

Integrated Sustainable Tourism Development: A Case Study of Ayodhya City

MUDDUKRISHNA A.S.

Masters in Urban Planning, School of Planning and Architecture, Delhi

KARAN BARPETE

Assistant Professor, School of Planning and Architecture, Delhi.

LOVLESH SHARMA

Sector Coordinator, National Institute of Urban Affairs.

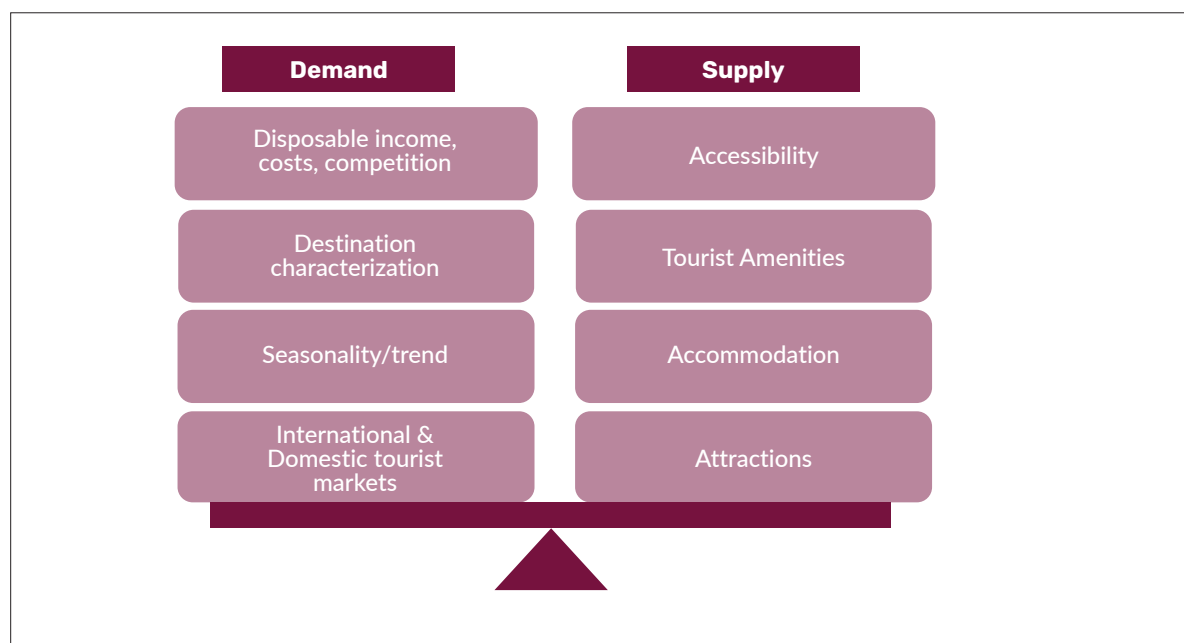
Abstract

The cross-cutting nature of tourism that connects multiple facets of the 17 UN SDGs has resulted in it evolving globally from being a tool of leisure to being a tool of comprehensive development. This change has propelled planners and public policymakers to adopt the concept of 'Destination Development through Tourism'. This, in turn, has led to the development of multiple approaches, ranging from an issue-oriented approach that ponders on the principle that addressing existing infrastructural gaps would automatically develop tourism destinations, to a thematic approach that hypothesises the theme/character as central to the tourist's decision making, acknowledging that addressing infrastructural issues/gaps in destination development is not just a need but a necessity. Although these approaches foster a broader tourist base leading to greater market capitalisation, the exclusion of social and environmental dimensions calls out for an inclusive, sustainable approach to tourism that is integrated in nature. This is the context within which this paper attempts to formulate an integrated sustainable development approach that collates the 5A's (Accessibility, Accommodation, Attractions, Activities, Amenities) and the travel trade using Ayodhya as a case study.

Introduction

Travelling, once viewed as an essential tool for survival that served the crucial needs of food, water and shelter, in the modern world, has transformed into a need driven by the desire for experiencing– a change that can be attributed to psycho-sociological proponents. The entry of the middle class across the broader spectrum of the consumer market in the post-neoliberal era has given rise to a significant multisectoral industry generating USD 8.9 trillion globally (i.e. 10.3% of global GDP, (Suri, n.d.). With one out of ten people employed in a tourism affiliated industry, the need to channelise the sector through planning for a sustainable world is clear (World Tourism Organization (UNWTO) & United Nations Development Programme (UNDP), 2017).

Figure 1: Demand and Supply Factors of Tourism



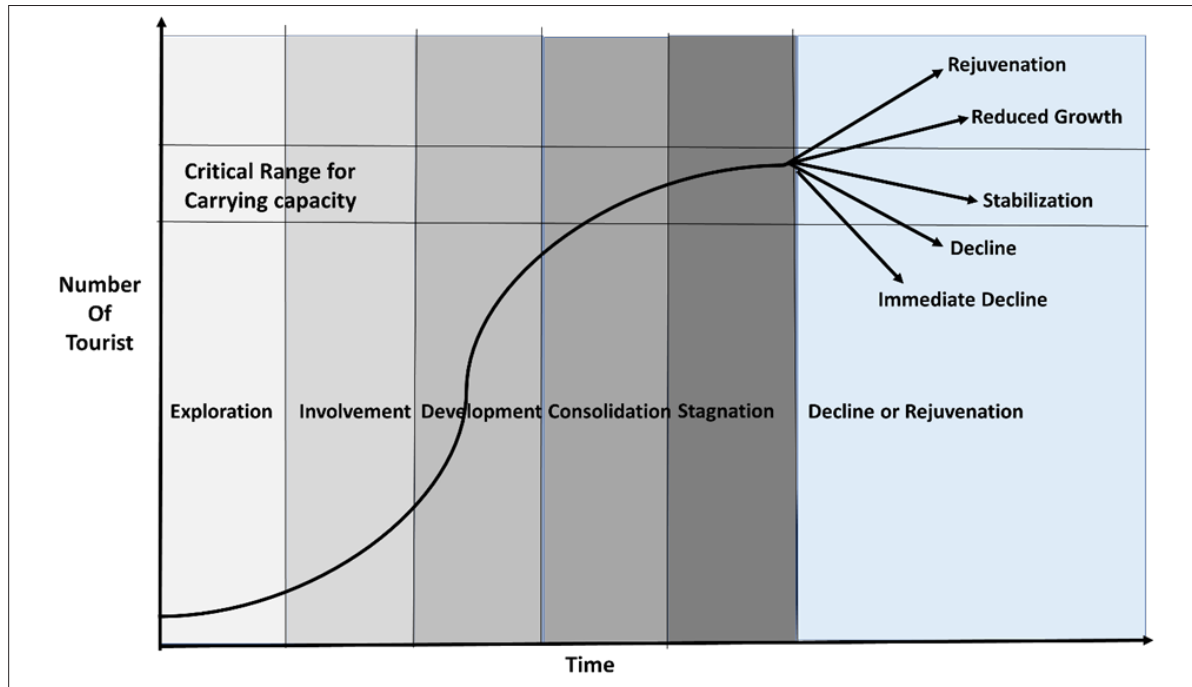
Source: Authors summarised from contemporary research

The tourism industry, like every other industry, also operates on the micro-economic principles of supply and demand as depicted in Figure 1. Supply is determined by tourist attraction, accessibility, tourist amenities and accommodations, whereas aspects such as disposable income, cost competition, seasonality/trends, destination characterisation, as well as the international and domestic tourist markets comprise the demand that frames tourist choices at a broader level.

Butler's model (Sahli, 2020) namely, exploration, involvement, development, consolidation, stagnation and decline or rejuvenation. In each stage of the life cycle, the destination undergoes a series of changes defined by the author. The purpose of this study is to apply the TALC model to the tourism destination Hammamet (Tunisia) to capture the life cycle of tourism through phases from exploration to decline/rejuvenation by analysing its relationship with time and number of tourists. The model suggests that when a destination evolves on its own, there comes a stage when intervention is required to sustainably channelise tourism development based on critical carrying capacity, while suggesting that the direction the destination takes towards rejuvenation or decline is determined by the approach adopted.

The evolution of approaches to tourism in modern planning began with an issue-oriented planning approach, wherein it was assumed that tourist destinations would spontaneously develop when core infrastructural issues were resolved. However, it failed to stand the test of time because of dynamism in the sector. In the late 1990s it was realised that there was a need to emphasise an approach based on 'character' or the attraction, around which a thematic approach was developed, where the market caters to the demand created by special interests (Gunn, 1994; WTO, 1994; Wilkinson, 1997; Timothy, 1999).

Figure 2: Butlers' Tourism Development Model



Source: Butler's model (Sahli, 2020)

The significant issue with this approach is that it emphasises only financial benefit in catering to market demand, characterised by tourist wants over destination area development. As such, it overlooks the local community and other stakeholders and, as a result, ignores social and environmental costs. Further, because it is market-driven without a cap or threshold, it turns out to be exploitative in the long term as it fails to include the factor of sustainability.

Tourism sector, acknowledged for its valuable contribution towards achieving the 17 SDGs (UNDP, 2017), It becomes even more crucial to develop a comprehensive perspective, beyond the secluded thematic tourism approach, which could lead to the formulation of an integrated, sustainable tourism development approach by integrating the 5A's (Access, Accommodation, Attractions, Activities, and Amenities) through enabling actions.

This research intends to develop a planning approach that is inclusive and integrated in nature, acknowledging interdependencies in channelising the mass religious tourism potential of Ayodhya with river tourism and ensuring sustainability through an integrated tourism approach.

Significance and Need for the Study

Located on the banks of the river Sarayu, the city of Ayodhya extends its significance over the social-cultural, environmental, as well as the economic spheres. Socio-culturally, the city is recognised as one of the seven (sapta puri) sacred cities of Hinduism and is the gateway of the government of India's most ambitious Ramayana circuit. Being an ancient historic capital, of the kingdom of Kosala and also the nawabs of Awadh, its significance is recognised across religions

and cultures with more than 105 Hindu religious and historic heritage structures concentrated in the Ayodhya zone (UP Tourism). Ayodhya also stands out as pivotal to Jainism, as it was the birthplace of five tirthankaras and visited by Mahaveer himself, and so its Jain heritage goes back 2500 years. Built upon as the first capital of the nawabs of Awadh, it is a vital destination of the Sufi sect of Islam encompassing significant places such as Bahu Begum ka Maqbara, Gulab Bari, Imam Bara and others. It is also of significance to Sikhs with gurudwaras such as Bramha Kund and Nazarbagh whose establishment can be traced to Guru Nanak Ji and Guru Tej Bahadur Ji. In addition, cultural links between Ayodhya and Korea that date back to AD 48 through Queen Huh Hwang-Ho, have initiated the development of an inter-cultural repository in the form of a memorial and Korean cultural centres.

Ayodhya is the first major city on the banks of the river Sarayu, and it is urbanising at a tremendous rate. There is a critical need to sustain and channelise the resources that support the mass tourist influx through necessary action plans mindful of its environmental significance. The Sarayu's rich natural landscape, across which lies a heart of faith and heritage with more than 25 ghats each engulfed in historical and spiritual significance, has to be conserved while increasing the potential of developing river-based tourism. The city, transforming at a stage of development and consolidation on Butler's tourism development model scale (as depicted in Figure 2), makes essential the need to look into the critical range for carrying capacity.

Looking at economic significance, with the construction of the Ram temple, Ayodhya is projected to be the epicentre of mass religious tourism, with an expected tourist footfall of around 3.96 crore/year by 2031 as per UP Tourism (Anon, n.d.). The state and center government have proposed spending more than INR 2000 crore to comprehensively develop Ayodhya as a religious-cultural hub and the epicentre of the Awadh circuit. Additionally, the expected growth of tourists is set to increase by three-fold over the next 11 years (Anon, 2020), which makes channelising a strategy for effective implementation of feasible solutions critical.

Study Area Profile

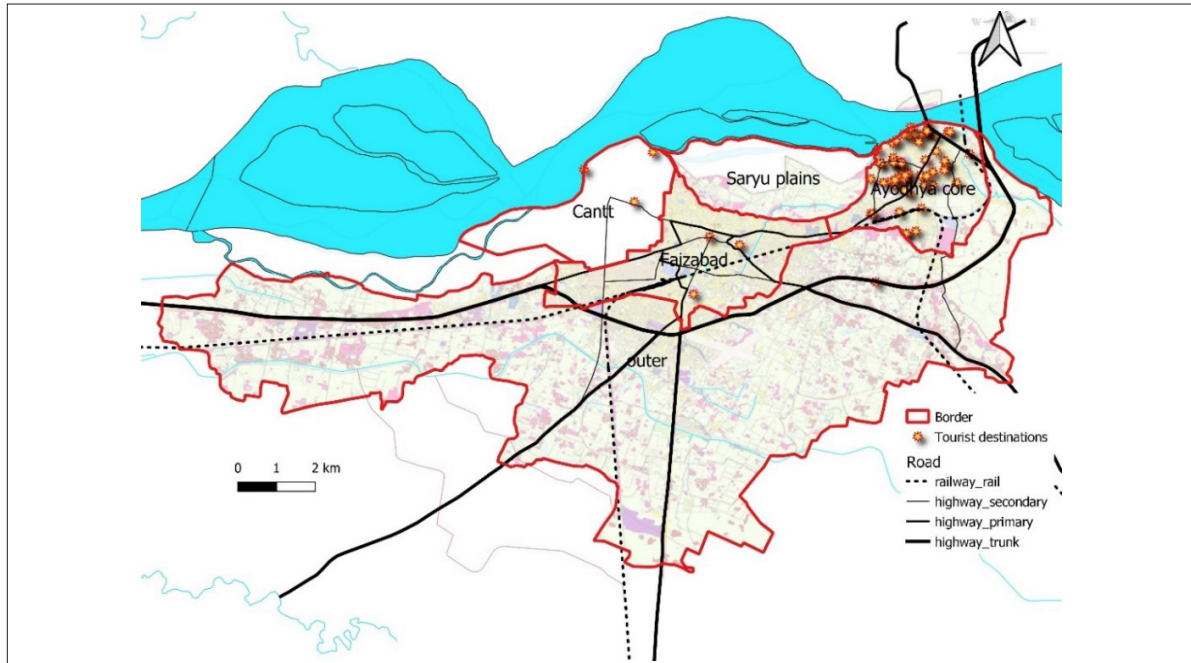
Location and Regional Connectivity

The city of Ayodhya, located in the state of Uttar Pradesh on the banks of the river Sarayu, has emerged as a regional hub with regard to the transportation sector because of its historical and current significance. Situated at the cross junction of roadways connecting Lucknow, Gorakhpur, Prayagraj and Varanasi, the city already has well-established road and rail connectivity. The international airport, currently under construction, will make the town an ideally connected tourist destination. It has frequent bus and tempo services, catering to not just tourism but also industries, including the agricultural sector. With rapid urbanisation of the city, connectivity can act as a boon for both tourism and investors.

Destination Profile

The study area encompasses the jurisdiction of Ayodhya Nagar Nigam and the Cantonment area. It is classified into five different zones (Figure 3) with varied characteristics for analysis-based destination characteristics as briefed below:

Figure 3: Zonal Profile of Ayodhya



Source: Ayodhya Development Authority.

- **Ayodhya core:** Located in the north-eastern part of Ayodhya, the zonal boundary was previously administered as Ayodhya. The zone covers most tourist spots and heritage structures, and the built structures can be categorised as high-density, low-rise developments.
- **Faizabad:** Administered previously as Faizabad Nagar Palika Parishad, this zone encompasses major Islamic shrines, commercial spaces and Awadhi style structures. The built structures here are noted to be high-density, medium-rise developments.
- **Cantonment:** Located on the north-western boundary of Ayodhya, the zone encompasses touristic places of religious and cultural significance with serene landscapes such as Guptar Ghat and Military Mandir. Entry is restricted, with all rights reserved by the army.
- **Sarayu Plains:** The zone has the lowest population density and is located in the central stretch of the study area along the Sarayu River. Notably, the sparse agricultural landscape with village settlements is linked to the fact that the zone was not previously under development.
- **Outer zone:** The outer zone comprises areas newly added to Ayodhya Nagar Nigam, which were previously under the Ayodhya Development Authority. It is majorly agricultural in use, and the increasing urbanisation observed can be attributed to commercial, industrial uses across transits.

Methodology

The study seeks to develop an integrated, sustainable approach for destination development through tourism by analysing the active and passive impacts of factors such as attractions, activities, amenities, accommodations, accessibility, geophysical character, demographic trends, land use, tourist profiles, destination profile, as well as psychometric profiles of both tourists and locals. With Ayodhya as a case study city, a framework consisting of primary and secondary surveys was formulated to capture the data. Secondary data was captured through reports of the Ayodhya Development Authority, Town and Country Planning Organisation, statistical data from UP Tourism, the Sarayu Action Plan Report, as well as Bhuvan satellite imagery, and open street maps. The primary survey captures the strengths, challenges and potential of tourism in the city from multiple stakeholders through:

- **Departmental survey:** Here development prospects with respect to destination and tourism were captured from Ayodhya Nagar Nigam, Ayodhya Development Authority, UP Tourism and the police department.
- **Local resident survey:** Around 100 local residents across all the five zones were surveyed to assess the impact of tourism on the daily lives of locals along with place attachment, from a conservationist's perspective.
- **Commercial establishment survey:** This was conducted for 50 establishments across major markets of Hanumanghari, Ghanta Ghar and the weekly Thursday market to understand the dynamics of travel trade profiling of tourist markets and tourism products.
- **Accommodation survey:** This was conducted across 40 ashrams, hotels and dharamshalas, the survey captures occupancy and stay patterns along with consumption and generation trends across water, power, sewerage and solid waste.
- **Accessibility survey:** This was conducted to capture the travel pattern and plight of auto rickshaw/e-rickshaw/bus/car/taxi/boat from the operators' perspective.
- **Tourist survey:** Between February 2021 to March 2021, 120 tourists were surveyed to characterise the profile of tourists based on nature of a tourist, experiences and perspective and issues based on which tourist characterisation, service quality assessment, image intensity analysis was developed.
- **Non-participant survey:** This survey was conducted online with a sample size of 120 across multiple states and age groups to identify and analyse issues faced by potential tourists, and to assess their awareness, perceptions and preferences from a psychological perspective.

Analysis

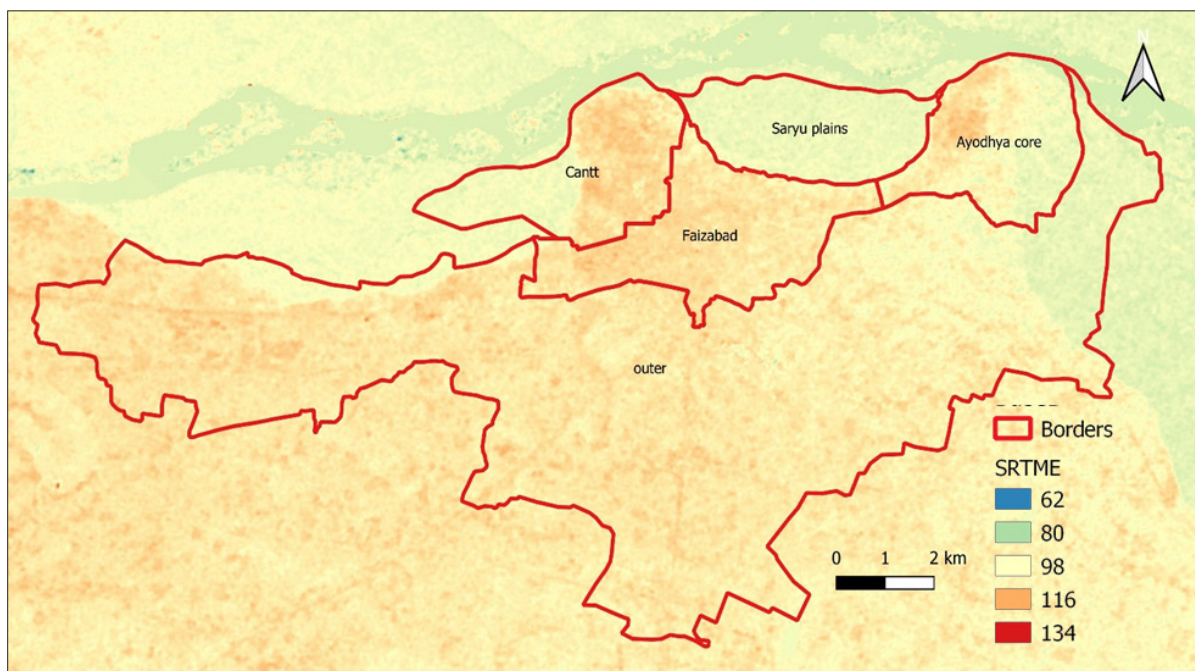
The components with active and passive correlation to the aspect of tourism were identified with an intent to capture the destination's profile in terms of challenges, potential opportunities and gaps through comprehensive integration (cross-analysis of components), underlining the concept of sustainability in approach.

Geophysical Character

An objective analysis was carried out of geophysical components that indirectly impact the city's ecological and tourist character. This analysis considered elevation analysis, state of thermal discomfort, and an overview of solar potential and rainfall trends to derive sustainable strategies to cater to the predicted drastic growth in demand.

Elevation

Figure 4: Elevation Map, Ayodhya

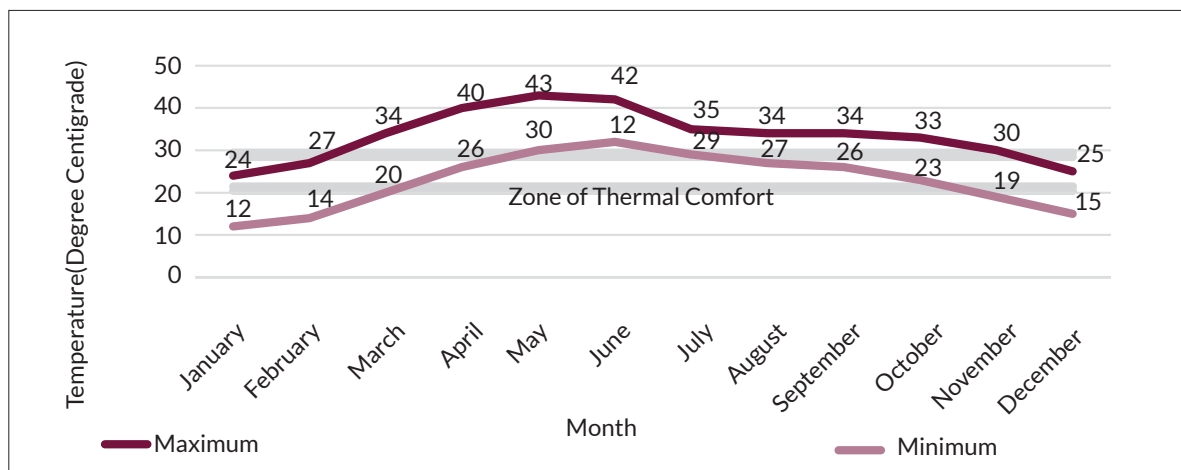


Source: Prepared from bhuvan-app3.nrsc.gov.in (Anon, n.d.)

The city slopes from west to east (Town and Country Planning Authority, UP, n.d.). The eastern part of Ayodhya and Sarayu plains are prone to flooding because of the lower elevation and, as depicted in Figure 4, the prominent tourist destinations of the Ayodhya core, Sarayu plains and Cantonment lie within this region. Hence, the need to develop a flood-resistant strategy to conserve the tourist destination as well as maintaining the beautiful landscapes.

Temperature

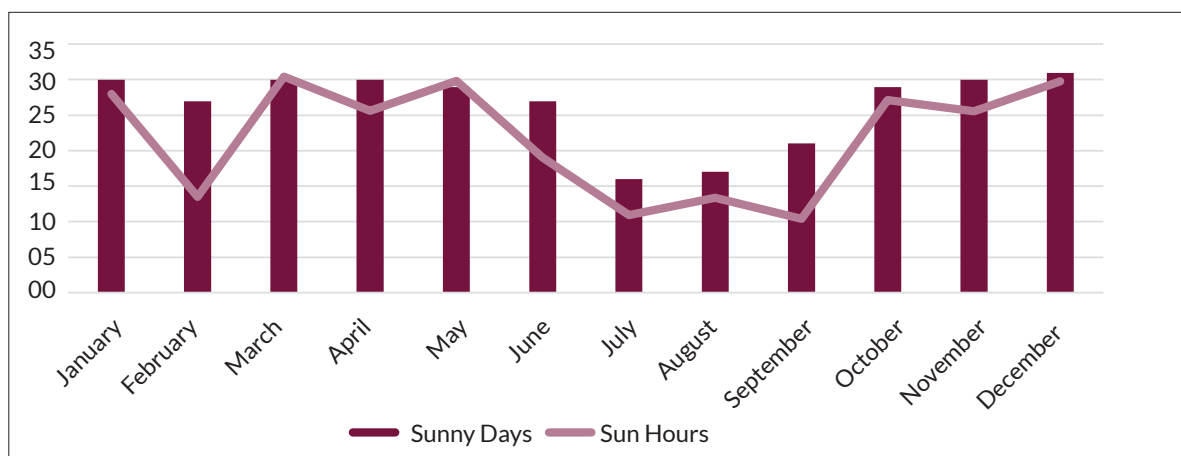
Figure 5: Average Temperature Graph for Ayodhya



Source: worldweatheronline.com (average of 2010–2020)

The average temperature was analysed over the thermal comfort zone to derive inferences as to the correlation between thermal comfort and tourism (Wang et al., 2022). The impact on tourist decisions on visiting season, duration of stay, and mode of intracity travel was clearly visible. Tourist influx and thermal comfort can be seen to be interdependent where tourist influx dropped during months with higher temperatures. During April to June, high temperatures and humidity rise to 43°C, resulting in thermal discomfort, but this coincides with the tourist season (Ram Navami, Hanuman Jayanthi, Holi), which leads to a need for dynamic shading and heat proofing techniques. There exists a high potential to tap solar energy. Ayodhya has up to 240 hours sun hours (Monthly average) with higher sunny days distributed across the year as shown in Figure 6.

Figure 6: Average Sun Hours Graph for Ayodhya



Source: worldweatheronline.com (average of 2010–2020)

Rainfall

Figure 7: (a): Rainfall Trend by Months in Ayodhya

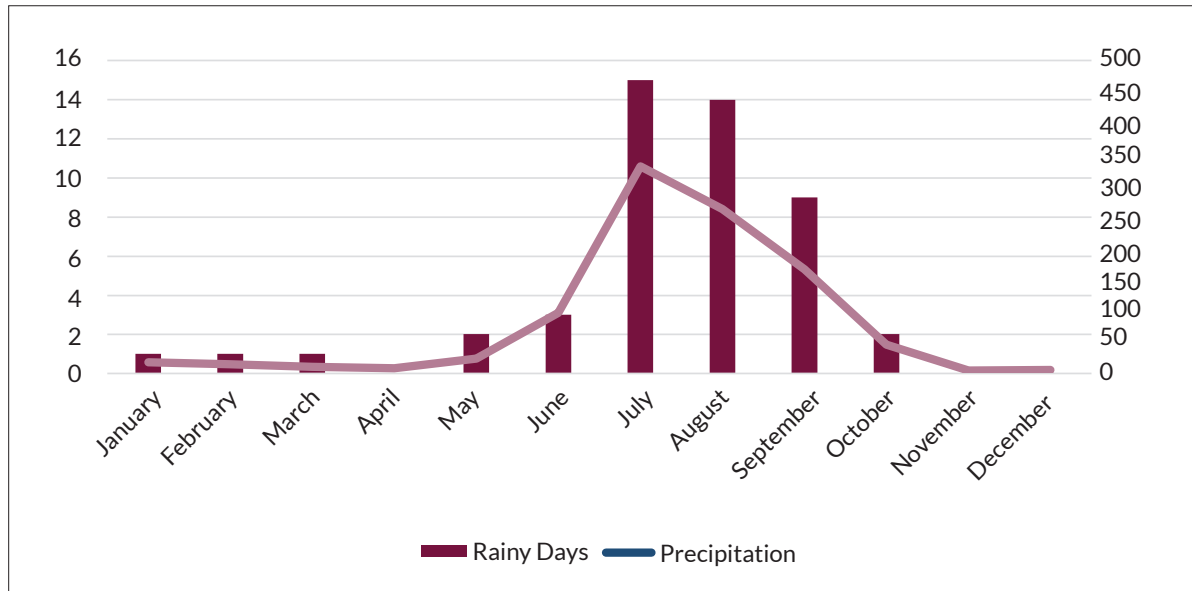
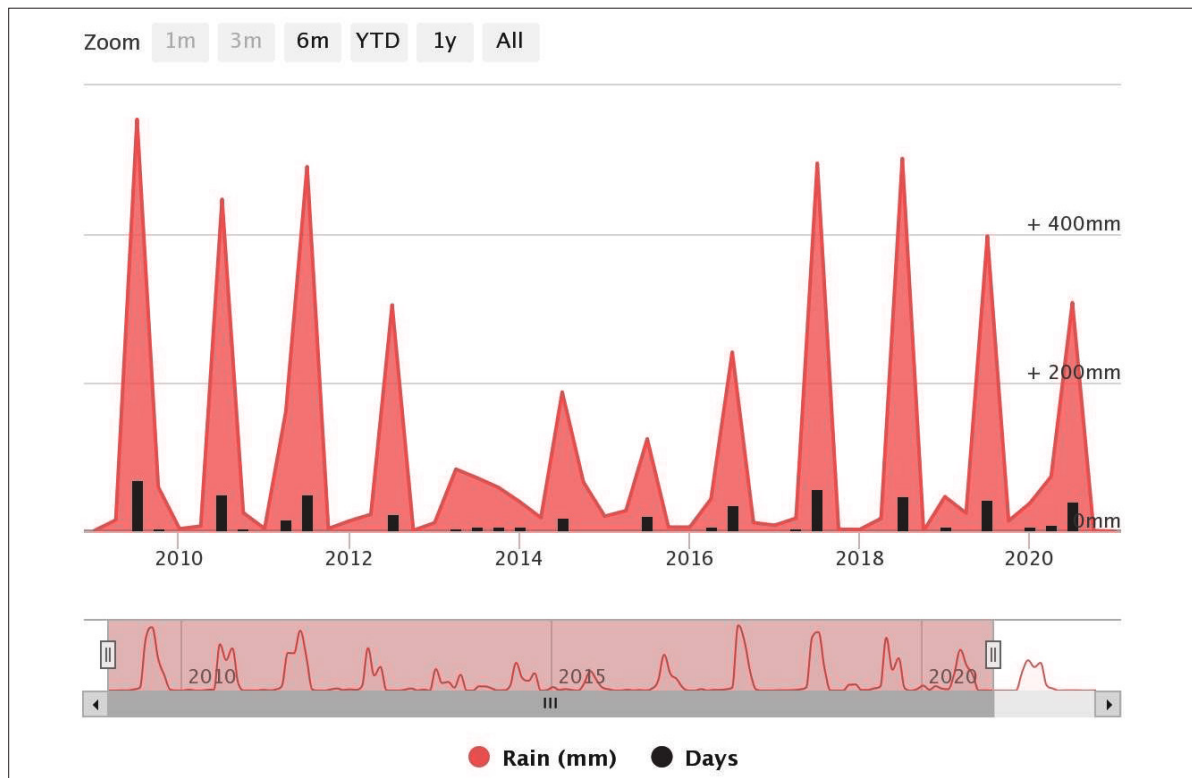


Figure 7(b): Average Rainfall Amount (mm) and Rainy Days



Source: worldweatheronline.com (average of 2010–2020)

An inconsistent and decreasing rainfall trend is observed, with July and August having the highest precipitation, followed by flood-like scenarios emerging across the Sarayu plains. The increasing dependency on groundwater to meet the increasing demand for water underlines the need to conserve rainwater as a sustainable practice.

Land Use Analysis

A qualitative analysis of the impact of tourism on urbanisation and required land use intervention is depicted in Table 1.

Table 1: Land Use Analysis in Comparison with URDPFI's Ideal Developable Area in Ayodhya

LAND USE	Area (in ha)	Percentage Area (Ayodhya)	Ideal Developable Area % (URDPFI)
Residential	1531.21	11.46	35–40
Commercial	21.14	0.16	5–7
Industrial	216.55	1.62	4–5
Institutional	299.37	2.24	-
Public & Semi Public	37.16	0.28	10–12
Recreational	254.42	1.90	10–12 (includes water bodies)
Public Utilities	2.10	0.02	-
Transportation	583.67	4.37	12–14
Other	107.76	0.81	-
Agricultural	7417.29	55.49	-
Rural	605.92	4.53	-
Specific Land Use	4.75	0.04	7–10
Vacant Land	870.60	6.51	-
Waste Land	842.68	6.30	-
Water Bodies	539.18	4.03	10–12 (Includes recreational use)
Wetlands	33.19	0.25	-
Total	13367.00	100	-

Note: Land Use Analysis based on (Urban and Regional Development Plans Formulation and Implementation) (URDPFI) comparing URDPFI's ideal developable area percentage in a tourist city with Ayodhya

Source: URDPFI (Urban and Regional Development Plans Formulation and Implementation) and Ayodhya Report TCPO UP.

The impact of tourism on urbanisation and required land use intervention was derived from the land use analysis above. Notably, agricultural land use stands out as significant, primarily due to newly added areas reflecting the state of urbanisation and future scope of expansion.

‘Specific land use’ can be increased to conserve the core heritage zones, which are currently not covered under zonal restrictions. Wetland degradation attributed to rapid expansion and urbanisation remains a crucial concern. Existing recreational use classification is limited. However, an expanding user base driven by internal casual tourists from the sub-regional areas and expectations of a more significant influx are indicative of the excellent potential of increased recreational use. Hence, increasing recreational land use would cater to the existing population and diversify tourism in the city. It would expand the stay and trickle-down economic benefits to a larger local economy.

With traditional water conservation in the form of kunds gradually declining, kund rejuvenation and reconstruction would add environmental benefits and socio-cultural value. Additionally, accessibility being a concern specially across the Sarayu plains and the outer zone developing transportation networks use would positively change tourism sector.

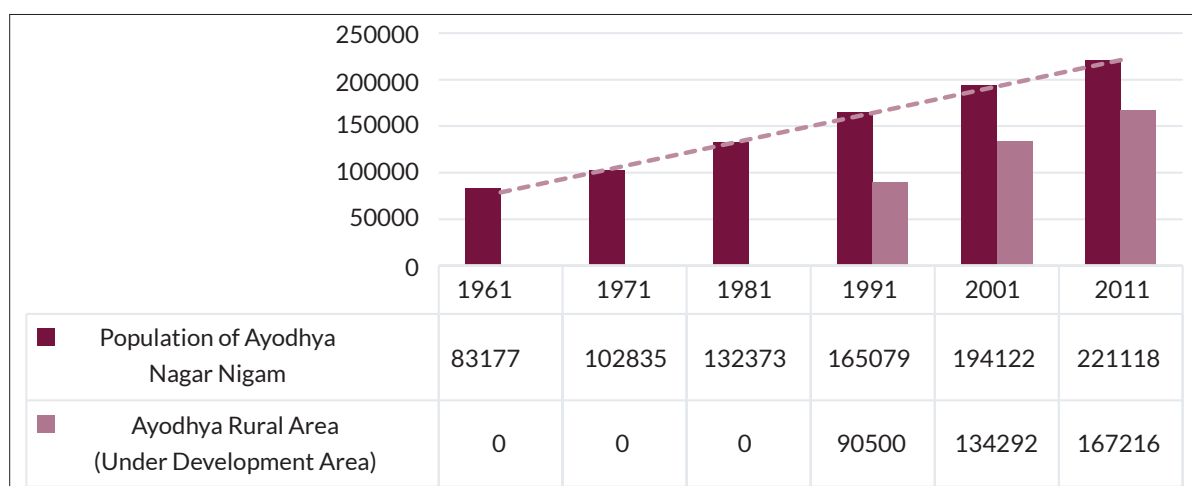
Administrative Structure

A functional profile of administrative organisations involved in Ayodhya’s tourism development was carried out wherein crucial administrative, organisational and financial issues were inferred:

- The authority was excessively dependent on grants because of low revenue generation. What this means is that there is a need for newer revenue-generating models.
- Zonal regulations/restrictions were absent in and around heritage sites.
- Land acquisition issues and a need for dynamic pricing models had arisen primarily due to rapid expansion due to acquisition of land in and around the city.
- Interdepartmental coordination issues and limitations of PMU (Project Management Unit) are listed.

Demographic and Tourist Trends

Figure 8: Population Trend, Ayodhya



Source: Town and country planning authority UP (n.d.)

The analysis is based on census and UP Tourism data showing the drastic growth rate of local and floating population promoted by tourism, reflecting potential in terms of international tourists. It could help to develop an activity-based strategy for tourist redistribution and deal with quantum of challenges that could emerge in future.

Up until 2011, the city of Ayodhya witnessed gradual growth (as depicted in Figure 8). This growth rate is set to increase in upcoming years because of the opportunities generated by urbanisation. According to the 2011 census, the population of 65 villages within the Ayodhya Development Authority boundary was 1,67,216. Of these, 41 villages have been merged into the Nagar Nigam. The steady growth of 8.2 percent can be observed from 2009 to 2019 in tourist influx, as depicted in Figure 11. The sudden dip of -234 per cent observed in 2020, can be attributed to the COVID-19 pandemic should be temporary.

Figure 9: Tourist Footfall, Ayodhya

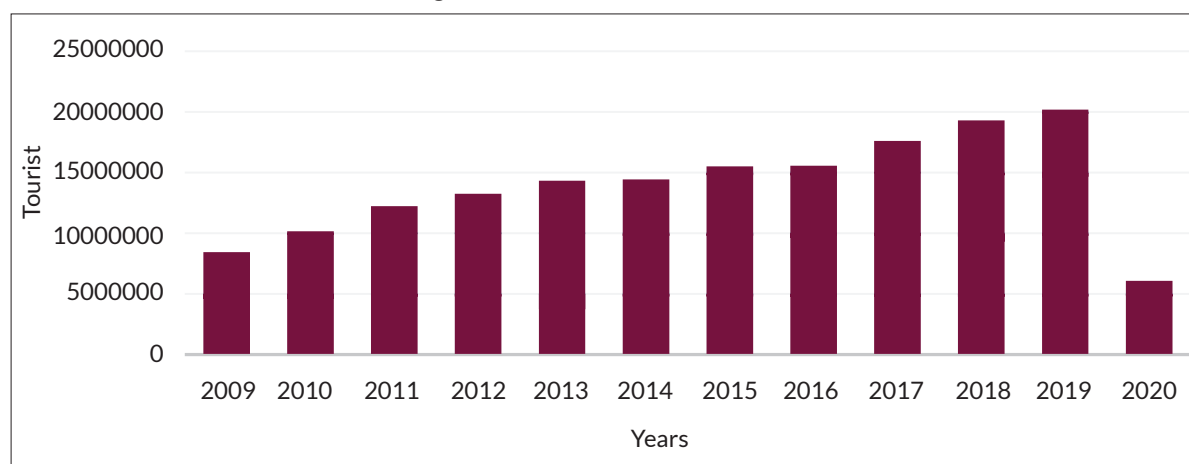
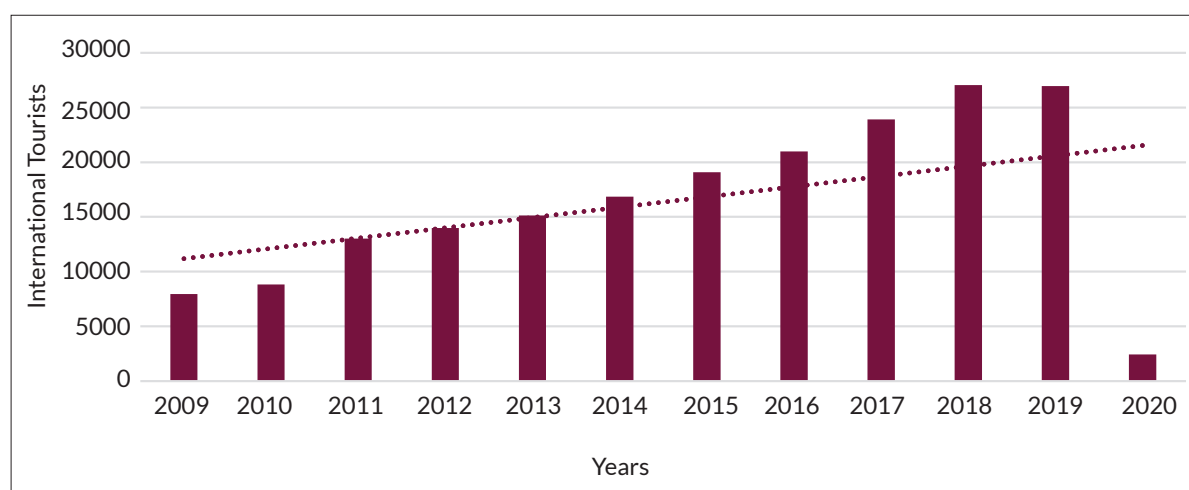


Figure 10: International Tourist Footfall, Ayodhya

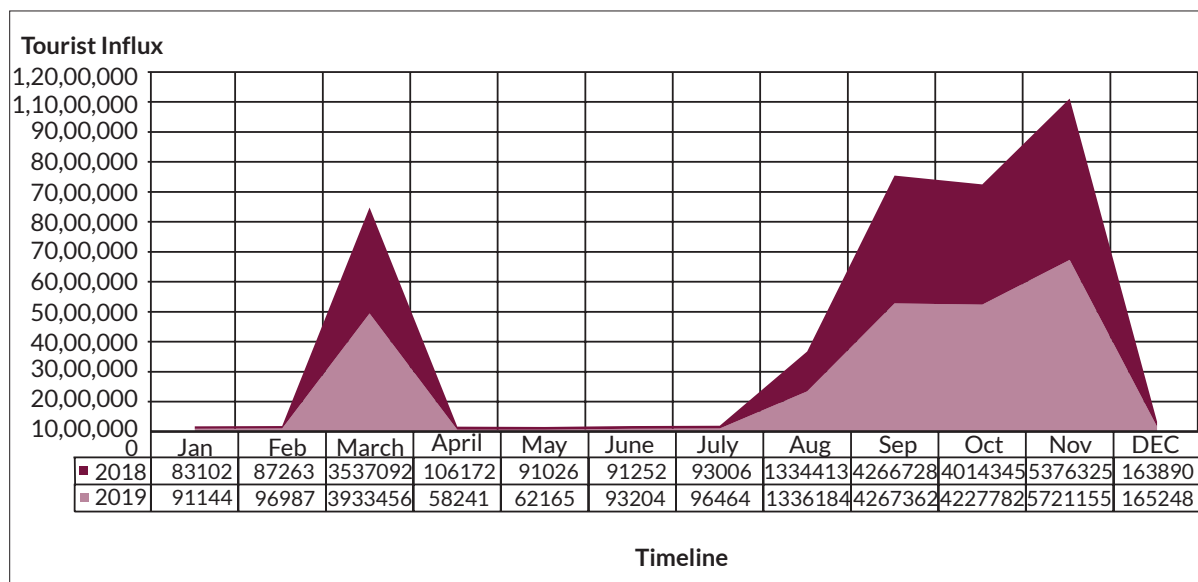


Source: Tourism Directorate, UP Tourism

International tourists comprise less than 0.2 per cent (Figure 10), which indicates that the city's tourism is entirely driven by the domestic religious tourist. However, an average rise of 11.1 per cent points at a considerable potential to be tapped, to which the regional integration of Varanasi and the mainstreaming of existing locations with diverse character would provide a boost.

The major tourist spikes were observed across the months of February to March (attributed to Holi, Mahashivaratri and Ram Navami) and September to November (Dussehra, Deepotsav and Parikrama) as Figure 12 shows. The dip months in between can be attributed to less important events and the scorching heat.

Figure 11: Tourist Influx—Monthly Variation, Ayodhya



Source: Tourism Directorate, UP Tourism

Tourist Destination Profile

Destinations are profiled for the zones in line with intracity travel patterns. Divided in zones, the places are characterised based on the nature of the place, issues and potential opportunities. The destination profiles are created through a lens focusing on how tourism centres around the Sarayu River contribute to the socio-cultural character of Ayodhya and make the river more than just a component in the city's tourism profile.

Tourist destinations in the study area are categorically profiled based on their character into the Ayodhya core, Faizabad zone, Cantonment, outer zone and Sarayu plains.

Ayodhya Core

The core of Ayodhya city is located on the north-eastern side of Ayodhya on the banks of the river Sarayu. This zone acts as the epicentre of tourism with significant places of touristic, religious and heritage significance, such as Ram ki Paidi, Hanuman Ghari, Dashrat Bhavan, Ram Janam

Bhoomi and Kanak Bhavan. With the religious and cultural character being the attraction, new development along the river stretch also caters to leisure activities for locals and others..

The issues inferred from primary surveys prominently revolved around (i) parking (ii) pedestrian and vehicle conflicts, and (iii) accessibility issues for the elderly and differently-abled. These issues call for design interventions. There have been concerns about heritage loss around the essential part of the temple ecosystem. Also of concern is the lack of public toilets, while the absence of public drinking water facilities in market spaces leads to a dependency on bottled water.

It is observed that despite Ram ki Paidi being developed for bathing purposes, certain devotees still prefer to take a holy dip at Naya Ghat in the main-stream flow of the Sarayu, causing an overlap between the ghats and boat docks. The lack of changing room facilities at Ram ki Paidi pushes ladies to use only Naya Ghat, which is 200 metres away, negating the usefulness of a ghat that was primarily constructed for that purpose. Design elements such as steep steps and lack of ramps at Ram ki Paidi lack inclusivity towards the differently-abled, propel this section of people towards the main stream as well.

Faizabad, Cantonment and Outer Zone

Located away from the core zone, Faizabad caters to tourists seeking heritage/leisure/shopping through places such as Gulab Bari and Bahu Begum ka Maqbara. Tourists often spill out from the core with an interest in exploring the cultural heritage, as well as for other leisure activities.

The Cantonment with all entry rights reserved with the army consist of Guptar Ghat, Military Mandir and Company Gardens, and cater to religious, nationalistic and leisure audiences.

Sarayu Plains

This area comprising more than 25 ghats and different heritage structures in the form of ashrams, dharamshalas and havelis remains the most under-explored place in the city.

The primary issue is accessibility with only Faizabad zone easily accessible through IPT. The areas inside Cantonment and the outer zone are highly dependent on private transport. The Sarayu zone is the most inaccessible, resulting in a smaller trickle down of tourists from the zone, although they remain culturally integrated.

Non-Mainstream Places

It is to be noted that with greater influx come greater challenges for which redistribution should be adapted as a strategy for destination development. The destination is predominantly characterised by non-mainstream places at local and regional levels, which plug in to a high potential for expansion of the itinerary provided the required intervention is made.

Many of these non-mainstream places were identified through primary surveys and are usually left out in the mainstream tourist itinerary. They have excellent potential to redistribute and retain tourism to ensure social and economic sustainability, while simultaneously acting as a tool for conserving heritage and boosting tourism.

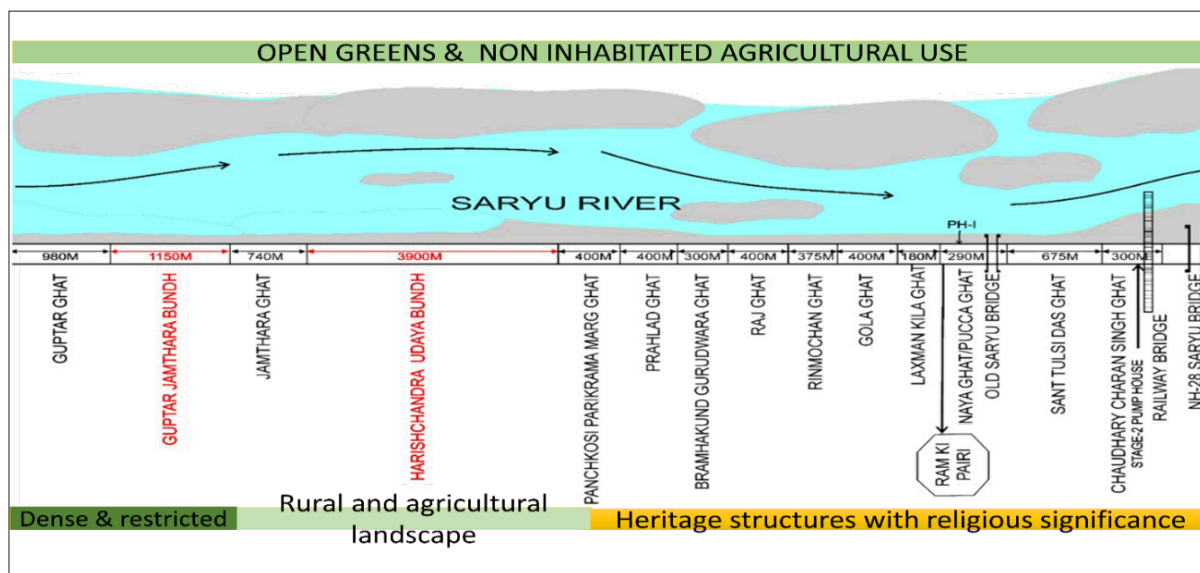
These sites consist of the galis of Ayodhya, heritage ashrams of Ayodhya, Korean Park, tomb of Bani Khanam, Gumnamī Baba's resting places across the zones along the river, along with Mani Parvat and Chowk Mosque (the base of Ahmadullah Shah, known as the maulavi of Faizabad, one of those who spearheaded the revolt of 1857) within the city limits, and Kamakhya temple and Imambara at regional level bridging the Gaghra and Gomti rivers.

Sarayu Characterisation

The various features of the river Sarayu across Ayodhya's city stretch were analysed.

Activity Mapping

Figure 12: Line Diagram of Riverside Activities, Ayodhya

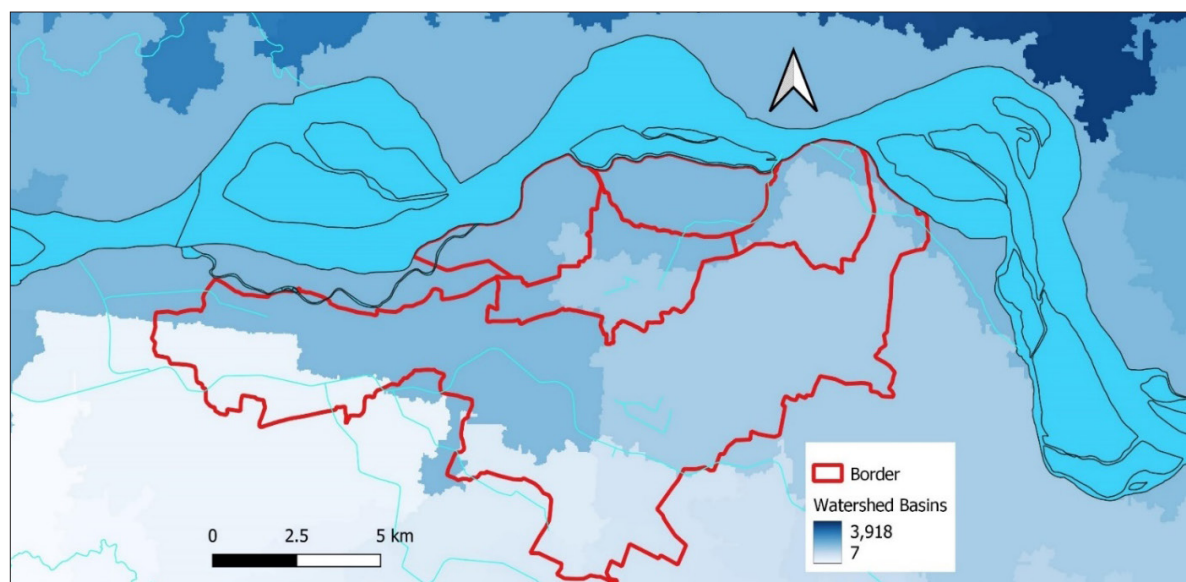


Source: Primary Survey & Irrigation Department, UP

The river Sarayu creates varied landscapes along the zone of interactions that have been developed simultaneously with Ayodhya's rich socio-cultural spaces. Ancient heritage-rich elements can be observed till the stretch of Prahlad Ghat along the core zone. From here till Cantonment, the landscape transitions towards natural heritage against a rural and agricultural backdrop, with settlements of the fishermen community at Rajghat. The Cantonment has a backdrop of denser vegetation and cultural richness, with places such as Company Garden and Guptar Ghat while the northern bank is primarily agricultural. The upper bank remains uninhabited with the Sarayu changing its basin over the years, as depicted in the line diagram.

A catchment area profile was analysed to derive conservation strategies. It was observed that increasing urbanisation was a cause for concern in the watershed across the Sarayu plains, with the northern banks being of primary concern. There is a need for policy and spatial interventions to conserve these areas.

Figure 13: Watershed Basin of Ayodhya



Source: *bhuvan-app3.nrsc.gov.in* (Anon, n.d.)

As a part of capturing the cultural approach towards water conservation, the status of canals and kunds that sprawl across the city was observed. It was noted that despite the kunds being acknowledged not only for harvesting water and from a religious perspective, they continue to face extinction, creating a need to conserve them.

Rapidly changing flood lines across the year remain a critical concern. With tourist spots, the major tourist and local ecosystem being most vulnerable, there is an urgent need to stabilise the flow of the river. The hydrological profile shows areas where difficulty in navigation indicates a need for desilting. Solid waste disposal and sewage were identified as the primary concern. A recent Sarayu action report (UP-PCB, 2019) identified dumping sites and sewerage as cause water pollution. With tourism as a significant contributor, these issues must be addressed at inception itself.

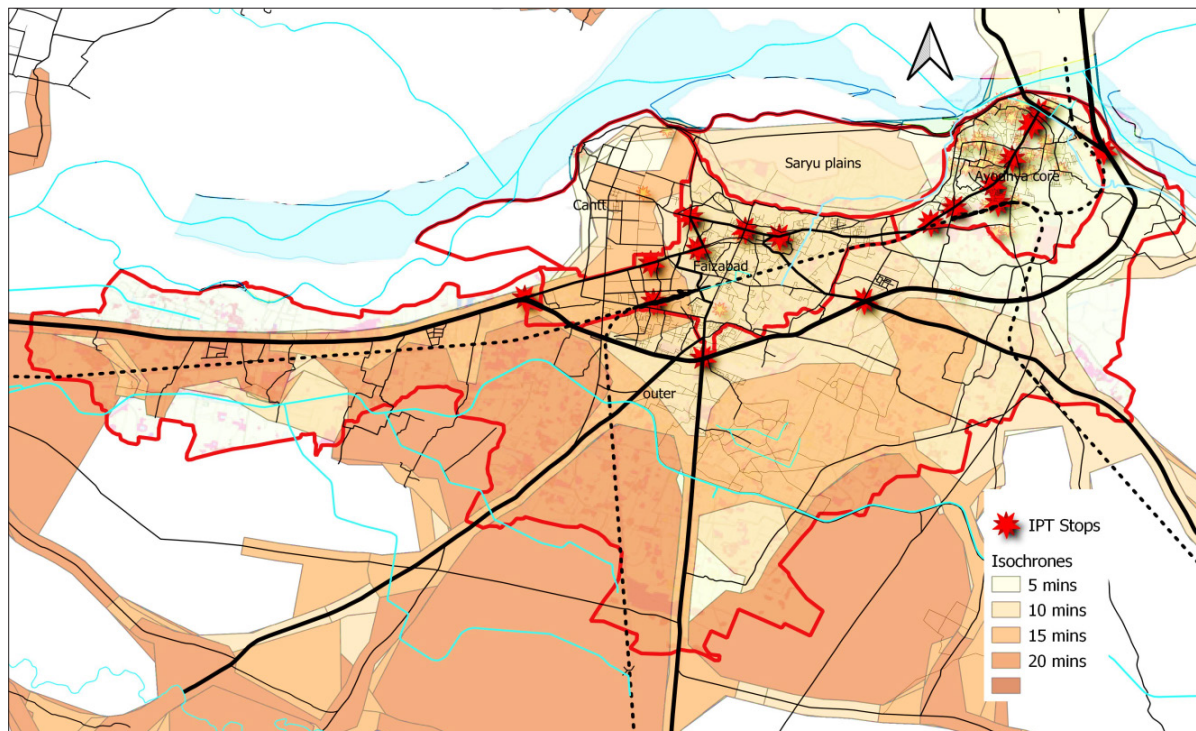
Accessibility

A detailed profile of existing connectivity in Ayodhya in terms of modes of transport and routes such as personal transport, IPT encompassing Vikram autos (diesel-powered), general auto rickshaws (CNG), e-rickshaws, walking etc. were analysed. The character and issues of each mode were identified through primary surveys and secondary analysis.

Isochronal Network Analysis was done based on 17 significant stops of IPT. Ayodhya core zone was observed to be the most accessible. The outer zones and Sarayu plains where IPT was found to be least accessible can be cross-interpreted with the tourist approach towards Guptar Ghat and Bharath Kund.

IPT routes majorly covered Naya Ghat towards Shahadat Ganj, Shahadat Ganj towards Sohawal, Naka towards Sultanpur, Naka towards Bara, Devkali to Maya, Naya Ghat to Nawab Ganj.

Figure 14: Isochronal Network Analysis, Ayodhya



Source: Authors (bhuvan-app3.nrsc.gov.in) (Anon n.d.)

Further, it was observed that IPT acts as the central spine of intracity transport in Ayodhya, and the increasing trend of residents moving towards private modes of transportation indicates a need to strengthen the public transport system.

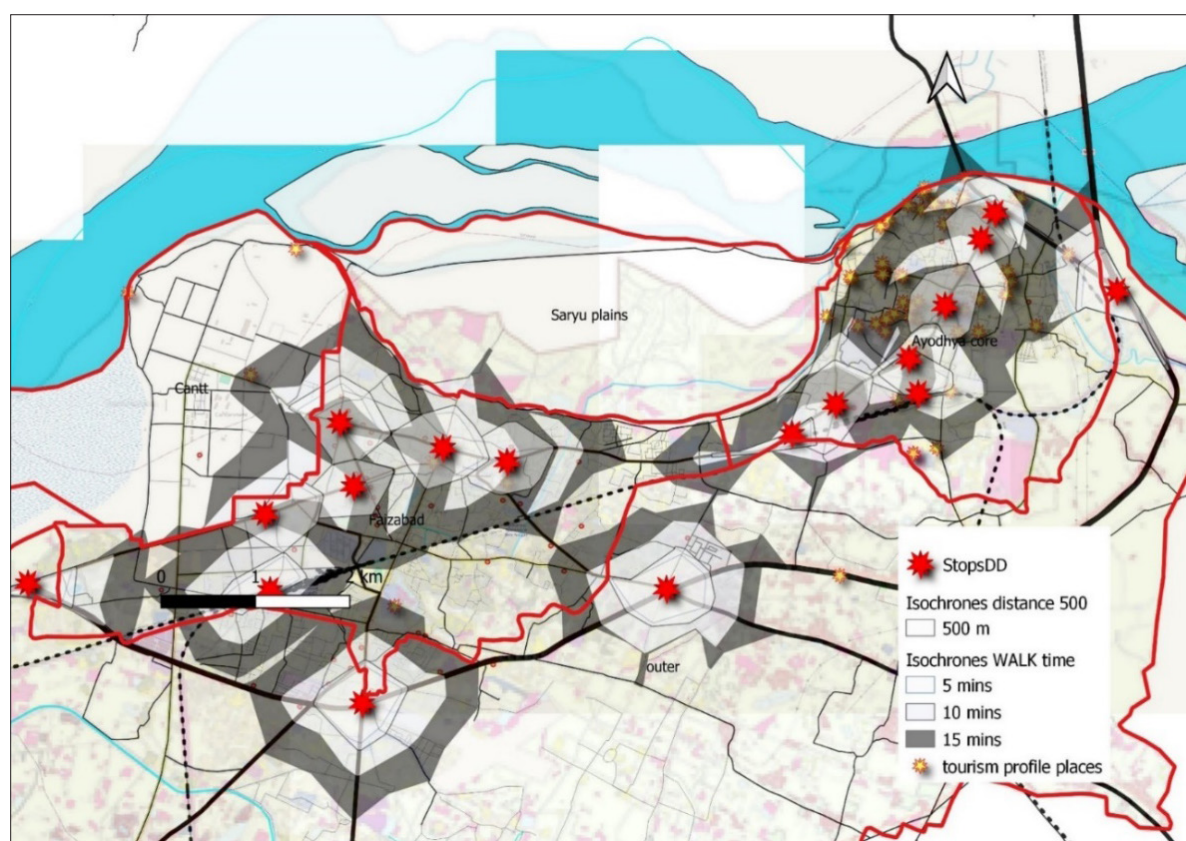
Walkability assessment: The assessment (Figure 17) was done on the standard that destinations should be under 500 metre reach and under 10minutes overlay. The areas where walkability needs to be improved are shown by the overlay method in grey. Scorching temperatures, lack of shade and shelter further affect an already low walkability that needs to be approached through design interventions and planning strategies.

Accommodation

Tourist accommodation is majorly concentrated in the Ayodhya Core in the form of ashrams, dharmshalas and hotels. The state of tourist accommodation was pictured through primary survey and secondary data in terms of:

- **Affordability:** Establishments are mostly non-starred and budget in nature, with ashrams and dharmshalas remaining universally accessible to all. Most charge nothing or a nominal amount and so remain most affordable.
- **Occupancy:** Average occupancy lies between 25 to 50 per cent during the lean season, going up to more than 75 to 100 per cent during the peak season (primary survey).
- **Resource management:** This aspect leaves a significant footprint in Ayodhya's environmental profile. Water consumption ranges from 50 kl to 300 kl per month (primary survey), and is majorly dependent on groundwater. Sewerage, primarily dependent on self-cleaning soak pits, also remains a point of concern. Solid waste, mostly comprising plastic bottles and kitchen waste, contributes to the major unsustainable practices affecting the land and water ecosystem. Around 5000–6000 units of electricity remain the average consumption, increasing during summer months for which the source needs to be decentralised and diversified through sustainable clean energy to cater to the increasing demand.

Figure 15: Walkability Assessment , Ayodhya

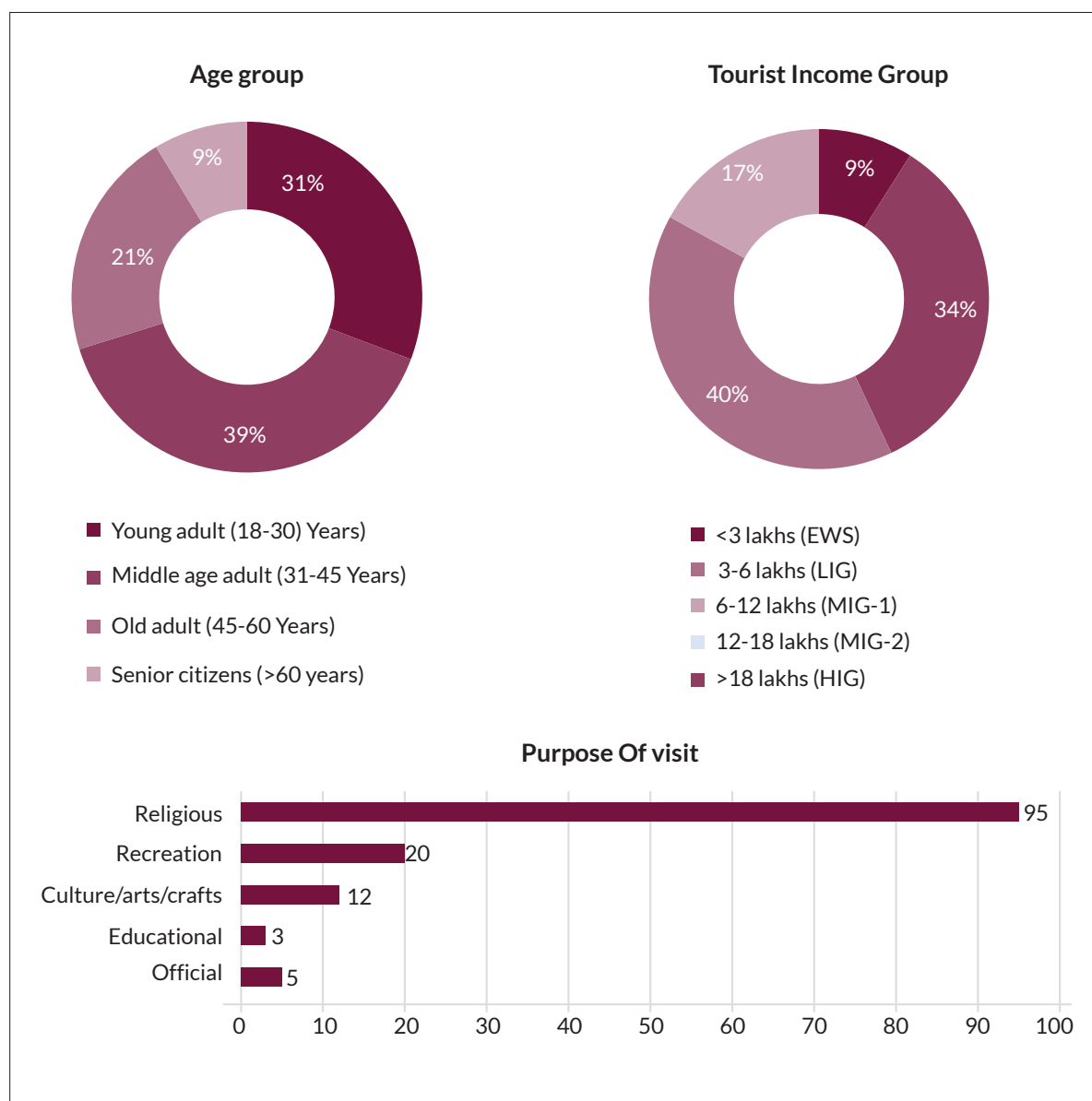


Source: Primary Survey & open street maps, March 2021

Tourist Characterisation

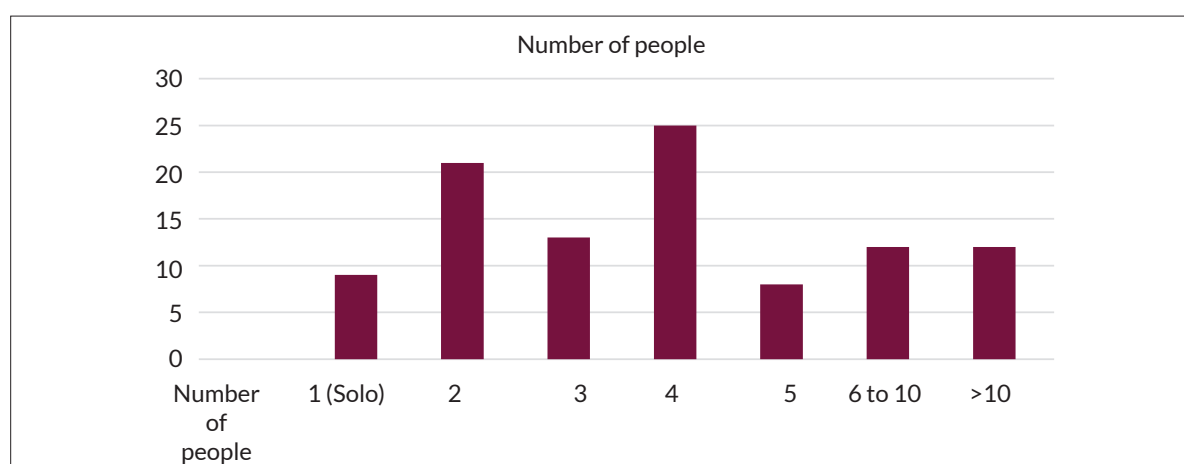
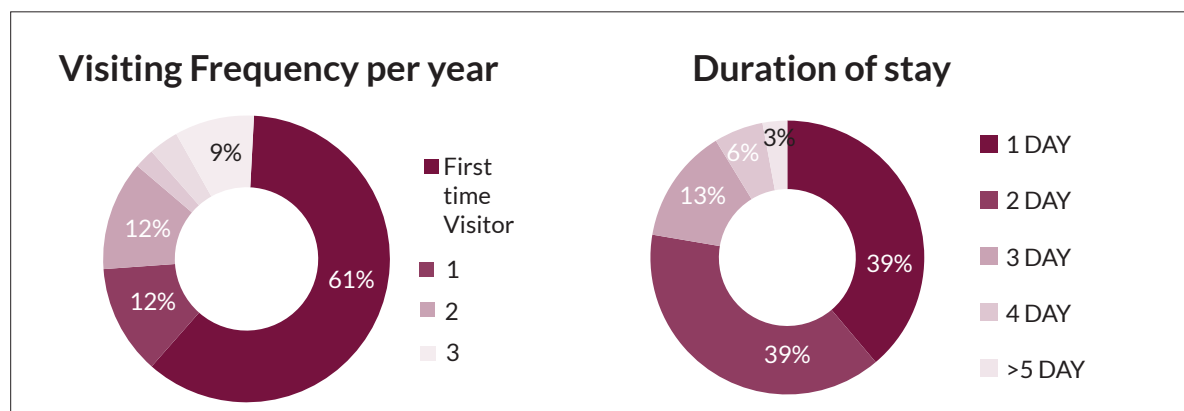
The tourist profile was captured through cross-analysis from primary survey data, which encompasses nature of a tourist and issues perceived. It was observed that: Average grouping was between 2-4, with a considerable proportion of bigger groups as well. The purpose of the visit was predominantly religious and cultural. Locals and a multitude of visitors from surrounding districts subscribe to recreational use alongside religious reasons.

Figure 16 A: Characteristics of Tourists in Ayodhya



Source: Primary survey, February–March, 2021

Figure 16 B: Characteristics of Tourists in Ayodhya

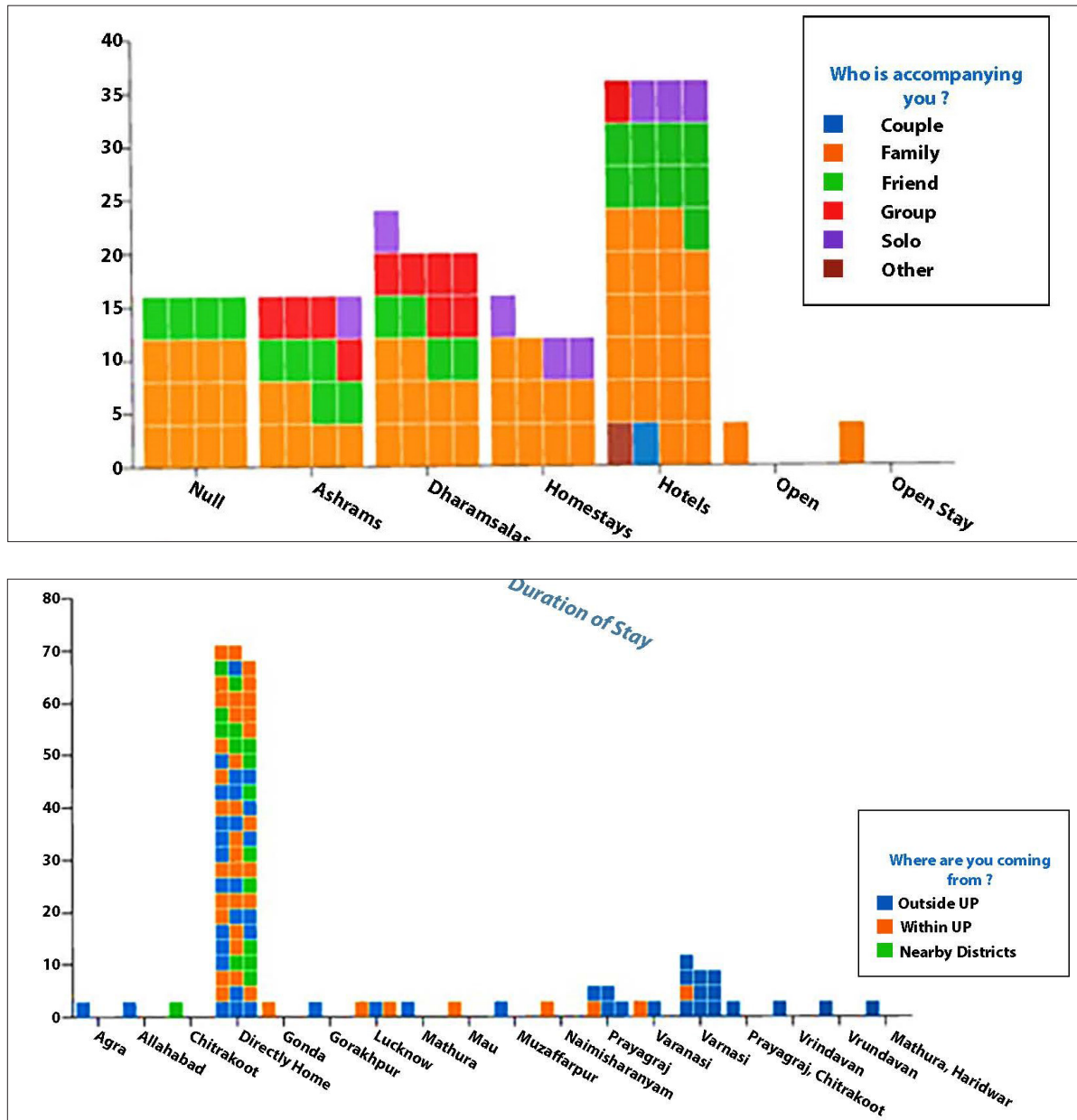


Source: Primary survey, February–March, 2021

Family tourists comprised a significant number, followed by friends and groups. Further classifying the family group based on accommodation, younger couples preferred staying in a hotel; senior citizens and older adults preferred ashrams and dharmshalas. In contrast, middle-aged adults were split between both types.

Tourists belonging to other states tend to cover the regional circuit travelling to Varanasi, Prayagraj and other places. Their duration of stay is limited to a day or two, covering mainstream places. A willingness to explore Ayodhya further was primarily expressed by first-time visitors. Lack of information regarding non-mainstream places was what deterred a major proportion of first-time visitors, revealing a potential for regional integration. The need for redistribution to tackle congestion, as well as solid waste sensitisation issues were majorly highlighted.

Figure 17: Cross Analysis of Tourist Characterisation, Ayodhya



Source: Primary survey, February–March, 2021

Image Intensity Analysis

Image intensity analysis was done to understand the psychological footprint of imageability of spaces and places in Ayodhya. The city's tourism is characterised at a stage between development and consolidation on Butler's scale; there is a higher potential to utilise the places by mapping the unmapped places in people's minds. The analysis could be a basis to formulate redistribution as a sustainable tool to tackle congestion alongside enhancing user experiences.

Figure 18: Image Intensity Analysis

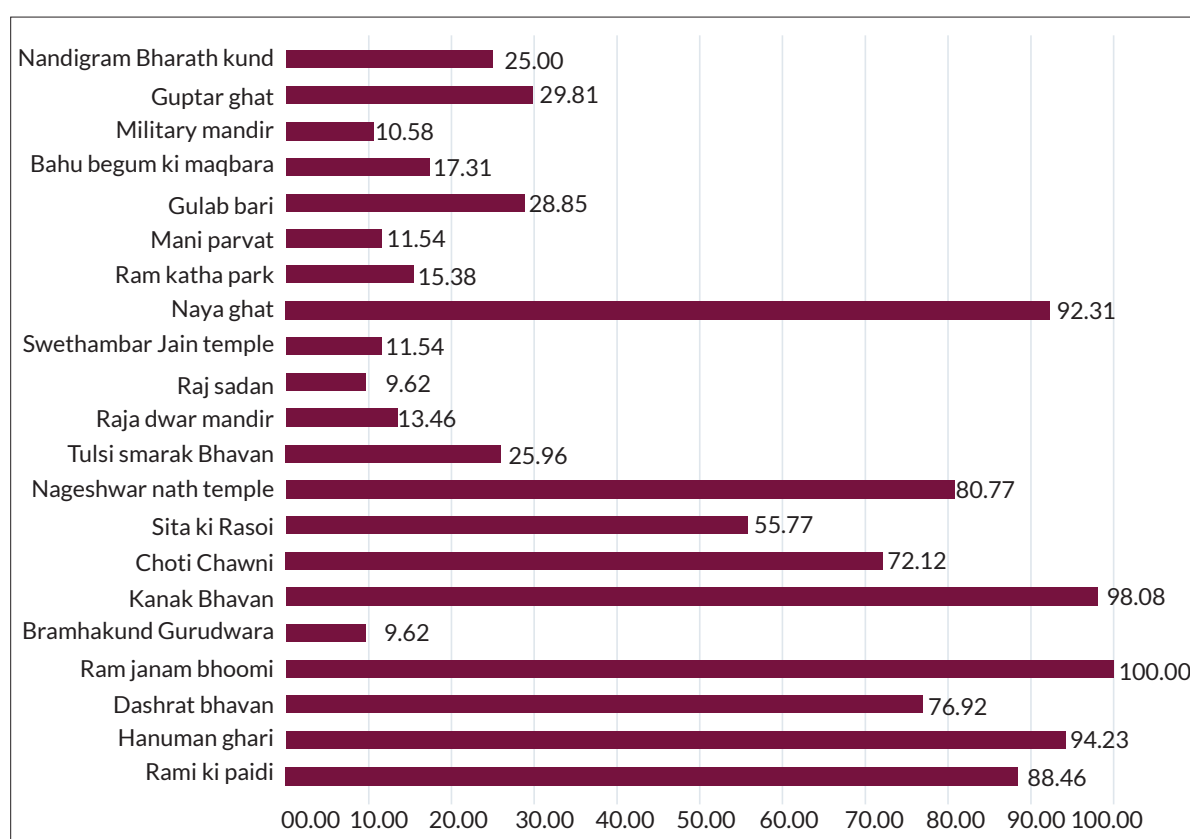


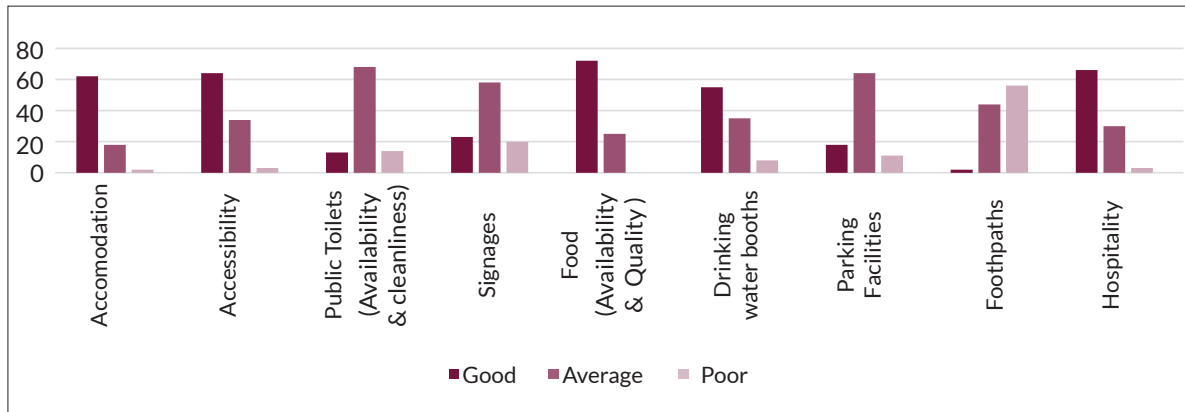
Image analysis = $\text{Recall frequency} \times 100 / \text{sample size}$

Source: Primary survey, February–March, 2021

Service Quality Assessment

A perception-based service quality assessment was done to identify the critical shortage in services. Issues pertaining to footpaths, signage, parking facilities and public toilets, among others, were identified to be of concern.

Figure 19: Service Quality Assessment

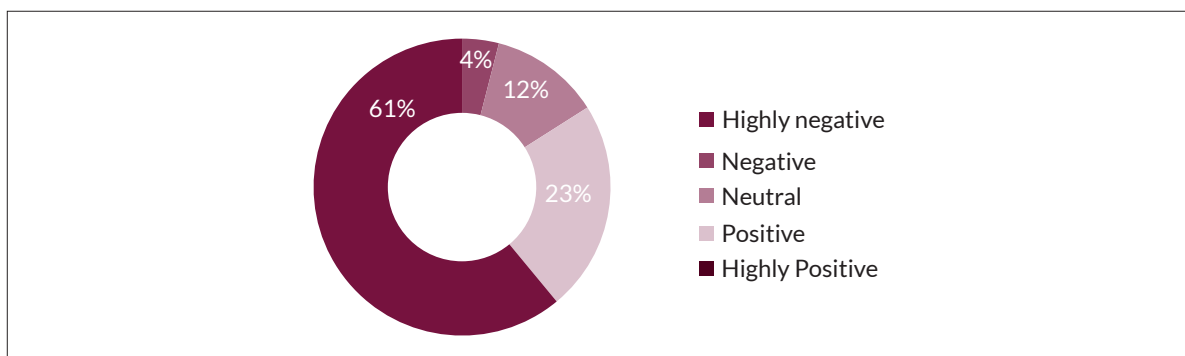


Source: Primary survey, February–March, 2021

Local Resident Characterisation

A local resident survey was conducted across different zones to understand the influence of tourism on quality of life. The majority perceived the influence of tourism as highly positive attributing to socio-economic proponents.





Figure 20: Influence of Tourism on Locals



Source: Primary survey, February–March, 2021

Core characterisation of Ayodhya was done by capturing the attributes locals like or dislike about the city. The Must-Do catalogue depicts a necessary experience a tourist should have from the perspective of the locals and core nature of tourism that must be conserved.

Figure 21: Must-Do Catalogue

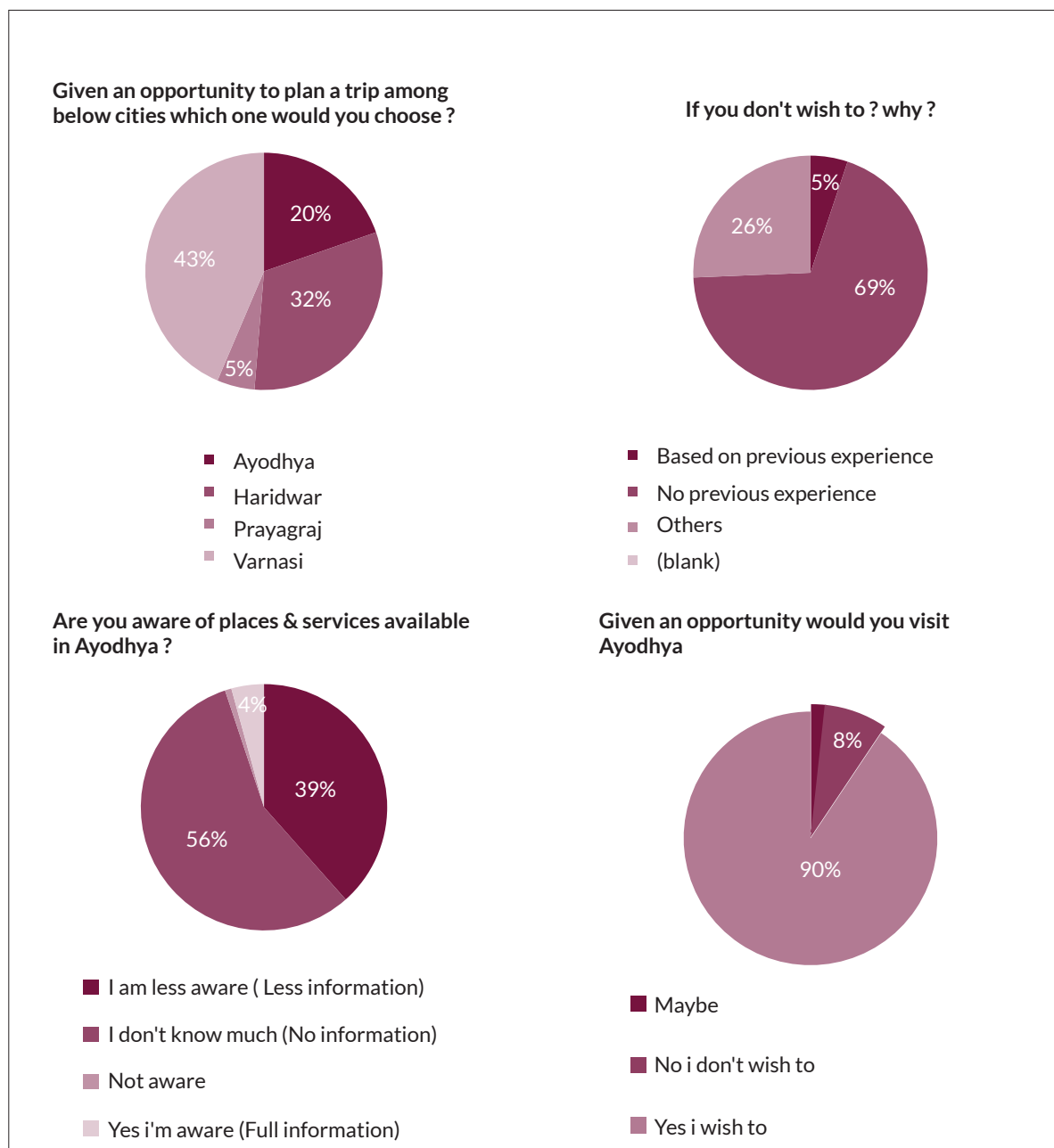
Factors liked about city by locals	Factors disliked about city by locals
<ul style="list-style-type: none"> • Spirituality • Liveliness. • Sarayu river view. • Safety (Attributing to less crime rate). 	<ul style="list-style-type: none"> • Congestion • Traffic issues • Fear of loss of heritage due to urbanization. • Spammers. • Solid waste management issues.
 <p>Place</p> <ul style="list-style-type: none"> • Ram Janmabhoomi • Hanuman ghari • Guptar ghat • Mani Parvat • Ram katha sangrahalay 	 <p>Experience/Activity</p> <ul style="list-style-type: none"> • Deepotsav. & Parikrama • Ram Navami • Sarayu aarti • Evening lightshow at Ram ki paidi.
 <p>Product</p> <ul style="list-style-type: none"> • Small statues specially ram darbar. • Wooden slippers • Kesari Dwaj • Banarasi lehanga • Bamboo handicrafts 	 <p>Food</p> <ul style="list-style-type: none"> • Hanuman ghari laddu • Kanak bhavan peda • Litti chokha • Dahi jalebi • Meals of Bhojnalay's. • Tandoori chai • Kabab paratha (Faizabad)

Source: Primary survey, February–March, 2021

Non-participant Survey—Identifying potential tourists (outside Ayodhya)

A non-participant survey was conducted to analyse and extract issues faced by potential tourists based on the psychological paradigm. The issues were captured in terms of: awareness, perception and preferences. Through the non-participant analysis, it was observed that Varanasi is the preferred choice followed by Ayodhya on the basis of spirituality, landscapes, experience and mainstream information availability. From another perspective it can be inferred that tourist integration through regional development is a possibility, as visitors of Varanasi and Prayagraj are potential tourists if the drawbacks are addressed. It is also observed that the lack of information and uncertainty regarding services were among the prime deterrents, pointing to a need to revisit the tourism promotion strategy along with a need to induce a transparent system.

Figure 22: Analysis of Non-Participant Survey



Source: Primary survey, February–March, 2021

Amenities

Amenities such as sewerage, stormwater drainage, water supply, solid waste were individually assessed to capture existing status as well as the contribution of tourism to demand, gaps and potential.

Sewerage

The rapidly increasing tourist influx and its ripple effect on tourism-allied industries, combined with local generation majorly propelled by sugar refineries, oil extracting mills in and around Ayodhya have redefined the challenges. With the existing state of wastewater treatment observed to be managed unsafely as per a study conducted by the Centre for Science and Environment (CSE), the situation poses a catastrophic risk to the Sarayu's riverine ecosystem in the future.

Drainage

The state of drainage was analysed with the help of the Sarayu Action Plan Report and the existence of both open and closed drains was observed. However, along with regular cleaning/maintenance of drains, underground drainage systems and decentralised treatment plants are required in the city to maintain hygienic conditions and enhance the aesthetics of the tourist city.

Figure 25: State of Drains, Ayodhya

Number of Drains	Type of Drain			Status of Drains			Industries		Sewage Discharge (MLD)			Total Discharge in the river (MLD)
	Domestic	Industrial	Mixed	Tapped	Untapped	Partially Tapped	Number	Treated Effluent	Treated	Untreated	Total	
18	16	2	0	0	18	0	2	7.9	0	23.14	23.1	31.04

Source: Sarayu Action Plan Report, 2020

Water Supply

Tourism activities, often correlated to hydric stress, pose a challenge to the growing demand arising out of increasing influx. Analysis reveals that despite the city being located on the banks of the river Sarayu, it is majorly dependent on underground water, which is supplied through overhead tanks. Though groundwater resources are abundantly available with water tables varying from 20 to 150 feet within the city, the concern of overexploitation persists due to rapid urbanisation.

Tourist demand was estimated to be more than 14.79MLD (Becken, 2014) this research analysed tourism-related water use in 21 countries and compared it with other municipal use. Tourists' water use on a per guest night basis was found to differ substantially, with water usage being highest (up to 956 l per guest night in China (calculated from individual demand based on consumption studies and influx). The need to introduce a sustainable supply system through a conservation approach was derived correlating to this projected demand.

Solid Waste Management

A correlational analysis was done to pinpoint the relation between impact of tourism and solid waste management. Calculated on the basis of a study that states that the Indian tourist, on average, generates 0.9 kg waste (source: Sustainable Tourism Promoting the Environmental Public Health, University of Copenhagen, per day, tourist waste generation was estimated to be 49.31TPD. This constitutes the major proportion of total generated waste in the city, making tourist activity the top solid waste generator. Ayodhya Nagar Nigam (ANN) practises door-to-door collection of MSW, but due to lack of processing facilities, unsegregated solid waste is dumped in open plots or ponds and low-lying areas. This results in waste toppling down into the riverine ecosystem, additionally contributing to air and groundwater pollution. The plastic waste generated by increased tourist influx was analysed as a major contributor contaminating the river's health, underlining the need for an alternative waste management plan.

Recommendations

The recommendations are derived based on the inter-relational analysis where the multitude of factors analysed and their implications were stitched together to draft sustainable solutions on the lines of:

Administration

It is said that the success of any scheme or project lies in the spirit of implementation. The concerns of coordination and capacity building are addressed by the formulation of a Joint Coordination Committee (JCC) consisting of representatives appointed by the line department and headed by the commissioner, formed under Section 5, The Uttar Pradesh Municipal Corporation Act, 1959. Along with promoting the existing project management unit, in its hierarchical placement under the Joint Coordination Committee, by expanding its scope through creation of sub-units. The project management cell looks into status monitoring, daily reports and benchmarking to set standards and targets. The issue management cell is to be a one-stop destination with respect to any stakeholder issue addressal with regard to all line departments. The data management cell acts as the centralised data base for all details pertaining to line departments. The tourism and heritage cell is entrusted with short-term action plan preparation, tourist management, heritage conservation, assessing and coordinating line department projects on tourism and heritage. The environment and disaster cell- works on environmental conservation, flood plain conservation, dynamic activity monitoring and, coordinating with line departments' units, acts as an innovation cell introducing sustainable practices through dynamic strategic plans and action reports among line departments.

Land Value Capture

As a part of revenue resource mobilisation to reduce the dependency on grants and increase fiscal autonomy, the introduction of a betterment charge is proposed to reap the benefit of urbanisation and development activities in Ayodhya. Betterment charges proportionate to land value are to be levied on non-agricultural land: on residential plot sale, 0.5 per cent of market value per square metre; on commercial plot and development, 1 per cent of market value per square metre; on industrial plot and development, 1.5 per cent of market value per square metre; on other plots

and development, 0.5 per cent of market value per square metre. This is authorised to be levied under the JCC by the UP Municipal Act, 1959, where the revenue is deemed as a joint transaction.

Spatial Proposals in River Abutting Zones (Attractions & Activities)

An extended buffer of 500 metre width and 10 kilometre length towards the offside/northern bank of the Sarayu is proposed. This will be a riparian buffer where reforestation caters to the local ecosystem and flood mitigation. The funding drive will be undertaken through CAF (Compulsory Afforestation Fund) along with a remodelling of the Sarayu's riverscape, developing scope for open space sports activities. A voluntary participatory model can be adopted in the creation phase as part of a service to Ayodhya in coordination with other major stakeholders. With Ayodhya being epitomised as a symbol of civilisation, an open sports park of 330 meter*1500 forming 111 acre is proposed, to promote display and practice of ancient as well as with modern sports, adding touristic value and activities towards the northern bank.

As a part of riverfront activity development on the embankment being constructed from the Naya Ghat to Guptar Ghat stretch, a cycle track is proposed, with docks at Lakshman Ghat and Guptar Ghat and activity encouraged through permitting rural cafes and food points though in limited numbers. The stretch would help to redistribute tourists, exposing several non-mainstream heritage structures to recreational and cultural tourists. The growth in tourist influx would increase accessibility to the Sarayu flood plains and also add a mode of revenue generation in the form of viewpoints and cycling through Public Private Partnership (PPP).

Design intervention is proposed at Ram ki Paidi, where soft-scaping is proposed to develop shades and shelters to tackle scorching temperatures, keeping to a coherent design that is inclusive of women and the differently-abled through changing rooms, ramps, audio-visual signages, tactile braille signages, etc.

The normal poles are proposed to be replaced by smart poles in the major tourist destinations to make available facilities such as Wi-fi hotspots, charging port, CCTV monitoring and dynamic billboards for tourists.

A special heritage zone is delineated in the Ayodhya core (abutting the river) to conserve heritage structures. Supervised building destruction and construction permits will be given. A Special Area Heritage Plan has to be prepared to promote adaptable reuse of heritage structures, for example, deteriorating and abandoned heritage buildings can be conserved and used as heritage accommodation in the PPP1 model.

Kund rejuvenation is proposed and as part of the effort to revive ancient water conservation techniques seven kunds have been identified, adding both socio-cultural and environmental value.

¹Public Private Partnership

Accessibility

The upgradation of three docks is recommended (Naya Ghat, Guptar Ghat, Raj Ghat) and two new dock (buffer view and open sports park) are proposed to facilitate better accessibility to different attractions via the river. This will increase the scope of boating from a leisure activity to a mode of transport connecting the Sarayu plains, Guptar Ghat and offside areas once activities are introduced. Additionally, it is proposed that, as in Varanasi, the existing diesel-powered boats be converted to solar, in association with The Energy and Resources Institute (TERI) under CSR.

Accommodation

Based on SDG 12, highlighting the priority of responsible consumption, it is proposed that in commercial accommodation with kitchens, a kitchen waste composter, decentralised waste water treatments (such as an anerobic baffled reactor and planted gravel filter) and the installation of solar power units should be made mandatory to getting permits. A centralised data base of accommodation, hotels, dharmshalas and ashrams, maintained in Realtime by PMU together with a private partner as a part of the open data initiative would ensure transparency.

Amenities

The introduction of Lootels, similar to those in Rameswaram, under PPP is proposed, where tourists, and vendors can avail access to toilets, bathrooms and food at minimal cost. For any new property beyond 1200square feet to be given building design approval it must provide for rainwater harvesting. The enforcement of a strict plastic bottle ban in a phased manner is also recommended. Plastic bottles can be gradually replaced with earthen pot/bamboo/brass bottles. The chronology of phasing out could be, accommodations, restaurants, and then street vendors.

Conclusion

The tourism sector's significance in achieving the 17 Sustainable Development Goals has propelled a development planner to view it as an unparalleled tool for destination development. Prompted by this, the research has attempted to develop a new integrated approach for destination development through tourism. It captures challenges, potential opportunities and gaps through comprehensive integration (cross-analysis of components) by analysing factors such as attractions, activities, amenities, accommodations, accessibility, geophysical character, demographic trends, land use, tourist profiles, destination profile, as well as psychometric profiles of both tourists and locals. As the essence of the proposal is both active and passive, the recommendations are focused on achieving integration by resolving issues through inclusion and ensuring sustainability through being proactive by addressing the issue at its source and predicting its future course.

Acknowledgements

We express our gratitude to Rajeev Malhotra from School of Planning and Architecture (SPA) Delhi, R.Srinivas, J.K.Kapoor and Anil Mishra of TCPO for their support and guidance and the entire team of NIUA and NMCG, especially the reviewers for their valuable comments on this thesis at various stages, which steered our work to the right track.

Funding

We earnestly wish to express our heartfelt thanks to National Mission for Clean Ganga (NMCG) and the National Institute of Urban Affairs (NIUA) for funding and supporting the study all along.

Conflict of Interest

None of the authors had any conflict of interest.

References

- AyodhyaMasterPlan2031v1.pdf. (n.d.).
- Becken, S. (2014). Water equity – Contrasting tourism water use with that of the local community. *Water Resources and Industry*, 7–8, 9–22. <https://doi.org/10.1016/j.wri.2014.09.002>
- Deliverable-2-1_Literature-Review-on-Urban-Metabolism-Studies-and-Projects.pdf. (n.d.). Retrieved April 1, 2022, from http://www.urban-waste.eu/wp-content/uploads/2016/11/Deliverable-2-1_Literature-Review-on-Urban-Metabolism-Studies-and-Projects.pdf
- Sahli, E. (2020). Tourism Destination Development An Application of Butler's (1980) Tourism Area Life Cycle Model to Hammamet, Tunisia. <https://doi.org/10.13140/RG.2.2.26359.55209>
- Suri, D. J. (n.d.). Travel and Tourism—Survive, revive and thrive in times of COVID-19. 38.
- Town and country planning authority UP. (n.d.). Ayodhya_Report_22 12 2020.pdf. TCPO UP.
- UP to spend Rs 2,000 crore to speed up Ayodhya development. (2020, September 4). *The Indian Express*. <https://indianexpress.com/article/india/up-to-spend-rs-2000-crore-to-speed-up-ayodhya-development-6582247/>
- Wang, L., Wang, J., Huang, X., & Chi, H. (2022). Environmental Temperature in Thermal Comfort Under Different Virtual Tourism Activity Intensities: Based on Microclimate Simulation Experiment. *Frontiers in Neuroscience*, 15, 762322. <https://doi.org/10.3389/fnins.2021.762322>
- World Tourism Organization (UNWTO) & United Nations Development Programme (UNDP). (2017). Tourism and the Sustainable Development Goals – Journey to 2030. World Tourism Organization (UNWTO). <https://doi.org/10.18111/9789284419401>