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Strolling Down Towards the History of Iconic Bihar Museum – Way to Museum at an Archaeological Site at Chirand in Saran district of Bihar

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ABSTRACT: A museum is a building structure or an institution that houses and exhibits a collection of artefacts and other items with aesthetic, cultural, historical, or scientific. Through exhibitions that may be permanent or temporary, many public museums make these objects accessible for viewing by the general public. While there are thousands of regional museums spread over smaller cities, villages, and rural areas, the largest museums are found in India's major cities. The purpose of museums might range from collection preservation and documentation to serving scholars and experts to engaging with the general public. This paper has an objective to study the two existing Museums in Patna related to architectural contexts, i.e. Patna Museum and Bihar Museum. The paper aims to develop a site analysis and design proposal at Chirand, Bihar from analyzing the two Museums of Patna. Chirand is unique among the archaeological sites around the nation because of the unusual artefacts related to the evolution of human civilization there.

KEYWORDS: Museum, Patna, Chirand, Archaeological Site, Bihar Museum

I. INTRODUCTION

Patna, the capital of Bihar, has a glorious and remarkable history since ancient times and unravels as we journey over two millennia. This region has witnessed the rise of numerous magnificent civilizations. There are numerous tourist attractions in Patna. The numerous historical monuments of Bihar, one of such being Bodh Gaya, serve as an evidence to its rich cultural past. The Ashokan Pataliputra's ruins can be found in Kumhrar and Agam Kuan. Mithila paintings of Mauryan art is still evident in Didarganj Yakshi. One of the Five Takhts of Sikhism, Takht Sri Patna Sahib, dedicates the birthplace of Gobind Singh, the tenth Guru of the Sikhs. British architecture may be addressed at the Secretariat Building, High Court, Golghar, and Padri Ki Haveli. Gandhi Maidan is a storied location in Patna where various protests for freedom of speech were held. Latest popular destinations include Buddha Smriti Park which is nearby to Patna Junction and Indira Gandhi Science Complex in Patna which is home to the Patna Planetarium (also known as the Gandhi Planetarium). It is one of the biggest planetariums in Asia and attracts a lot of visitors.



Figure 1 Images showing (a) Didarganj Yakshi, a statue of gigantic Mauryan vision, (b) Famous Mithila paintings, (c) Golghar, Patna (d) Padri ki Haveli

(Source: <https://travelshoebum.com/2019/04/23/my-escapades-in-bihar-places-to-visit-in-patna/>)

II. CONCEPTS OF A MUSEUM

Museums are the clusters of antiquities, which are places or structures where works of art and scientific discoveries are housed, displayed, and made accessible to the public. When given a closer look, museums are not only places that exhibit and preserve the excellence of science and art as well as the treasures below and up above ground, but also organizations with the goal of investigating the nature of humanity throughout history from the perspective of science and art to inform people about history. The International Council of Museums are described as "permanent organisations open to the public that acquire, conserve, research, communicate, and exhibit the tangible and intangible legacy of humanity and its environment for the purposes of study, education and amusement." in their meeting in 1955. In their meeting in 1962, the Council focused on the mission of education in their definition of museums as "Permanent organization" (Riviere & Inal, 1962).

III. MUSEUMS IN PATNA

There are many museums in Patna, this paper includes two Museums which are Patna Museum(old) and **New Bihar Museum**.

1. Patna Museum:

The Patna Museum is dedicated to fostering a scientific perspective to comprehend the progression of history. It also offers a chance to catch a peek of prior artistic greatness.



Figure 2 Image showing Site Plan of Patna Museum and the adjoining areas.
(Source: <https://www.google.com/maps/place/Patna+Museum>)

Connectivity of Patna Museum:

2 kms away from Patna Junction

3.5 kms away from Mithapur Bus Stand

5.8 kms from Jay Prakash Narayan International Airport

Patna museum is one of the best tourist attractions in Bihar is the Patna Museum, which is located on Buddha Marg. It was constructed under British administration in India and made public in 1917. It is a significant centre for knowledge transmission and a higher education institution. The Patna Museum is home to several exceedingly rare and priceless items. Without perusing the museum's holdings, it is impossible to understand the history and art of the Native Americans in this region. The museum has collections of sculpture made of stone, metal, and terracotta. Patliputra terracotta and a few unique collections that are unique to this region of the nation. The museum also houses some of Dr. Rajendra Prasad's gifts and collections. The many collections of paintings, particularly the tankas and Patna kalam paintings, are stunningly beautiful. Thus, there are collections of very old artefacts and weaponry, including Humayun's dagger, in the art and military weapon gallery. Primary sources, such as the books the museum offered, were used to further the investigation.

IV. BIHAR MUSEUM



Figure 3 (a), (b), (c), (d) Images showing Patna Museum and the inside of Patna Museum.

(Source: <https://www.google.com/search?q=Patna+Museum+images>)

The Patna Museum in the state of Bihar has major space, design, and presentational limitations, necessitating the construction of a brand-new museum. A new Museum was suggested by the State of Bihar's Department of Art, Culture, and Youth (DACY). The extant Patna Museum served as the foundation for the new Museum, and its extensive clusters were thoroughly studied and assessed. It was determined to preserve a substantial portion of the natural history as part of the museum's explication of the big silicified tree that was buried in the earth. This also began to serve as a symbol for the Patna Museum's current natural history collection. It was proposed that additional exhibits be added to Patna Museum, examining Bihar's contemporary history from the colonial era forward with a focus on the valour of the freedom movement of Bihar's and India's achievements since independence. Patna Museum's most beloved and often seen relic, was discovered on this day in 1917, the same year the Patna Museum was founded the Didarganj Yakshi, a statue of gigantic Mauryan vision. The Chief Minister and high levels of the Bihar State government offered guidance for the new Bihar Museum. The Bihar Museum will be dedicated to human history. The Bihar Museum's permanent collection galleries are split into two sections: history galleries and art galleries. The Orientation Gallery and Special Displays are also available. The Bihar Museum showcases artistic legacy from ancient times, thematically as works of art, using items drawn from the current Patna Museum. There are sections devoted to the tribal arts, crafts, and performing arts of Bihar's distinct regions. The Museum is envisioned specifically with the needs of the people of Bihari in mind, to foster a sense of community among the State's citizens and to create an inspirational environment for kids and youths to study and grow. It is a popular tourist attraction and a centre for culture, attracts visitors from all over the world. People are attracted to return by the interactive environments the exhibitions and displays are designed to create (MUSEUM, 2022).

Location- Patna, Bihar

Area – Approximately 4.6 Acres

Climate-Composite Climate

Built Up Area - 25410 Sq. M

Designed By -Maki and Associates, Opolis

Building Height- 18 M

F.A.R.- 0.44

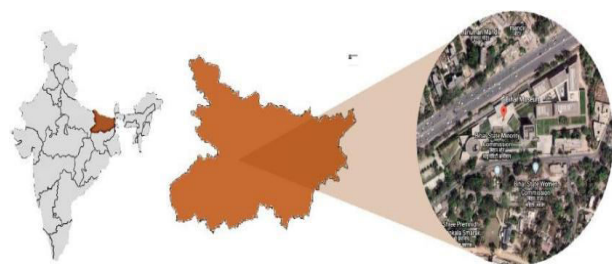


Figure 4 Location of Bihar Museum (From Map of India, in the State of Bihar)

(Source: Author)

Architectural Style - Modern and Contemporary

Connectivity of Bihar Museum:

3.6 kms away from Patna Junction

5. kms away from Mithapur Bus stand

4.7 kms from Jay Prakash Narayan International Airport

Architecture of Bihar Museum: World renowned architectural firms throughout the world were asked to submit their concepts for the design of the Museum building, and the selection process was competitive. The winning idea was presented by the Japanese company Maki and Associates, who suggested working with Mumbai-based OPOLIS Architects to carry it out. After spending ten years in the USA, Fumihiko Maki founded Maki and Associates in Tokyo in 1965. They have won numerous significant local, national, and international honors. Maki developed a plan for the Bihar Museum that was enticing

to the senses, suited to practical considerations, and made allowances for the facility's future expansion. To elaborate on four distinct facets, the architects created a mental image of the Museum as though looking at it through several lens.

The goal of the design is to:

- A museum that depicts the different facets of Bihar's history is called The Museum as Expanse.
- A museum that captures the memories and grand scale of the Bihar region is called "The Museum as Journey."
- A museum that meets the academic demands of Bihar is called "Museum as Learning Landscape."
- A museum that represents both the past and the future of India.

Maki & Associates emphasized on the benefits of a scattered scheme, where the building was stretched out and the surrounding landscapes merged seamlessly, as opposed to a structure with a small floor area. This let the design to play with courtyards and terraces, effortlessly alternating indoor and outdoor areas. The architects incorporated the Japanese concept of *Oku* to interact with the various levels of space with the intention of allowing the visitor to learn about history by moving through built environments. As guests move from one location to the next, *Oku* fosters a feeling of expectation and reflection. As a result, Maki and Associates have produced an enjoyable and welcoming environment where their skillful and considerate architectural philosophy enhances historical narratives. Your experience at the Museum will be different each time you go. Time in the spaces slows down in contrast to the bustle of the outside world, enabling you to delve deeply into the reservoir of the old days.

A variety of settings become available to you as you proceed through the "cloisters" of Bihar's memories, including huge and small, open and protected, indoor and outdoor. You may enter the "micro-level" of the exhibitions from this "macro-experience" because to the architecture, which enables close attention to the details. The architecture breaks up the monotony of the viewing experience by generating contrasts in the exhibition areas. In-between, energizing outdoor areas bring natural features to be incorporated with architecture, such as The Niranjana Aangan, a Buddha sculpture courtyard, The Peepal Court, a triangular terrace.

The rooms categories galleries according to their areas of focus and separate the children's gallery with a separate orientation area. In order to encourage curiosity and a sense of belonging, the architecture always strives to improve it. As a result, the surroundings are seen as a landscape for learning, a setting that fosters a tranquil atmosphere that is good for learning. The Museum's strangely contrasted forms and architectural elements pierce the visitor's awareness as a representation of Bihar. Weathering steel, also known as Corten Steel, has been employed by Maki to emphasize this symbolic connection with iron, industry, and progress. Iron is linked to the ancient Indian civilizations that formerly flourished in this region.

Thus, the Museum's design serves as a functional framework for organizing the exhibits and directing visitors through a holistic learning experience as they travel through a vast landscape to learn about India's past and forge connections with larger symbolism.

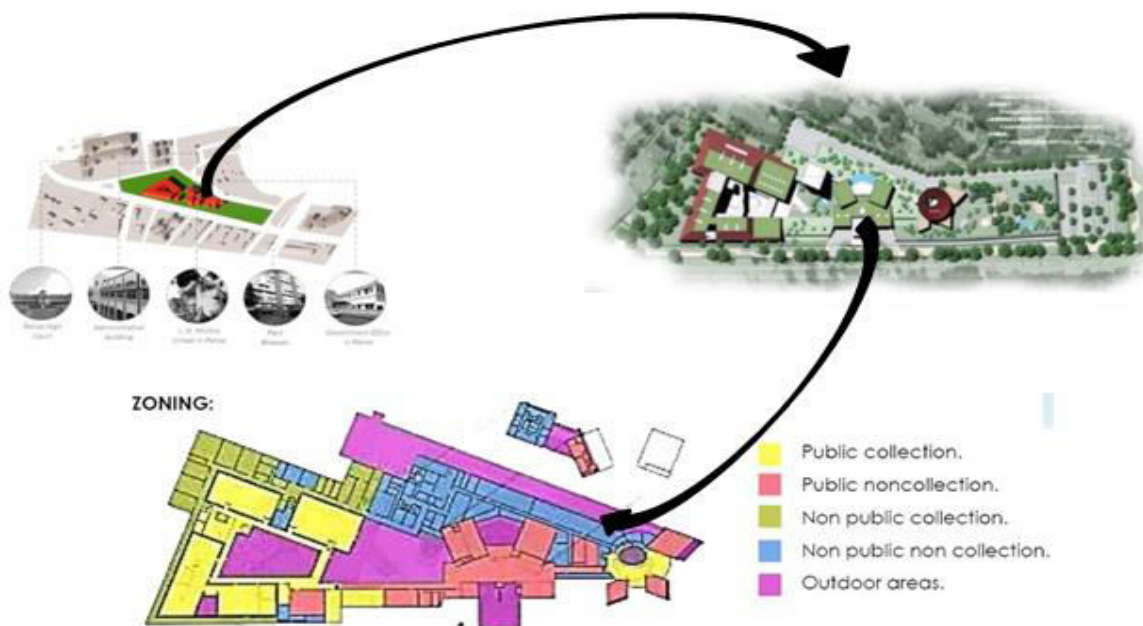


Figure 5 Images showing of Plans of Bihar Museum (From Site Surroundings to Site Plan to Zoning Plan)
(Source: Author)

Bihar Museum has been awarded the GRIHA provisional 5 Star rating for its excellence green building design. To minimize the impact of construction on the natural environment, the following techniques were thus implemented:



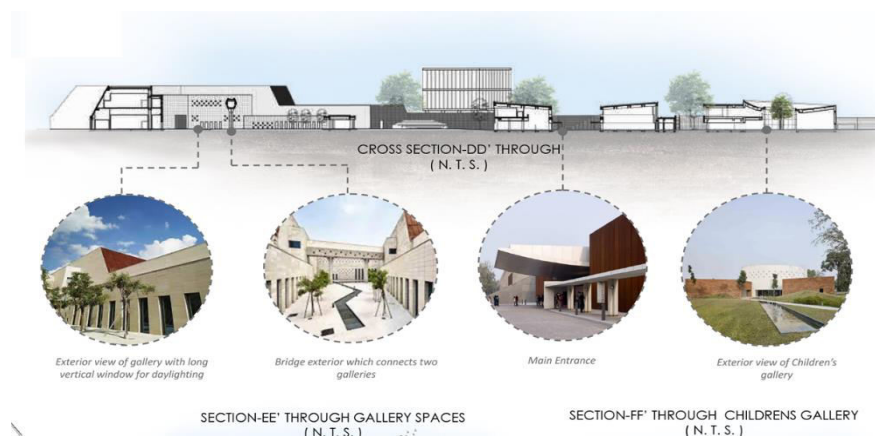
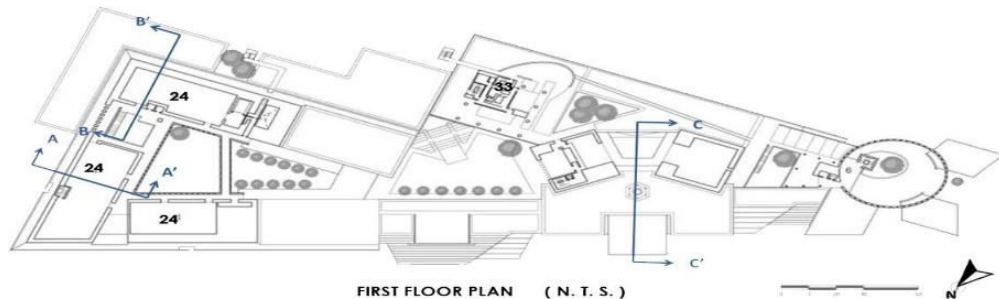
Figure 6 Images showing outside views of Bihar Museum.
(Source: Author)

Sustainable Site Planning: Out of 423 existing mature trees, 165 mature trees were maintained, and compensatory plantation of 774 trees was completed on site. The site was screened by 3m high barricades; a wheel washing station was set up for vehicles accessing the site; and water was sprinkled on the site to control dust pollution. 1,680m³ of top soil was saved on-site and repurposed for landscaping.

Water Management: Installing water-efficient fixtures reduced building water demand by 60.5% compared to the GRIHA base case. The landscape water demand has been reduced by 62.5% compared to the GRIHA base case. Gunny bags/hessian cloth were used to cure columns, and the ponding process was employed to cure slabs.

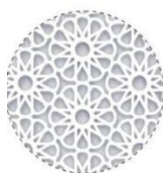
Energy Optimization & Occupant Comfort: To achieve visual comfort: » More than 25% of the whole living area is day-lit and meets the NBC 2005 daylight factor. Automatic switches have been installed on all exterior lights. An EPI reduction of 52.13% from the GRIHA base scenario has been proven with the integration of high-performance technologies in order to achieve thermal comfort. ECBC-compliant water-cooled scroll chiller with COP of 6.16 has been installed. A solar photovoltaic system with a capacity of 10kWp and a proposed capacity of 220kWp has been erected on-site in the project to meet with the obligatory requirement. **Materials for Sustainable Construction:** Fly ash bricks with a fly ash composition of 60% by volume was employed in the project. The flooring in the building was made of Kota stone, sandstone, rubber tile, carpet and vitrified tiles.





Collections:

PASSIVE STRATEGIES:



Jaalis: Allows light to enter, minimizing harsh sun rays (Children's Museum)



Niches: Creating play of light.



Water bodies in courtyard: Evaporative cooling as well as minimizing heat gain



Green roof: Regulates indoor temperature and purifies the air.



Bridge: Dramatic effect while providing natural air and light



Façade: Openings for good air circulation.

Figure 8 Passive Design Strategies of Bihar Museum (Source: Author)

The Bihar Museum's collection comprises artwork (, miniature paintings, stone and bronze sculpture and thangkas), prehistoric objects, anthropological artefacts, and social history items. The history galleries and the art gallery make up the two main parts of the Bihar Museum's permanent collection galleries. The relics and pieces of art on display at the museum tell the tale of ancient Pataliputra and Bihar from the beginning to the 18th century. At the Bihar Museum, cataloguing and digitization are ongoing activities that will allow for optimal collection utilization, documentation, and conservation while making collections available to authorized staff. The New Bihar Museum is the state's official repository for pre-1800 artefacts, and all the significant artefacts in the future will be kept here as well. Through research-based initiatives and prospective collaborations with museums and the repositories at the local, regional, and national levels, the Museum hopes to continue to expand and develop its collection. The Museum will create study or research collections as well as exhibition collections, but it will control expansion by choosing which materials to add to the collection.

There are five sections in the museum:

- Executive - Policy and strategy development, as well as general supervision
- Policy and system advisory, accounting, payroll, human resources/benefits management, employee training, facilities management, maintenance, and security are all responsibilities of the Administration, Finance, and facilities Management Department.
- Department of Exhibitions and Collections - Exhibition planning and development, collection utilization.
- Education and Government Programmes -Public and educational Programmes, including modules of development.
 - Marketing, Revenue Generation, and Visitor Services - Marketing strategy and packaging alternatives, media acquisition, website management, and visitor services.



Figure 9 Images showing inside pictures of Bihar Museum.
(Source: (MUSEUM, 2022))

4.Site Analysis for Museum of archaeological Site in Chirand, Saran district, Bihar.

LOCATION:

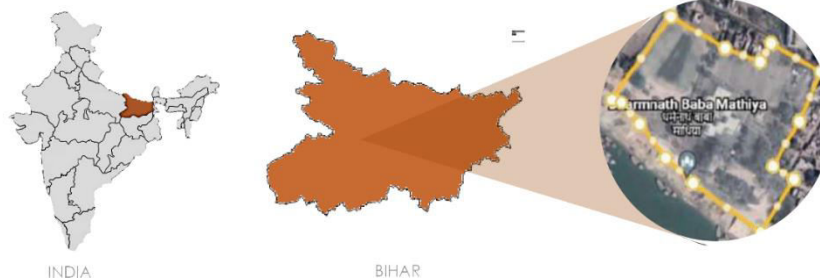


Figure 10 Images showing Location of Site (From Map of India, the State of Bihar, Chirand, Saran district)
(Source: Author)

Chirand, an archaeological site located on the banks of the river Ganga in Bihar’s Saran district, the coordinates of the proposed site at Chirand, Saran district are 25.7405° N, 84.8249° E. Because of the rare pieces of evidence associated to the evolution of human civilization at Chirand, the site is regarded uncommon among archaeological sites throughout the country. The site's mound provides archaeological evidence of a step-by-step progression of civilization from the Neolithic to the Pala epochs.

Site	Connectivity:
-14 kms from Jay	Chhapra Prakash Junction Narayan
-75 kms International Airport	



Figure 11 Map of Bihar (Source: Map of Bihar)



Figure 12 Proposed site 8 acre at Chirand (Source: Google Earth)

Site Surroundings:



Sun Path diagram:

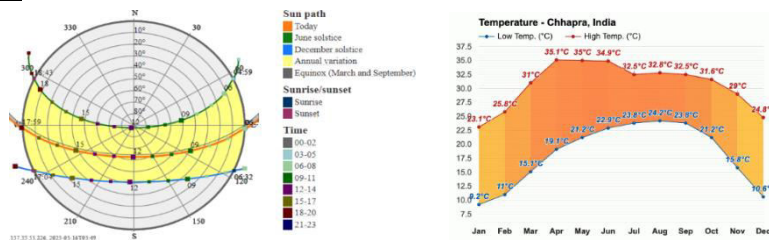


Figure 13 Sun path diagram & Temperature Chart (Source: andrewmarsh.com)

Climate

The average annual rainfall in the area is 125 centimeters (49 in). Much of the rainfall occurs from June to September when the monsoons tend to start. The River tends to flow beyond capacity causing flooding and deposition of alluvium in the adjoining area. The month with the longest days is June (Average daylight: 13h and 43min). The month with the shortest days is December (Average daylight: 10h and 34min).

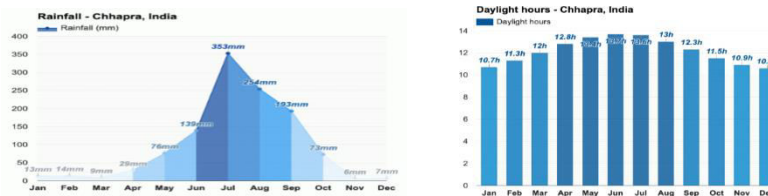


Figure 14 Images showing Rainfall & Daylight hours chart, Chhapra, India

V. CONCLUSION

Museums are structures that house a wide range of artistic, cultural, historical, traditional, and scientific artefacts. It is a fantastic source of information. It not only imparts knowledge but also familiarizes us with our country's history, culture, civilization, religion, art, and architecture. Many items are stored at the museum for the public's seeing. Museums are being used to spread mainstream culture. The missions of museums include not only the conservation and display of treasures and items that supply us with knowledge, but also the performance of educational tasks.

The new Museum's purpose is to commemorate this rich heritage and instill a sense of pride in modern-day Bihari's. Chirand site is considered rare among the archaeological sites across the country because of the rare pieces of evidence related to the growth of human civilization there. The mound located at the site contains archaeological evidence of a step-by-step evolution of civilization since ages.

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