 28 per cent rated it 2 and 23 per cent rated it 4. 13 per cent rated the facility of travel as 1 while 5 per cent which is the least percentage of the visitors rated it 5.

Connectivity-

44 per cent that is most of the surveyed visitors rated the connectivity 3. 20 per cent of the surveyed visitors rated connectivity as 2 while 18 per cent rated it as 4. 10 per cent rated connectivity 5 while the remaining 8 per cent rated connectivity 1.

Community Spaces-

The majority of the visitors surveyed (36 per cent) rated community spaces as 3. 28 per cent rated it, 23 per cent rated it 2 and 10 per cent rated it 1. The least percentage (3 per cent) rated community spaces 5.

Tourist attraction-

When asked about the tourist attractions, 41 per cent of the visitors rated it 3. 31 per cent rated tourist attraction 2 and 15 per cent rated it 1. 8 per cent rated tourist attraction 4 whereas 5 per cent rated it 5.

Entertainment Options-

More than half of the surveyed visitors (54 per cent) rated the entertainment options 2. 23 per cent of the surveyed visitors rated entertainment options as 3 while 18 per cent rated it as 1. 5 per cent rated entertainment options 5. None of the visitors rated entertainment options 4.

Cleanliness-

About half of the surveyed visitors (52 per cent) rated cleanliness as 2. 23 per cent of the surveyed visitors rated cleanliness as 3 while 10 per cent rated it as 1. 10 per cent also rated cleanliness 4. Lastly, the remaining 5 per cent of the visitors rated cleanliness 5.

Shopping-

When surveyed regarding the remaining facilities including shopping, 41 per cent of the visitors which is the most percentage of the surveyed visitors rated it 1. 28 per cent rated other facilities 2. 21 per cent rated other facilities 3 while 10 per cent which is the least percentage of the visitors rated it 4. None of the visitors rated other facilities 5.

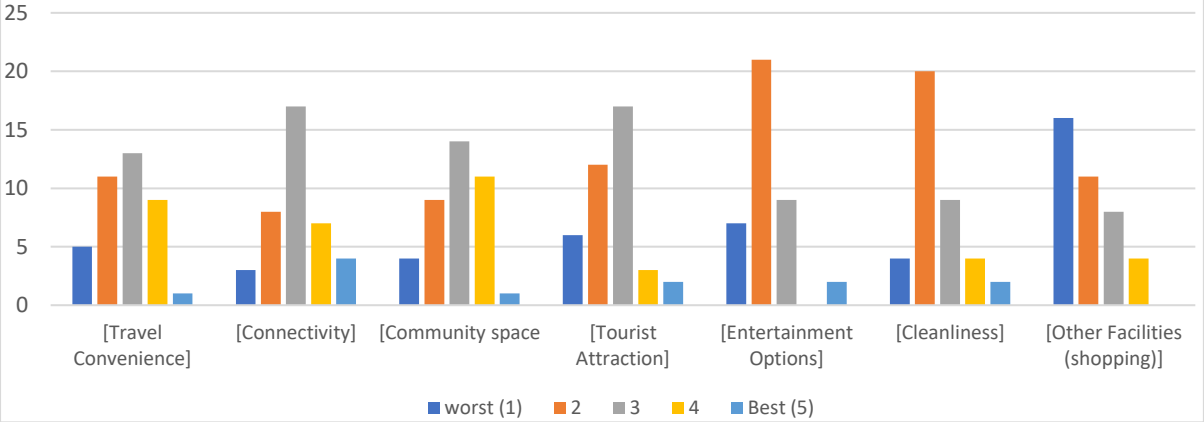
Road Infrastructure-

On a scale of 0 to 5, polled visitors when asked how much they would like to rate the existing road infrastructure of Ghats, more than half (56.4 per cent) rated it 4. 25.6 per cent rated it 3 followed by 10.3 per cent rated it 2. 5.1 per cent rated the road infrastructure while the least per cent (2.6 per cent) rated it 1.

Overall experience-

Surveyed visitors when asked how much they would like to rate Ghats as per their purpose of visit on a scale of 0 to 5, about half (53.8 per cent) rated it 4. 23.1 per cent of people rated it 3 followed by 12.8 per cent that rated it 5. 7.7 per cent rated the ghats as per visit purpose 2 while the least per cent (2.6 per cent) rated it 1.

The perception of the visitor is not good regarding the ghats, so their visits are not frequently. For the same reason, the connection of the visitors is less with the river, hence the awareness is also less which affects the citizen engagement in river management, activities, and economic generation in the area. When asked if they were willing to participate in the river management activities like cleanup, plantation at the water source, protection of aquatic vegetation, Festivals, concerts, maintaining flower beds etc., 71.8 per cent agreed while 28.2 per cent denied the same therefore there is a need for connecting citizens to the river by providing new economic generation opportunities, Recreational space



Analysis Findings-

- Citizen engagement in river management and the economy is on the third level of the ladder of participation i.e. Non participation.
- The citizen's role in the decision making and management of river-related development projects is merely on the last ladder. Participation between the riverine community and authority is on the rung of therapy and information sharing.
- Citizen engagement in river economy and management with regards to health, conservation, sanitation, and livelihood will help them reach the highest levels of participation.
- Few powerholders have access to the Ganga riverbed lands. There is no regulation on exploiting the river economy.
- The connection between the visitors and the river is weakened through the years. It affected the livelihood of the riverine community.
- The weakened connection of visitors to the river is reasoning the lack of awareness of river management at the individual level as well as community level.
- Saraiyya Ghat is the most visited ghat, most coming during Ganga Mela during spring and start of summer, and thus, require recreational activities.
- This also can be supported by the fact that the recreational growth over the years has increased significantly and thus, new activities will increase the local economy.
- Major ghat politics is driven by the priests who directly benefit from the local authorities.
- The citizens have various roles to play in the form of visitors, NGOs, and the Riverine Community, thus very important to include them in the decision-making process.

6. Proposals -

The proposal chapter is divided into two parts. The first part deal with the proposal of the River credit system. The second part consists of the proposal for the recreational opportunity along the Ghats and river edge to connect the citizen with the river. The study aims to engage citizens in river management using the river economy as a catalyst. As assessed from the primary surveys and interviews, the majority of the weakened connections are because of the not presence of economic and social connections with the river. The riverine community's livelihood dependency changing on the river economy and the major notion has been found in the religious Ghats. The proposals are given to uplift their livelihood by providing market space, Attraction points, and regulating riverbed lands so that the engagement of these citizens in river management can be ensured.

6.1 River Credit System-

As already discussed, Arnstein's participatory model helped in understanding river dynamics that is its politics and power aspects, and the level of citizen engagement with local authorities in terms of river management and economy. It inferred that the levels at which the citizen participation takes place are very limited and they hold little to no decision making power in riverside developments.

Thus, to increase their partnership and to empower the riverbed community, a river credit system can be used wherein the citizens can be incentivised and can be given river credits based on various activities relating to the river economy such as waste management, incense stick making from flower waste, river surface cleaning, ghat management, etc.

The proposal of the river credit system model was constructed through the concept of the social credit system and the citizen engagement in river management. The river credit system is conceptualised from the social credit system and modified into the Indian river context.

The Social Credit System is a highly flexible tool that can quickly be applied to address new policy priorities. Thus, it is envisaged to be a fully data-driven system wherein the data relating to citizens participating in various river economic activities will be acquired from different authorities and thus amalgamating actors, citizens with governing bodies using digital media and making it digital governance (participation).

Taking into account the social credit system and understanding the riverbed land regulations, both were integrated to form a RIVER CREDIT SYSTEM which uses the means of GIS tools and techniques to demarcate land to be provided as an incentive to the community, and to construct a social credit matrix wherein scores in the form of credits will be given to participants.

The social credit system-

The Social Credit system is a groundbreaking accountability system that claims to determine a person's trustworthiness. A complicated algorithm that considers both social and financial behaviour and generates a personalized score. Each of China's 1.4 billion residents will be assigned a starting score, which will be influenced positively or negatively by their behaviour. A citizen's score will be updated regularly as their financial and social interactions are tracked. The People's Republic of China has accepted the SCS system structure from several private-sector opt-in pilot programs. The Directory of Commercial Information (DICOM) is used in Chile to assess a citizen's reliability and reward or punish them. Certain data extraction methods have been applied to create an individualized DICOM for each Chilean inhabitant, which has an impact on the country's economic life. In Chile, people with low DICOM scores have had difficulty getting loans, housing, and jobs. There have been numerous reported economic externalities associated with the DICOM system, which are likely to be replicated in China. Unlike Chile's DICOM system, the SCS takes social conduct into account while calculating a score.

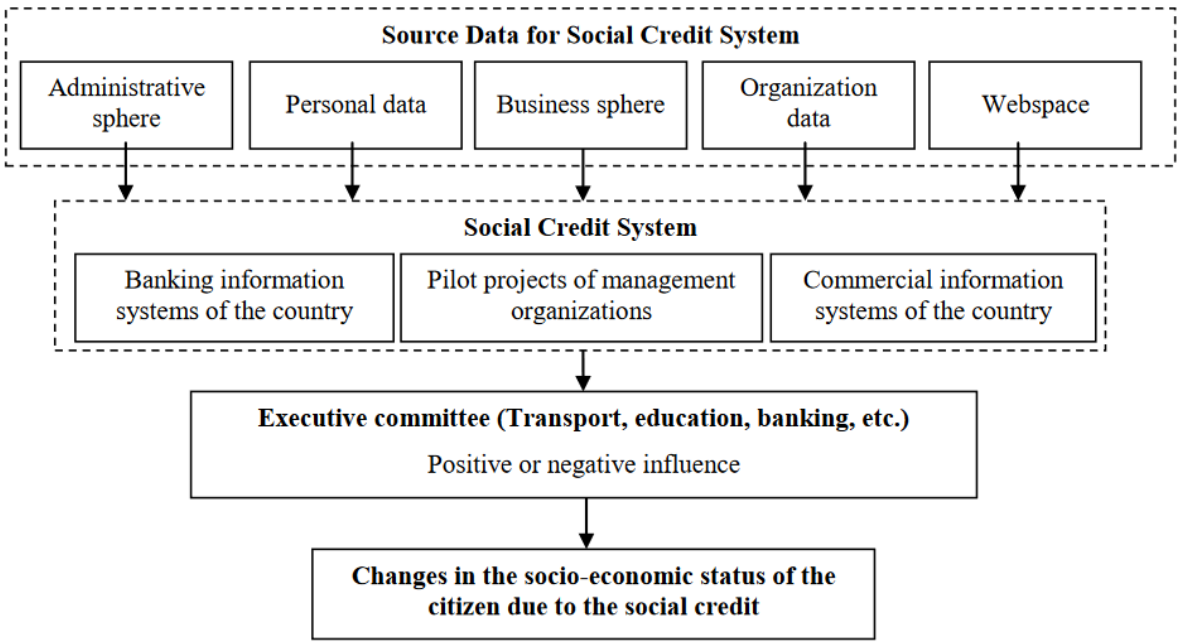


Figure 5.23 Methodology of Social Credit System - China

The social credit system in the Republic of China

The procedure of distributing social Credits- Each citizen is given a social score of 1,000 at the outset of the system, which is then tiered into a letter grading system. A score of 960 to 1,000, for example, is considered an A; 850 to 955, a B; and 840 to 600, a C. Any score below that is deemed a D, indicating that the person receiving the score is an "untrustworthy" citizen. As a result, social and financial behaviour is taken into account, and an individual's actions are summed up to provide a personal social credit score. Some offences are penalized more severely than others, and so play a distinct role in the complex process that determines a person's social credit score.

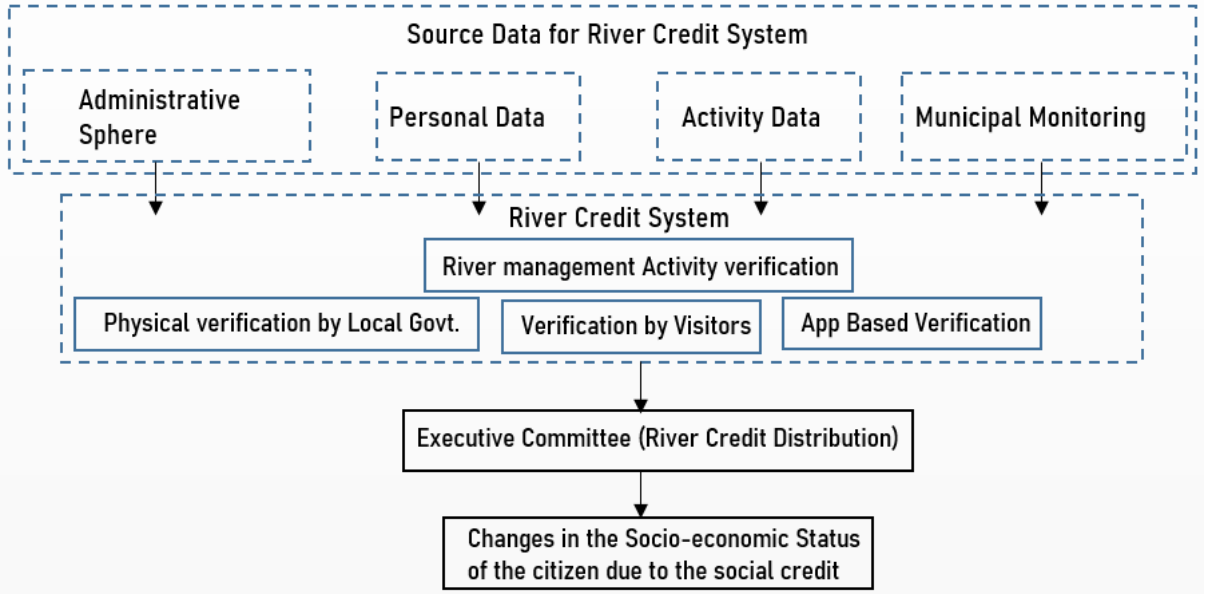
Methodology-

If a person with an A or B score is convicted of drunk driving, for example, their score will instantly drop to a C. This violation carries highly harsh repercussions, with scores ranging from an A+ to a D. Financial habits such as excessive "frivolous spending" or undesirable behaviours such as speeding can result in a negative impact on a person's social credit score if they are deemed unfavourable by Chinese government standards. Citizens who behave in an inconsiderate manner in public places face serious consequences. Those who walk their dogs off-leash, for example, may have their pets confiscated by government officials and must pass a test to reclaim them. Reduced access to school and housing loans, as well as travel and transportation restrictions, can all be consequences of a negative social credit score. Because the government encourages employers to evaluate the "blacklist" before hiring, residents deemed "untrustworthy" due to a low credit score would effectively become second-class citizens, while the privileged will have access to desirable social advantages. Individual Chinese people may benefit from a high credit score by earning lower utility costs or quicker government application approval. Being placed on the government's "blacklist" is the outcome of either having an exceptionally low social credit score or engaging in "uncivilized behaviour." Many Chinese individuals have been discovered, often to their surprise, to be on the "List of Dishonest Persons Subject to Enforcement by the Supreme People's Court," preventing them from purchasing a plane ticket or even being barred from travelling. It is possible to be removed from the blacklist, albeit this is not handled only through the legal system. To remedy the matter, an individual must either pay their fine or file an appeal with the court.

Current Problems in the Social Credit System-

- ❖ The use of SCS is a technique for punishing civilians. Any law-abiding individual may be subjected to the system's "warning and punishment" concept in the event of misbehaviour.
- ❖ Citizens' social credit is directly influenced by the data obtained in the systems and the algorithms used. There is no accountability in the methods utilised, and it is unknown what specific kinds of information are used to make up "big data."
- ❖ Through SCS, there is the possibility of prejudice against any citizen by a group or individual. For example, if firm management purposefully delivers unfavourable criticism about an employee's performance and trustworthiness, the employee's and his or her family's social security may be jeopardised.
- ❖ Interfering with citizens' rights through SCS and keeping their socioeconomic condition reliant on information systems are incompatible with democratic norms and "personal information safety" standards.

River credit system- The river credit system is focused on the management of the river, reducing Ghat and riverbed land conflicts while governed by the river credit System, providing the livelihood activities, decreasing the municipal expenses, increasing citizen Participation level, Dismantling the inaccessibility in the Ghats and promoting river economy. Unlike the social credit system, the river credit system is not Big Data-driven, AI-based or a danger to citizens' privacy. It is based on the citizens' wish for participation in the river credit system. The river credit system is shown below:



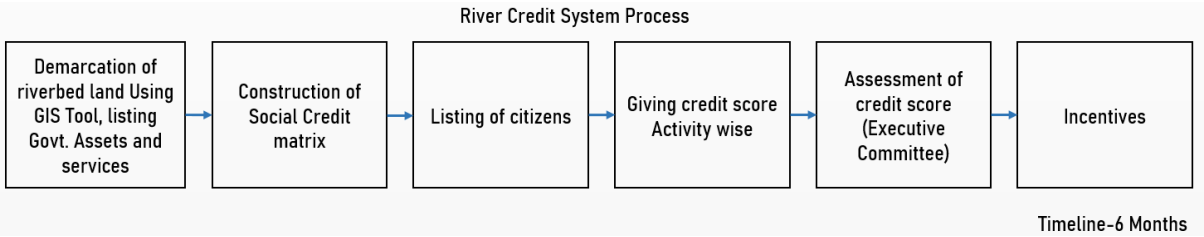


Figure 5.24 Methodology of River Credit System

The river credit system is a 3-6 month process, The citizen can take benefit from incentives for the maximum number of 6 months after that the credits will expire. The river credit system is an attempt to develop a river specific credit system for ephemeral planning and strategies to solve riverbed conflicts as well as engaging citizens in river management.

Cutting the expenses of the cleanliness costs and resources-

For the Sarsaiyya Ghat of Kanpur, India. The cost for 10 years was calculated for the cleanliness and Ghat management. The human resource need for the Ghat is mentioned below:

The Resources need for Sarsaiyya Ghat-

For Ghat Cleaning:

- For 100m stretches of ghat 2 no. of personnel for sweeping and mopping per shift.
- 1 Supervisor for 500m of ghat stretch.

❖ For Bank Cleaning:

- 2 people per km of bank stretch if the mechanized waste collection is proposed and 4 people per km of bank stretch if the manual waste collection is proposed. In addition, 1 person to clean waste from the crematoria on ghats for a 1 km stretch.
- 1 supervisor for every 5 km of the bank.

❖ For river Surface cleaning:

- 1 person for the mechanized boats and 2 persons for the motorboats.
- 1 person per 100kg of floating waste for collection from the river surface and transferring to the vehicle.

❖ For Collection of drain waste:

- 2 people for cleaning from waste from drains and transferring the same to the collection vehicle.

❖ Toilet Cleaning:

- 2 gent's janitor for cleaning of gent's toilet complex and 2 lady janitor for cleaning of ladies toilet complex.
- 1 supervisor for 10 toilet complexes (f) Drivers and Operators: As per requirement

Base Year	2	3	4	5	6	7	8	9	10
1.15	1.22	1.29	1.38	1.46	1.55	1.64	1.74	1.84	1.95

It is observed that the total expenses for the next 10 years in the Ghat cleanliness activities would be 15.22 crore for a Sarsaiyya Ghat while assuming a growth rate of 6 per cent. These expenses can be cut off through the use of the river credit system in the Governance of the river.

6.2 Connections Along the River-

The analysis shows that the growth of the recreational sector has been increasing over the years and thus an infrastructure to support and enhance its growth is required. This will encourage citizen participation along with continued economic growth for the riverine community.

The proposed infrastructure includes a parallel connection along the river Ganga with the development of floating restaurants.

Intent

Parallel connections with the help of trails along the stream's edge serve numerous different users and connect neighbourhoods and development spots to the water, furnishing public access, opening up views, andre-engaging the streams as part of the public realm.

Trails are riverside connections that emphasize moving along the river for longer distances as a pedestrian, runner, cyclist or rollerblader. Trails emphasize furnishing riverfront connections for recreational uses, and similar should be designed with those users in mind.

The trail will also act as a promenade which will give openings to witness the waterway from a different edge point. Promenades are places to see and to be seen. They can open up the views of the river and integrate the character of the community with the pastoral nature of a park. Promenades can be where landings cross-connections along the riverfront park and where civic sections are abutting the riverfront.

Key Concepts

- Connections should be accessible to the public indeed when they're neighbouring private development.
- Connections should vary in character, furnishing both quiet, reflective threads and lively, inhabited promenades.
- Promenades give openings to witness the swash from a different edge point
- Public activities and events, similar as sidewalk cafés, road expositions and merchandisers, will enliven the connections, both as ephemeral and permanent installations.
- Connections should be usable year-round on a variety of scales, encouraging exertion. In the summer, they will give tranquil shade along the riverfronts, while in the winter the sun will access to warm the surface of the trails and promenades for recreational users and pedestrians alike.
- Parallel connections between landings, including trails and waterway roads, will give a soft, green foil to the urban density and activity.
- Riverfront trails should be simple and integrated with the landscape and defined by the foliage of the park.
- Each stretch of the trail provides unique conditions, requirements, and opportunities. Results should be applicable for each member to plan for step-by-step perpetration, one design at a time.

Thus, the thoroughfares along a riverfront can be an instigative and different way to experience riverfront premises and to produce new opportunities for development conterminous to them. They can make the riverfront more public and open up all areas of the park for enhanced public safety and persons with limited mobility. At the same time, care must be taken in designing and locating riverfront thoroughfares to ensure that access to the riverfront isn't confined by the presence of vehicular thoroughfares, and with pedestrians as a primary consideration. Riverfront streets should be perceived as an extension of the riverfront park.

Regulatory Requirements

- Limit riverfront street width to no further than two lanes of traffic and one lane of on-street parking.
- The maximum width for riverfront thoroughfares should be 10m, including two lanes of traffic and one lane of on-street parking on the land side of the road. The favoured width is 9m.
- For new thoroughfares along the riverfront, deliver an applicable setback that allows a natural gradient and enough space for different desired exertion along the waterway.
- Provide a 2.1-2.4 m sidewalk and 1.2-1.5 m tree range. Where space is limited, the trail may substitute for the riverside sidewalk.
- Orient riverfront thoroughfares to pedestrians and light traffic. Truck and delivery traffic aren't applicable on riverfront thoroughfares.
- Post maximum speeds of 25 miles per hour on riverfront thoroughfares, with traffic calming measures integrated into pedestrian sections at intervals of no further than 120-180 m.

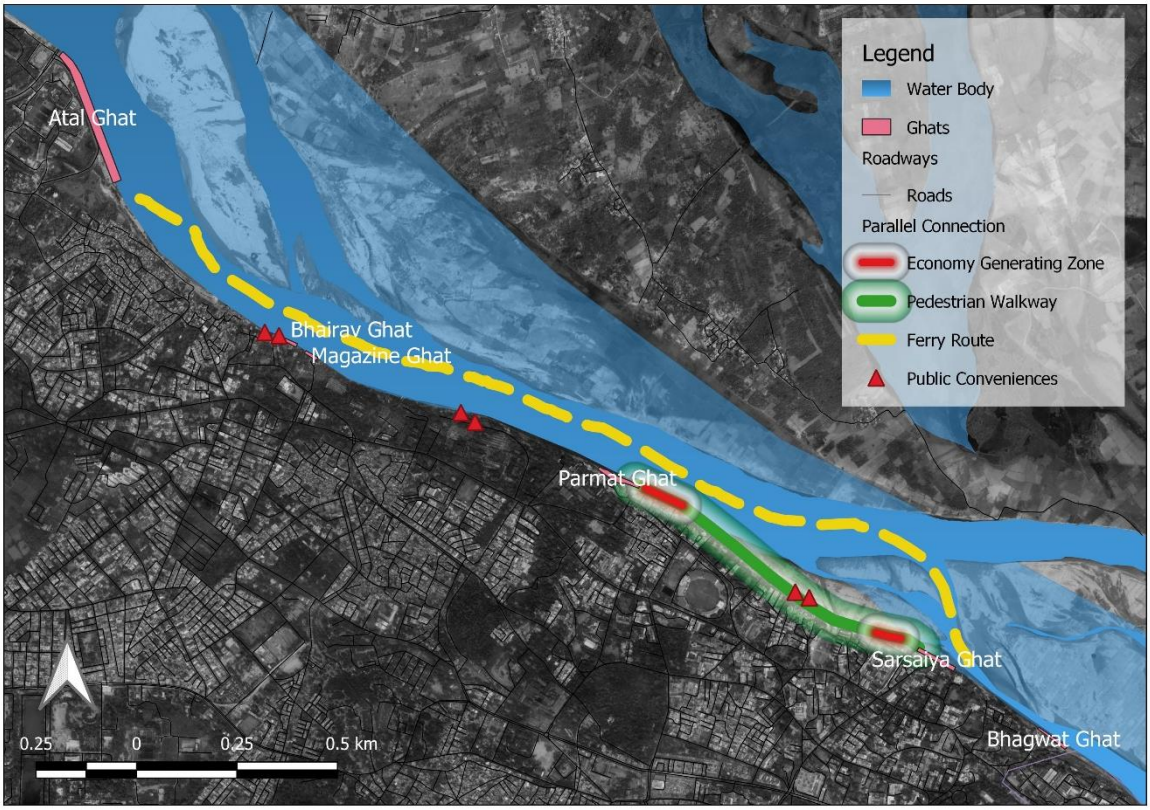


Figure 5.25 Connection Along River

Integration of these regulatory frameworks will ensure regularized pedestrian traffic and economy generating zones which will include the street vendors and other shops relating to river economy aspects such as flower shops, religious shops, ornamental, general stores, etc.

Ferry route boat service is provided on the whole stretch from Atal Ghat to Bhagwat Ghat, whereas for earlier stages, the pedestrian walkway is proposed between Parmat Ghat and Sarsaiyya Ghat, and in between, two economy generating zones each of 100-120 m in length with the thoroughfare width to be 9-10m.

7. REFERENCES

Md. Yassin A.B., 2015, Developing Guidelines for Riverfront Developments for Malaysia, Pacific Rim Property Research Journal, 17:4, 511-530,

Urban River Management Plan, November 2020

Kanpur Urban River Management Plan, 2021

National green tribunal report, 2019

Swachha Bharat mission, 2021

Tarannum f., Kansal A., 2018 ICT for Public Participation in River Water Quality Management. The Journal of development communication

Prasad P., 2019 Ganga River Resources and the Flow and Non-flow related Livelihood: A case study Uttar Pradesh in India

House M., 1999, CITIZEN PARTICIPATION IN WATER MANAGEMENT,

Middlesex University. Queensway, Enfield, Middlesex, EN34SF, UK

Maheshwari V. and Shirodhar A. (2017), 'Interrelationship Of Riverfront With The City', INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH, vol 6, no. 08, pp. 142-147.

Szaszak G. Fekete A. and Kecskés T. (2017), 'Access to Waterfront Landscapes

For Tourists Living with Disabilities', YBL JOURNAL OF BUILT ENVIRONMENT, vol. 5 no.1, pp. 05-13.

Schueler, T.R., 1994, The importance of imperviousness, in Schueler, T.R. and Holland,

H.K., eds., The practice of watershed protection: Ellicott City, Md., Center for

Watershed Protection, p. 7-18.

Szaszak G. and Kecskés T. (2020), 'Universal Open Space Design to Inform Digital Technologies for a Disability-Inclusive Place-Making on the Example of Hungary', Smart Cities, vol. 3, pp. 1293-1333.

Saha K. Kalra R and Khare R. (2020), 'A geospatial approach to enhance religious tourism in India—A case of Ujjain city, Madhya Pradesh, GeoJournal Spatially Integrated Social Sciences and Humanities.

Shamsuddin S. Abdullah F. and Mohd. Amin R. (2009), ‘PROVISION OF BARRIER-FREE ENVIRONMENT AT WATERFRONT DEVELOPMENT IN MALAYSIA’.

Rebernik N., Barbara G. M. (2018), ‘A 4-dimensional Model and Combined Methodological Approach to Inclusive Urban Planning and Design for ALL’, Sustainable Cities and Society.

Access-improving the accessibility of historic buildings and places. (2011). Ireland: National Disability Authority.

Alipour, H., Olya, H. G., & Forouzan, I. (2017). Environmental impacts of mass religious tourism: From residents’ perspectives. Tourism Analysis, 22(2), 167–183.

Alzouby, A. M., Nusair, A. A., & Taha, L. M. (2019). GIS based multi criteria decision analysis for analyzing accessibility of the disabled in the Greater Irbid Municipality Area, Irbid, Jordan. Alexandria Engineering Journal, 58(2), 689–698.

Abdel-Azziz, A. A., Abdel-Salam, H., & El-Sayad, Z. (2016). The role of ICTs in creating the new social public place of digital era. Alexandria Engineering Journal, 55, 487–493.

Albrechts, L. (2006). Shifts in strategic spatial planning? Some evidence from Europe and Australia.

Environment and Planning A, 38, 1149–1170.

Bahillo, A., Goličnik Marušić, B., & Perallos, A. (2015). A mobile application as an unobtrusive tool for behavioural mapping in public spaces. Proceedings J.M. Garcia-Chamizo et al. (Eds.): UCAmI, LNCS 9454, pp. 13–25.

Oja, S.N. & Smulyan, L. 1989. "Collaborative action research: a developmental approach." London: The Falmer Press.

Brandt, U. S., & Svendsen, G. T. (2013). Is local participation always optimal for sustainable action? The costs of consensus-building in Local Agenda 21. Journal of Environmental Management, 129, 266–273.

Bhatnagar, S. (2000). Social implications of information and communication technology in developing countries: Lessons from Asian success stories. Electronic Journal of Information Systems in Developing Countries, 1(4), 1–9.

Baller, S., Dutta, S., & Lanvin, B. (2016). The global information technology report 2016: Innovating in the Digital Economy, WEF report. Retrieved from

Arnstein, S. R. (1969). A ladder of participation. Journal of the American Institute of Planners, 35(4), 216-224.

Questionnaire for Locals					
Survey No-	Time-		Surveyor-	Date-	
Name of the respondent-				HH size-	
Village/ward no.-				Caste/Community-	
Human Capital (General Profile):					
Education-				Qualification-	
Occupation-				Is this livelihood activity a Seasonal activity-	
Type of Activity different seasons-	Winter season(Dec-Feb), Pre-Monsoon(March-April), Monsoon season (May-July), Post-Monsoon season(Aug-Nov)				
Any other skillset-					
How many family members are engaged in the river economy?					
Monthly income/yearly income and type of river economy					
Health status-		Equipment/Material used for earning-			
Is these livelihood practices affect natural capital		Impact of the materials/equipment-			
Are there any knowledge agents (teachers or awareness programs) who can influence the kind of knowledge held by a community?		If yes, What is the frequency of these programs, and how does it happen?			
What is the reason for choosing their choice of livelihood?					
Source of Raw Materials					
Social Capital					
Are you a member of any self-help group/Co-operative society (yes/No) and which group?					
Are you aware of any Govt. schemes that are working for river management and the economy?					
Natural capital					
Do you possess any land, or use any natural resource for generating livelihood?					
Purpose of choosing livelihood? (commercial/personal use)					
If for commercial purposes: what is the income per product/ride?					
To whom the product is sold? To any middleman, directly to customers in the market, and others.					
Infrastructure capital					
Challenges faced while exploiting the river economy? Transportation, Road conditions, Others?					
Any other source of livelihood apart from the current activity?					
Effect of flood, Pollution, new construction?					

Engagement in river management activity? Such as clean up drives?	
Other input	

What is your age?	
Where do you live in Kanpur? (Eg. Ward No. or Area name)	
Gender?	
What is your educational background?	
What is your job profile?	
Which Ghat do you visit? (Name of Ghat)	
How frequently do you visit Ghats and riverside?	
Which form of transport do you use to go to Ghats?	
What is your purpose for visiting Ghats?	
On a scale of 0 to 5, How much would you like to rate the existing road infrastructure to Ghats?	
On a scale of 0 to 5, How much would you like to rate the Ghats as per your purpose of visit?	
On a scale of 0 to 5, How much would you like to rate the facilities present in Ghats perimeter?	
On a scale of 0 to 5, How much would you like to rate the Travel Convenience?	
On a scale of 0 to 5, How much would you like to rate the Connectivity?	
On a scale of 0 to 5, How much would you like to rate the Community space?	
On a scale of 0 to 5, How much would you like to rate the Tourist Attraction?	
On a scale of 0 to 5, How much would you like to rate the Entertainment Options?	
On a scale of 0 to 5, How much would you like to rate the Cleanliness?	

On a scale of 0 to 5, How much would you like to rate the Other Facilities (shopping)	
Are you a member of any river cleanliness groups or NGOs? (If yes, mention the name of the group and the kind of activities do)	
Are you willing to participate in river management activities? (Eg. Cleanup, plantation at the water source, protection of aquatic vegetation, Festivals, concerts, maintaining flower beds etc.)	
o you have any suggestions and inputs for improving the connection of citizens to Ghats and the riversides of Kanpur, India?	