

Karnaphuli River Heritage Museum and Research Center

By

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A thesis submitted to the Department of Architecture in partial fulfillment of the
requirements for the degree of
Bachelor of Architecture

Department of Architecture
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Declaration

It is hereby declared that

1. The thesis submitted is my original work while completing the degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material that has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

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Abstract

This thesis presents the comprehensive conceptual and architectural design for the Karnaphuli River Heritage Museum and Research Center, a multifunctional facility dedicated to preserving and promoting the cultural and ecological legacy of the Karnaphuli River. The project aims to portray a vast idea of river heritage, encompassing the intricate relationship between the river and the communities that have thrived along its banks. The design integrates both tangible and intangible aspects of heritage, offering a rich narrative that spans historical, cultural, environmental, and social dimensions. The museum will serve as a hub for cultural, educational, and recreational activities, fostering a deeper appreciation for the Karnaphuli River's significance in both local and broader contexts. This work also explores how the center's design supports its mission to document the river's impact on regional identity, economic development, and ecological balance. By examining the intersection of cultural heritage, environmental conservation, and architectural design, this thesis demonstrates the potential of such institutions to serve as bridges between past and present, enhancing understanding and stewardship of vital natural resources. The project's holistic approach aims to create a landmark institution that not only preserves history but also actively contributes to the sustainable future of the region.

Keywords: Karnaphuli River; River Heritage; Heritage Museum; Research Center; River Ecology; Biodiversity Research; Cultural Heritage; Community Engagement; Sustainable Architecture; Regional Identity.

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List of Acronyms

CDA Chittagong Development Authority

CCC Chittagong City Corporation

PWD Public Works Department

DPZ Detailed Planning Zone

DAP Detailed Area Plan

Chapter 1

Introduction

1.1 Project Background

The proposal of the project by the Chittagong Development Authority is a significant endeavor to safeguard and present the rich cultural and historical legacy of the Karnaphuli River. This initiative aligns with the broader concept of river heritage museums, which serve as invaluable repositories of knowledge about the intricate relationship between rivers and human civilizations. Such museums not only delve into the natural history of the river and its surrounding environment but also shed light on the cultural tapestry woven around it. This museum, poised along the banks of the Karnaphuli River, will offer visitors a comprehensive understanding of the historical and cultural significance that rivers hold. Through exhibits showcasing traditional crafts, culinary heritage, festivals, and cultural practices associated with river life, the museum will be a living testament to the profound influence of the river on the local way of life. Moreover, the project will include a research center, providing a dedicated space for scholars to delve into various aspects of river studies, ranging from ecology and hydrology to geology and cultural practices. By encapsulating the essence of the Karnaphuli River, this project pays homage to its pivotal role in shaping the cultural and economic landscape of the Chittagong Division. It is a testament to the enduring legacy of the river, serving as a conduit for trade, a source of livelihoods, and a cradle of cultural practices passed down through generations. The museum and research center together form a platform that not only celebrates this rich history but also contributes to the scientific understanding and sustainable management of rivers. Through this initiative, the project aims to foster greater awareness and appreciation of the Karnaphuli River's cultural and natural heritage, ensuring that its significance continues to thrive in the hearts and minds of future generations.

1.2 Project Introduction

The Karnaphuli River, coursing through the heart of the Chittagong Division, stands as a lifeline for the region, bearing witness to centuries of vibrant history and cultural heritage. Its waters have not only facilitated trade and commerce but have also nurtured a unique way of life along its banks. The river's significance extends beyond its utilitarian functions; it is intertwined with the very identity of the communities that have flourished in its vicinity. For generations, the Karnaphuli have served as a source of livelihood, an avenue for transportation, and a wellspring of inspiration for local crafts and traditions. Its currents echo with the narratives of countless individuals whose lives have been shaped by its flow. Against this backdrop, the establishment of the "Karnaphuli River Heritage Museum and Research Center" emerges as a pivotal initiative. This project is a tribute to the enduring legacy of the river, aiming to preserve and share its profound impact on the cultural and economic tapestry of the Chittagong Division. It seeks to create a dynamic space where visitors can immerse themselves in the intricate relationship between the river and the communities it sustains. Through interactive exhibits, curated displays, and immersive experiences, the museum will unravel the rich narrative of the Karnaphuli River. Furthermore, the inclusion of a research center within the project reflects a commitment to deeper exploration and understanding. Scholars and researchers will have the opportunity to delve into the ecological, hydrological, and cultural dimensions of the river, enriching the body of knowledge about this vital natural resource. By embarking on this endeavor, the Chittagong Development Authority not only honors the Karnaphuli River's role as a historical witness but also lays the foundation for its continued significance in the lives of future generations. This project is poised to foster greater awareness, appreciation, and stewardship of the river's cultural and natural heritage. It is a testament to the unwavering connection between the Karnaphuli and the communities it has nurtured, ensuring that their stories continue to flow through the annals of time. The "Karnaphuli River Heritage

Museum and Research Center" stands as a beacon, illuminating the enduring legacy of this remarkable river for all who seek to understand and cherish its profound impact on the region's cultural and natural heritage.

1.3 Project Aims and Objectives

The aims and objectives of the project are to:

- Preserve and exhibit the history and cultural heritage of Chittagong and the Karnaphuli River region through an interactive museum experience.
- Advance the study of the region's history and cultural heritage by providing resources and support for research and analysis through a dedicated research center.
- Educate and engage visitors of all ages through educational programs, workshops, and events, creating a community resource that promotes learning and connection with heritage.
- Promote sustainability by designing the museum and research center with environmentally friendly materials and technologies, serving as a model for sustainable building practices.

1.4 Project Rationale

The Karnaphuli River has a long and fascinating history that has shaped its surrounding people, culture, and environment, and it is important to ensure that this history is remembered by the next generations. With the rapid urbanization of Chittagong, there is a need for a dedicated space that provides visitors with access to information and resources about the region's history and cultural heritage. The museum and research center will provide a platform for visitors to learn about the region's past, present, and future, and gain a deeper understanding of its significance to the local community and the world at large. Furthermore, the region is facing rapid economic and social changes, and the preservation of its cultural heritage is becoming

increasingly important. The museum and research center will provide a space for the local community to connect with its past, and to ensure that future generations have access to the region's rich cultural heritage. The project will also promote sustainability and environmental awareness by incorporating environmentally friendly materials and technologies in its design and construction. This will help minimize the museum's environmental impact while showcasing the importance of sustainable practices in preserving the region's natural beauty and ecological resources. In conclusion, this project is motivated by a desire to preserve and promote the rich history and cultural heritage of Chittagong and the Karnaphuli River region, and to provide a platform for visitors to learn about and connect with this important part of the world.

1.5 Project Brief

1.5.1 Project-Related Documents and Details:

Project Title: Karnaphuli River Heritage Museum and Research Center.

Site Location: DPZ-04 Bakalia-Chandgaon, Chittagong.

Total Site Area: 10.9 acres (approximately).

Project Site Area: 4.8 acres (approximately).

Implementing Agencies: Chittagong Development Authority (CDA), Chittagong City Corporation (CCC), and Public Works Department (PWD)

Project Stakeholders: Local Community, Government Authorities, Cultural and Historical Organizations, Academic and Research Institutions, Tourism Industry, Environmental Organizations, Visitors and Public.

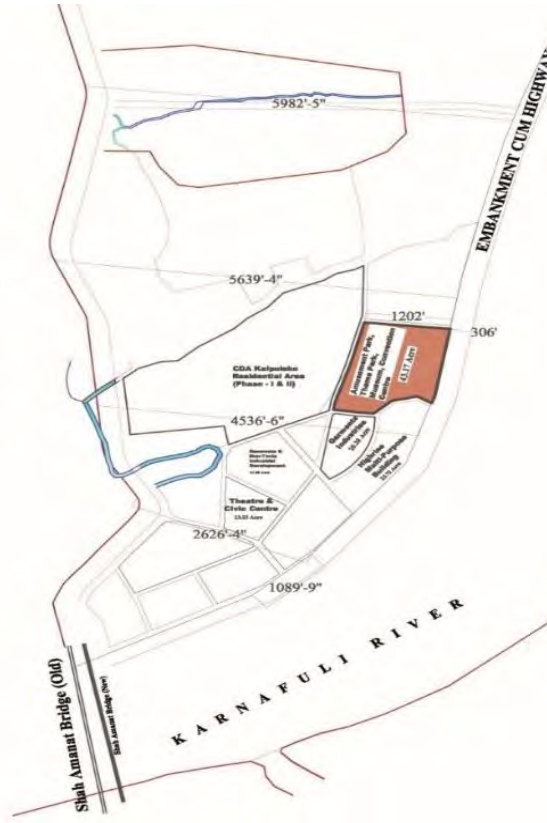


Figure 1: Project-Related Documents

Source: (CDA, 2023)

1.5.2 Project Site

The site is located in the DPZ-4 zone at Bakalia of Chittagong City and the Chittagong Development Authority (CDA) has taken an initiative to establish a park and a museum in the site area of 10.8 acres with other development proposals in the DPZ-4 zone. A land of 4.9 acres is selected for the Karnaphuli River Heritage Museum and Research Center project and the land elevation from mean sea level is around 4 meters. Adjacent to the site, there is a 300 feet wide embankment cum highway construction going on connecting the Shah Amanat Bridge with the Kalurghat Bridge and it is around 10 meters high from the mean sea level. Right beside the embankment road, the Karnaphuli River flows from the northeast, originating from the Lusai hill in Mizoram, and runs towards the southwest where it empties into the Bay of Bengal.

Chapter 2

Literature Review

Museums are vital institutions that play an essential role in preserving and presenting cultural and historical artifacts to the public (Hooper-Greenhill, 2000). They act as custodians of tangible and intangible heritage, preserving and safeguarding cultural objects, documents, and artifacts that hold significant cultural value (UNESCO, 2015). They also play a crucial role in interpreting and communicating narratives and histories to the public through curated exhibitions, educational programs, and research (Falk & Dierking, 2000).

In addition to their traditional roles, many museums now serve as research centers, providing scholars and students with access to extensive collections, archives, and specialized resources (Macdonald, 2011). This function enhances the academic value of museums, positioning them as hubs for scholarly inquiry and knowledge creation. By accommodating researchers, museums contribute to the ongoing study and interpretation of cultural and historical phenomena, fostering new insights and perspectives (Anderson, 2004).

Museums also increasingly emphasize community engagement, recognizing their potential to serve as dynamic spaces for public interaction and dialogue (Simon, 2010). Through collaborative projects, workshops, and participatory events, museums actively involve local communities in shaping exhibitions and programs. This approach not only enriches the museum experience but also ensures that diverse voices and perspectives are represented in the narratives they present (Black, 2012).

Museums provide visitors with an opportunity to learn about different cultures, societies, and historical events, fostering a better understanding and appreciation of the diversity of human experiences (Sandell, 2007). By combining their roles as preservers of heritage, centers for

research, and platforms for community engagement, museums create multilayered experiences that cater to a wide range of interests and needs (Witcomb, 2003).

Furthermore, museums act as catalysts for economic and social development, attracting tourists and contributing to local economies (Frey & Meier, 2006). Their expanded functions as research centers and community hubs further enhance their value to society, promoting lifelong learning, cultural exchange, and social cohesion (Crooke, 2007).

Thus, museums play a vital role in documenting, interpreting, and communicating cultural and historical narratives to the public. As research centers and spaces for community engagement, they foster academic inquiry and active participation in cultural discourse. These multifaceted institutions are essential components of the social and cultural fabric of communities worldwide, continually evolving to meet the changing needs and expectations of society (Message, 2006).

2.1 Museum Evolution

The concept of museums has undergone significant transformation since their inception, evolving through various stages that reflect changes in societal values and technological advancements. Historically, museums began as private collections of wealthy individuals and institutions, displaying art, natural objects, and artifacts in "wonder rooms" and "cabinets of curiosity" (Chen, 2012). These early forms of museums were exclusive and accessible only to the elite. However, the opening of the Louvre Museum in Paris in 1793 marked a pivotal shift towards public accessibility, democratizing access to cultural and historical artifacts and setting a precedent for museums worldwide (Hooper-Greenhill, 1992).

In recent decades, museums have continued to evolve from static repositories of objects to dynamic spaces of learning and engagement. Falk and Dierking (2000) emphasize the importance of context in museum learning, highlighting how visitors' personal, sociocultural,

and physical contexts influence their museum experience. This shift has led to the development of interactive exhibits, educational programs, and community outreach initiatives that aim to make museums more inclusive and relevant to contemporary audiences. Museums are now seen as vital community resources that contribute to lifelong learning, social cohesion, and cultural exchange.

2.2 Heritage and River Heritage Museum

Heritage museums play a crucial role in preserving and presenting cultural, historical, and natural heritage, serving as custodians of collective memory and identity. Smith (2006) argues that heritage is not merely about the past but is an active process of using the past to make meaning in and for the present. This perspective highlights the dynamic nature of heritage, which involves continuous reinterpretation and engagement with historical narratives.

River heritage museums, a specialized category, focus on the intricate relationships between rivers and human civilizations. Visser and van der Stoep (2017) highlight the importance of river museums in fostering community engagement and environmental awareness. They argue that these institutions can serve as platforms for discussing contemporary issues such as climate change and sustainable development, providing a space where local communities can connect with their natural environment and learn about the historical significance of rivers.

2.3 Significance of River Heritage Museum

River heritage museums hold particular significance in regions where rivers have played a central role in shaping local culture and economy. Prideaux and Cooper (2009) discuss how river-based heritage tourism can contribute to regional development and cultural preservation. These museums often serve multiple functions, acting as repositories of material culture, centers for research and education, platforms for community engagement, and catalysts for local economic development.

As noted by Corsane (2005), river heritage museums are uniquely positioned to address the intersections of natural and cultural heritage. They provide a holistic understanding of the ways in which rivers have influenced human settlement, trade, and cultural practices. By preserving artifacts and stories related to riverine environments, these museums help to safeguard intangible cultural heritage and promote environmental stewardship.

2.4 Karnaphuli River Heritage Museum

The proposed Karnaphuli River Heritage Museum aligns with global trends in museum development while addressing local needs and priorities. It resonates with Kreps' (2003) concept of "appropriate museology," which advocates for museum practices that are adapted to local cultural contexts. This approach ensures that the museum remains relevant and meaningful to the communities it serves, fostering a sense of ownership and pride among local residents.

The museum's focus on both tangible and intangible heritage echoes UNESCO's (2003) emphasis on safeguarding intangible cultural heritage. This approach is particularly relevant for preserving the living traditions associated with the Karnaphuli River, such as fishing techniques, boat-building crafts, and folklore. By documenting and celebrating these practices, the museum helps to ensure their transmission to future generations.

Moreover, the integration of a research center within the museum complex reflects contemporary museum practices. As Macdonald and Basu (2007) argue, museums are increasingly becoming sites of knowledge production, not just knowledge dissemination. The research center will facilitate scholarly studies on the river's ecology, history, and cultural significance, contributing to a deeper understanding of the region's heritage.

The Karnaphuli River Heritage Museum project also aligns with sustainable development goals. Stylianou-Lambert et al. (2014) discuss how museums can contribute to sustainable

tourism and community development, which is particularly relevant for the Chittagong region. By attracting tourists and researchers, the museum can generate economic opportunities for local businesses and artisans, while promoting environmental conservation and cultural preservation.

In conclusion, the literature underscores the potential of the Karnaphuli River Heritage Museum to serve as a multifaceted institution - preserving heritage, fostering research, promoting sustainable development, and strengthening community identity. Its establishment represents a significant step in recognizing and valorizing the rich cultural and natural heritage of the Karnaphuli River region. The museum will not only celebrate the past but also inspire future generations to appreciate and protect this invaluable legacy.

Chapter 3

Site Appraisal

The region around the Karnaphuli River has a long and rich history, with evidence of human settlement dating back thousands of years. As with many other civilizations, the earliest inhabitants of the area likely chose the banks of the river for their access to fresh water, fertile soil, and other natural resources. Over time, as communities developed and expanded, commerce and trade played an increasingly important role in shaping the region's growth. The project site is selected on the western side of Karnaphuli River in Chittagong City.

3.1 Site Background

The Chittagong Development Authority has designated a site to the west of the Karnaphuli River in the city of Chittagong, Bangladesh, for the establishment of a recreational park and museum. The site is situated at the periphery of the city, which has a complicated semi-urban development pattern that comprises fishing communities, factories, industries, the Chittagong Seaport, open lands, and continuous river vistas. The proximity of the river's estuary causes the river bank to undergo tidal floods twice a day. The CDA has proposed an embankment cum highway along the riverbank to support tourism and safeguard the area against tidal and flash floods.

3.1.1 Site Location

The site is located in Chittagong City under the Chittagong District of Chittagong Division in Bangladesh, at the East Bakalia under 18 no ward of Chittagong City Corporation, and in the DPZ-04 zone of Chittagong Development Authority. An embankment road construction is going on to protect the area from tidal floods under the supervision of CDA adjacent to the site area that separated the site and the river.



Figure 3: Project Site Location

Source: (Author,2023)

3.1.2 Site Surrounding

The site area is bounded by the Kolpolok Residential Area to the west and a branch of the Rajakhali Canal to the south, which flows into the Karnaphuli River located on the western side of the site. The embankment road runs between the site and the river, limiting direct access, but another road from the Kolpolok Residential Area intersects with the embankment road on the northern side. In addition, there is a small boat terminal in the northwestern part of the site area that provides transportation for local residents. The Chittagong Development Authority (CDA) has proposed another recreational park and convention center in the area to promote tourism, which complements the strategic location of the site and offers easy access through adjoining roads and proximity to the river. The residential area to the west provides an opportunity for the site to cater to the needs of the surrounding community, making it an ideal

location for the development of a recreational park and museum that can serve as a cultural and educational center for both locals and visitors.

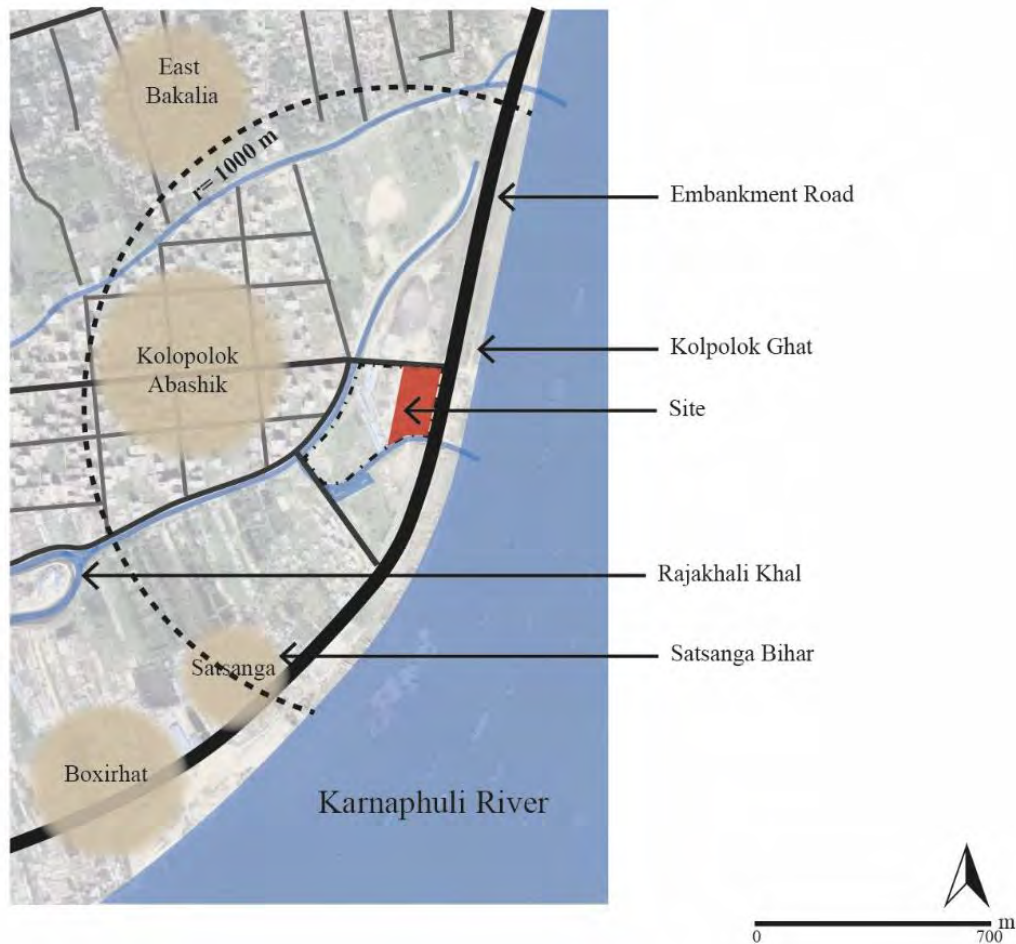


Figure 4: Project Site Surrounding

Source: (Author,2023)

3.1.3 Land Use Pattern

The site is situated at the edge of the city and mostly, residential land use is seen close to the site area. A good portion of land is also used for industrial and commercial purposes. However, very little land is used for communal, educational, and recreational purposes for the neighborhood people. Though there is a good portion of open space on the west side of the river, CDA has taken the initiative for multiple developmental projects along with the riverbank

which will increase the built mass around the site area in the future. On the eastern part of the river beside the site area, there are ample open spaces.



Figure 5: Land-use Map of Site Area

Source: (Author, 2023 based on DAP)

3.1.4 Accessibility and Connectivity

The site is easily accessible from the city and the surrounding area through two adjoining roads. The first one is the embankment road that runs alongside the riverbank and is presently under construction. The second road passes through the Kolpolok Residential Area, and it meets the Chittagong-Cox's Bazar Highway inside the city. These two roads offer convenient access to the site for visitors and locals. The development of the embankment road presents an opportunity to enhance connectivity and promote tourism in the area. Meanwhile, the Kolpolok Residential Area Road offers an alternate route to the site and ensures easy accessibility. The

strategic location of the site and its connectivity to the city through these two roads make it an ideal location for the development of a recreational park and a museum.



Figure 6: Road and Canal Networks of Site Area

Source: (Author,2023 based on DAP)

3.2 Chronological Development

In the year 2000, there were minimum human activities around the site area and it was low marshland. Fluvial flooding is a regular phenomenon in that area because of the low elevation of the river water level. The river breadth is getting narrower over time since the water level of the river is decreasing and because of that, the land area gradually gets more height from the river water level. People started to live around the area but the flood was still a problem for them. This flood water was also causing problems for the inner part of the city area. To mitigate the flooding problems, the Chittagong Development Authority initiated the construction of an embankment cum highway along with the river stretch connecting the Shah Amanat Bridge to

the Kalurghat Bridge. With the rapid urbanization of Chittagong, this marshland was gradually changed into a built area which created an urgent situation to save the neighborhood from the fluvial flood by constructing an embankment along with the river bank.

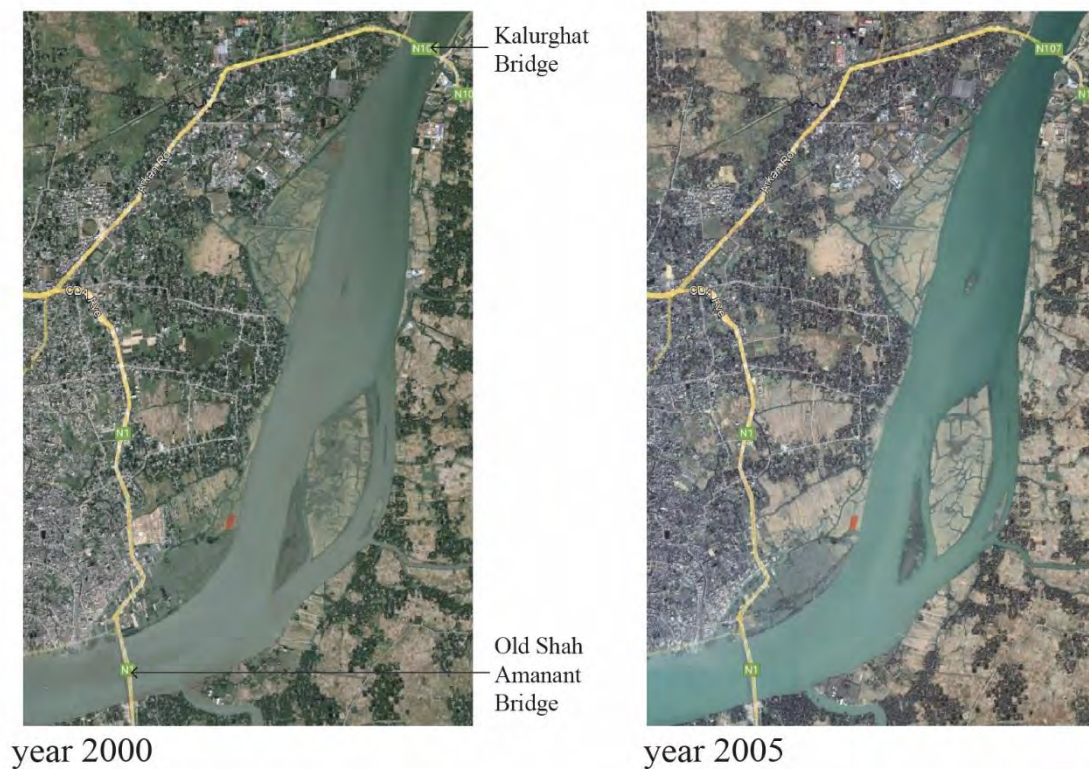


Figure 7: Chronological Changes- 1 of Site Area

Source: (Google Earth Pro, 2023)

After the construction of the New Shah Amanat Bridge in 2010, rapid urban sprawl has taken place around the site area. The “Kolpolok Abashik Elaka” is a planned residential area initiated by CDA after 2010 which is adjacent to the project site area. Other developmental projects such as Chittagong Secretariat, Bangladesh Maritime University, and Recreational Space construction for the city people going on the North-east part of the site. CDA has taken a massive project under the title “Karnaphuli Riverfront Development” along with this river stretch for the people of Chittagong.



Figure 8: Chronological Changes- 2 of Site Area

Source: (Google Earth Pro, 2023)

3.3 Future Development Plan

The Chittagong Development Authority has taken the initiative to establish multiple development projects around the Kolpolok Residential Area including this project. On the northern side of the project site area, there is a project proposal for an amusement park and convention center, and on the southern side, there are proposals for Highrise Multipurpose Buildings, Garments Industries, and non-toxic industrial developments. There is also a proposal for the Theater and Civic Center beside the other part of the industrial zone. To protect this area from tidal and fluvial flooding, an embankment road construction from the Shah Amanat Bridge to Kalurghat Bridge under the supervision of CDA has come close to completion. This road will connect all the neighborhoods around the Karnaphuli riverbank

between the two bridges creating an alternative way rather than using the inner city road. This will also help to reduce traffic congestion inside Chittagong City.

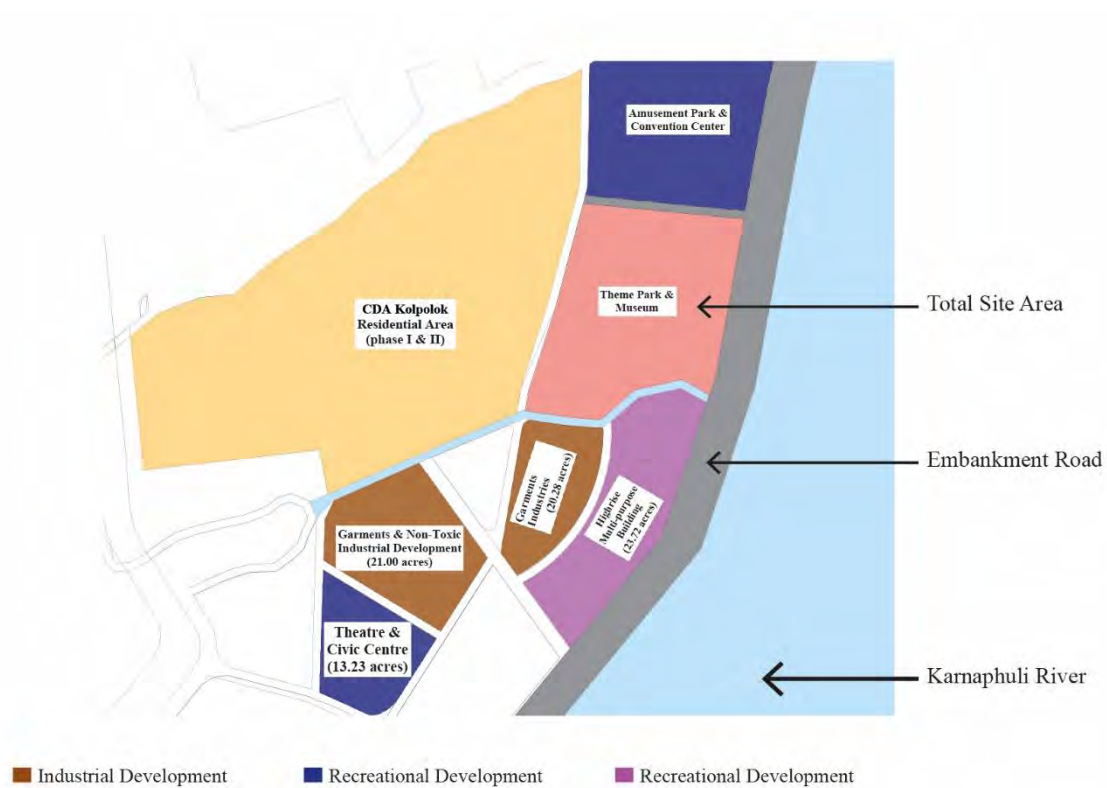


Figure 9: Development Projects Beside Site Area

Source: (CDA)

Illustration: (Author, 2023)

In addition to these development projects by CDA, construction of the Chittagong Secretariat and the Bangabandhu Maritime University is currently underway at Hamidchar Area, located on the further north side of the museum project site area. This development will create a new hub of activity, connecting the different developmental projects and the new embankment road, creating an accessible tourism area for both the neighborhood people and city dwellers. The embankment road will play a crucial role in improving transportation and mobility in the area, enhancing connectivity between the different parts of the city, and providing a scenic route for tourists and visitors to enjoy the riverfront views. Overall, these developmental projects have

the potential to transform the area into a center of economic and cultural activity, bringing new opportunities and growth to the region.

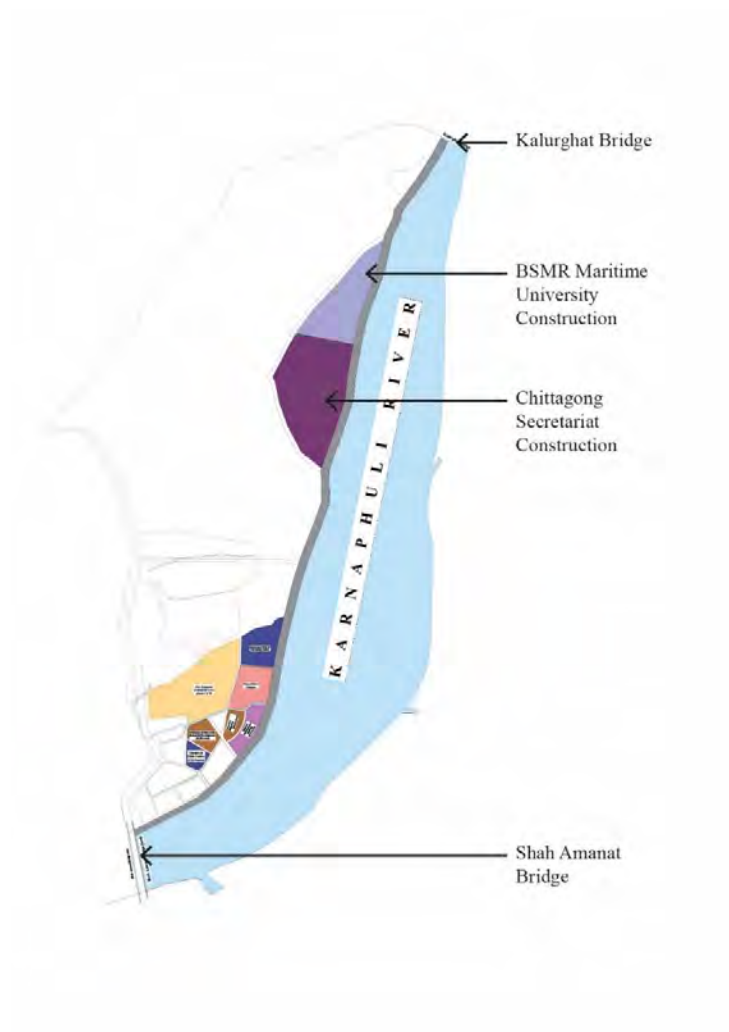


Figure 10: Development Plan Around Site Area

Source: (CDA)

Illustration: (Author, 2023)

3.4 Climatic Condition

The region has a tropical monsoon climate characterized by heavy rainfall and high humidity throughout much of the year. The city experiences a hot and humid summer from March to June, with temperatures often rising to uncomfortable levels. During this period, the heat is

intense, and humidity levels are high, making the climate quite oppressive. The monsoon season in Chittagong begins in June and continues until September, marked by significant rainfall as monsoon winds from the southwest bring heavy downpours to the region. The rainfall during these months is often intense and can lead to flooding and other water-related issues. In contrast, the winter season, lasting from November to February, is relatively cool and dry compared to the rest of the year. During these months, temperatures drop to more comfortable levels, providing a much-needed respite from the heat and humidity of the summer and monsoon seasons. The cooler temperatures and lower humidity make this period the most pleasant time of the year in Chittagong.

3.4.1 Sun Path and Wind Flow

Chittagong has a tropical monsoon climate characterized by hot and humid summers and mild winters. Being located near the equator, the sun is usually high in the sky all year round. During summer, the days are longer due to the sun's higher position, while winter has shorter days due to the sun's lower position. The monsoon winds blowing from the southwest in summer and from the northeast in winter can bring about heavy rain and storms. Low-pressure zones in the Bay of Bengal can also cause cyclones and tropical storms during the monsoon season. Although there are no significant seasonal variations in terms of the solstice, during the summer solstice around June 21, the sun reaches its highest point in the sky, resulting in longer days and shorter nights. Conversely, during the winter solstice around December 21, the sun reaches its lowest point in the sky, resulting in shorter days and longer nights.

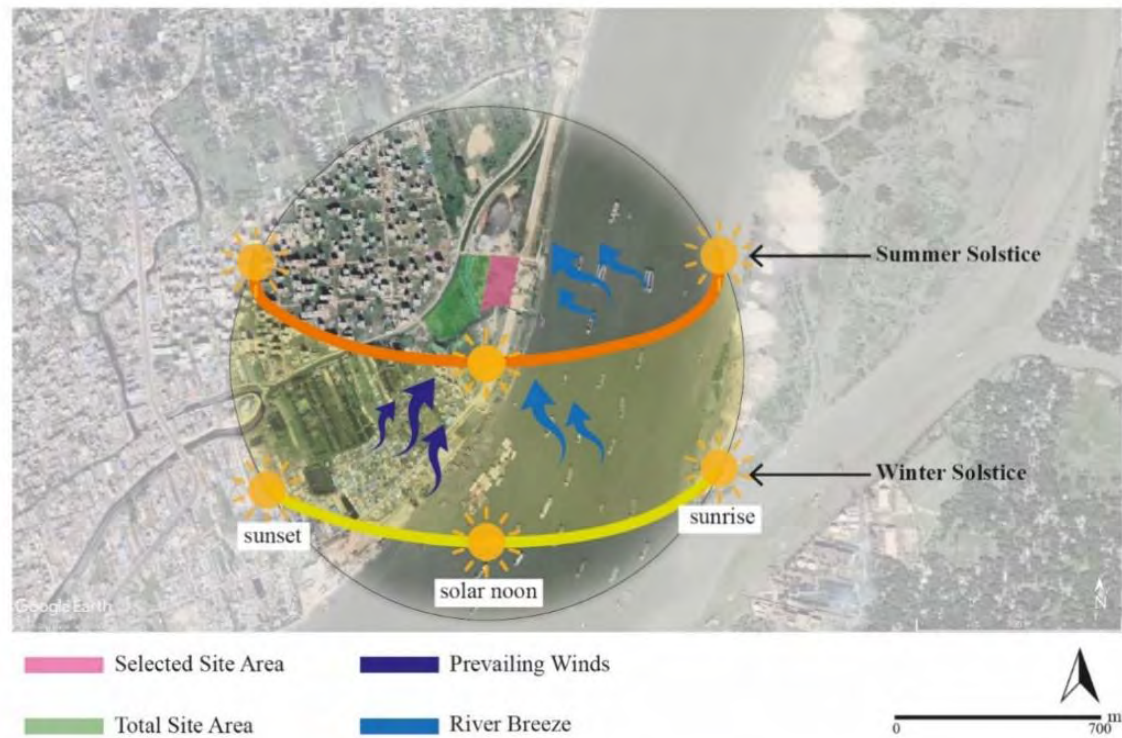


Figure 11: Sun Path & Wind Flow of Site Area

Source: (Author,2023)

3.4.2 Precipitation & Temperatures

In the Chittagong region, January stands out as the driest month of the year, receiving only about 5 mm (0.2 inches) of precipitation. During this time, the weather is relatively cool and dry, offering a stark contrast to the heavy rains that characterize much of the region's climate. This dry spell provides a welcome respite from the otherwise high humidity levels that persist throughout the year. On the other hand, July marks the peak of the monsoon season, with precipitation levels reaching their maximum. During this month, Chittagong experiences an average of 622 mm (24.5 inches) of rainfall. This substantial amount of rain is driven by the monsoon winds blowing from the southwest, which bring intense and frequent downpours. The heavy rains of July contribute significantly to the region's overall annual rainfall and can lead to flooding and other weather-related challenges. This stark contrast between the dry conditions

of January and the wet extremes of July underscores the dramatic seasonal variations in Chittagong's tropical monsoon climate.

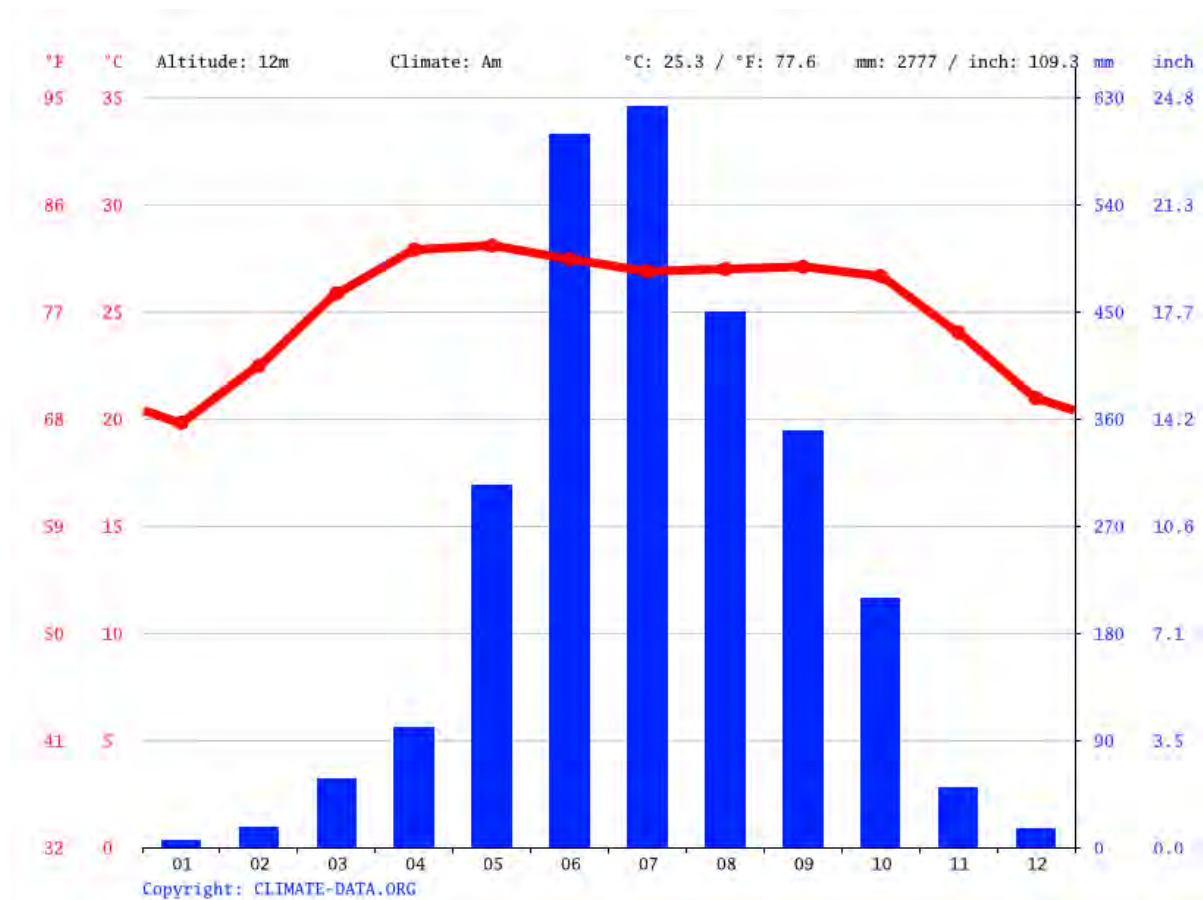


Figure 12: Average Precipitation Rate of Site Area

Source: (Climate Data Organization, 2023)

In Chittagong, May stands out as the warmest month of the year, boasting an average temperature of 28.1°C (82.5°F). During this time, the region experiences intense heat and high humidity levels, creating conditions that feel even hotter. Clear skies and ample sunshine characterize this period, contributing to sweltering days that prompt residents to seek relief in shaded spots or air-conditioned environments. May marks the peak of the pre-monsoon season, preceding the heavy rains that will soon follow. Conversely, January emerges as the coldest month in Chittagong, with an average temperature of 19.8°C (67.6°F). The cooler temperatures of January offer a pleasant contrast to the region's typically warm and humid climate. With mild weather and lower humidity, January provides a refreshing break, ideal for outdoor

activities and local travel. These contrasting temperatures highlight the seasonal variability in Chittagong's tropical monsoon climate, influencing local lifestyles, agriculture, and environmental conditions throughout the year.



Figure 13: Average Temperature of Site Area

Source: (Climate Data Organization, 2023)

3.5 Historical Background

The Karnaphuli River Heritage Museum and Research Center embodies the principles of new contextualism by presenting the rich history of the Karnaphuli River and its surrounding areas within a comprehensive framework that considers multiple perspectives and contexts.

3.5.1 Historical Context

The museum's narrative begins with the ancient Harikela Janapada, a predominantly Buddhist kingdom that flourished along the Karnaphuli River (Qanungo, 2016). This period saw the

construction of numerous Buddhist temples, including the renowned Pandit Vihara in present-day Chittagong. The institution highlights how these early cultural elements laid the foundation for the region's diverse heritage.

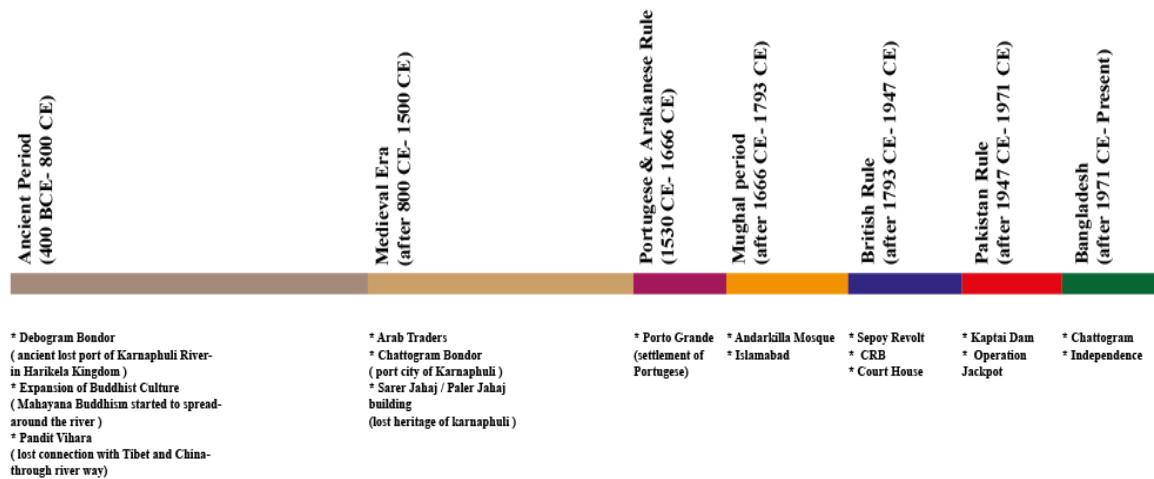


Figure 14: Historical Timeline

Source: (Author,2023)

3.5.2 Cultural Evolution and Religious Diversity

The museum traces the area's cultural evolution through various historical periods. It explores the arrival of Islam during the sultanate period, the subsequent Portuguese settlements that introduced Christianity, and the influences of Mughal and British rule. By presenting these diverse cultural and religious influences side by side, the museum encourages visitors to understand the complex interplay of forces that shaped the region's identity.

3.5.3 Colonial Impact and Resistance

The institution contextualizes the Portuguese presence, addressing their role in both trade and the darker aspects of colonialism, including enslavement and exploitation. It further examines the Mughal and British colonial periods, highlighting both the architectural legacy and the socio-economic changes brought about by these regimes. The museum also explores the

Karnaphuli River's connection to the sepoy revolt of Bengal, placing this event within the broader context of anti-colonial resistance.

3.5.4 Contemporary Relevance and Urban Development

The museum situates itself within the current urban landscape of Chittagong, acknowledging ongoing development projects such as the Bangladesh Maritime University and the Chittagong Secretariat. By doing so, it demonstrates the continuity between historical events and contemporary urban planning, illustrating how the past informs and shapes the present.

3.5.5 Socio-Economic Impact

In line with new contextualism's emphasis on broader societal impacts, the museum highlights its potential contribution to local economic and social development. It presents itself as part of a larger initiative to promote tourism and increase connectivity in the region, showcasing how cultural institutions can serve as catalysts for economic growth and community engagement.

3.5.6 Environmental and Cultural Conservation

The museum addresses the dual role of preserving both cultural heritage and the natural environment of the Karnaphuli River. This approach aligns with new contextualism's holistic view, recognizing the interconnectedness of cultural and environmental conservation efforts.

The Karnaphuli River Heritage Museum and Research Center intricately weaves together historical, cultural, religious, political, and economic elements, presenting a multifaceted narrative that transcends mere chronology. This approach, rooted in new contextualism, encourages visitors to explore the complex interplay of factors that have shaped the region over time. By doing so, the museum fosters a deeper appreciation of the Karnaphuli River's profound significance in both local and national contexts.

Chapter 4

Case Study Appraisal

4.1 Suzhou Intangible Cultural Heritage Museum, Suzhou, China

The Suzhou Intangible Cultural Heritage Museum, opened in 2014 within the Suzhou Industrial Park, stands as a testament to the region's rich cultural legacy. Designed by Vector Architects across 14,000 square meters, the museum ingeniously blends contemporary architecture with traditional Suzhou-style Garden aesthetics. Its design pays homage to the intricate beauty and philosophical underpinnings of classical Suzhou gardens, creating a space that not only houses but embodies the city's intangible heritage. The museum curates a diverse array of living traditions, from ancient craftsmanship to performing arts, offering an immersive experience of Suzhou's cultural tapestry. By integrating modern design with traditional architectural principles, the museum serves as a bridge between past and present, inviting visitors to explore and contemplate the enduring significance of Suzhou's intangible cultural heritage.

4.1.1 Concept and Strategy

The designer integrates diverse spaces through courtyards and outdoor corridors, echoing traditional architecture while creating a dynamic visitor experience. This approach unifies scattered elements and adapts to local climate with covered corridors, allowing comfortable navigation even in rain. Each courtyard features a main space with a unique identity, contributing to a rich architectural narrative. This design ensures continuity of experience while offering distinct spaces throughout the complex.

Dome Theater: Enveloped in laminated bamboo louvers, this structure harmoniously blends modern design with natural elements. The green vegetation incorporated into the louvers not only enhances aesthetics but also promotes sustainability and connection with nature.

Museum Lobby: Crowned with an iconic cloud installation on its rooftop platform, this space serves as a captivating focal point. The ethereal cloud motif likely creates an intriguing visual contrast with the more grounded elements of the complex, possibly symbolizing the intersection of earth and sky, or tradition and innovation.

Observation Tower: Rising above the complex, this element offers visitors panoramic views of the surrounding landscape. It serves as a vertical counterpoint to the predominantly horizontal layout, providing a unique perspective on both the architectural ensemble and its wider context.

Waterfront Restaurant: Positioned to take advantage of the site's natural features, this space likely offers diners an immersive experience that integrates architecture with the aquatic environment.

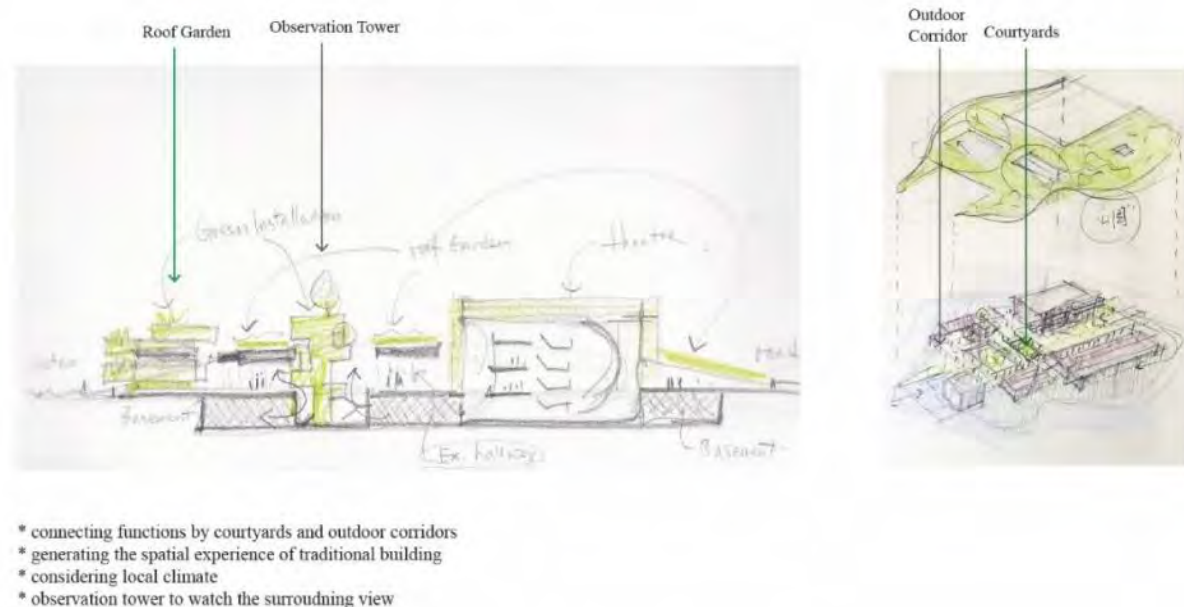


Figure 15: Conceptual Drawings of Suzhou Intangible Cultural Heritage Museum

Image Source: (Arch Daily, n.d.)

Illustration: (Author, 2023)

This design approach crafts a multi-layered experience, engaging visitors sensorially and intellectually. It reinterprets traditional concepts through a modern lens, balancing heritage with innovation, indoor with outdoor, and built form with nature. The interconnected spaces foster exploration, while distinct areas serve as memorable landmarks. This unity-in-diversity creates a rich environment that respects cultural and climatic contexts, resonating deeply with visitors.

4.1.2 Site Surrounding

The Suzhou Intangible Cultural Heritage Museum is located in the Suzhou Industrial Park, a modern development area that is home to many businesses, research institutions, and residential neighborhoods. The museum is situated on the edge of a large lake, which provides a beautiful natural backdrop for the building.



Figure 16: Top and Surrounding View of Suzhou Intangible Cultural Heritage Museum

Image Source: (Arch Daily, n.d.)

Illustration: (Author, 2023)

4.1.3 Climatic Condition

Suzhou's humid subtropical climate, characterized by hot, humid summers and cold, damp winters, significantly influenced the museum's design. The architecture incorporates features

that address these climatic conditions while prioritizing visitor comfort and energy efficiency. The building likely employs thermal mass and proper insulation to regulate indoor temperatures, countering summer heat and winter chill. To manage high humidity levels, especially during summer months, the design may include dehumidification systems and moisture-resistant materials. Natural ventilation is probably enhanced through strategic window placement and courtyard designs, creating beneficial microclimates and air circulation.



- * The site is in humid subtropical climate zone
- * High Precipitation in June & July- shaded corridors as rain protection
- * Humid Summer- natural air flow
- * Green Roof- reducing solar heat in summer and preventing heat loss in winter



Figure 17: Climate Condition of Suzhou Intangible Cultural Heritage Museum

Image Source: (Arch Daily, n.d.)

Illustration: (Author, 2023)

Solar control is likely achieved through shading devices like overhangs or louvers, reducing direct sunlight and heat gain. The integration of water features could provide evaporative cooling in outdoor spaces, offering relief during hot periods. High-performance glazing and energy-efficient HVAC systems tailored to Suzhou's climate further contribute to maintaining comfortable conditions while minimizing energy consumption. The museum's design may also

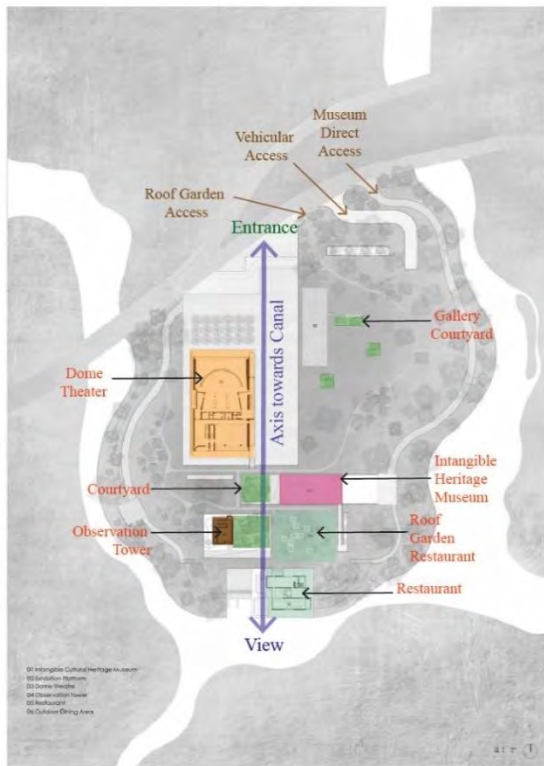
incorporate transitional spaces between indoors and outdoors, allowing visitors to gradually acclimate as they move through the building. This climate-responsive approach not only ensures a pleasant environment for both visitors and artifacts but also demonstrates a commitment to sustainability, melding traditional Chinese architectural wisdom with modern green building practices.

4.1.4 Plan & Section Analysis

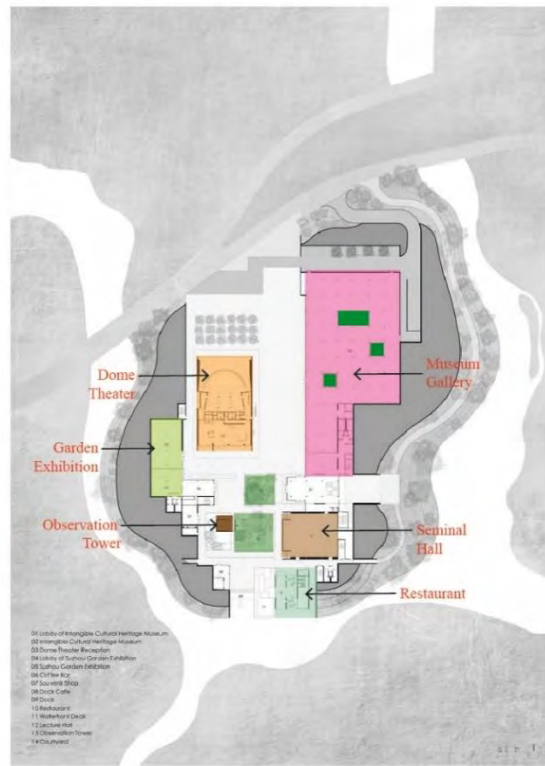
The Suzhou Intangible Cultural Heritage Museum's design is centered on a central axis from the entrance to the river, creating a strong visual connection and guiding visitors through the space. The layout is organized around a series of courtyards, which facilitate navigation, provide transitions between areas, and blend interior and exterior environments. Gallery spaces incorporate interior courtyards, reinforcing the indoor-outdoor connection and allowing natural light to permeate exhibition areas.

The museum features separate access points for vehicles and pedestrians, ensuring smooth circulation. A dedicated route leads to a roof garden, offering panoramic views and serving as an extension of the exhibition areas. This courtyard-centric design reflects traditional Chinese architectural principles while accommodating modern museum functions, allowing for a flexible and intuitive visitor journey.

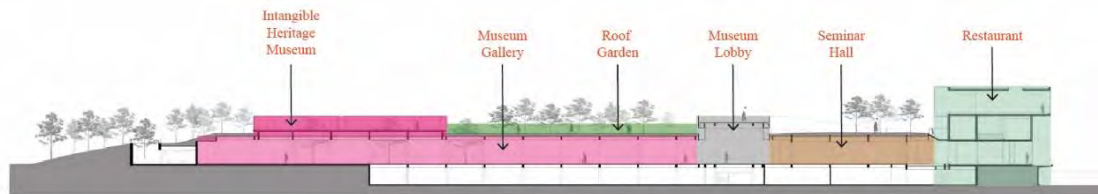
By providing roof access, the design encourages multi-level engagement with the museum and its surroundings. This approach, combined with the integration of courtyards and diverse access points, creates a dynamic space that embodies the intangible cultural heritage it showcases. The result is a rich, immersive experience that connects cultural narratives inside the museum with the living environment outside, offering visitors a unique and engaging museum experience that goes beyond traditional conventions.



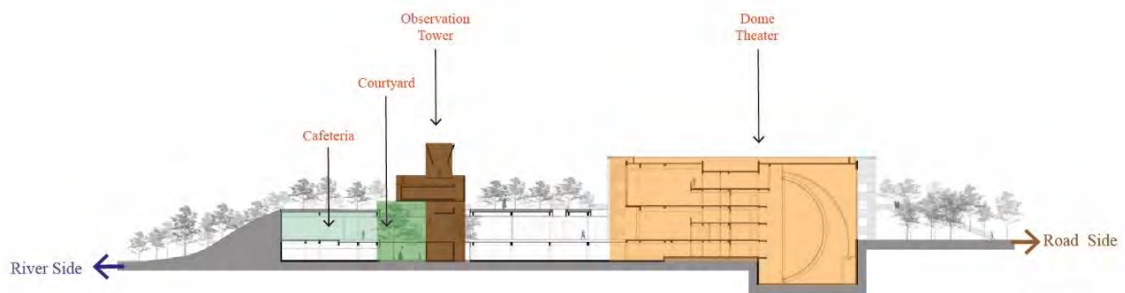
First Floor



Ground Floor



0 3 6 9m



0 3 6 9m

Figure 18: Plan & Section Analysis of Suzhou Intangible Cultural Heritage Museum

Image Source: (Arch Daily, n.d.)

Illustration: (Author, 2023)

4.2 River and Rowing Museum, Oxfordshire, England

The River and Rowing Museum in Henley-on-Thames, Oxfordshire, exemplifies how contemporary architecture can eloquently celebrate cultural heritage. Opened in 1998, this David Chipperfield-designed structure masterfully blends modern aesthetics with the area's rich rowing tradition. Its sleek, boat-like silhouette rises elegantly above the riverside, while large glass panels create a seamless dialogue between the interior and the surrounding landscape, framing stunning views of the River Thames. The museum's thoughtful organization into three distinct galleries offers a comprehensive exploration of rowing's technical aspects, historical significance, and deep connection to the Thames Valley. This tripartite division provides visitors with an immersive experience that goes beyond mere artifact display, weaving a compelling narrative of rowing's impact on the local community and its broader cultural influence. Through its innovative design and curated exhibitions, the River and Rowing Museum stands not just as a repository of history, but as a dynamic space that bridges past and present, inspiring and educating visitors while underscoring the enduring importance of rowing to the region and beyond.

4.2.1 Concept and Strategy

The River and Rowing Museum in Henley-on-Thames draws its architectural inspiration from the vernacular of Oxfordshire's traditional river boathouses and wooden barns. This design concept aimed to create a clear, easily comprehensible architectural statement that harmonizes with its immediate surroundings.

The building stands as a modern reinterpretation of these traditional forms, featuring long, parallel structures clad in oak and topped with steeply pitched, lead-coated roofs. This fusion of traditional silhouettes with contemporary materials and construction techniques results in a structure that is both sleek and modern, yet deeply rooted in the region's architectural heritage.

From the earliest sketches to the final execution, meticulous craftsmanship has been paramount. The completed building is a testament to this dedication, embodying a seamless translation from concept to reality. The result is not merely functional but aesthetically striking, offering a fitting tribute to its location on the banks of the River Thames. This thoughtful design approach creates a museum that resonates with its historical context while boldly embracing contemporary architectural principles, providing a dynamic space that celebrates both the past and present of rowing culture.



Figure 19: Conceptual Sketches of River & Rowing Museum

Image Source: (Arquitectura Viva, n.d.)

4.2.2 Site Surrounding

The River and Rowing Museum's site in Henley-on-Thames is intrinsically linked to its design and purpose. Situated on the banks of the River Thames, the location provides a picturesque setting characterized by the gently flowing river, tree-lined banks, and open meadows. This riparian environment serves as both a beautiful backdrop and a living exhibit, showcasing the very element the museum celebrates. The site's proximity to Henley-on-Thames, a town steeped in rowing history and home to the renowned Henley Royal Regatta, further enriches the museum's context, with surrounding boathouses, rowing clubs, and historic buildings reflecting the area's deep connection to rowing.



Figure 21: Site Planning of River & Rowing Museum

Image Source: (Architectural Review, n.d.)

4.2.3 Plan, Section & Elevation Analysis

The museum planning is characterized by a linear arrangement of three main volumes, aligned parallel to the river. This configuration maximizes river views and creates a strong connection between the interior spaces and the surrounding landscape. The central volume typically houses the main entrance, lobby, and primary circulation spaces, while the flanking volumes contain exhibition areas, educational facilities, and administrative spaces. This linear layout also allows for easy navigation and a logical flow through the museum's exhibits. The planning of the museum incorporates transitional spaces between the volumes, which may serve as light wells or small courtyards, enhancing natural illumination and providing moments of pause in the visitor journey. The building's footprint is relatively compact, minimizing its impact on the site while still providing ample space for exhibitions and activities.

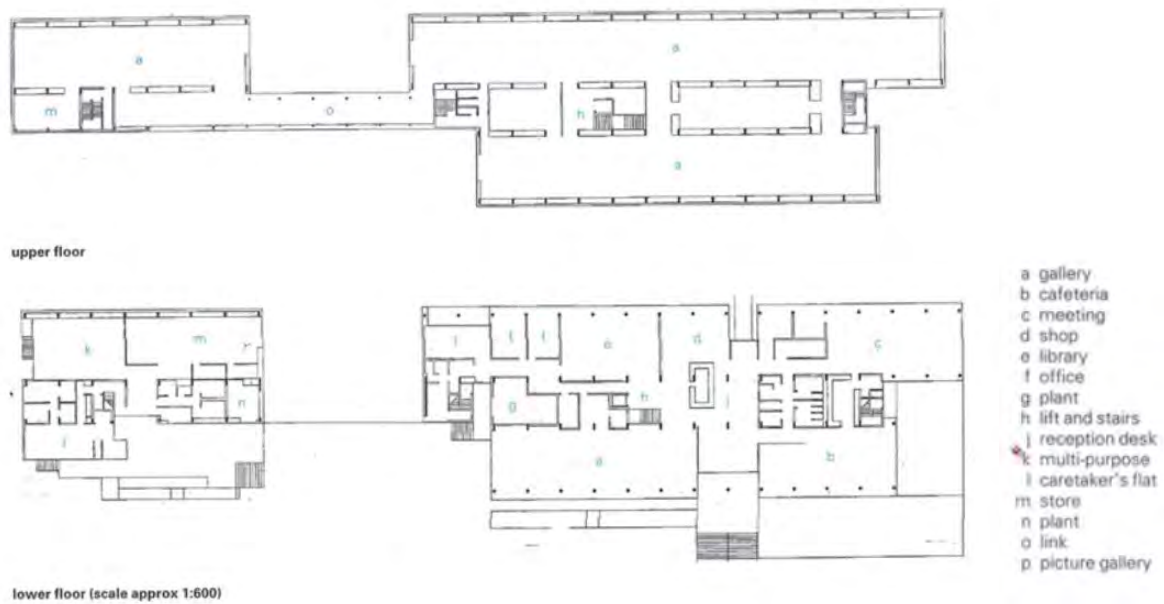


Figure 22: Floor Plans of River & Rowing Museum

Image Source: (Architectural Review, n.d.)

In section, the museum's most striking feature is its steeply pitched roofs, reminiscent of traditional boathouses and barns. These dramatic roof lines not only reference local vernacular architecture but also create dynamic interior spaces with varying ceiling heights. The high ceilings in the exhibition areas allow for the display of large boats and rowing equipment, while also contributing to a sense of openness and light.

The section likely reveals a careful consideration of natural light, with clerestory windows or skylights incorporated into the roof design to illuminate the interior spaces. The building's relationship to the ground is also notable, with the structure slightly elevated to protect against potential flooding from the nearby river.

The elevations of the River and Rowing Museum showcase its modern interpretation of traditional forms. The long, low-slung volumes are clad in oak, creating a warm, natural aesthetic that complements the surrounding landscape. The steep, lead-coated roofs provide a

striking silhouette against the sky, their clean lines and modern materials offering a contemporary twist on familiar forms.

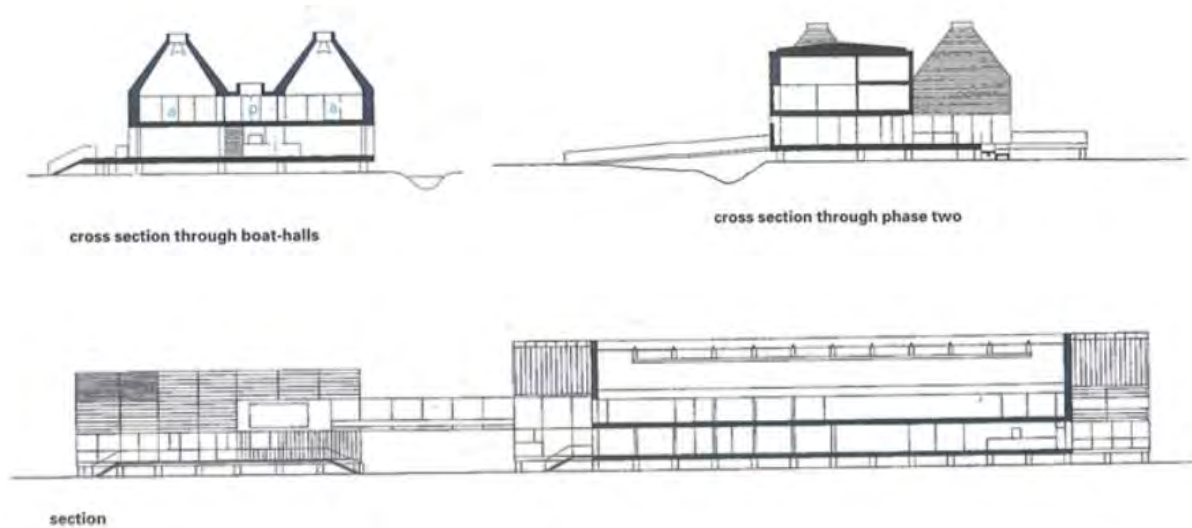


Figure 23: Sections of River & Rowing Museum

Image Source: (Architectural Review, n.d.)

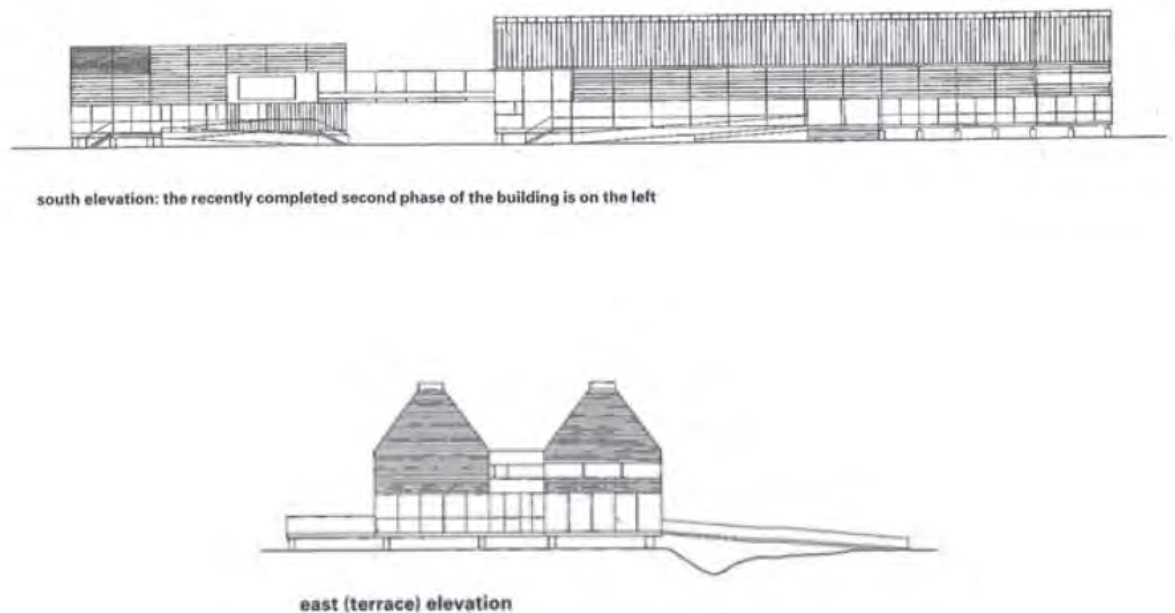


Figure 24: Elevations of River & Rowing Museum

Image Source: (Architectural Review, n.d.)

Large expanses of glass are likely incorporated into the river-facing elevation, maximizing views and creating a visual connection between the interior and the Thames. The other elevations may feature a more balanced composition of solid walls and glazed openings, providing controlled natural light for the exhibition spaces while maintaining a strong architectural presence.

The careful articulation of materials - the interplay of wood, metal, and glass - creates a rich, textured facade that responds to changing light conditions throughout the day. This materiality, combined with the building's form, results in elevations that are both visually striking and harmoniously integrated with the museum's riverside setting.

4.2.4 Form and Function

The River and Rowing Museum's form and function are intricately linked to its context along the banks of the River Thames in Henley-on-Thames. The building's form, comprising long, parallel volumes with steeply pitched roofs, draws direct inspiration from the traditional boathouses and barns of Oxfordshire. This architectural approach creates a visual dialogue between the museum and its surroundings, respecting the local vernacular while presenting a contemporary interpretation. The elongated structure, aligned parallel to the river, maximizes views of the Thames and integrates the building seamlessly into the riverine landscape.

Functionally, the museum is designed to celebrate and educate visitors about rowing and river life. The interior spaces are organized to provide a logical flow through exhibits, with high-ceilinged galleries accommodating large boats and rowing equipment. The building's orientation and extensive use of glass on the river-facing elevation create a strong visual connection between the exhibits inside and the living river outside, effectively blurring the boundaries between the curated space and the natural environment. This design strategy

enhances the visitor experience by contextualizing the museum's content within its actual setting.



Figure 25: Perspective View of River & Rowing Museum

Image Source: (Arquitectura Viva, n.d.)

The museum's form and function also respond to practical considerations of its riverside location. The slightly elevated structure addresses potential flooding issues, while the pitched roofs efficiently shed rainwater. Large windows and possible clerestory lighting not only frame views but also flood the interior with natural light, reducing energy consumption. The use of natural materials like oak cladding helps the building blend with its environment, while contemporary elements like lead-coated roofs and modern construction techniques ensure durability and longevity. This balance between form and function results in a building that serves its purpose as a cultural institution while harmoniously integrating with its historic and natural surroundings.

Chapter 5

Program Appraisal

The Karnaphuli River Heritage Museum and Research Center is envisioned to serve multiple pivotal roles, each contributing to the preservation and celebration of the Karnaphuli River's rich heritage. Central to its mission are the galleries and exhibitions, which provide a comprehensive portrayal of the river's history, culture, and ecological significance. These spaces, which incorporate artifacts, multimedia, and interactive displays, guide visitors through an immersive educational journey about the river's influence on local communities and ecosystems.

5.1 Key Functional Areas

Galleries and Exhibitions

Historical Exhibits: Showcasing the river's past, including its role in trade and transportation, significant historical events, and its impact on the development of surrounding communities.

Cultural Displays: Highlighting the traditions, crafts, and lifestyles of the communities living along the riverbanks.

Ecological Exhibits: Educating visitors about the river's biodiversity, conservation efforts, and the importance of maintaining its ecological health.

Multipurpose Hall

Events and Workshops: Designed to host a variety of events, including educational workshops, cultural performances, and community gatherings. This flexible space ensures engagement with a broad audience, fostering a deeper connection between the visitors and the river heritage.

Cultural Celebrations: Hosting local events such as New Year celebrations and festivals related to the cultivation of new crops, which highlight and preserve the rich cultural traditions of the region.

Café and Restaurant

Visitor Amenities: Offering a relaxing environment where visitors can enjoy refreshments while taking in the scenic views of the Karnaphuli River. This area enhances the overall visitor experience by providing comfort and leisure.

Fish Restaurant: Featuring a menu that showcases local fish dishes, allowing visitors to enjoy the unique flavors of the region and supporting the local fishing industry.

Local Fish Market and Dried Fish Shop

Local Economy Support: Incorporating spaces for local fishermen to sell fresh fish and dried fish products. This initiative not only supports the local economy but also provides visitors with an authentic taste of the region's traditional food culture.

Community Engagement: Encouraging interaction between visitors and local fish vendors, fostering a deeper understanding and appreciation of local livelihoods and traditions.

Research Center

Classrooms and Laboratories: Equipped with state-of-the-art facilities to support educational programs and scientific research. These spaces are dedicated to the study of the river's ecosystem, facilitating hands-on learning and research activities.

Library: Housing an extensive collection of resources focused on river studies, environmental science, and local history. This resource center is vital for researchers, students, and anyone interested in the Karnaphuli River.

The integration of these diverse functions aims to create a dynamic hub of learning, reflection, and research. The center not only serves as a museum preserving the past but also as a forward-looking research institution that promotes sustainable practices and environmental awareness.

5.2 Synergy and Cohesion

The design ensures a harmonious flow between public, semi-public, and private spaces. Public areas like the galleries, multipurpose hall, café, restaurant, and fish selling spaces are interconnected through a shared circulation path, promoting accessibility and ease of movement. Meanwhile, the research center's specialized areas are designed for focused, private activities, with separate circulation systems to maintain the necessary privacy and quiet.

5.3 Impact and Vision

The Karnaphuli River Heritage Museum and Research Center aspires to be more than just a museum. It aims to be a beacon of knowledge and appreciation for the Karnaphuli River, highlighting its critical role in the region's history, culture, and ecology. By incorporating spaces for local fishermen to sell their products, the center not only preserves cultural heritage but also actively supports the local economy. This initiative fosters a symbiotic relationship between the museum and the local community, ensuring that the benefits of the center are shared widely.

In conclusion, the center's thoughtful organization and multifaceted program make it a cornerstone for cultural preservation, environmental education, and scientific research. By integrating local economic activities, it celebrates the profound legacy of the Karnaphuli River while supporting the livelihoods of the people who depend on it.

5.4 Program List

The Maximum Built Area of the Project is approximately 12,000 square Meter.

Program List						
Basic Program List	Detailed Program List	No. of Unit	No. of User	Area/ Person (sqm)	Area/ Unit (sqm)	Total Area (sqm)
Administration	Lobby & Reception	1	10	1	10	10
	Director Room	1	1	30	30	30
	Secretary Room	1	1	25	25	25
	Meeting Room	1	20	1	20	20
	Canteen	1	50	1	50	50
	Security Room	1	4	1.5	6	6
	Toilets	6	6	1.5	9	9
sub-Total	with 20% circulation	180				150
Curatorial Space	Waiting Room	1	10	3	30	30
	Curator Room	1	1	30	30	30
	Staff Room	1	5	2	10	10
	Monitoring Room	1	2	2	4	4
	Storage	1	*	*	100	100
	Toilets	4	4	1.5	6	6
sub-Total	with 30% circulation	234				180
Multipurpose Hall	Lobby & Reception	1	200	1	200	200
	Hall Room	1	600	1	600	600
	Kitchen & Storage	1	20	*	200	200
	Toilets	20	20	1.5	30	30
sub-Total	with 30% circulation	1339				1030
Museum	Lobby & Reception	1	100	3	300	300
	Permanent Gallery	1	100	8	800	800
	Temporary Gallery	1	50	4	200	200
	Interactive Gallery	1	50	5	250	250
	Library & Archive	1	50	5	250	250
	River Heritage Exhibition Space	1	50	10	500	500
	Aquatic Life Exhibition Space	1	50	6	300	300
	Open Exhibition Space	1	50	8	400	400
	Seminar Hall	2	100	1	100	200
	Souvenir Shop	2	5	2	10	20
	Toilets	10	10	1.5	15	15
sub-Total	with 40% circulation	4529				3235
Research Center	Lobby & Reception	1	20	1	20	20
	Waiting Room	1	10	1	10	10
	Researcher Room	2	10	5	50	100
	Laboratory	2	10	10	100	200
	Library	1	20	5	100	100
	Seminar Hall	1	50	1	50	50
	Storage	1	*	*	10	10
sub-Total	with 20% circulation	588				490
Cafeteria & Restaurant	Cafeteria	1	100	1	100	100
	Restaurant	1	200	1	200	200
	Kitchen & Storage	1	15	*	15	15
sub-Total	with 30% circulation	409.5				315
Open Activity Area	Club Space	1	100	2	200	200
	Amphitheater & Activity Area	*	200	10	2000	2000
sub-Total	with 30% circulation	2860				2200
Vehicular Parking	Car	100	*	12.5	1250	1250
	Bike	50	*	3	150	150
sub-Total	with 30% circulation	1820				1400
TOTAL	11959.5					9000

Figure 26: Program List

Source: (Author, 2023)

Chapter 6

Design Development

6.1 Existing Site Condition

The site area is currently in a state of transition, hosting temporary structures that serve as an embankment road construction depot. This transient use stands in contrast to the largely open surrounding areas, which offer significant potential for future development. Adjacent to the site, on the western side of the Rajakhali Canal, lies the Kolpolok Residential area, representing the nearest established development. This juxtaposition of temporary infrastructure and permanent residential spaces underscores the dynamic nature of the area's urban evolution. The presence of the construction depot suggests ongoing efforts to improve local infrastructure, possibly in response to the area's proximity to the river and the need for flood protection measures.

The site's strategic importance is further emphasized by its connectivity to the broader urban fabric through two key roads. The north-south aligned embankment road serves as a critical artery, linking various areas along the riverbanks and likely playing a vital role in flood management and riverside accessibility. Complementing this is the east-west oriented Kolpolok Abashik Road, which integrates the site with the inner parts of the city. This road network positions the site at a crucial junction between the riverine landscape and the urban core, potentially influencing future development patterns and land use in the area. The interplay between these transportation links, the ongoing construction activities, and the proximity to both residential areas and open spaces highlights the site's potential as a nexus for urban growth and development, balancing the needs of infrastructure, housing, and environmental considerations in this evolving cityscape.



Figure 27: Existing Site Plan

Source: (Author, 2023)

The site's distinctive topography and access considerations present both challenges and opportunities for design. The embankment road, serving as the primary artery, stands 10 meters above mean sea level, while the site area rests at 4 meters, creating a significant 6-meter height differential. This elevated road, primarily serving riverbank residents, contrasts with the secondary road (likely Kolpolok Abashik Road) that connects the inner-city population to the site. Addressing this complex landscape requires innovative solutions: pedestrian access must be ensured from both roads, navigating the elevation changes, while vehicular access is proposed via the secondary road on the site's north side to maintain uninterrupted flow on the embankment road. This thoughtful approach to managing elevation disparities, diverse user needs, and access requirements sets the stage for an integrated design that not only meets

functional demands but also harnesses the unique topography to create a distinctive and accessible urban space, seamlessly connecting the riverbank communities with the inner city.

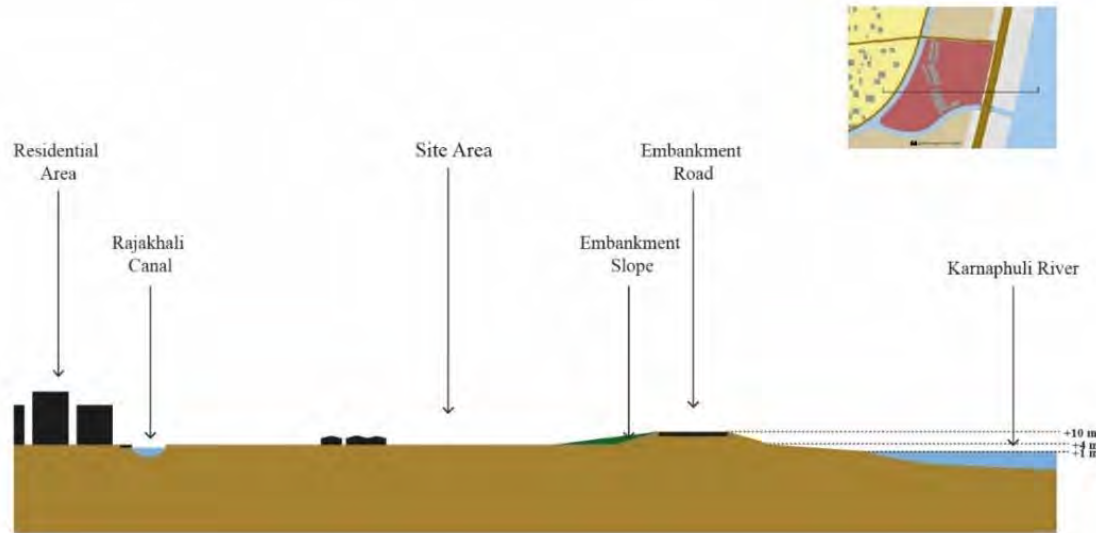


Figure 28: Existing Site Section

Source: (Author, 2023)

The site's relationship with the Karnaphuli River is significantly influenced by the presence of the embankment road, which acts as both a barrier and a defining feature of the landscape. This elevated road, standing 6 meters above the site level, creates a physical and visual separation between the site and the river. While the embankment serves a crucial function in flood protection and riverbank connectivity, it also presents a design challenge by obstructing direct views of the Karnaphuli from ground level. This visual disconnection alters the site's immediate context, transforming what might have been a riverside location into a space that must redefine its connection to the water. The obstruction of river views from ground level necessitates creative architectural and landscape solutions to reestablish a visual and experiential link with the Karnaphuli, perhaps through elevated viewing platforms, strategic building orientations, or innovative public spaces that can overcome this topographical barrier and reconnect the site with its riverine context.

6.2 Project Site Fixation

Situating the River Heritage Museum in closest proximity to the Karnaphuli River aligns perfectly with its thematic focus and purpose. This strategic placement not only reinforces the museum's connection to its subject matter but also provides opportunities to create engaging visual and experiential links to the river, despite the embankment's obstruction. The museum's design could incorporate elevated spaces or viewing platforms that overcome the visual barrier, offering visitors panoramic views of the Karnaphuli and immersing them in the riverine landscape that forms the core of the museum's narrative.

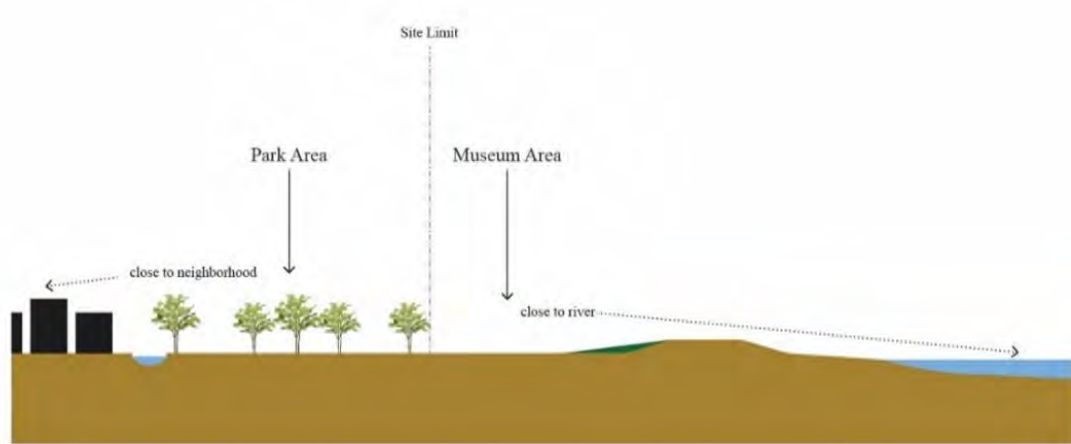


Figure 29: Site Fixation

Source: (Author, 2023)

Complementing this, positioning the park area adjacent to the Kolpolok Residential Area serves multiple beneficial purposes. It creates a valuable green space for the neighborhood, enhancing the quality of life for local residents and providing a much-needed recreational area. This arrangement also establishes a harmonious transition between the cultural institution of the museum and the residential zone, potentially increasing community engagement with both the park and the museum. By thoughtfully balancing these elements - the river-focused museum and the community-oriented park - the project can create a cohesive urban space that celebrates

the river's heritage while simultaneously enriching the local urban fabric and serving the needs of the community.

6.3 Importance of the Karnaphuli River

The Karnaphuli River, a vital artery of the Chittagong region, is inextricably linked to its cultural heritage, economic vitality, and ecological health. This majestic waterway has not only shaped the area's history and sustained communities for centuries but also fostered rich biodiversity. Its influence permeates local traditions, drives industrial growth, and maintains crucial ecosystems. Recognizing the Karnaphuli River's profound impact underscores the pressing need for a dedicated heritage museum and research center—an institution that would preserve its legacy, facilitate scientific study, promote environmental conservation, and educate the community. Such a center would serve as a beacon for future generations, inspiring them to value and safeguard this indispensable natural resource, thereby ensuring its continued significance in the region's development and identity.

6.3.1. Historical Importance

The Karnaphuli River, coursing through Bangladesh's Chittagong Division, bears testament to a rich tapestry of history dating back to ancient times. This vital waterway served as a crucial artery for trade, forging connections between coastal and inland regions and nurturing thriving civilizations along its banks. Over millennia, the Karnaphuli witnessed the rise and fall of empires, from the Arakanese to the Mughals and British, each recognizing its strategic significance. The river's historical importance is further enriched by its association with ancient Buddhist culture and early Arab traders, whose influence shaped the region's cosmopolitan character. During the 1971 Bangladesh Liberation War, the Karnaphuli assumed a pivotal role, becoming a focal point of military strategy and national struggle.



Figure 30: Historical Context of the River

Source: (Author, 2023)

In the present time, the Karnaphuli stands as a living bridge between ancient heritage and vibrant contemporary life. Its waters carry the tales of diverse cultures, traditions, and communities that have flourished along its shores, leaving an indelible mark on the region's identity. The river's currents echo with the ebb and flow of civilizations, from the zenith of Buddhist influence to the bustle of medieval trade routes. As it winds its way through the Chittagong Division, the Karnaphuli continues to be a powerful reminder of an enduring legacy, seamlessly linking the achievements of past civilizations with the aspirations of the present. This majestic river not only shapes the physical landscape but also serves as a repository of collective memory, embodying the resilience and continuity of human civilization in this dynamic region of Bangladesh.

6.3.2. Activities Around the River

The Karnaphuli River stands as a vibrant nexus of economic and cultural activity in the Chittagong Division, its waters serving as a vital artery for trade, transportation, and communication. For centuries, this bustling waterway has facilitated commerce, with a myriad of vessels traversing its length, carrying goods and passengers. Along its banks, the rich tapestry of local culture unfolds, showcased in the skilled craftsmanship of artisans who create traditional wares such as intricate pottery, durable jute products, and versatile bamboo crafts.

The river's bounty has long sustained fishing communities, with time-honored techniques and traditions passed down through generations, forming an integral part of the region's cultural heritage.

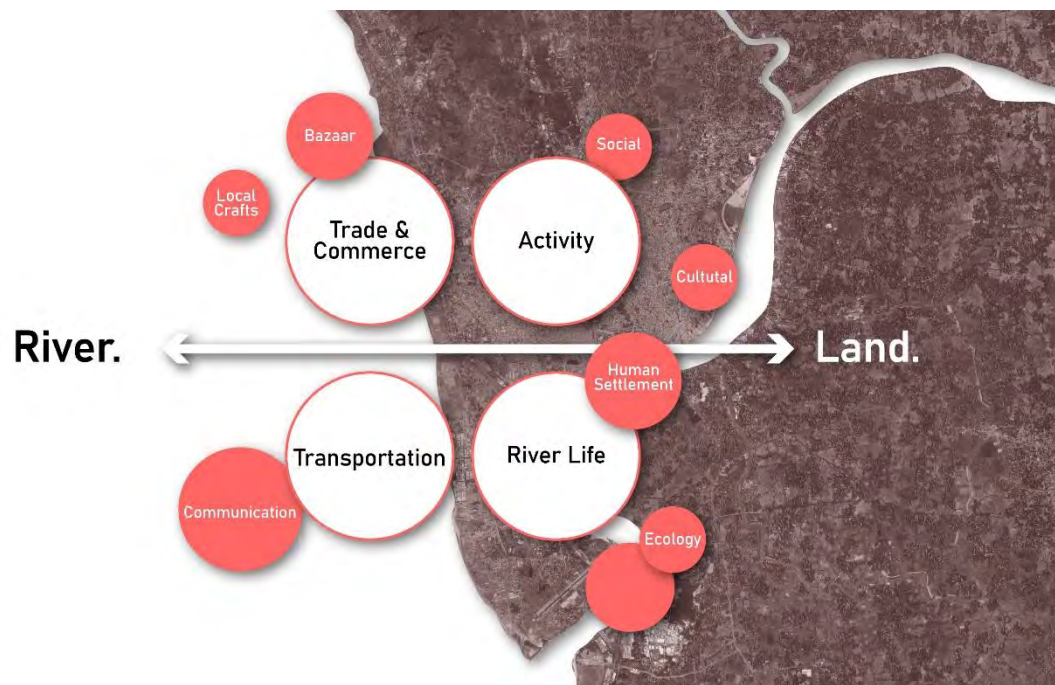


Figure 31: Karnaphuli Riverside Activities

Source: (Author, 2023)

Beyond its economic significance, the Karnaphuli River plays a pivotal role in the social and ecological fabric of the region. It serves as a focal point for cultural and social gatherings, where communities converge to celebrate their shared heritage, strengthening bonds and preserving traditions. Simultaneously, the river sustains a complex and diverse ecosystem, harboring a wealth of biodiversity both in its waters and along its shores. This delicate equilibrium between human activity and natural vitality underscores the Karnaphuli River's profound importance in shaping not only the livelihoods but also the cultural identity and environmental health of the communities that call its banks home. The river thus emerges as a multifaceted lifeline, seamlessly integrating economic prosperity, cultural richness, and ecological sustainability in the heart of the Chittagong Division.

6.3.3. River Life and River Heritage

The Karnaphuli River is the lifeline of Chittagong, nurturing a rich riverine culture for centuries. Crucial for trade and transport, it's integral to riverside communities' lives. The river's heritage is visible in traditional crafts like boat-making, pottery, and weaving, showcasing generations of artisanal skill. Fishing remains central, blending old and new techniques. The Karnaphuli embodies the deep bond between the river and its people, influencing both their livelihoods and cultural identity.



Figure 32: Karnaphuli River Heritage

Source: (Author, 2023)

The Karnaphuli River's significance extends far beyond its economic role, embodying a delicate balance between human activity and natural wonder. Its ecosystem cradles a remarkable diversity of flora and fauna, contributing significantly to the region's ecological importance and biodiversity. The river's waters reflect more than just the physical landscape; they mirror the cultural and historical narratives of countless generations who have prospered in harmony with this life-giving force. From the whispers of ancient civilizations to the bustling activity of modern commerce, the Karnaphuli River stands as a living testament to the enduring relationship between humans and nature. This symbiosis has shaped not only the physical environment but also the cultural identity of the region, creating a unique riverine heritage that continues to evolve with each passing day.

6.3.4. River Influence on Site Surroundings

The proposed site is strategically positioned on the western bank of the Karnaphuli River, situated between the Kolpolok Residential Area and a branch of the Rajakhali Canal. An embankment road serves as a protective barrier between the site and the river, simultaneously providing access and flood mitigation. This road intersects with another artery from the Kolpolok Residential Area to the north, enhancing the site's connectivity. A small boat terminal in the northwest sector facilitates local riverine transportation, underscoring the site's integration with aquatic activities. This location aligns with the Chittagong Development Authority's urban development vision, which includes plans for a recreational park and convention center to stimulate tourism and community engagement. The site's juxtaposition of urban infrastructure and natural waterways renders it optimal for a multifunctional facility incorporating both a recreational park and a museum. This integrated space would not only address the needs of the local community but also attract visitors, establishing a cultural and educational nexus. The proposed development aims to synthesize urban dynamics with the

riverside environment, enhance public spaces, promote environmental consciousness, and showcase the region's rich cultural heritage.

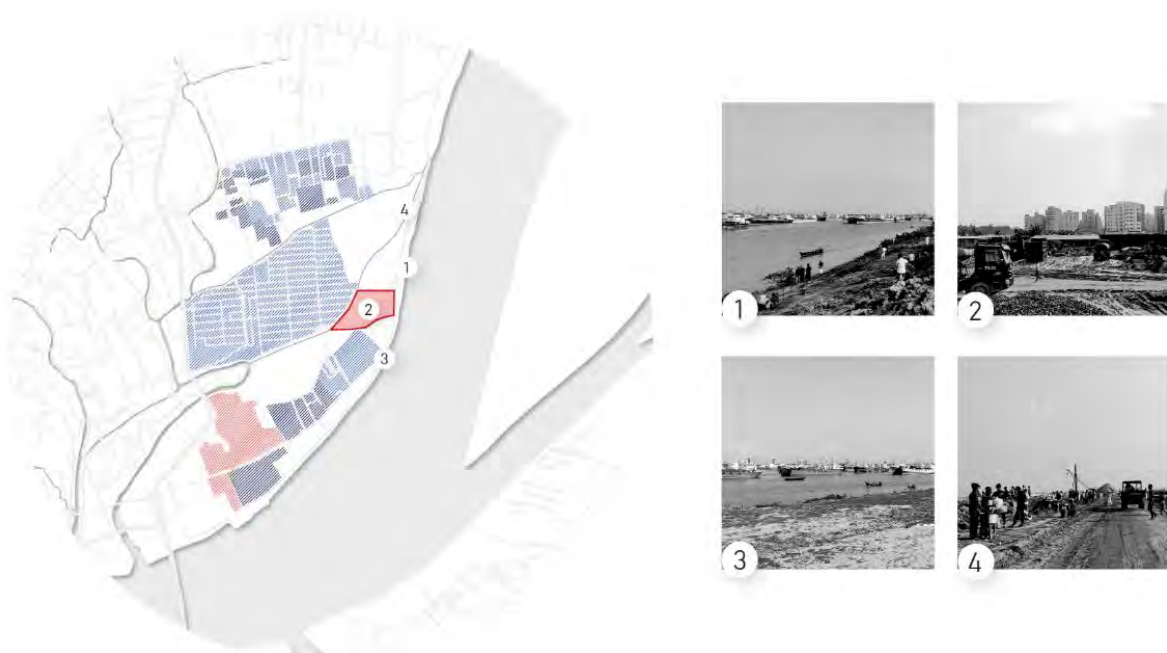


Figure 33: Present Site Surrounding

Source: (Author, 2023)

The site is situated on the urban periphery, predominantly characterized by residential land use with significant industrial and commercial zones. However, there is a notable deficit in communal, educational, and recreational facilities. The western riverbank offers substantial open space, which the Chittagong Development Authority (CDA) is targeting for multiple development projects, indicating future infrastructural growth. Across the Karnaphuli River, the eastern bank adjacent to the site also presents extensive open areas. This locale is distinguished by its thriving dried fish processing industry, a crucial component of the local economy. The vibrant bazar culture further contributes to the area's economic dynamism, playing a pivotal role in shaping its distinctive socio-economic landscape and community identity.

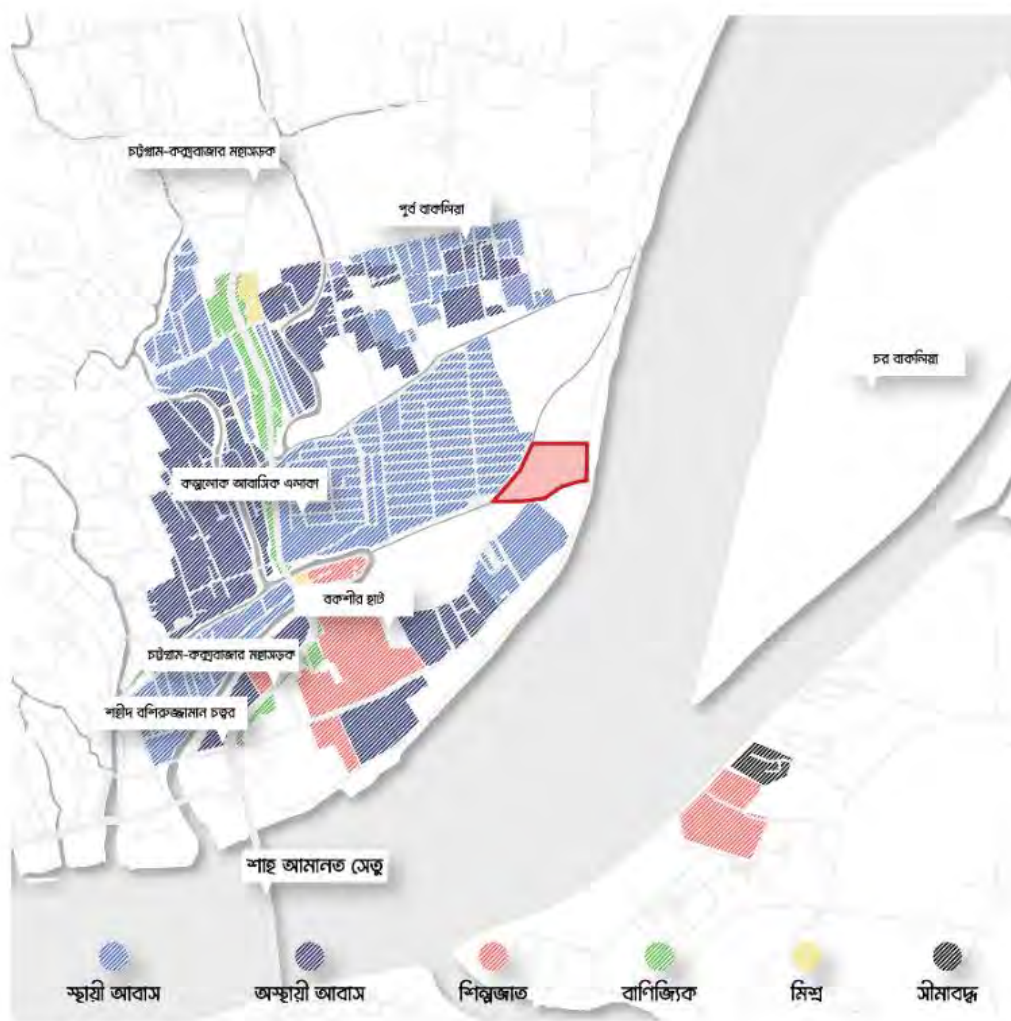


Figure 34: Site Surrounding Land-use

Source: (Author, 2023)

All things considered, the site's location at the urban-rural interface, adjacent to the Karnaphuli River, offers a unique development opportunity. The area's diverse land use, ongoing CDA initiatives, and vibrant local economy create an ideal setting for a project that addresses community needs while preserving the region's character. This development could serve as a catalyst for sustainable urban growth, balancing existing land uses with future requirements and enhancing the area's socio-economic fabric.

6.3.5. Cultural Significance

The banks of the Karnaphuli River are home to a vibrant mosaic of cultures, where four distinct communities - Bengali, Chakma, Marma, and Tripura - coexist and thrive. Each group contributes its unique traditions, customs, and way of life to the rich cultural tapestry of the region. This diversity is not merely a cohabitation but an intricate interweaving of lifestyles and activities, resulting in a complex and multifaceted cultural heritage that defines the Karnaphuli's riverine landscape. The interactions and influences among these communities have, over generations, created a distinctive cultural identity that is both diverse and harmonious.

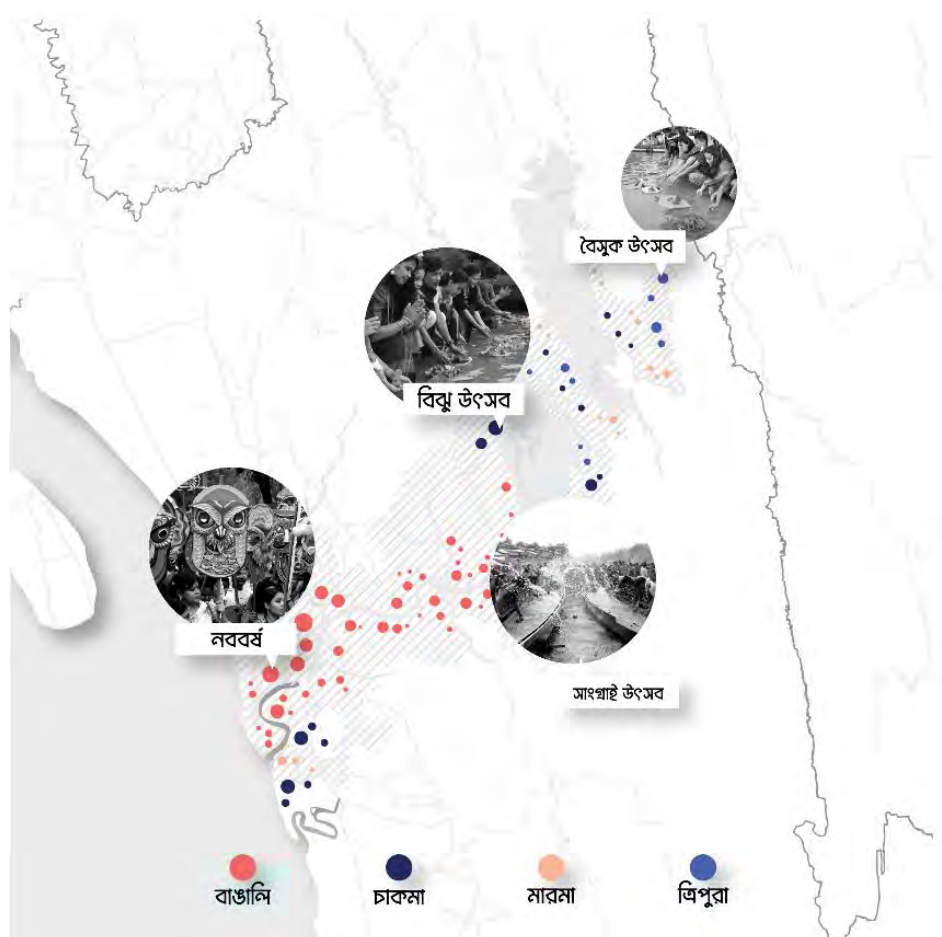


Figure 35: Cultural Heritage of Karnaphuli River

Source: (Author, 2023)

Central to this cultural confluence is the celebration of 'Baisabi' or 'Noboborsho', a festival that exemplifies the shared traditions of the river's inhabitants. This joyous occasion, marking the harvest of new crops, transcends individual community boundaries to become a powerful unifying force. The festival not only symbolizes abundance and renewal but also serves as a catalyst for social cohesion, bringing together people from all walks of life in a collective expression of joy and gratitude. Through such shared celebrations and gatherings, the communities along the Karnaphuli River continually reinforce their sense of belonging and strengthen the cultural bonds that have flourished for generations. This enduring tradition stands as a testament to the river's role as not just a geographical feature, but as a living, flowing thread that binds diverse cultures into a singular, vibrant community.

6.3.6. River-Centric Transportation and Communication

The Karnaphuli River has historically served as a vital artery of commerce and communication, pulsating with the continuous flow of people and goods along its sinuous course. This dynamic waterway has not merely facilitated transportation but has fostered a complex network of interactions, weaving together the social and economic fabric of the region. The river's role as a conduit for trade and travel has been instrumental in shaping the cultural landscape of the Chittagong Division, creating a tapestry of interconnected communities that share a common riverine heritage. For centuries, the Karnaphuli has facilitated the exchange of goods, ideas, and traditions, contributing to the economic diversity and cultural richness of the area. As people traveled along the river for trade or migration, they brought with them unique customs and beliefs, resulting in a vibrant, diverse society. This constant interplay of commerce and culture has established the Karnaphuli as a symbol of unity in diversity, fostering a shared identity among the communities along its banks while maintaining its significance in the evolving narrative of the region.



Figure 36: Communication & Transportation Flow of the Karnaphuli River

Source: (Author, 2023)

Key nodal points along the Karnaphuli River, including 'Sadarghat', 'Kalurghat', and the Chittagong Port, function as vital centers of activity and exchange. These strategic locations serve as hubs for community convergence, trade, and information sharing. By facilitating resource distribution and cross-cultural interactions, these focal points have significantly contributed to the region's economic vitality and social cohesion. Their continued importance underscores the Karnaphuli's central role in sustaining the dynamic socio-economic ecosystem along its banks, highlighting the river's crucial influence on the area's development and cultural identity.

6.3.7. Ecological Importance

The Karnaphuli River's ecological heritage is characterized by diverse habitats and species. Its delta, fringed with mangrove forests, serves as critical breeding and feeding grounds for marine life. The river hosts various fish species, including the freshwater river dolphin, while its wetlands provide sanctuary for migratory birds.



Figure 37: Ecological Heritage of Karnaphuli River

Source: (Author, 2023)

This complex ecosystem maintains a delicate balance, forming the backbone of local biodiversity and sustaining the livelihoods of riverside communities. The intricate interplay between aquatic and terrestrial habitats creates a unique ecological landscape that supports a wide range of flora and fauna. From the microscopic plankton to larger mammals, each species

plays a crucial role in maintaining the river's ecological health. Furthermore, this biodiversity directly contributes to the economic well-being of local communities through fishing, agriculture, and ecotourism. The Karnaphuli River's ecosystem services extend beyond its immediate vicinity, influencing regional climate patterns and nutrient cycles, underlining the river's importance in broader ecological and economic contexts.

6.4 Conceptual Development

In conceiving the design for the project, the primary objective was to establish a strong connection with the surrounding environment, reflecting the historical pattern of human activity oriented towards the river since ancient times. This vision focuses on creating both visual and physical links, offering an immersive experience that brings to life the cultural tapestry woven by the Karnaphuli River. A central axis extends towards the canal, mirroring the river's edge and serving as a guiding thread for visitors. This deliberate layout ensures a seamless flow, unifying the various program spaces within the museum and facilitating intuitive navigation through the exhibits and public areas.

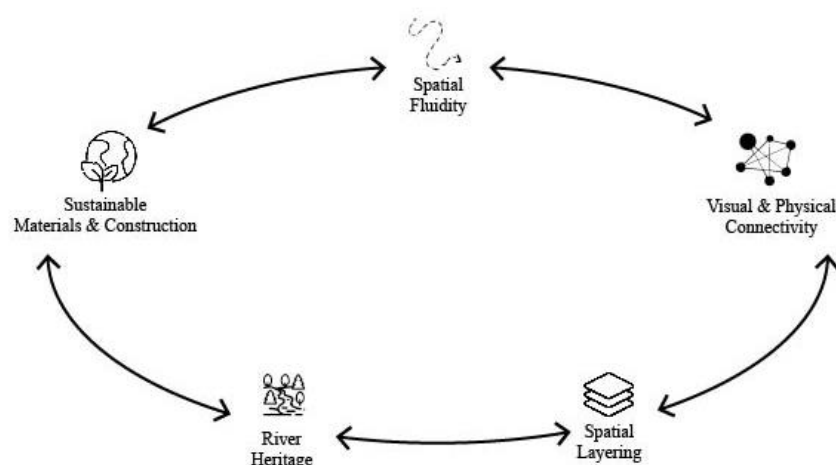


Figure 38: Concept Diagram

Source: (Author, 2023)

The design philosophy extends beyond spatial organization to encompass material selection and construction methods, underscoring a deep-seated commitment to sustainability. Local materials and traditional building techniques are integrated with modern sustainable practices, minimizing the project's environmental impact while celebrating regional architectural heritage. The museum's form and orientation are optimized for natural lighting and ventilation, reducing energy consumption. Green spaces and water features are incorporated throughout the complex, enhancing biodiversity and creating a harmonious blend between the built environment and natural surroundings. This fusion of history, culture, and ecological responsibility serves as the guiding ethos, positioning the River Heritage Museum not only as a repository of cultural heritage but also as a model of sustainable architectural practice in harmony with its riverine context.

6.5 Functional Relationship and Zoning

6.5.1. Program Relationship

The design of the River Heritage Museum meticulously balances public, private, and semi-public functions, ensuring each maintains its distinct spatial identity while contributing to a cohesive whole. Public spaces, including galleries, the multipurpose hall, café, restaurant, and library, are interconnected through a shared circulation system that promotes accessibility and smooth transitions, enhancing the visitor experience. This layout encourages a natural flow, allowing seamless movement through exhibits and public amenities. The multipurpose hall hosts events and workshops, integrating the public into museum activities, while the café and restaurant offer scenic river views for relaxation. The library provides a quiet space for study and research. Private and semi-public areas, such as administrative offices and research facilities, have separate circulation to maintain privacy and focus. This thoughtful segmentation ensures smooth operations without disrupting public engagement, fostering an environment where the river's cultural and historical significance comes to life.

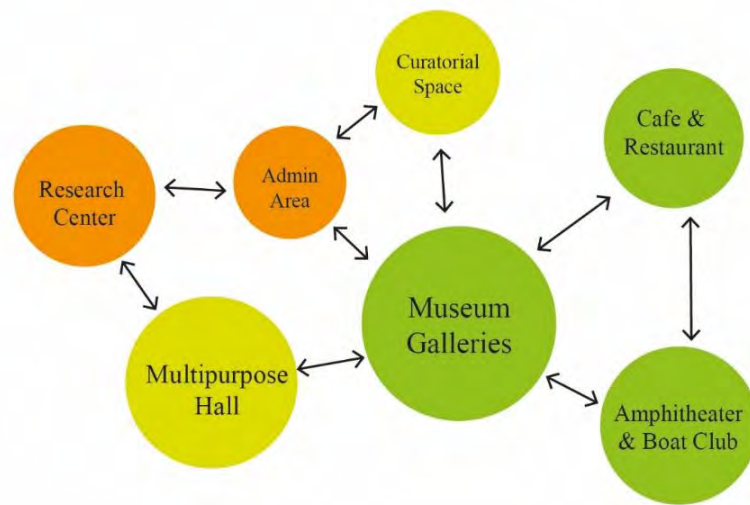


Figure 39: Functional Relationship

Source: (Author, 2023)

On the other hand, the research center's specialized areas—such as classrooms, laboratories, and workshops—are configured to provide the privacy necessary for focused academic and scientific work. These spaces are linked by a separate circulation system, distinct from the public areas, to maintain their dedicated function while still integrating seamlessly with the overall museum complex. This dual circulation approach not only optimizes functionality for both visitors and researchers but also creates a dynamic spatial experience that reflects the multifaceted nature of the Karnaphuli River's heritage. The careful orchestration of these diverse spaces fosters an environment that simultaneously supports public engagement, education, and scholarly research, embodying the museum's mission to preserve, study, and celebrate the river's rich cultural and ecological legacy.

6.5.2. Program Zoning

To optimize accessibility and create a compelling visitor experience, the design incorporates a thoughtful zoning strategy:

Access and Entry: To ensure connectivity from multiple directions, pedestrian access is provided from both the primary embankment road and the secondary Kolpolok Residential Road. Vehicular access is strategically limited to the secondary road to minimize traffic disruption on the main embankment road. A clear, welcoming entry plaza serves as a transitional space, guiding visitors into the complex.

Public Spaces: The museum lobby and multipurpose hall are prominently positioned near the entrance, serving as the primary welcome and orientation spaces for visitors. This placement facilitates easy wayfinding and efficient crowd management during peak hours or special events.

Exhibition Flow: A series of interconnected courtyards and exhibition spaces are arranged along a central axis leading towards the canal. This layout creates a natural progression through the museum's narratives, mirroring the journey of the Karnaphuli River itself. Boat exhibitions are strategically placed along this path, transitioning from indoor displays to outdoor exhibits as visitors move towards the water.

Research Center Integration: The Research Center is strategically located on the ground floor, creating a seamless connection between academic study and the living heritage of the river. This placement facilitates interaction between researchers and visitors, promoting knowledge exchange and public engagement. The center includes laboratories, a library, and collaborative spaces, designed to support both focused research and interdisciplinary work. Its proximity to exhibition areas and the waterfront enables easy access to historical artifacts and

the river itself for field studies, effectively bridging theoretical research with practical investigation of the Karnaphuli's ecosystem.

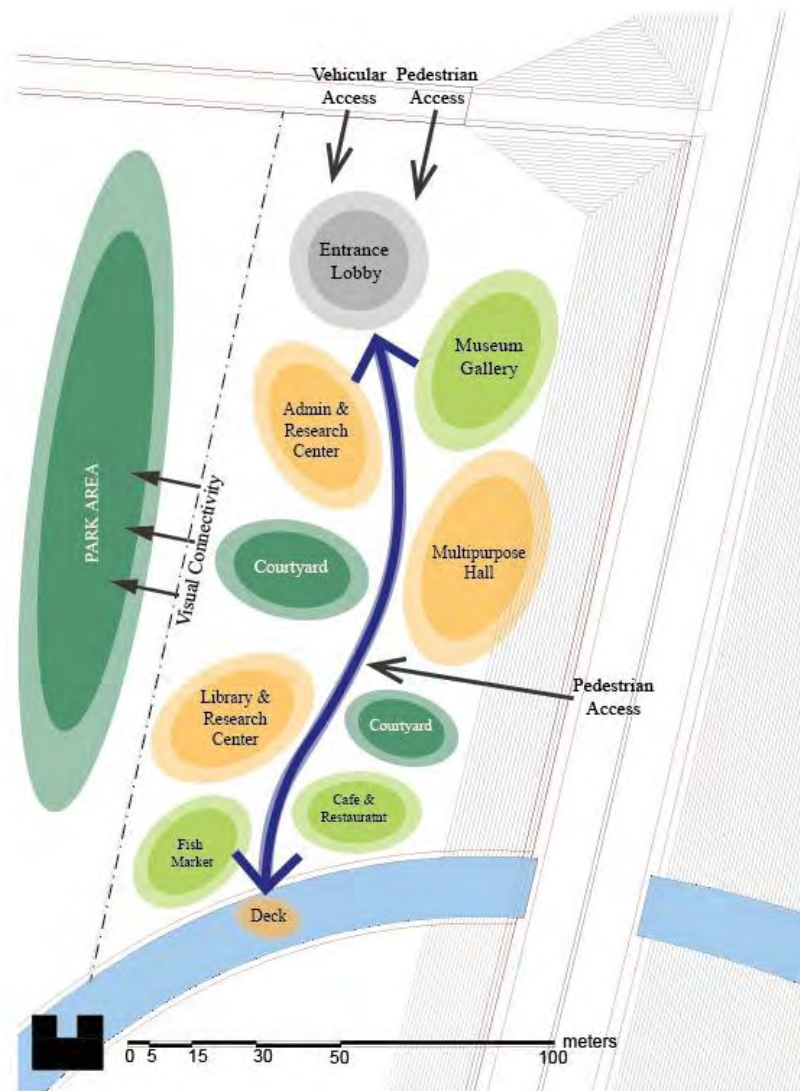


Figure 40: Program Zoning

Source: (Author, 2023)

Waterfront Integration: The axis culminates in an active waterfront area featuring boat decks and a vibrant local fish and dried fish market. This zone seamlessly connects the museum's historical narratives with the living heritage of the Karnaphuli River. The boat decks serve as exhibition spaces for traditional watercraft, launch points for river tours, and viewing

platforms. The market showcases ongoing fishing practices and commerce, acting as both a functional space and a living exhibit. This integration creates an immersive experience that bridges past and present, enhancing community engagement and highlighting the river's enduring importance.

Sustainability Considerations: The project incorporates sustainable design principles through thoughtful building orientation and strategic placement of courtyards. These elements maximize natural lighting and optimize ventilation, significantly reducing energy consumption. Green spaces are integrated throughout the complex, serving multiple ecological functions. They enhance local biodiversity, improve air quality, and create pleasant microclimates. These areas also act as natural water filtration systems, managing stormwater runoff. The integration of these sustainable features not only reduces the project's environmental footprint but also serves as an educational tool, demonstrating eco-friendly practices to visitors.

Circulation and Wayfinding: The circulation strategy creates an intuitive journey through the museum complex. A primary path, inspired by the flow of the Karnaphuli River, guides visitors from the entrance, through exhibition spaces, and towards the waterfront. This main artery is complemented by secondary paths offering alternative routes and access to support facilities. The design incorporates nodes of interest, rest areas, and viewing points that encourage exploration and provide moments of reflection. Clear signage, changes in flooring materials, and strategic lighting enhance wayfinding. The layout also includes quiet zones, allowing visitors to pace their journey and absorb the information presented. This approach ensures an effortless navigation experience that echoes the rhythms of the river itself.

6.6 Form Development

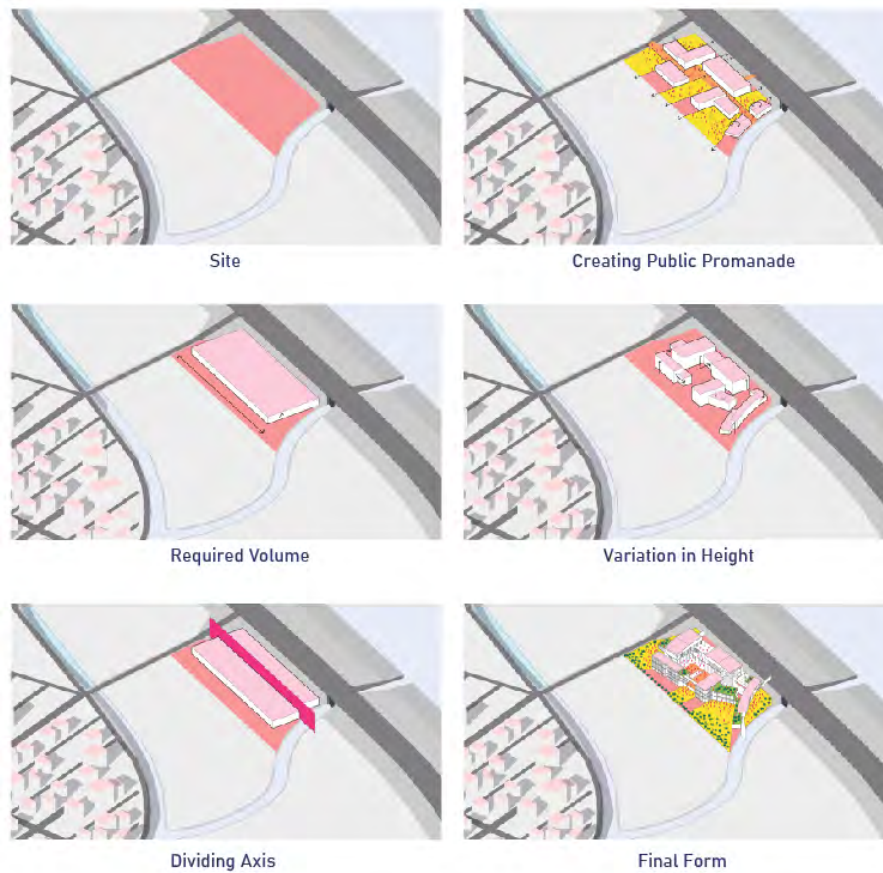


Figure 41: Form Derivation

Source: (Author, 2023)

The Form Development section explores the design process of the Karnaphuli River Heritage Museum and Research Center. It emphasizes translating abstract ideas into tangible elements by considering the site's context, environmental conditions, cultural influences, and functional requirements through iterative sketching, modeling, and analysis. Key factors include integrating local architectural styles and natural landscapes, optimizing sustainable design for natural light and ventilation, and ensuring efficient spatial organization for exhibition spaces, research facilities, and public amenities. This approach highlights the commitment to creating a meaningful and sustainable architectural landmark.

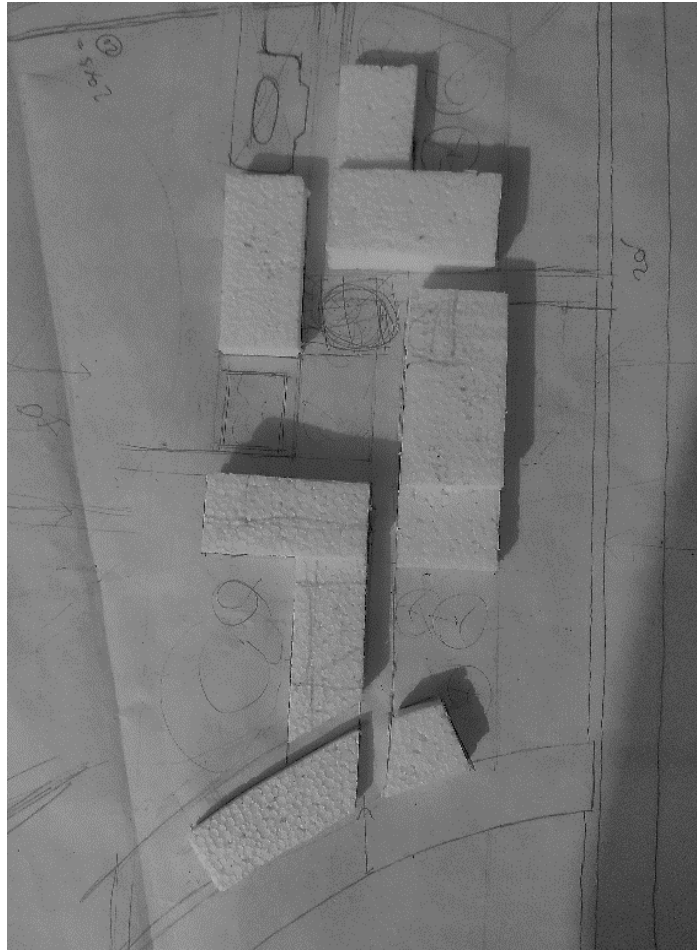


Figure 42: Mass Model

Source: (Author, 2023)

The mass model represents the building's three-dimensional massing, offering a tangible overview of its volume, scale, and spatial relationships, and visualizing its integration with the environment. For the Karnaphuli River Heritage Museum, it highlights spatial hierarchy by organizing public, semi-public, and private zones, ensuring the building's volume and proportions are appropriate for its surroundings, and assessing its visual impact, including form, roofline, and facade. The design process involves multiple stages: conceptual sketches, detailed site analysis, defining programmatic needs, and iterative refinement through sketches and models. This approach ensures the museum meets functional requirements while resonating with its cultural and environmental context, demonstrating a commitment to creating a sustainable architectural landmark.

6.7 Design Drawings

This chapter presents a comprehensive architectural vision for the Karnaphuli River Heritage Museum and Research Center, embodying the water-centric principles discussed previously. Also, this translates the conceptual ideas into tangible design solutions, presenting a sequence of drawings that chronicle the project's evolution from macro-scale planning to detailed architectural articulation.

Plans:



Figure 43: Master Plan

Source: (Author, 2023)

The master plan establishes the foundational framework for the museum complex. This holistic layout seamlessly integrates diverse functional zones, including exhibition spaces, research facilities, public areas, and dynamic waterfront activities. The master plan emphasizes a fluid

connectivity, orchestrating a natural progression from the entrance through curated exhibition spaces, culminating in an engaging waterfront experience. This design philosophy not only fosters internal synergies among various components but also forges a symbiotic relationship with the surrounding ecosystem, particularly the Karnaphuli River, reinforcing the site's maritime heritage.

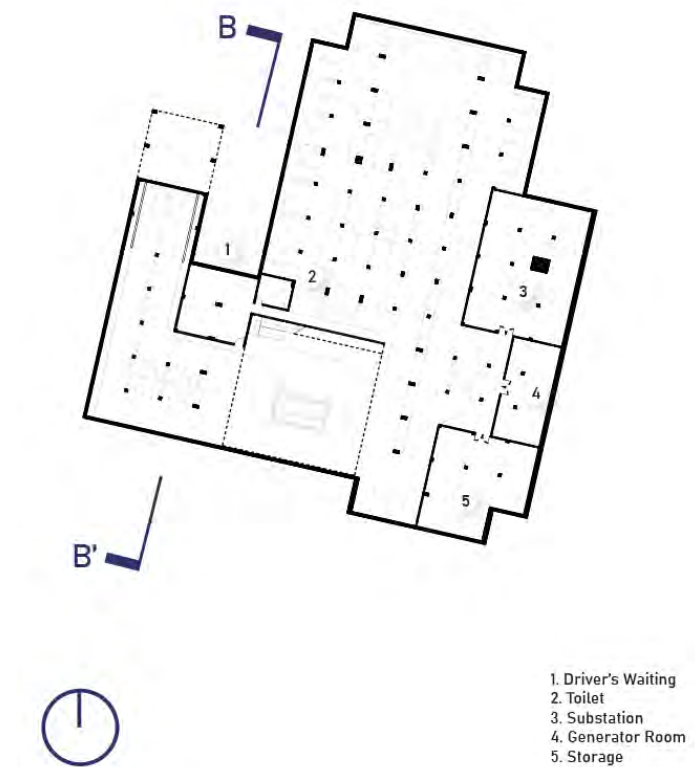


Figure 44: Basement Plan

Source: (Author, 2023)

The basement plan elucidates the substructure of the museum's spatial organization. This level is dedicated to essential service areas, archival storage, and critical utilities, forming the infrastructural backbone of the institution. The basement layout offers crucial insights into the underlying support systems that facilitate the museum's above-ground operations, ensuring optimal space utilization and resource management in alignment with sustainable design principles.



Figure 45: Ground Floor Plan

Source: (Author, 2023)

The ground floor plan embodies water-centric design, integrating public spaces with a local fish market and boat deck along the Rajakhali Canal. It combines the main entrance, exhibits, and amenities, creating a narrative flow from modern displays to living maritime heritage. This multifaceted space connects visitors to local culture, supports research, and exemplifies the museum's water-centric urban strategy, offering an engaging experience that transcends traditional museum design.

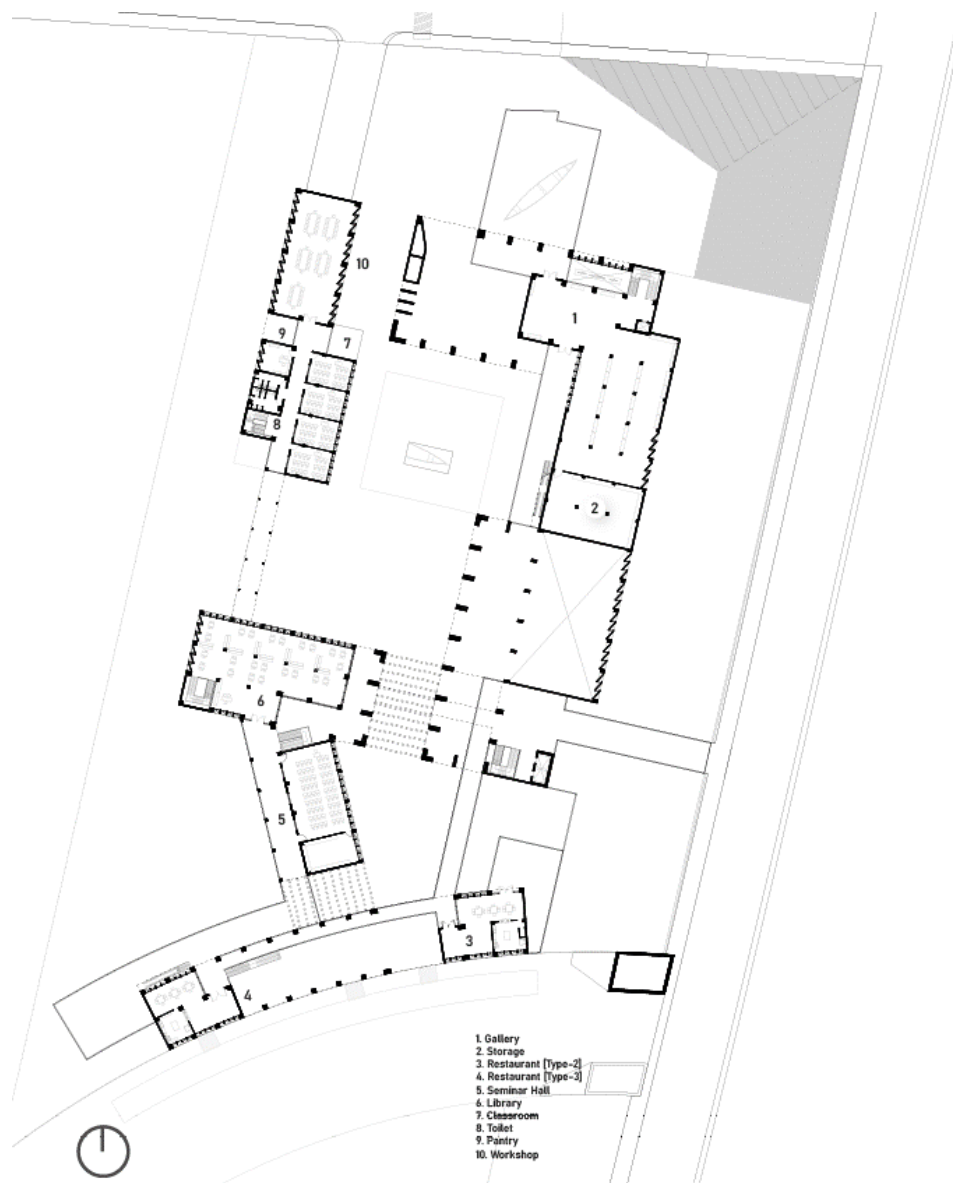


Figure 46: First Floor Plan

Source: (Author, 2023)

The first-floor plan features specialized exhibits, seminar rooms, interactive workshops, and a comprehensive library. This level builds on the ground floor experience, offering deeper insights and enhanced engagement through interactive elements. The library serves as a knowledge hub, complementing exhibits with extensive resources. The layout ensures easy navigation and a logical flow between thematic areas, creating a cohesive educational journey that deepens visitors' understanding of the museum's content.

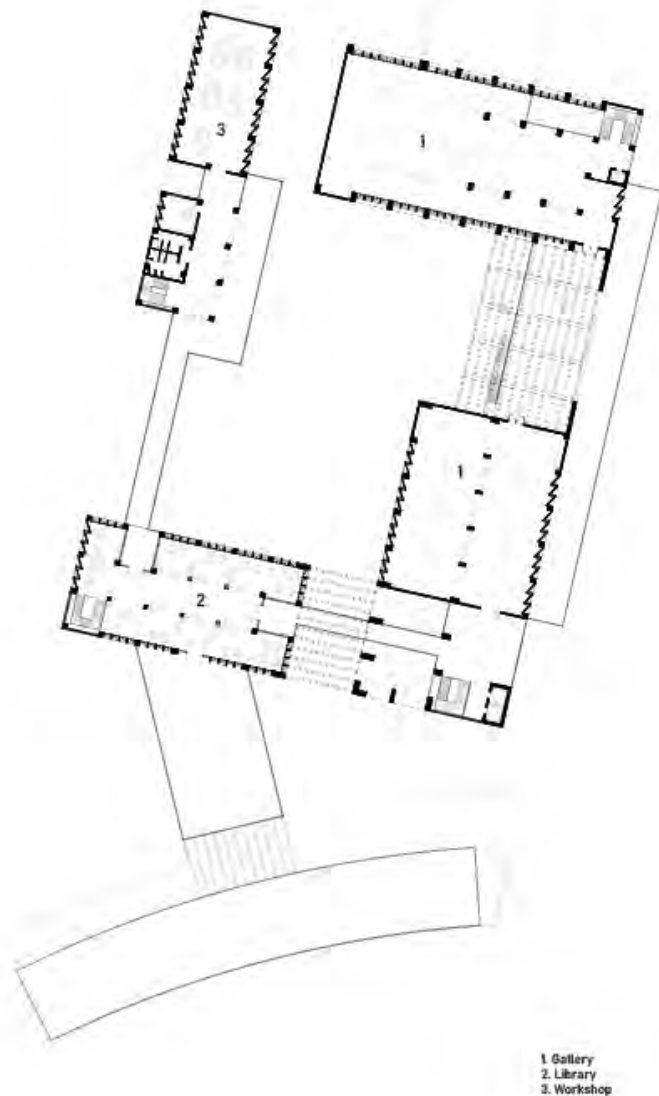


Figure 47: Second Floor Plan

Source: (Author, 2023)

The second-floor plan includes additional exhibition spaces and the core of the research center. This level is dedicated to scholarly pursuits and in-depth exploration, featuring areas for advanced research, collaborative study, and academic discourse. The design of this floor emphasizes contemplative environments conducive to intellectual inquiry, while maintaining accessibility for public educational programs and guided tours, thus bridging the gap between academic research and public engagement in maritime studies.

Sections and Elevations:



Figure 48: Sectional Perspective A-A'

Source: (Author, 2023)

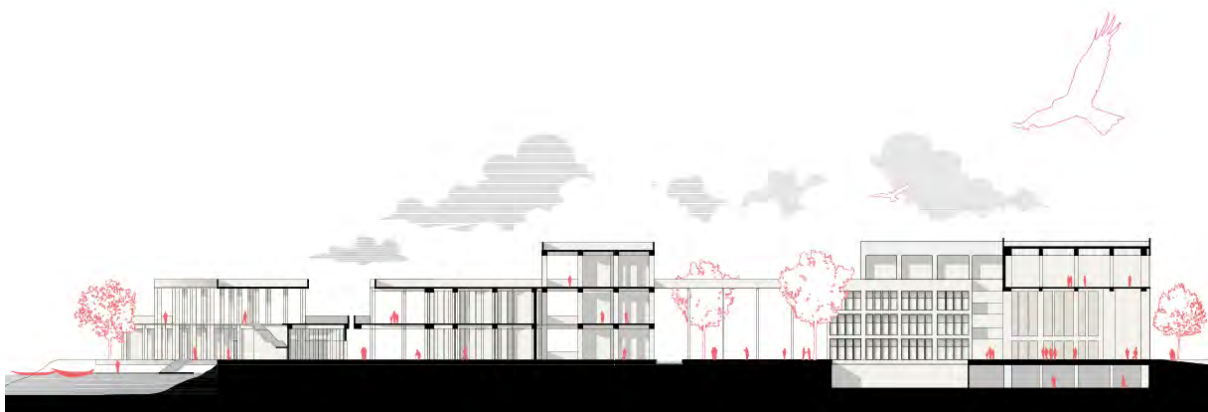


Figure 49: Section B-B'

Source: (Author, 2023)

The sectional perspective and section show the vertical cross-section of the entire structure, elucidating the spatial relationships and interactions between different levels. This perspective is instrumental in understanding the building's volumetric composition, highlighting structural elements and visual connections. The sectional view reveals how natural light is harnessed and space is modulated to create an atmosphere that is both inviting and conducive to learning, reflecting the museum's role as a beacon of knowledge and cultural preservation in the context of its riverine setting.



Figure 50: North Elevation

Source: (Author, 2023)



Figure 51: West Elevation

Source: (Author, 2023)

These two figures represent the north and west elevations, revealing the museum's exterior and its integration with the riverine setting. The elevations showcase facade treatments, material choices, and design elements that define the museum's identity. The use of concrete and

exposed brick adds texture and varying color tones, enhancing the aesthetic appeal and breaking monotony. The building's scale harmonizes with both urban and natural landscapes, emphasizing its relationship with the Karnaphuli River. Design strategies address the local climate and maritime context, incorporating shading elements and features that maximize river views. These thoughtful material choices and design elements ensure the museum stands as a cohesive and contextually integrated structure.

Three Dimensional and Rendered Views:



Figure 52: 3-D Rendered View-1

Source: (Author, 2023)



Figure 53: 3-D Rendered View-2

The three-dimensional rendered views bring the architectural drawings to life, offering a vivid representation of the completed museum in its waterfront context. These renders provide a comprehensive visual narrative from various perspectives, highlighting key features such as the integration of indoor and outdoor spaces and the flow between exhibition areas and public waterfront zones. They effectively illustrate how the museum will function as a hub of cultural, educational, and recreational activities centered around maritime heritage and river ecology.



Figure 54: 3-D Rendered View-3

Moreover, these visual representations play a crucial role in conveying the museum's broader significance. They showcase its potential to serve as a focal point for community engagement, fostering a deeper appreciation for maritime heritage and promoting environmental stewardship of river ecosystems. Through these renderings, stakeholders and the public alike can envision the museum as not just a physical structure but as a dynamic hub that enriches the social fabric of the surrounding area. This approach ensures that the museum's architectural

design aligns seamlessly with its mission to celebrate history, educate visitors, and inspire a sense of belonging within the community.



Figure 55: 3-D Rendered View-4

Source: (Author, 2023)



Figure 56: 3-D Rendered View-5

Source: (Author, 2023)

The chapter culminates with the presentation of physical model images, serving as tangible manifestations of the envisioned museum complex. These physical models provide an invaluable tactile experience, offering stakeholders and viewers alike a hands-on understanding of the spatial arrangements and intricate architectural details planned for the museum. By exploring these models, one can grasp the scale and form of the project in its riverine setting with enhanced clarity and depth.



Figure 57: Model Images-1

Source: (Author, 2023)

The physical models and detailed images in this chapter provide a three-dimensional view of the museum's layout and water connection, complementing digital renders. This helps visualize visitor navigation and highlights the museum's focus on maritime heritage, river ecology, and sustainable waterfront development.



Figure 58: Model Images-2

Source: (Author, 2023)



Figure 59: Model Images-3

Source: (Author, 2023)

Chapter 7

Conclusion

The "Karnaphuli River Heritage Museum and Research Center" stands as a multifaceted institution, embodying the vital roles that modern museums play in society. As a custodian of tangible and intangible heritage, it preserves and showcases the rich cultural tapestry woven by the Karnaphuli River through ages. By serving as both a museum and a research center, this institution bridges the gap between public engagement and scholarly inquiry, fostering a deeper understanding of the river's historical, cultural, and ecological significance (Macdonald, 2011).

The center's emphasis on community engagement ensures that local voices and perspectives are integral to its narrative, creating a participatory space that resonates with diverse audiences (Simon, 2010). Through its exhibits, educational programs, and research facilities, the institution not only documents the past but also actively contributes to ongoing dialogues about environmental conservation, cultural preservation, and sustainable development along the Karnaphuli River.

Moreover, the museum plays a crucial role in the socioeconomic development of the region. As a cultural attraction, it has the potential to boost tourism, creating job opportunities and stimulating local businesses (Frey & Meier, 2006). The research center component further enhances its economic impact by attracting scholars and fostering innovation in fields related to river ecology, cultural heritage, and sustainable development. This dual function as a tourist destination and a center for academic pursuit positions the institution as a key driver of both cultural and economic growth in the area.

As the Karnaphuli River continues its journey through time, this museum and research center serves as a beacon of knowledge and inspiration. It stands as a testament to the enduring legacy of the river, offering visitors, scholars, and community members alike an opportunity to

explore, learn, and contribute to the river's story. By fostering a deep appreciation for the Karnaphuli River's heritage and its ongoing importance, the institution plays a crucial role in ensuring that future generations will continue to value and protect this vital waterway.

In essence, the "Karnaphuli River Heritage Museum and Research Center" exemplifies the evolving role of museums in the 21st century. It serves not just as a repository of the past, but as a dynamic platform for education, research, and community engagement, all centered around the living heritage of the Karnaphuli River. Through this innovative approach, the institution ensures that the river's significance remains relevant and appreciated in our rapidly changing world, creating a lasting impact on both local communities and the broader fields of cultural and environmental studies. Furthermore, by contributing to the local economy and fostering sustainable development, it demonstrates the potential of cultural institutions to be catalysts for positive socioeconomic change.

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