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NAPNE WATERFALL GLASS BRIDGE: OPPORTUNITIES, CHALLENGES, AND SUSTAINABLE TOURISM MANAGEMENT IN SINDHUDURG, MAHARASHTRA

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Abstract:

This research paper examines the newly opened Napne Waterfall Glass Bridge in Sindhudurg, Maharashtra. The study reviews its socio-economic benefits, environmental and safety challenges, and necessary management recommendations. The Napne Waterfall has the potential to become an important tourism attraction in the future. For this study, secondary sources such as media reports and site-descriptive information were used, along with the researcher's own field visit to observe visitor management, safety, environmental impacts, and access infrastructure. Practical measures have been suggested to support sustainable tourism and local livelihoods.

Keywords: *Napne Waterfall, Glass Bridge, Sustainable Tourism, Environmental Impact, Local Economy*

Introduction:

The Napne Glass Skywalk has the potential to become one of the key tourism centers in the Konkan region, increasing tourist footfall in Vaibhavwadi, Sindhudurg. In July 2025, Maharashtra inaugurated its first glass bridge over Napne Waterfall (Vaibhavwadi, Sindhudurg). While the attraction may bring economic benefits to the region, it also presents risks such as overcrowding, safety and maintenance requirements, waste generation, habitat disturbance, and pressure on local roads and services. This paper analyzes immediate issues reported in media and travel sources, alongside observations from a field visit, and proposes interventions for long-term, low-impact tourism management.

Study Area:

Napne, locally referred to as Napne Sherpe, is located in Vaibhavwadi Taluka, Sindhudurg District, Maharashtra (16.3250° N latitude and 73.7080° E longitude). The Napne Waterfall is formed on the Palye River, a perennial stream flowing through the foothills of the Western Ghats, merging eventually with the Kalay River. The glass bridge is constructed near the villages of Nadhavade and Sherpe, approximately 3–6 km from Vaibhavwadi Railway Station, accessible via the Kolhapur–Talere State Highway 116. Geographical features include narrow Konkan valleys, evergreen and semi-evergreen forests, lateritic plateaus, and small rural settlements.

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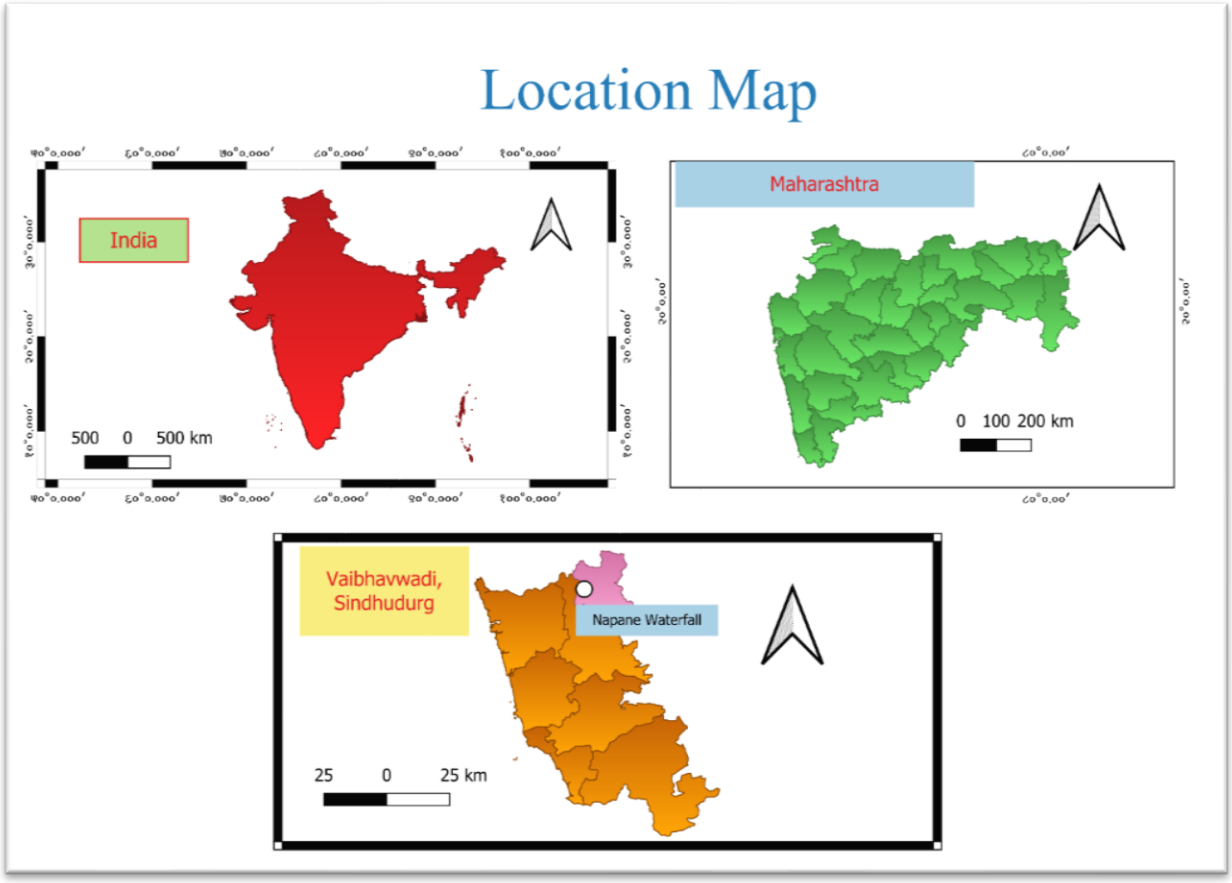
Map No. 1



Objectives:

The study aims to:

1. Identify and analyse key issues and challenges related to the glass bridge.
2. Conduct a comprehensive assessment of structural, safety, environmental, and infrastructural impacts.
3. Suggest practical and effective measures for long-term sustainable tourism management.

Database:

This study relies on both primary and secondary sources:

- **Secondary sources:** Recent news articles, travel listings (Times of India, NDTV, The Better India), local Marathi/English reports, and travel portals describing the bridge, its inauguration, dimensions, visitor response, and context.
- **Primary source:** Field visit to Napne Waterfall to gather local perspectives and identify issues.

Methodology:

A qualitative desk-review approach was adopted:

- Interviews with local residents.
- Review of authoritative reports about the bridge.
- Extraction of factual attributes (location, opening date, dimensions, capacity).
- Synthesis of reported problems (crowding, road access, waste, safety).
- Proposal of mitigation strategies based on sustainable tourism and hazard management practices.

Where media reports conflicted, the most consistent figures across reputable sources were cautiously used.

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Problems (Observed and Likely):

1. Visitor Management and Overcrowding

The glass bridge has a capacity of **25 people at a time for half an hour**. During peak tourist seasons such as monsoon and winter, overcrowding can increase safety risks.

2. Safety and Structural Maintenance

The glass platform requires **regular inspection, anti-slip treatments, and load monitoring**. Inadequate signage, lack of trained staff, or insufficient emergency access can increase accident risks — especially during the rainy season in the Konkan.

3. Environmental Impacts

Increased visitor numbers may generate litter, disturb riverbank vegetation and wildlife (with particular attention to Konkan birdlife), and compact trail soils. The surrounding perennial waterfall ecosystem is sensitive to trampling and waste.

4. Access Infrastructure and Local Traffic

Narrow rural roads and limited public transport capacity in the Vaibhavwadi area create congestion and stress local infrastructure. This affects local residents' mobility and restricts emergency vehicle access. The approach road to Napne Waterfall is extremely narrow, requiring private vehicles for access. Public transport is only available up to the main highway. Additionally, lack of toilets, shops, and hotels causes significant inconvenience to tourists.

5. Economic Leakage and Local Benefit Capture

Without proper policy measures, a substantial portion of revenue (ticketing, food & beverages, transport) may be captured by external operators, limiting local community benefits. Reports suggest potential local employment, but it is not guaranteed. Consequently, the increasing tourist numbers may not positively impact the local economy.

Results:

1. **Tourism Attraction:** Rapidly rising visitor numbers post-inauguration.
2. **Geographical Sensitivity:** Located in an environmentally sensitive area with limited infrastructure.
3. **Short-term Issues:** Crowding, litter, informal vending, parking pressure, lack of toilets, limited public transport.
4. **Opportunities and Risks:** Local employment potential vs. ecological degradation and safety hazards.
5. **Limited Local Economic Benefits:** Economic leakage restricts community benefit.

Recommendations:

1. Visitor Management

a) Implement time-slot based ticketing to control crowding:

- Time-slot ticketing allocates specific entry times for tourists, limiting the number of people on the glass bridge at any given time.
- This reduces overcrowding, ensures visitor safety, and improves the overall experience.
- Example: 25 people per 30-minute slot (based on bridge capacity). Visitors must book in advance either online or at the ticket counter.

b) Provide clear signage and guidance at key locations:

- Signboards should direct tourists along safe pathways, indicate viewing points, and warn of slippery or dangerous areas.
- Maps and informational boards help visitors understand the route and environmental sensitivity, reducing unintentional damage to plants and wildlife.

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c) Deploy trained staff on-site to assist in emergencies:

- Staff trained in first aid, evacuation procedures, and crowd management should be present at all times.
- They can provide guidance, handle emergencies, and ensure compliance with safety rules.

2. Safety and Maintenance

a) Conduct regular inspection and maintenance of the glass platform:

- The structural integrity of the glass bridge must be checked periodically for cracks, load-bearing capacity, and any damage caused by weather or wear-and-tear.
- Regular maintenance prevents accidents and prolongs the life of the bridge.

b) Ensure anti-slip measures during the monsoon season:

- Rainfall makes glass surfaces slippery; anti-slip coatings or mats reduce the risk of falls.
- Extra caution and warnings should be issued during wet conditions.

c) Plan emergency access routes for smooth evacuation and response:

- Designated emergency exit routes must be clearly marked and accessible to rescue teams.
- Coordination with local police, fire, and medical services ensures rapid response in case of accidents or natural hazards.

3. Environmental Protection

a) Construct designated trails and boardwalks around the waterfall:

- Well-defined pathways prevent trampling of vegetation and wildlife habitats.
- Boardwalks and viewing platforms reduce soil erosion and maintain ecological balance.

b) Enforce carry-in, carry-out waste policies and provide proper disposal facilities:

- Tourists should carry their waste back or dispose of it at designated bins to prevent littering near the waterfall.
- Regular waste collection and recycling programs maintain cleanliness and reduce environmental damage.

c) Promote plastic bans and use of reusable materials:

- Single-use plastics such as bottles, bags, and packaging should be restricted.
- Tourists and vendors can be encouraged to use biodegradable or reusable items to minimize ecological footprint.

4. Infrastructure Improvement

a) Develop safe and adequate parking and shuttle services from Vaibhavwadi to Napne:

- A designated parking lot reduces congestion on narrow local roads.
- Shuttle services minimize the number of private vehicles, reducing traffic and environmental pressure.

b) Improve public transport connectivity from the main highway to the waterfall:

- Regular buses or vans from the highway ensure easier access for tourists without private vehicles.
- This also reduces road congestion and parking issues near the site.

c) License local shops, hotels, and service providers to retain revenue and employment within the community:

- Local vendors should be officially permitted to operate, ensuring they benefit economically from tourism.
- This supports local employment and keeps the revenue within the community rather than being captured by outside operators.

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5. Economic Management

a) Ensure a portion of ticket, F&B, and transport revenue contributes to local development funds or partnerships:

- Part of the revenue can be reinvested in local infrastructure, community services, and environmental conservation projects.
- This ensures that tourism has a long-term positive impact on the area.

b) Maximize the positive economic impact of tourism on local livelihoods through structured community participation:

- Community participation can include employment in ticketing, guiding, transport, food services, and handicraft sales.
- Structured programs ensure fair distribution of benefits and create sustainable livelihoods for the local population.

Conclusion:

The Napne Waterfall Glass Bridge has significant potential as a tourism attraction in the Konkan region. However, rapid visitor growth poses challenges in safety, environmental sustainability, infrastructure, and equitable economic benefits. Implementation of structured management strategies—including visitor control, safety protocols, environmental protection, infrastructure development, and community participation—can support sustainable tourism and long-term local economic development.

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Photo plate No.1

Napne Glass bridge

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Photo plate No.2

Napne Waterfall

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