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His specializations are in Architecture, Ekistics, Human Centric Design, Universal Design, Inclusive Design, Enabling Environments and Elderly and Built-Environment. He did his PhD in the area of Elderly and Built-Environment on the topic "Creating Inclusive Living Environments in Urban Residences for Indian Elderly", from the School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.).

For his proposal for the concerns towards the success of "Sugamya Bharat Abhiyaan" through Universal Design Education, he received Erasmus + Global mobility funding in 2016 and is an Erasmus Fellow. He has been awarded the prestigious National "NCPEDP MPHASIS Award 2016" for his work in accessibility and disability studies and Universal Design. Recently he has been awarded with the national "Design Educators Award 2023" for teaching Universal Design. He has been awarded at various platforms for his concerns and work in the area of Universal Design and Accessibility. He has published research papers in journals and conference proceedings focused on accessibility and disability studies. He has secured first position and distinction in the Bachelors and Masters Courses. He has been a recipient of Gold Medal for the Masters Course of Ekistics from F/O of Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Awarded, for the design of accessible toilet (designed following Universal Design Principles) in the category "The Urban Individual Toilet" in the San- Sadhan Hackathon organized by the Department of Empowerment of Persons with Disabilities (Divyangjan) and Ministry of Jal Shakti in association with Atal Innovation Mission, Niti Aayog, Bill & Melinda Gates Foundation.

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Towards Inclusive Design: Addressing the Need for Accessibility in Indian Railway Stations

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Indian Railways, one of the world's largest rail networks, serves millions of passengers daily. Ensuring that railway stations are inclusive and accessible is critical, particularly for vulnerable groups such as the elderly, pregnant women, children, and people with disabilities. The Rights of Persons with Disabilities (RPWD) Act of 2016 recognizes twenty-one types of disabilities, emphasizing the need for comprehensive accessibility measures. Indian Railways is committed to enhancing access for people with disabilities (Divyangjan) through the Government of India's "Sugamya Bharat Abhiyan" (Accessible India Campaign). Despite this commitment and existing frameworks such as the Indian Constitution, UNCRPD, harmonized guidelines, and particular guidelines for Indian Railways, there are significant challenges to achieving full inclusivity. This research highlights the critical need to make Indian railway stations inclusive. It investigates how accessibility has been addressed, emphasizing not only mobility and intermobility but also spatial inclusion. By identifying gaps and challenges in current practices, it seeks to emphasize the importance of designing railway stations that provide equal access to all users.

Keywords: ***Accessibility, Built environment, Indian Railway Station***

INTRODUCTION

Indian Railways, one of the world's largest rail networks, serves over 6,396 million passengers yearly (Railways, 2022-23). As the backbone of India's transportation system, it connects people over vast distances while also navigating together the country's social, cultural, and economic fabric. However, the design of railway stations has historically focused on functionality and for the goods and products, often overlooking the diverse needs of all users, including diverse users—male, female, and transgender—people of varying ages such as children and the elderly, people of various ethnicities, races, religions, castes, and socioeconomic backgrounds, and people with disabilities.

The notion of Universal Design serves as a conceptual framework that encourages the development of environments that are usable by all individuals, irrespective of their physical capabilities or constraints. The approach aims to remove barriers and ensure the design could be used by the greatest number of people.

As Indian railways undergo modernization efforts under initiatives such as the Amrit Bharat Mission and Sugamya Bharat Abhiyan, the incorporation of the Universal Design concept becomes increasingly important in creating inclusive environments that meet the mobility and accessibility needs of all citizens. The lack of accessible infrastructure is a major concern, requiring a rethinking and redesign of Indian railway stations to promote inclusivity. Enhanced accessibility not only meets the needs of people with disabilities, but it also improves the overall passenger experience, increasing satisfaction and encouraging more individuals to use public transportation. The railway system can better serve its diverse population by making railway stations more user-friendly for all,

including the elderly, children, and those with special physical or cultural needs, resulting in increased rail usage.

Aim

The aim of this research paper is to emphasize the critical need for accessibility in Indian railway stations.

Objectives of the Study

- **Identify the need for Universal Design in Indian railway stations.**
- **Identify gaps in existing accessibility frameworks.**

INDIAN RAILWAYS

The first passenger line in India, spanning 20 miles, opened in 1853 between Mumbai (then Bombay) and Thane. This marked the beginning of India's railway system, which expanded at a remarkable pace. By the early 1900s, India had built the world's fourth-largest rail network, totaling 34,656 miles of track by 1913. The railway was instrumental in transforming India's infrastructure, economy, and society by improving trade routes, facilitating the movement of goods and people, and contributing to the growth of towns and cities across the subcontinent.

Figure:1 Indian Railway Mao of 1870, Source: Bogart, Dan & Chaudhary, Latika. (2012). Regulation, Ownership, And Costs: A Historical Perspective from Indian Railways. American Economic Journal: Economic Policy. 4. 28-57. 10.1257/Pol.4.1.28.

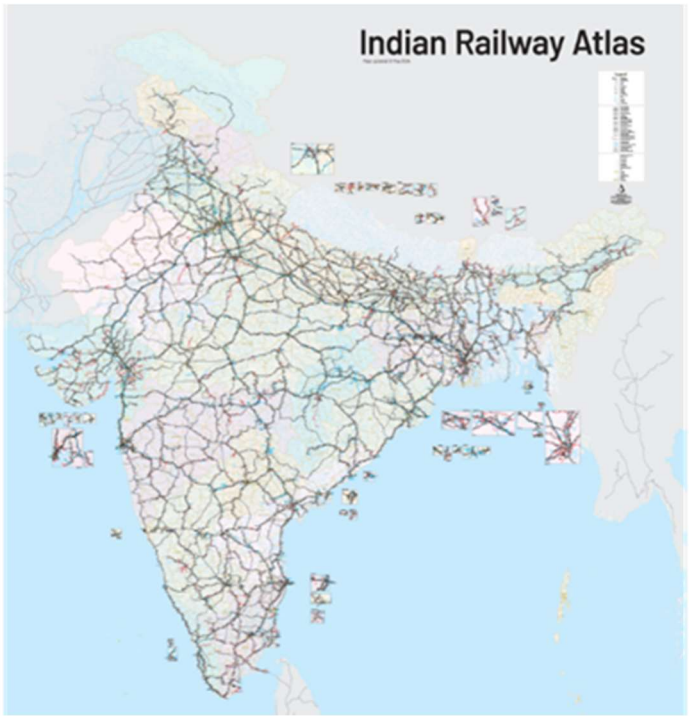

Figure:0:2 Indian Railway Atlas, 2024, Source: Https://Indianrailways.Gov.In/Index/Index.Html

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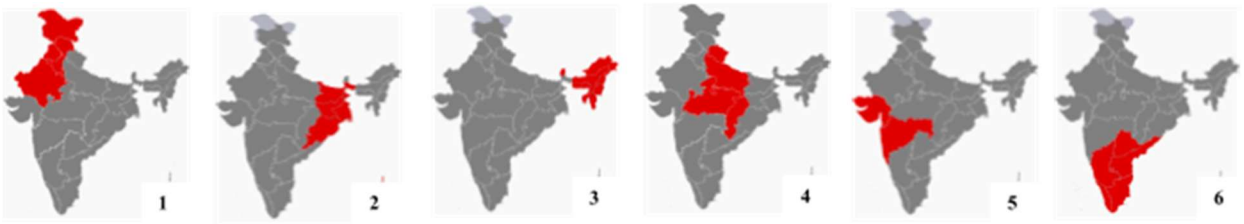
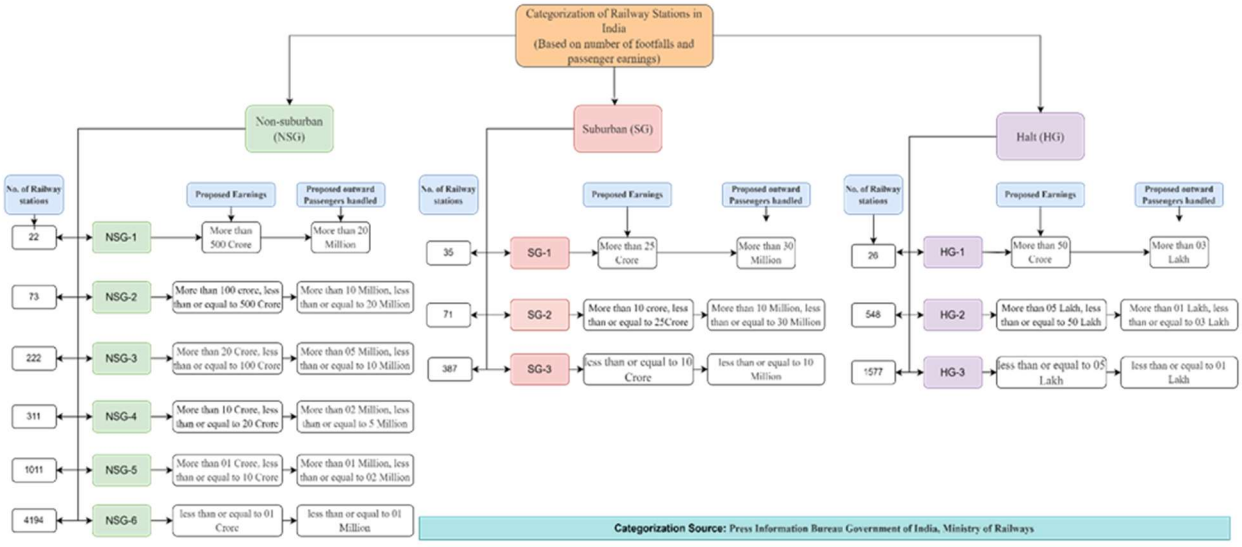
CATEGORIZATION OF INDIAN RAILWAY STATIONS

There are currently six zones in the India. The northern region has 25 railway lines, the eastern region has 63 railway lines, the northeastern region has 6 lines, the central region has 26 lines, the western region has 39 lines, and the southern region has 56 lines. India has a total of 8477 railway stations. (Railways, 2022).



Within these six zones, all railway stations are categorized under some categories like: Indian railway stations are categorized into three main groups based on footfalls and passenger earnings: Non-suburban (NSG), Suburban (SG), and Halt (HG) stations.



Classification of Indian Railway Stations

Indian railway stations are classified into various categories based on footfall and passenger earnings. They fall into three types: non-suburban (NSG), suburban (SG), and halt (HG) stations. Non-suburban stations are further divided into six categories:

- **NSG-1: 22 stations earning over ₹500 crore and handling more than 20 million passengers annually.**
- **NSG-2: 73 stations earning between ₹100 crore and ₹500 crore and handling 10-20 million passengers.**
- **NSG-5: 1,011 stations earning ₹1 crore to ₹10 crore with passenger numbers between 0.3 million and 1 million.**
- **NSG-6: 4,194 stations earning less than ₹1 crore with fewer than 0.3 million passengers.**

Suburban stations are divided into three categories:

- **SG-1: 35 stations with earnings over ₹25 crore and more than 30 million passengers.**
- **SG-2: 71 stations earning ₹10 crore to ₹25 crore and handling 10-30 million passengers.**
- **SG-3: 387 stations earning less than ₹10 crore and serving fewer than 10 million passengers.**

Halt stations (HG) are classified into three types:

- **HG-1: 26 stations earning more than ₹50 lakh and serving over 3 lakh passengers.**
- **HG-2: 548 stations earning ₹5 lakh to ₹50 lakh and serving 1-3 lakh passengers.**

- **HG-3: 1,577 stations earning less than ₹5 lakh and serving under 1 lakh.**

Users of Indian Railways

According to the 2011 census, India had 26.81 million people with disabilities, accounting for 2.21% of the total population. India's legal framework for disability has evolved significantly. The 1995 Persons with Disabilities (PWD) Act identified seven types of disabilities, and the 2016 Rights of Persons with Disabilities (RPWD) Act expanded this to 21. These include a variety of disabilities such as locomotor, hearing, and vision impairments, autism, cerebral palsy, muscular dystrophy, mental illnesses, and chronic neurological conditions. With the expanded categories, the actual number of people with disabilities is expected to exceed previous estimates.

Users of railway stations specifically categorized as Persons with Disabilities (PwDs) can be divided into several categories:

- **a) People with locomotor impairments, such as wheelchair users and those who use crutches or walking sticks.**
- **b) People with vision impairments, such as blindness and low vision.**
- **c) People with hearing impairments, both deaf and hard of hearing.**
- **d) People with cognitive or intellectual disabilities, such as autism and mental illnesses.**
- **e) People with temporary disabilities, such as pregnant women or those recovering from fractures.**

Universal Design

Universal Design (UD) is a global movement that promotes design concepts and principles to support an expanding demographic of people living with a wide range of disabilities, age-related limitations, and chronic health conditions. The term "universal design" was coined by architect Ronald L. Mace in the 1980s to describe the concept of designing all products and the built environment to be as aesthetic and usable as possible for everyone, regardless of age, ability, or social status. There are seven fundamental principles to UD, developed by a group of architects, product designers, engineers, and environmental design researchers to guide various design disciplines:

1. **The design is accessible to all people: Equitable use.**
2. **The design accommodates a diverse range of individuals: Flexibility in use.**
3. **The design is simple to understand, regardless of user experience or knowledge: Simple and intuitive use.**
4. **The design effectively conveys necessary information to all users: Perceptible information.**
5. **The design minimizes hazards and the adverse consequences of accidental or unintended actions: Tolerance for error.**
6. **The design is user-friendly and causes minimal fatigue: Low physical effort.**
7. **The design provides appropriate space for all users, regardless of size or mobility: Size and space for approach and use (Sekiguchi, 2006).**

The Five Indian Principles of Universal Design

1. **The design should be cost-effective (Sasta).**

2. **The design is fair and non-discriminating to diverse users in the Indian context (Samaan).**
3. **The design is accessible to all users in the Indian context (Sahej).**
4. **The design considers both cultural history and current trends to benefit all users in the Indian context (Sanskritik).**
5. **The design uses aesthetics to encourage social integration among Indian users (Sundar) (National Institute of Urban Affairs [NIUA], 2020).**

Initiatives Taken by the Government of India

The UD principle is logical and aimed at creating a welcoming environment for the entire population. Accessibility significantly impacts passenger satisfaction and the willingness to use rail services. According to studies, improving station access can be less expensive than improving rail services (Martijn Brons, 2009). A well-defined accessibility index is associated with increased passenger numbers, emphasizing the importance of strategic planning in station accessibility (George Giannopoulos, 1989). Many railway stations in India lack adequate facilities for individuals with disabilities, limiting their mobility and travel spontaneity (Guentert, 2011). Structural and environmental barriers impede the movement of differently abled individuals, necessitating urgent infrastructure improvements (Dr. Bindu V. T., 2016).

In accordance with the Rights for Persons with Disabilities (RPwD) Act, 2016 (Railways, 2020), Indian Railways is dedicated to making its infrastructure accessible for Persons with Disabilities (Divyangjan) as part of the Government of India's Sugamya Bharat Abhiyan, or Accessible India Campaign. The Amrit Bharat Mission seeks to

revitalize 1,275 train stations nationwide as part of this project (Ministry of Railways, 2023). The primary goals of the mission are to improve passenger flow, increase convenience, and integrate stations with the local community. The Railway Board has identified several locally significant stations, including NSG-1 to 3 stations, stations of tourist and pilgrimage importance, divisional and zonal headquarters, and other stations. Redevelopment will take place in phases.

The ultimate objective is to turn these stations into urban hubs, guaranteeing smooth multi-modal connectivity and enhancing access roads to ease station operations. A fundamental element of the mission is inclusive development, wherein escalators and lifts are incorporated into the "seven C's" to enhance passenger convenience. In addition, the goal of the 2015-launched Accessible India Campaign is to guarantee that people with disabilities (PWDs) have equal rights to independent and dignified access to public and private transportation. Particularly, Target 3.1 of Objective 3 aims to complete full accessibility of all A1, A, and B category stations by June 2022, while Target 3.2 aims for 50% of all railroad stations in the nation to complete the same task by the same date.

Discussion

As the need for making Indian railway stations inclusive is crucial for the diverse range of users, the Indian government is taking several initiatives to make these built environments accessible to all. In this research paper, the authors examined the case of Rani Kamlapati Railway Station, formerly known as Habibganj, which is a newly redeveloped station and the first example in India under the Amrit Bharat Mission. This project is a Public-Private Partnership (PPP) offering airport-like and world-class facilities, and it falls under the

NSG-2 criteria. One of the primary goals of the planning under this scheme was to ensure convenience and make it universally accessible (Swapnil Garg, 2023).

Station Entrance

The highlighted area (in the red line) shows the level difference in the plan compared to the existing one. Contrary to the plan, there is no slope at the building entrance. Instead, there is a sudden drop of almost 6 inches, as shown in the picture. A small ramp is provided in one corner, but it is hard to see because there is no change in material and no handrails to hold.

Accessible Toilet: Inside the accessible toilet, a handrail is missing despite being shown in the plan, Women Lounge: The women's lounge has a feeding area but no seating. The lounge toilet has a raised floor

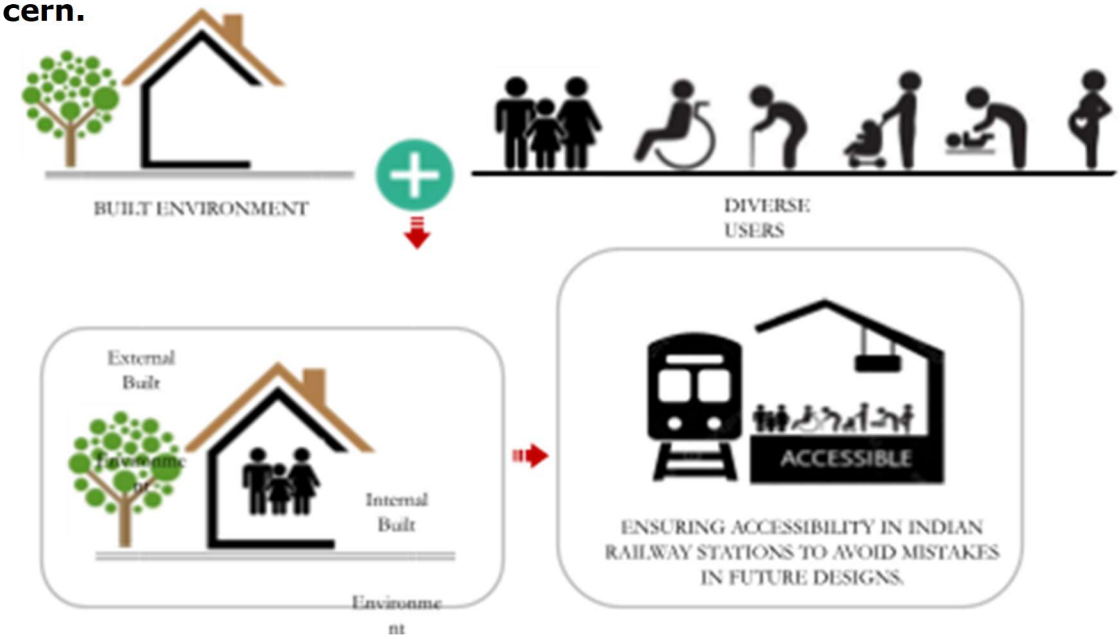
height with a 6–7-inch level difference, making it difficult to access, especially for elderly.

1. **Audio Announcements: The announcements in the first floor waiting area are not clear, making it difficult for elderly individuals to hear them properly.**

2. **Kiosks: Almost all kiosks have a step with a height of at least 5-6 inches, creating accessibility challenges. 3. Information Display: The display screens are too small for individuals with low vision or partial sight. 4. Guiding Tiles: There are no guiding tiles for visually impaired persons. 5. Flooring Material: The flooring is slippery, particularly causing difficulties for elderly people and children. 6. Signage: There is a lack of pictorial signage, making navigation harder for all users to understand.**

Significant Gap: There is a significant gap between the platform and the train, making boarding difficult. Safety Incident: An elderly lady slipped and lost her slipper on the railway track while trying to board. Her son, without considering his safety, attempted to retrieve the slipper. Platform Height: The platform height is more than a foot below the train coach, making it challenging for elderly, children, and people with disabilities to board the train. The disabled coach also has the same height, presenting the same boarding challenges. Lack of Tactile Tiles: While there is a warning strip, tactile tiles are missing throughout the station.

The concern for the built environment of Indian Railway station is a major concern.



Conclusion

Applying Universal Design (UD) to Indian railway stations is crucial due to the diverse and growing population that depends on Indian Railways. Established in 1853, Indian Railways has evolved into one of the largest and most widely used railway systems globally. However, despite its scale, its infrastructure often lacks accessibility for individuals with disabilities, elderly passengers, or those with temporary impairments. By integrating Universal Design principles and concepts, Indian Railways can create an inclusive environment that serves a broad range of users, promoting dignity, safety, and independence.

The necessity of UD becomes even more significant when considering the historical context of Indian Railways, which was originally built to serve colonial objectives, often overlooking the local population's diverse needs. Today, with the country's democratic progress, it is imperative to make railway stations universally accessible, ensuring they meet the needs of every passenger, especially in a country as varied as India. Implementing Universal Design will help transform these spaces into user-centered environments that are inclusive for all.

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As a final-year undergraduate student at the School of Planning and Architecture in Bhopal, I've developed a deep appreciation for designing inclusive and accessible environments. My involvement in the CHCR lab at SPA, Bhopal and completion of the ethos-certified 'Udita' course has further solidified my understanding of universal design principles. Additionally, my research internship with Ant Studio has provided me with valuable practical experience in the field of research.

I'm passionate about the idea that historic sites can be transformed into inclusive and welcoming spaces for everyone through human-centered design and thoughtful interventions.

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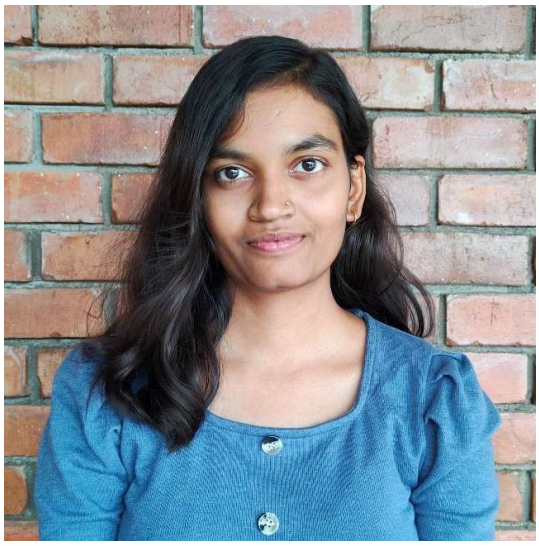

Sushma Rani
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Bachelor of Architecture student at the School of Planning and Architecture Bhopal. My academic journey has instilled in me a strong foundation in universal design principles. Witnessing the challenges faced by people with disabilities has motivated me to create inclusive spaces.

The Center for Human Centric Research (CHCR) has played a crucial role in my development. It has deepened my understanding of universal design principles and their power to foster equality through inclusive design. Additionally, completing the Udita course has further equipped me with knowledge about accessibility challenges and relevant legislation. The combination of academic knowledge, practical experience, and understanding of relevant laws drives my commitment to promoting inclusive design in architecture.

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A Comprehensive Analysis of Accessibility of Heritage Sites: Case of Sanchi Stupa

Aparna Vaish , Sushma Rani

Abstract

The Sanchi Stupa, a significant heritage site in India, has made commendable efforts to improve accessibility for visitors with special needs. However, a more in-depth analysis is required to ensure the site is truly inclusive for all users, including people with cognitive and sensory impairments.

The study examines whether the current accessibility measures, such as tactile pathways and ramps, effectively address the needs of all intended users. It evaluates the extent to which the solution caters to the needs of persons with disabilities and assesses compliance with relevant accessibility standards.

The research further delves into the interplay between the colour palette of tactile elements and the overall heritage-built environment.

This research contributes to the broader understanding of accessibility in heritage sites and offers valuable insights for future planning and implementation for other heritage places.

Keywords: ***Sanchi Stupa, accessibility, cognitive and sensory impairments.***

Introduction

Heritage sites are more than just relics; they are living testaments to a nation's identity. These invaluable assets, preserved and protected by various entities, offer a unique glimpse into the rich and diverse expressions of past societies. They serve as vital components of local, regional, and national cultural identity, providing an irreplaceable resource for understanding our history.

Beyond their historical significance, heritage sites play a crucial role in communication and knowledge exchange. They contribute significantly to the GDP and the tourism sector, particularly through the rapidly growing heritage tourism industry. However, this industry faces challenges, including ensuring that all intended users can equally enjoy these historic structures, sites, and attractions.

According to the World Health Organization (WHO), over 1 billion people, or about 15% of the world's population, live with some form of disability.

[1] This highlights the importance of making heritage sites accessible to all.

The Sanchi Stupa, recognized as a UNESCO World Heritage site is one of the oldest stone structures in India. This heritage site attracts visitors from around the globe, offering a glimpse into ancient India's architectural and spiritual legacy. However, ensuring this heritage site is accessible to all, including individuals with disabilities, presents unique challenges and opportunities.

A key focus of this study is the human-centric approach to accessibility, ensuring that interventions cater to the diverse

needs of all visitors, including those with disabilities. This includes not only physical modifications like tactile paths and ramps, but also solutions for cognitive disabilities, such as clear signage and auditory guides.

Aim of the Study

This study evaluates the effectiveness of existing accessibility interventions implemented at the site. It seeks to determine the extent to which these interventions align with national and international accessibility standards.

Objectives of this research

- **To evaluate the effectiveness of existing accessibility interventions implemented at the Sanchi Stupa.**
- **To assess the extent to which these interventions align with national and international accessibility standards.**
- **To explore the solutions that can be incorporated to make Heritage more accessible.**

Methodology

The methodology for this research involves selecting a suitable site and conducting a comprehensive study using both primary and secondary data. Primary data collection includes gathering initial site information, conducting site visits, and performing a detailed site analysis. Secondary data collection focuses on identifying the target group and consulting universal design guides. The findings from both data sources are compiled and analyzed to draw conclusions about the site's potential and limitations, providing informed recommendations for future design and planning

decisions. This approach ensures a thorough and systematic site analysis.

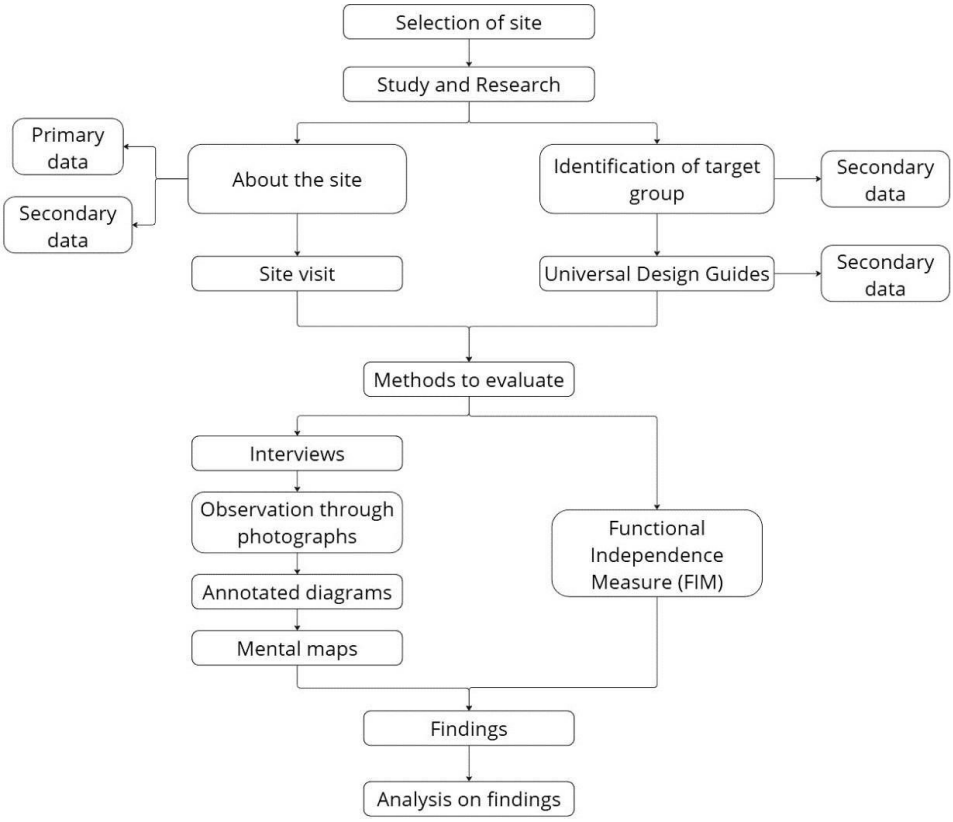

Fig 1: Methodology (Author)

Universal design approach

Universal Design (UD) is a design philosophy that aims to create environments, products, and services that are accessible and usable by everyone, regardless of age, ability, or other factors. The goal of universal design is to develop places and products that are usable by all people while addressing the shortcomings of current accessibility standards.

Recognizing these gaps, the Principles of Universal Design were established to provide comprehensive guidelines that ensure both good accessibility and usability. These principles aim to create inclusive designs that accommodate the widest range of users,

promoting equity and enhancing the quality of life for all. The introduction of universal design marked a shift towards a more holistic approach, addressing the diverse needs of the population and fostering environments that are equitable and user-friendly. (PREISER & Ostroff, 2022)

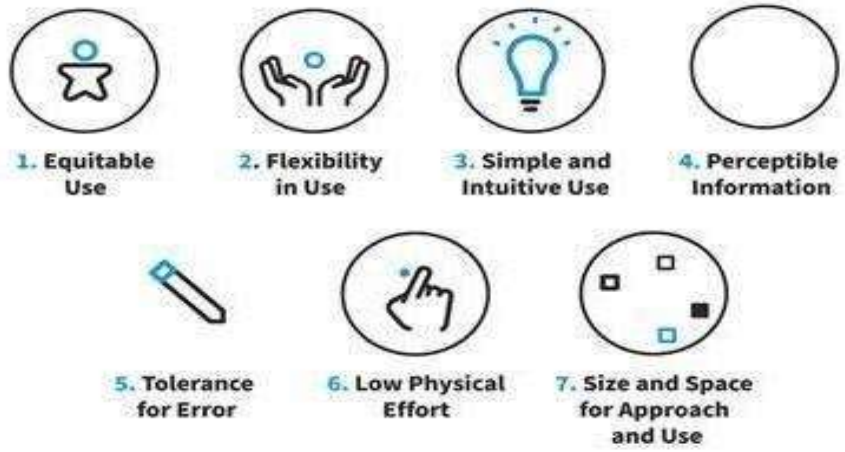

Fig 2: Universal design Principles (Interaction Design Foundation)

About The Heritage: Sanchi Stupa

Sanchi, located in the Raisen district of Madhya Pradesh, is home to one of the oldest Buddhist monuments. This site was declared a UNESCO World Heritage Site in 1989. A portion of Buddha's relics is believed to be buried within the Sanchi Stupa, which King Ashoka constructed.

Fig 3: Sanchi Stupa, Madhya Pradesh

There are over 50 monuments and relics within the site. It boasts the Great Stupa and other stupas, temples, and monasteries dating back to the 2nd and 1st centuries BCE. Once a major Buddhist center, Sanchi continues to captivate visitors with its historical significance and architectural beauty. (Malik, 2020)

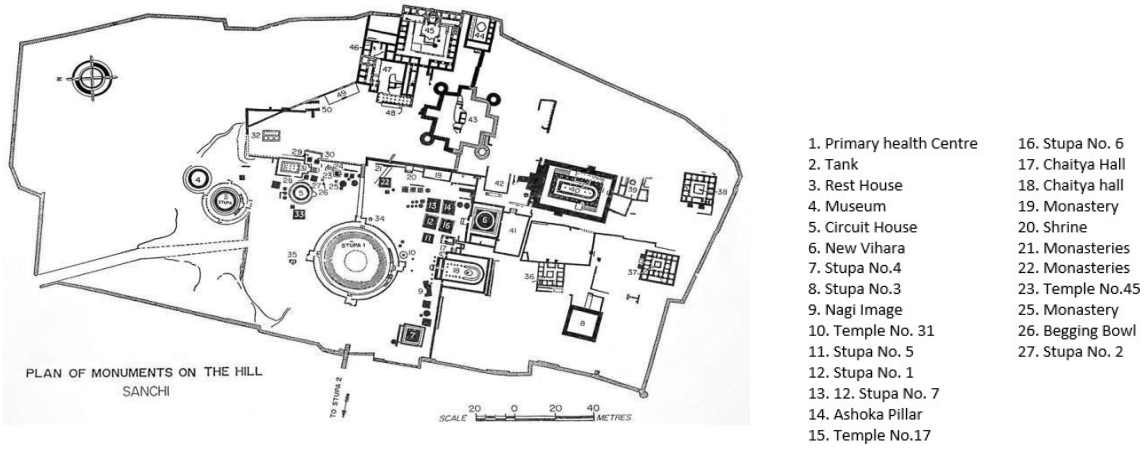

Fig 4: Sanchi Stupa Plan (ASI)

Analysis of Spaces (FIM method)

Through this method, we have evaluated the heritage site considering the various needs of various intended users.

The following are the various user groups that were considered:

People with visual impairments (including blindness and low vision), hearing impairments (including deafness and hearing loss), limb impairments, cognitive impairments (such as autism), and other intended users (such as pregnant women, the elderly, and children aged 3-10).

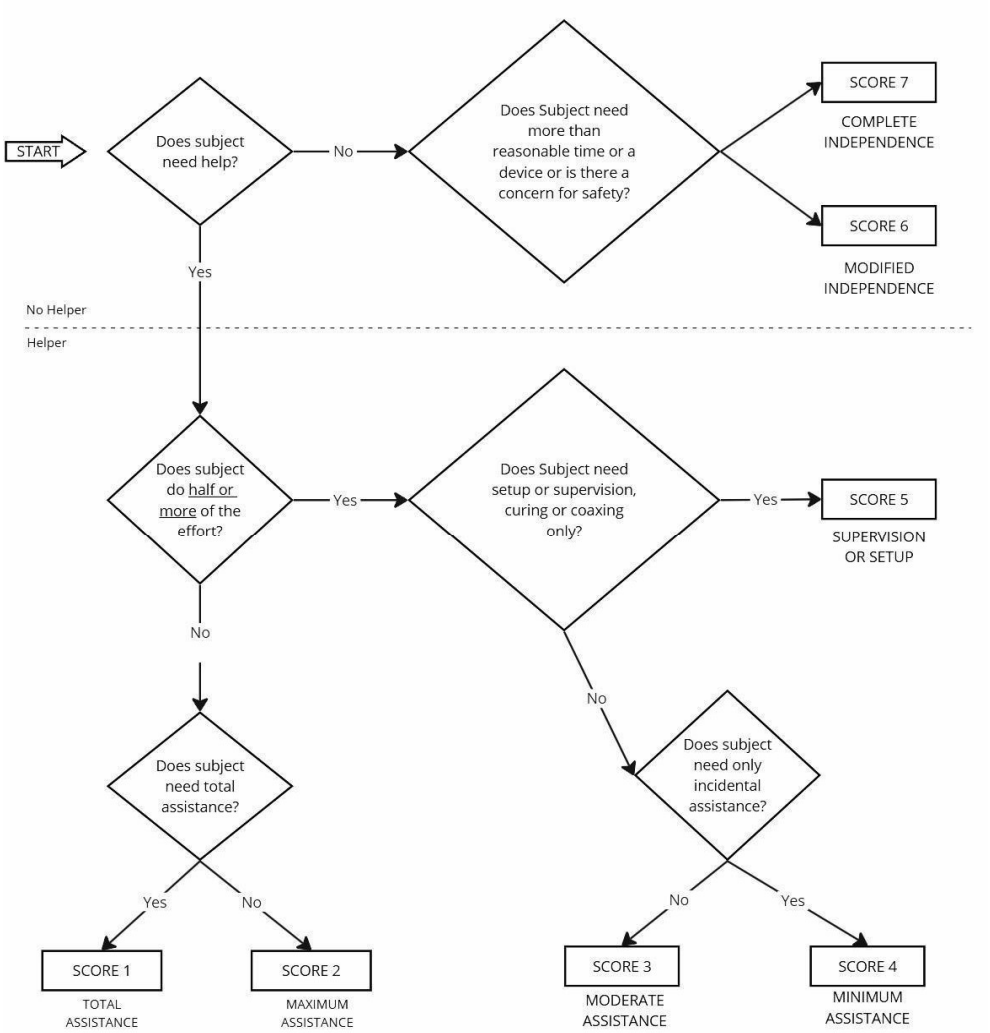

Fig 5: Decision Tree for the Functional Independence Measure (FIM)

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Results and Findings

	Images	Visual Impairment		Hearing Impairment		Limb Imapirment		Other Intended users			Cognitive
Activities		**Blindness**	**Low-vision**	**Deaf-mute**	**Hearing loss**	**wheelchair**	**chrutches**	**Pregnant Lady**	**Elderly**	**Age group 3-10**	**Autism**
Parking		5	5	6	7	1 (The individual requires complete assistance to move from the vehicle to the wheelchair.)	4 (There is no resting area available, and there are no railings near the level changes.)	7	6	5	6
Ticket counter		4 (The location lacks braille signage or audio guide to indicate the ticket counter, and there are no tactile tiles present.)	6	7	7	5	6	7	6	7	5
Entrance		6	5	7	7	1 (The entrance lacks ramps, requiring the individual to receive maximum	5 (There are no railings available for support or rest, which might require supervision)	7	6	7	6
Pathway enterance to stupa 1		6	5	7	7	7	7	6	6	6	5
The Great Stupa (Stupa No. 1)		6	7	7	7	6	6	7	7	7	5
Stupa No. 4		6	6	7	7	4 (The medhi is not accessible for wheelchair users.)	6	7	7	7	5
Stupa No. 3		6	6	7	7	4 (The medhi is not accessible for wheelchair users.)	5	7	7	7	5
Monasteries and Temple 45		5	5	7	7	4 (There is no ramp provision, and railings are missing in areas with level differences.)	5	6	5	5	5
Temple 17 and Monuments around it		6	6	7	7	4 (There is no provision of ramp with steps. Additionally, some areas are inaccessible due to the absence of leveled pathways.)	6	7	7	7	6

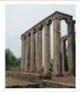
	Images	Visual Impairment		Hearing Impairment		Limb Impairment		Other Intended users			Cognitive
Activities		Blindness	Low-vision	Deaf-mute	Hearing loss	wheelchair	chrutches	Pregnant Lady	Elderly	Age group 3-10	Autism
Monasteries 51 and monuments arou		4 (There is no audio guide or braille signage to assist visitors at the upcoming monument, and the steps lack railings.)	4 (The entire space uses the same material and lacks contrast, making it challenging for individuals with	7	7	1 (The monastery is accessible only via a large number of steps, and it lacks a ramp or landing, making it difficult for wheelchair users	2 (The monastery is accessible only via numerous steps and lacks both a ramp and landing. Additionally, leaving crutch users without support or a place	3 (The steps lack landings, leaving pregnant women without a place to rest in between.)	3 (The steps lack landings, leaving elderly without a place to rest in between.)	5	2 (The steps lack railings, providing no support and there is no clear sense of direction or material or color differentiation to assist individuals with autism.
The Southern Gateway- chaitya hall(1		5	5	7	7	4 (Ramps are not provided.)	6	7	7	7	6
The Sanchi Museum											
pathway to the museum		2 (The pathway is deficient in tactile tiles and no audio guide is provided.)	4 (There are no audio guides or signage available.)	7	7	5	6	7	7	7	6
Entrance		6	6	7	7	1 (The entrance has a ramp, but the slope is so steep that the individual requires complete assistance.)	5	6	6	5	6
Hall		3 (The hall lacks braille signage, audio guides, and tactile tiles to assist navigation through the space.)	3 (The user needs assistance to read the exhibition boards.)	7	7	5	5	7	7	5	4 (There are no safety provisions, such as glass barriers, around the monument, which necessitates supervision. Additionally, the contrasting colors on the boards might negatively impact the mental health of individuals with autism.)
Toilet		5	4 (The lighting in the toilet is inadequate.)	7	7	3 (The toilet lacks sufficient space to accommodate a wheelchair.)	4 (The toilet has slippery tiles, which might require minimal assistance.)	6	6	4 (The toilet seats and washbasins might be too high for children, potentially requiring assistance.)	4 (The absence of a nearby quiet room and the presence of other people in the washroom can be stressful.)
Total(105)		66	77	104	105	50	78	97	93	91	76
		62.8 %	73.30%	99%	100%	47.60%	74.20%	92.30%	88.50%	86.60%	72.30%

Table 1: Online access to above data: FIM Analysis

Design Solutions

After the FIM analysis, the proposed solutions can be incorporated to make the heritage more accessible to all types of users.

Pre-visit Information:

Providing detailed pre-visit information can greatly assist visitors in planning their trip by outlining accessible, partially accessible, and restricted areas of the site. Available facilities, such as wheelchairs, accessible restrooms, and designated parking, should be highlighted. On- site improvements, including ramps, handrails, shuttle services, and rest areas, can enhance visitor comfort.

Interpretive information:

Providing accessible information to all intended visitors to understand the site, its architecture, and available services.

This information should cater to a wide range of people, ensuring both sensory and intellectual accessibility.

Handrails and signages: brail could be incorporated on the handrails and pictorial symbols, and annotated maps and audio guide points could be added

Haptic model: 3D models that convey information through touch for those with visual impairments

Augmented reality (AR) apps: These can overlay digital information onto the physical environment, providing real-time guidance and context.

Virtual reality (VR) tours: For those who cannot visit in person, VR tours can offer immersive experiences of the site's architecture and

features. AI-powered chatbots: These can provide instant answers to visitor questions, offering support in multiple languages and accommodating different communication styles.

Smart technology integration: Utilize smart devices (e.g., touchscreens, voice control) to provide interactive experiences and accommodate various user preferences.

Additional Facilities

Quiet room for sensory users: To ensure a comfortable and inclusive experience for all visitors, the site offers a variety of essential facilities. For those who may need a quiet space to de-stress or regulate their senses.

Feeding rooms: provided for parents or caregivers with young children, offering a private and comfortable space for feeding and changing.

Resting places: areas along accessible routes, near monasteries and exhibit areas for all types of users with the facility of drinking water within the site at a few spots.

Sanitary facilities: To ensure accessibility for all visitors, the facilities should include properly accessible toilets equipped with grab bars, clear signage, and easy wheelchair access. Family toilets should also be provided. Additionally, the toilets should be designed thoughtfully, incorporating features like different wash basin heights and grab bars. Using anti-skid tiles can further enhance safety and accessibility.

Parking: Designated accessible car parking and set-down areas should be provided.

Accessible museum hall: To ensure accessibility in the museum hall, surfaces should be even and slip-resistant. The entrance ramp should have a slope of 1:12 for easy wheelchair access. Clear signage, handrail bars, and audio guides should be provided to assist visitors with disabilities.

Conclusion

The Sanchi Stupa, a UNESCO World Heritage Site, has made significant strides in becoming accessible to a wider range of visitors. However, there remains room for improvement, particularly for people with disabilities. Despite efforts to accommodate visitors, many continue to face challenges that hinder their ability to fully engage with the site.

While people with disabilities have adapted to their challenges, they may still encounter difficulties or hazards. This can limit their access to cultural experiences and public spaces, affecting the right to equitable space mentioned in the constitution of India.

To fully enjoy heritage contexts and reduce inequalities for people with disabilities, it is essential to develop accessibility solutions that address their specific needs. This includes considering both visible and invisible disabilities and addressing environmental barriers and facilitators in detail.

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