

# Strategies of Integrated Tourism for Sustainable Rural Development – A Case Study in Bogaiya Village, Sylhet, Bangladesh

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## Abstract

Across rural Bangladesh there is considerable untapped potential for sustainable development that awaits strategic interventions to activate it properly. Such areas are severely affected by economic challenges, including poverty and geographic isolation. Consequently, local economies struggle to progress and meet the sustainability requirements for achieving social equity. This study was conducted in Bogaiya Village of Gowainghat Upazila, Sylhet, Bangladesh, to determine the possibility of implementing integrated tourism as a pathway to sustainable rural development. Through a mixed-methods approach based on both primary participatory research and secondary literature review, this study looks at the socioeconomic setup of the remote Bogaiya Village in relation to tourism. The results indicate considerable possibilities for social and economic advancement, improving neighbourhood well-being through tourism growth. In particular, the study identifies key areas like local crafts, cultural heritage sites, and eco-tourism activities that can drive economic growth by capitalising on tourist interest in the region's natural beauty and culture. At the same time, the research indicates that community participation and engagement are crucial in making tourism development work for people and stimulating citizenship and social equity. This paper aims to provide strategic directions in facilitating sustainable rural tourism development, which can offer an archetype for similar types of landscapes in Bangladesh. The guidelines incorporate helpful insights for policymakers, community leaders, and development practitioners to provide an ecosystem that facilitates tourism investment while fostering stakeholder partnership. Ultimately, the study aligns with the 2030 Sustainable Development Goals and suggests how integrated tourism can help rural development, poverty alleviation, and environmental conservation.

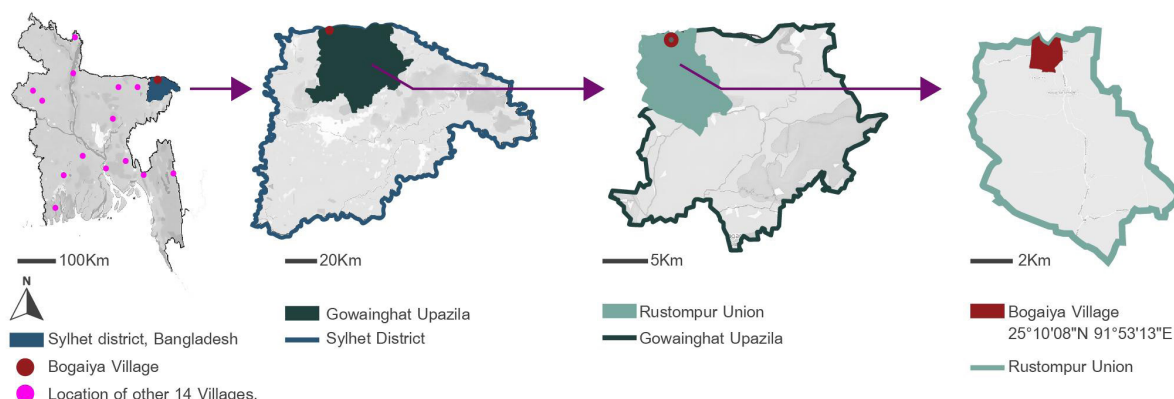
## Keywords

Sustainable rural development; Integrated tourism; Socioeconomic development; Sustainable Development Goals; Community well-being; Community participation

# 1. Introduction

Rural communities, characterised explicitly by poverty, geographical remoteness, and poor infrastructure, are among the most endangered by the three universal challenges of slow economic development, social inequity, and rapid environmental degeneration (The Economic Commission for Latin America and the Caribbean [ECLAC], 2018; Mihai & Iatu, 2020). Therefore, innovative and sustainable development methodologies are required to ignite progressive transformation in villages and help fulfil the 2030 vision for Sustainable Development Goals (ECLAC, 2018). Tourism plays an essential role in advancing the economy of developed and developing nations (Costa, 2017), and has evolved into a sustainable method for promoting economic growth, environmental conservation, and social equity (Butowski, 2012). Rural tourism promotes and develops domestic economies, infrastructure, and cultural exchange. It allows visitors to experience the lifestyle, habits, customs, and traditions of the local population and arouses feelings of pride in the identity and lifestyle rationality of rural residents (Sharpley, 2002; Kambey, 2016; World Tourism Organization [UNWTO], 2020). For developing countries like Bangladesh, rural development is critical to achieving sustainable development goals. However, rural citizens often lack access to fundamental rights. The government recently has initiated the development of fifteen model villages to help address this matter. These model villages are intended to serve as prototypes for rural development across Bangladesh, empowering communities and improving the social well-being of citizens nationwide (Ministry of Local Government, Rural Development and Co-Operatives, 2020).

Among these fifteen villages, the current research paper focuses on Bogaiya Village, a territory in eastern Bangladesh, located in the Rustompur Union (The lowest tier of Regional Administration in Bangladesh) of Gowainghat Upazila (The second lowest tier of Regional Administration in Bangladesh) of Sylhet. Figure 1 illustrates a series of maps, starting with Bangladesh and highlighting the Gowainghat Upazila among the fifteen Upazilas of other model villages, ultimately pinpointing the location of Bogaiya Village within the Rustompur Union.



**Figure 1.** Series of maps showing the location of Bogaiya Village.

**Source:** Data collected from LGED. Illustrated by the author.

With its scenic landscapes and rich cultural heritage, Bogaiya Village has the potential to become a rural tourism hub that catalyses the socioeconomic growth of its residents while setting an example for other rural communities in Bangladesh. Although the area is characterised by poor economic performance and inadequate infrastructure, this paper seeks to underscore the promising transformation opportunities that may unfold through integrated tourism development. The research aims to improve the local community's socioeconomic

condition while enhancing the tourism experience and community well-being. A mixed methods approach, including primary research conducted using participatory methods and secondary research with the help of literature reviews and case studies, has been employed to assess the potential and limitations of the village. The participatory research involved direct engagement with the local community, gathering firsthand insights into their needs, expectations, and perspectives on tourism development. This was complemented by secondary research to analyse existing literature, case studies, and data on rural tourism and sustainable development. The main objective of this study is to explore the current state of rural tourism in Bogaiya Village and to understand the expectations of both residents and tourists regarding its future development. By integrating the findings from both primary and secondary research, the study aims to provide a comprehensive understanding of the socioeconomic landscape and tourism potential of Bogaiya Village.

In the end, the paper presents the research findings and provides strategic guidelines to help develop sustainable villages through integrated tourism development in Bogaiya Village and similar rural settings across Bangladesh and beyond. These guidelines include recommendations for policymakers, community leaders, and development practitioners on how to create an enabling environment for tourism development, attract investment, and build partnerships with stakeholders. It is intended that the insights gained from this research will contribute to the fulfilment of the 2030 Sustainable Development Goals agenda by demonstrating how integrated tourism can catalyse rural development, reduce poverty, and enhance environmental conservation.

## **2. Literature Review**

### **2.1 Concepts and Principles of Sustainable Tourism**

Tourism has emerged as a prominent socioeconomic sector globally, offering diverse opportunities for economic growth, cultural exchange, and environmental conservation (Hummelbrunner & Miglbauer, 1994; UNWTO, 2020). Traditional approaches to tourism focus primarily on economic benefits with diminishing returns, leading to environmental degradation and cultural exploitation. However, sustainable tourism frameworks advocate for responsible resource management to balance economic, social, and ecological considerations (Butowski, 2012). Sustainable tourism helps to achieve sustainable development goals and is a powerful catalyst for the socioeconomic development and revitalisation of rural areas (Sharpley, 2002; ECLAC, 2018).

Recent studies emphasise the importance of integrating sustainability principles into tourism planning and management practices (Gössling et al., 2021; Wong et al., 2022). Planning might focus on the comprehensive and integrated approach of developing a specific region or local economy instead of prioritising the growth of tourism as the primary sector. The critical feature, in this case, is an increase in added value, which is achieved by developing relative service sectors in which economic linkages are crucial (Hummelbrunner & Miglbauer, 1994). The principles of sustainable tourism integrate stakeholder engagement and collaboration in the efforts to harmonise tourists' needs whilst preserving the local environment and communities. Community participation combined with economic development play a role in poverty alleviation, biodiversity conservation, and overall development inclusivity (Sugiyama, 2019). In addition, sustainable tourism endeavours to involve the commercialisation of cultural heritage and environmental assets, which enhance tourism products and provide the residents with a stronger connection to self-identity and community (Bryden & Munro, 2000). Thus, the key insights above reflect the trend towards a more comprehensive and responsible approach to tourism, which has been replicated and discussed worldwide.

## 2.2 Impact and Opportunities of Tourism in Rural Development

Globally, rural areas are highly prioritised for driving economic growth and social cohesion while ensuring environmental sustainability (World Bank, 1975). Development in these areas typically is challenging due to the scarcity and lesser accessibility of resources, so they need a unique development strategy. In 2015, the global community and the United Nations adopted the Sustainable Development Goals (SDGs) as a call to action (United Nations Development Programme, 2021). The SDGs underscored how rural development might address sustainability, including Goal 1: No poverty; Goal 8: Decent work and economic growth; Goal 11: Sustainable cities and communities; as well as other objectives related to protecting the environment. Previous research has addressed the effort of rural development in terms of optimising economic performance and alleviation of social conditions (Kornilova et al., 2021; Adnan, 2023), including measures to revive the economy, generate employment, and enhance access to health and educational facilities (Centre on Integrated Rural Development for Asia and the Pacific [CIRDAP], 2021). The required process is systemic and the focus is on programs associated with social policies, public services, technology transfer, or environmental synthesis to link the urban-rural gap for economic development at the regional level (Mihai & Iatu, 2020). This is crucial for reducing poverty and urbanisation pressure in rural areas, generating employment opportunities locally, and reducing regional inequalities by promoting investments.

It has been reported that tourism serves the economies of many developed countries as well, such as the USA and Europe, contributing towards the mitigation of socioeconomic ills among rural zones by decoupling agricultural dependence (Luloff et al., 1994; Oppermann, 1996). Agrotourism and ecotourism, for example, are alternative forms of tourism that have helped to eliminate dependence on a single economic source (Nastis & Papanagiotou, 2009; Ministry of Local Government, Rural Development and Co-Operatives, 2020). Tourism development is meant to generate new jobs and income from the supply of tourism services, which brings economic sustainability (Kambey, 2016). It does so while preserving the local cultures and ecosystems of the rural area with substantial social, economic, and ecological outcomes (López-Sanz et al., 2021). However, sustainability is essential, as unmanaged tourism can cause problems such as the deterioration of natural environments and cultural heritage or increased vulnerability to external economic crises that affect rural economies.

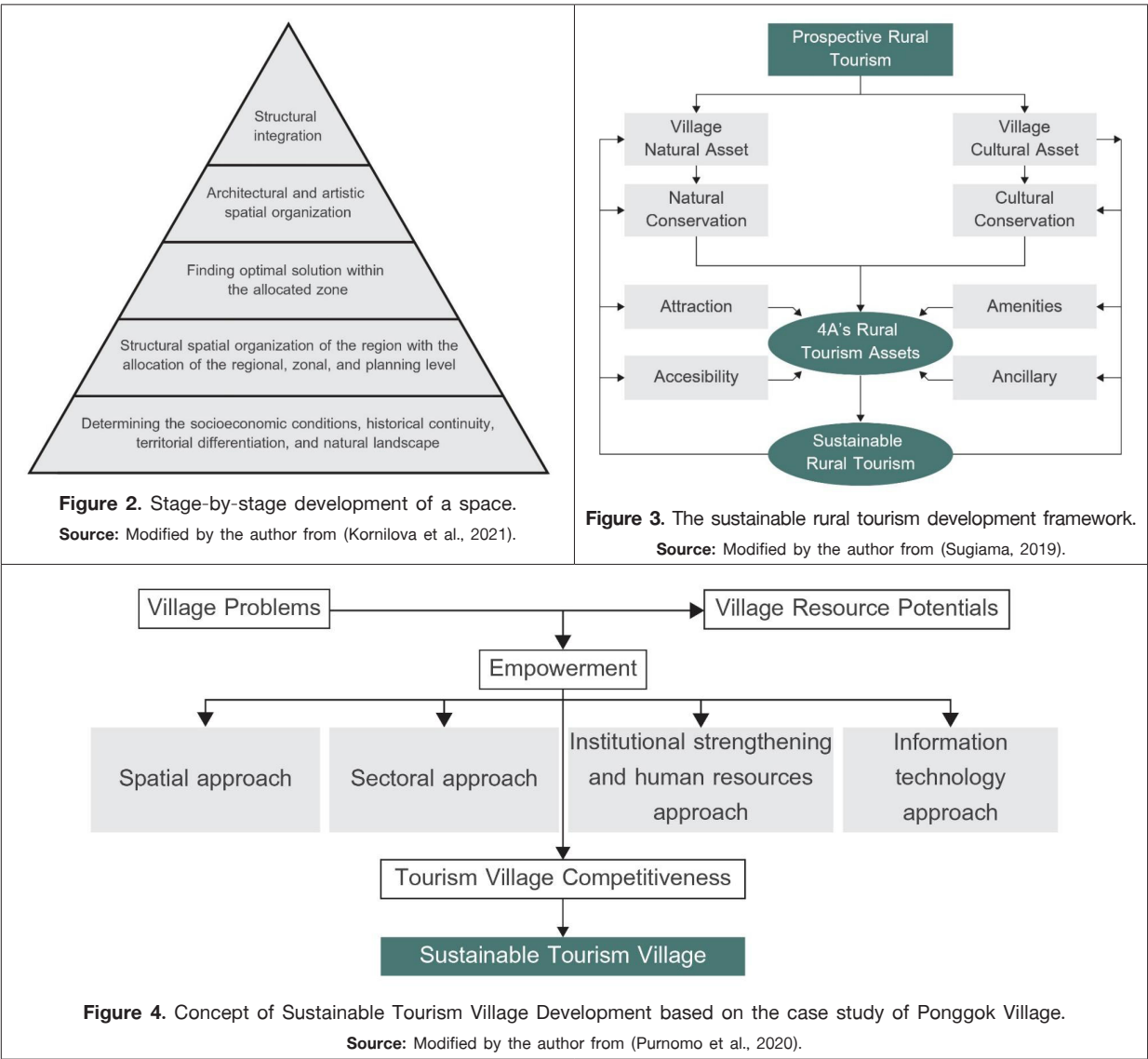
## 2.3 Community Participation in Tourism Planning

Tourism catalyses rural community development (Saarinen & Lenao, 2014). However, tourism development also raises worries about potential negative consequences like harm to the environment, commercialisation of culture, and unequal treatment of local communities (Sharpley & Telfer, 2015). Given the complex nature of rural tourism, active participation and collaboration with local communities are now recognised as essential for effective tourism development (Panyik et al., 2011). Additionally, community participation is crucial in decision-making processes as development impacts the lives and surroundings of residents (World Tourism Organization [UNWTO], 1967; Farsari et al., 2011). Community-led tourism development funded through transparent communication and equitable profit sharing strengthens destination authenticity and resident well-being (Reed, 2008). Community involvement should promote economic opportunities that directly benefit residents, enhance social cohesion, preserve cultural heritage, and foster a feeling of ownership and empowerment among them (Jamal & Getz, 1995; Bramwell & Lane, 2000). Community-led initiatives also make it possible to provide more meaningful and authentic visitor experiences by leveraging local knowledge, assets, and traditions toward sustainable tourism development (Mbaiwa, 2005). Hence, to create an effective tourism development

plan, stakeholders must be involved in the decision-making process at all stages (Hall, 1999). This involvement ensures that tourism initiatives align with local population needs and demands, thereby guaranteeing fewer potential conflicts and enhancing benefits for everyone in the area, positively impacting residents and visitors in the long run.

2.4 Approaches to Sustainable Rural Tourism

Rapidly growing rural tourism should be developed sustainably, which requires implementing various methods that align economic growth, environmental protection, and social benefits. Over the years, numerous models and frameworks have been proposed to guide this process. Research shows that the dynamics regarding the background of villages are very complex, but directly affect development. For this reason, the modern planning structure for rural development, as shown in Figure 2, suggests having detailed analytical knowledge about various aspects of rural dynamics is essential to ensure sustainable development (Kornilova et al., 2021). As related to culture, society, and other associated factors, the immovables — non-movable assets such as cultural heritage, historic buildings, landmarks, social structures, and environmental resources—also are crucial for the economy and can generate empowerment. For instance, the example of Skye in Scotland demonstrates how immovables may strengthen the network, economy, and community (Bryden & Munro, 2000).



As presented in Figure 3, some development models recognise systematic phases vital for sustainable rural tourism development, which mainly involve assessing potential components, conserving natural and cultural resources, developing key elements such as attraction and accessibility, and facilitating a structured model for the development (Sugiyama, 2019). Community engagement also is an important aspect in supporting successful implementation of rural tourism plans. A case like that of Ponggok Village, presented in Figure 4, is a perfect example of the statement considering how spatial planning, sectoral development, and capacity building have led to sustainable tourism management (Purnomo et al., 2020). These case studies clearly show that villages should collectively ensure the well-being of their dwellers and visitors. By capitalising on immovable assets, empowering local populations, and utilising systematic development phases, rural areas will tap the potential of tourism as they conserve their nature and culture. These strategies serve as a basis for Bogaiya Village integrated tourism planning to ensure its sustainability and participation in promoting the local economy.

## **2.5 Rural Development and Tourism in Bangladesh**

Promoting rural development in Bangladesh has always remained a top priority due to the high incidence of poverty, the need to improve livelihoods, and the need to remove pressure on developed urbanised centres. During the 1970s, integrated rural development programs emerged as an integral solution, borrowed mainly from the much more developed World Bank programs on enhancing agricultural productivity and the development of infrastructural facilities (Su, 2009). These programs involved modernising farming methods, increasing the community's access to health and education, and improving the economic development of rural areas.

In recent years, the government has clearly outlined the importance of rural regions in national growth and development. Programs such as the national rural development policy resonate with the priority of human development and quality of life enhancement among rural communities (Rural Development and Cooperatives Division, 2001). Through the government's strategic policies and programs, the nation prioritises ensuring rural settlement stability, resource productivity, and sustainable development throughout various regional locations (Islam & Ahmad, 2023). The establishment of pilot villages through the "My Village and My Town" project initiated by the Local Government Engineering Department (LGED) further enhances the government's intervention efforts to ensure rural development (Islam & Ahmad, 2023). Such interventions enable the nation to deal with common rural challenges such as poor accessibility, weak infrastructure, and low access to modern technologies. By emphasising community development and empowering rural inhabitants, the Bangladesh government will help achieve the most effective and efficient ways of levelling the imbalance between rural and urban settlement in the country (Toufique, 2017). Again, rural Bangladesh is rich in culture, history, and other unique natural ecosystems, attracting visitors from all over the country and beyond. The government can use tourism as a tool and utilise its potential to ensure the socioeconomic condition of rural inhabitants is uplifted, ultimately contributing to the country's overall development. By investing in infrastructure, promoting local businesses, and preserving cultural heritage, sustainable tourism can create job opportunities and improve living standards in rural communities.

## **3. Methodology**

A sustainable tourism planning process should be able to measure the village's overall tourist potential and its multiple dimensions (Kambey, 2016; Sugiyama, 2019; Kornilova et al., 2021). Therefore, the main objective of this study was to explore the existing rural tourism in Bogaiya Village and understand the expectations of



the residents and tourists regarding its future development. Based on structured frameworks and multiphase models on Sustainable Rural Tourism (Kornilova et al., 2021), the study uses primary and secondary data sources to explore the village's socioeconomic, topographical, and environmental conditions and its tourism potential. A mixed-methods approach combining qualitative and quantitative data was employed as part of a research study that allowed for a comprehensive, wide-angle analysis. This study has two major phases:

### **3.1 Village Context Analysis**

Village context analysis established a baseline understanding of the present social, economic, and environmental conditions of rural individuals, which is vital for sustainable rural development (Kornilova et al., 2021). This phase included:

#### **I. Socioeconomic data collection:**

Key information, including resident's employment type, income sources, access to education and healthcare facilities, land use patterns, etc., were documented to draw a picture of socioeconomic conditions and possibilities of community growth.

#### **II. Environmental and infrastructure assessment:**

An assessment of biodiversity inventories, existing infrastructure, etc. was done to identify the area's ability to support sustainable tourism while reducing demand for natural resources.

#### **III. Cultural and social characteristics:**

Through qualitative interviews with local residents, insights were gathered on lifestyle, traditions, and cultural assets that can enhance tourism value while promoting cultural pride and community cohesion.

These data identified the current dynamics and challenges faced by Bogaiya, allowing tourism strategies to be proposed that align with sustainable growth objectives.

### **3.2 Existing Tourism Study**

This phase specifically examined the current state and potential of tourism in and around Bogaiya, particularly focusing on Bisnakandi, a scenic site at the village's periphery that attracts tourists. This phase assessed:

#### **I. Tourist experience and preferences:**

To understand the demand side, online questionnaire surveys were conducted with tourists who visited Bisnakandi. Participants were asked about their experiences, interest in future visits to Bogaiya Village, and their expectations regarding tourism development in the region.

#### **II. Resident perspectives and engagement:**

Community engagement, a critical component of sustainable tourism (Purnomo et al., 2020), was achieved through in-person interviews with residents across different demographics, including age, gender, employment, and length of residence. This allowed villagers to share their perspectives on how tourism development might impact their community and express their aspirations for the village's future.

Combining these perspectives allowed for a balanced understanding of the visitors' and residents' viewpoints, ensuring that proposed tourism strategies were community-oriented and culturally sensitive.

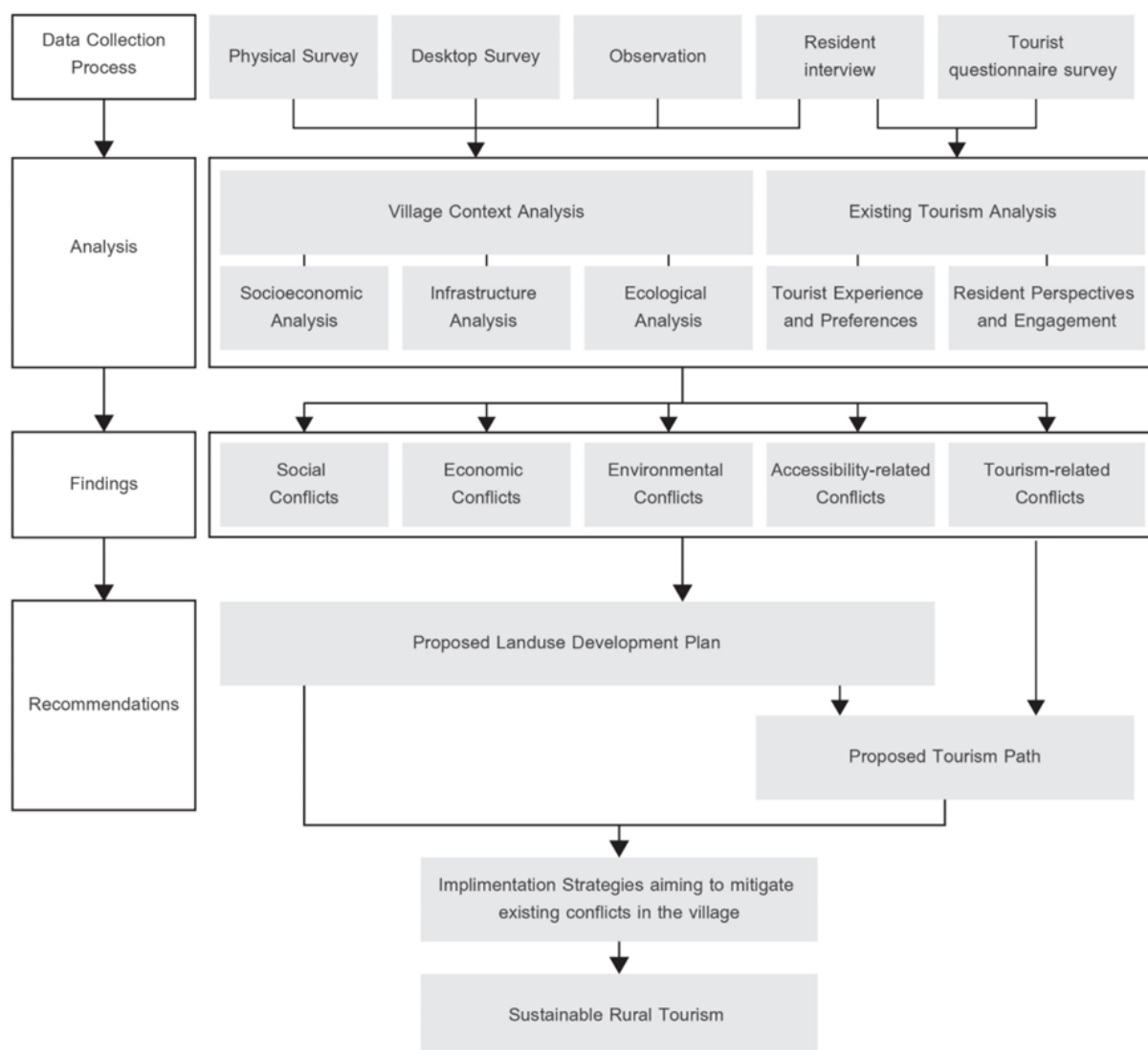
### 3.3 Data Collection and Analysis

The key data were collected using questionnaire surveys with tourists and face-to-face interviews with residents and on-spot tourists. After receiving a brief overview of the study objectives, 100 tourists who visited Bisnakandi were directed to an online questionnaire (Google Forms) through which they could answer survey questions. They were asked about their experiences and interest in visiting Bogaiya Village. The questionnaire consisted of closed-ended questions focusing on major information about Bisnakandi tourism and open-ended questions which enabled participants to elaborate on their thoughts and ideas. In addition, interviews were conducted using the same questionnaire on the site among 50 tourists who visited the spot during survey days.

Interviews with residents involved a random sampling approach with a total of 300 participants. Half of the participants were working males, interviewed across five stakeholder groups, including stone workers, farmers, businessmen involved in the stone and tourism industry, and others engaged in diverse businesses. A gender balance in opinion and lived experience also was sought through interviews with 100 females in workshop sessions held during the study. These workshops were conducted to create a comfortable environment for women, encouraging them to share their perspectives on village conditions, challenges, and aspirations. Besides the working class, children younger than 20 were asked about educational and recreational facilities in the village and the elderly older than 60 were interviewed about their needs and priorities. Interviews were conducted with residents of Bogaiya Village. Overall data were collected on occupation alternatives, education/healthcare facilities, land use distribution, and ownership patterns from the discussions with villagers regarding various aspects of rural life, such as socioeconomic conditions, settlement patterns, and lifestyle in the village. The interviews provided in-depth insight into the existing tourism phenomenon from the perspective of a guest, community, and potential for development.

Following data collection, a comprehensive analysis was conducted, and the findings are presented in Section 4.1. The major issues raised under various analyses and interviews were identified as existing conflicts and categorised under five areas: social, economic, environmental, accessibility, and tourism sectors. These findings guided the proposal of a land use development plan and a tourism path that aligns with the proposed land use improvements as illustrated in Figure 5. The integration of local assets into these development strategies was prioritised to ensure a sustainable approach tailored to the village's unique potential.





**Figure 5.** Flowchart showing the research method. Illustrated by the author.

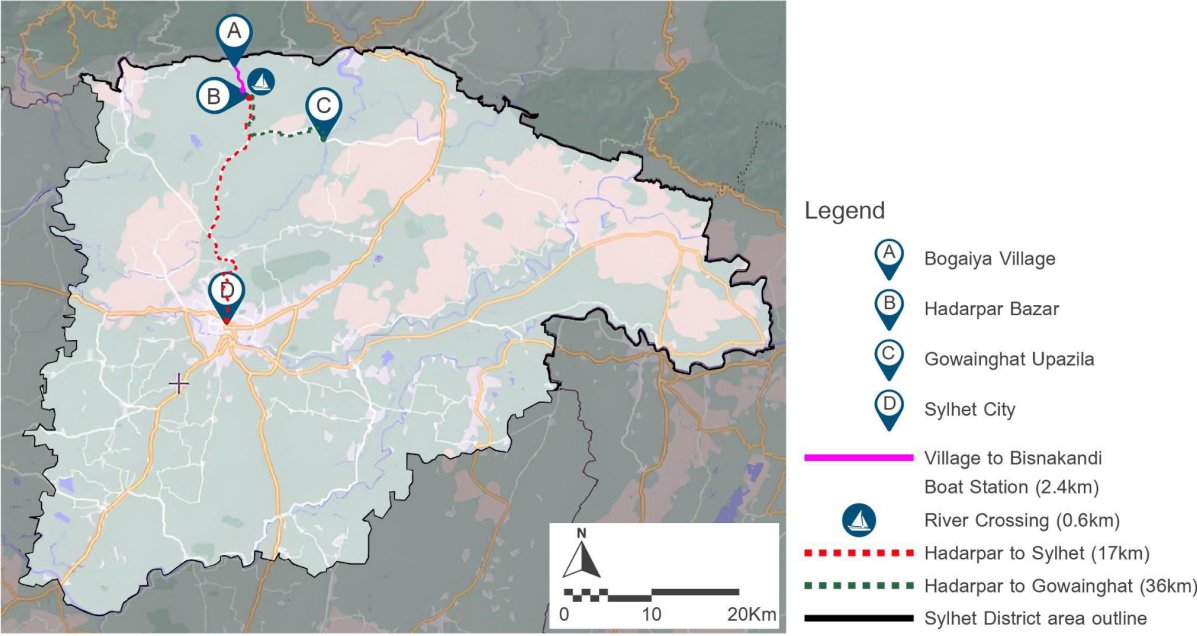
## 4. Research Findings and Analysis

### 4.1 Analysis of Survey Data and Research Findings

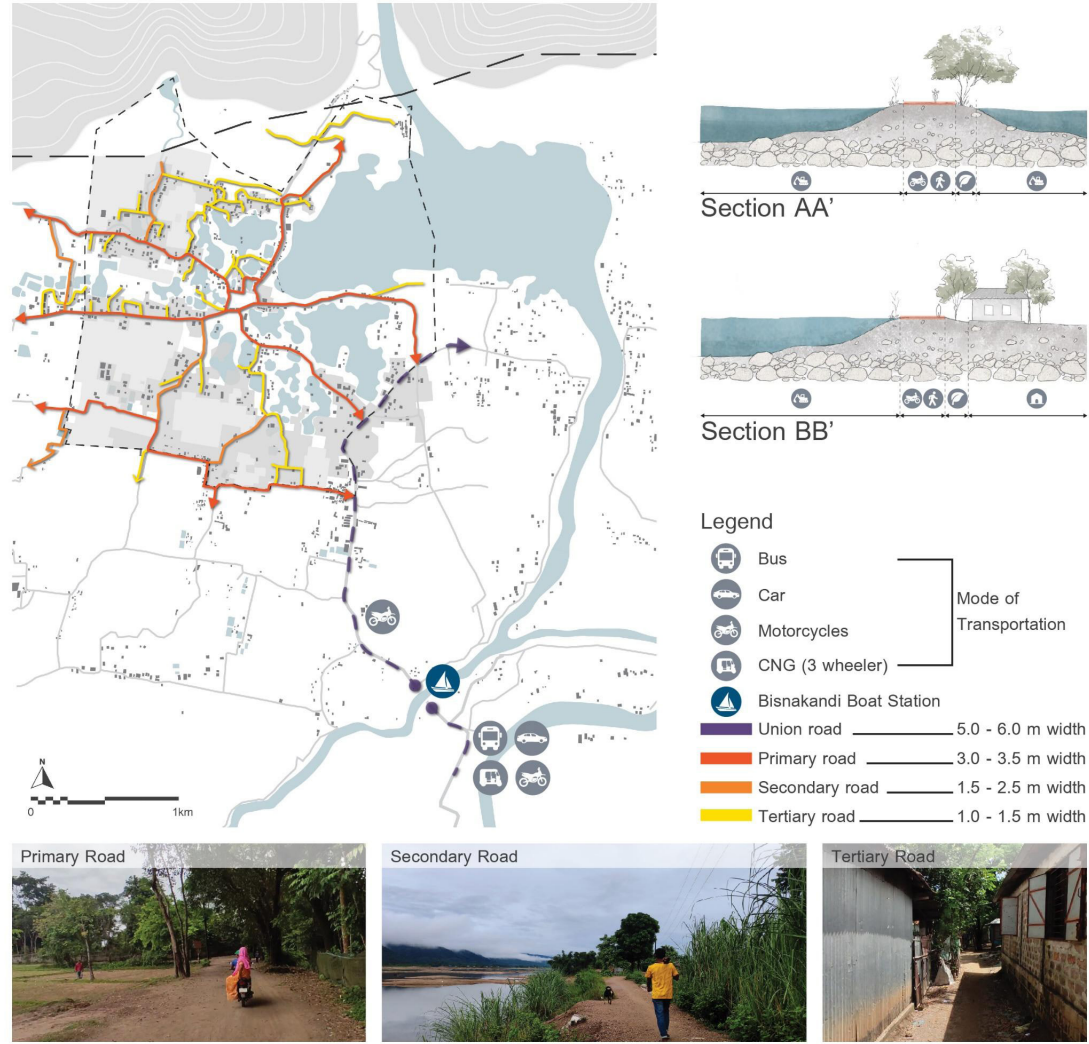
#### 4.1.1 Infrastructure analysis

##### A. Accessibility challenges and road infrastructure:

The accessibility study identified several challenges for villagers when travelling between Bogaiya Village and major locations like Gowainghat upazila of Sylhet City. There is no direct road link between the village and these areas, so travelling in stages becomes necessary. Figure 6 details the journey from the village (point A) to other key locations. Villagers typically start by walking for about 20 minutes or riding a bike for about five minutes to reach the Bisnakandi Boat Station (point B). They can cross the river by small boat to reach Hadarpar Bazar (point C). At Hadarpar Bazar, villagers can access vehicles like buses, cars, or CNGs (three-wheeled compressed natural gas vehicles). It takes around 30 to 40 minutes to reach Gowainghat upazila (point D) and 1.5 to 2 hours to reach Sylhet City (point E) from Hadarpar Bazar, which are at a distance of almost 17 km and 36 km, respectively.



**Figure 6.** Location and distance of Bogaiya Village from important locations. Illustrated by the author.



**Figure 7.** Accessibility and road network analysis. Illustrated by the author.

The internal road network in Bogaiya Village remains underdeveloped with unpaved roads known as the ‘Kacha Road’ and can be subdivided into primary, secondary, and tertiary levels based on their widths, as illustrated in Figure 7. A comparatively larger road, locally known as the Union Road (5 to 6 m in width), passes at the village’s periphery. Primary roads having a width of 3 to 3.5 m are connected with the Union Road and serve as the main road network in the village. Some smaller branches of roads (1 to 2.5 m) connecting two primary roads are termed secondary roads. Tertiary roads are narrow pathways that lead to homesteads and farmlands. People rely on motorcycles for movement, while tractors are used on agricultural land. As the water level rises, boats become a major mode of transportation during the monsoon season. Overall, the road infrastructure is undeveloped in the village and travel to another side of the village is challenging.

**B. Settlement pattern and housing character:**

The settlement pattern of Bogaiya Village is distinct, with a prevalence of courtyard-style houses. Houses are clustered in groups of 3–4, sharing a common courtyard as shown in Figure 8. Each home has a semi-outdoor space facing the courtyard, which can be used for various activities like cooking, dining, relaxing, weaving, or other activities. The semi-outdoor space also allows for natural ventilation and lighting, creating a comfortable and sustainable living environment within the house. Along the road, the houses are positioned to maintain privacy with major openings toward the courtyard.



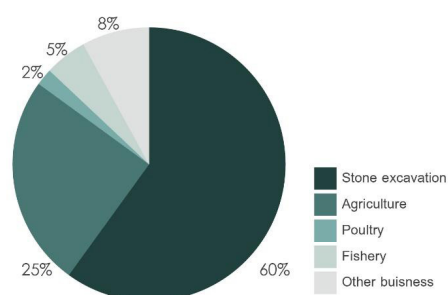
**Figure 8.** Settlement pattern. Source: Image collected by the authors during the field survey.

The houses mostly are constructed on a plinth, with brick or corrugated sheet walls and corrugated sheet roofs. They have a simple rectangular plan with various extensions. Most houses have extensions towards the road used as tea stalls, grocery shops, or other commercial activities. This settlement pattern fosters social cohesion while maintaining privacy and allowing for sustainability in terms of land use.

#### 4.1.2 Socioeconomic study analysis:

The socioeconomic characteristics of Bogaiya Village offer a rich cultural heritage woven with rapidly changing livelihood patterns and economic uncertainties. Originally inhabited solely by 108 Manipuri families who relied on forest resources and agriculture, the village has undergone a remarkable change in its demographics over time. It has now expanded to approximately 800 households, though only a few Manipuri families remain today.

As illustrated in Figure 9, the primary livelihood of Bogaiya Village has long been in the stone mining (excavation) business. This industry has shaped and determined most villagers' livelihoods and work roles, from its many traders who provide finances for the entire mining process, to those who excavate and remove stones from the mining areas. Even though stone mining is a winter-based job, inhabitants remain busy with activities related to the stone industry throughout the year, as shown in Figure 10. About 25% of the villagers undertake agricultural activities, with paddy being the main crop, cultivated twice a year. Households remain engaged in Bisnakandi tourism by providing food and transportation facilities to tourists, especially during the monsoon period. Unfortunately, the sudden closure of stone mines in the nearby areas led to an economic calamity in the village, rendering many people jobless and challenging their trading activities. A few villagers tried to use the Bisnakandi tourism occupation to create livelihoods, but this transition remains complex, especially when the village lacks proper tourism facilities.



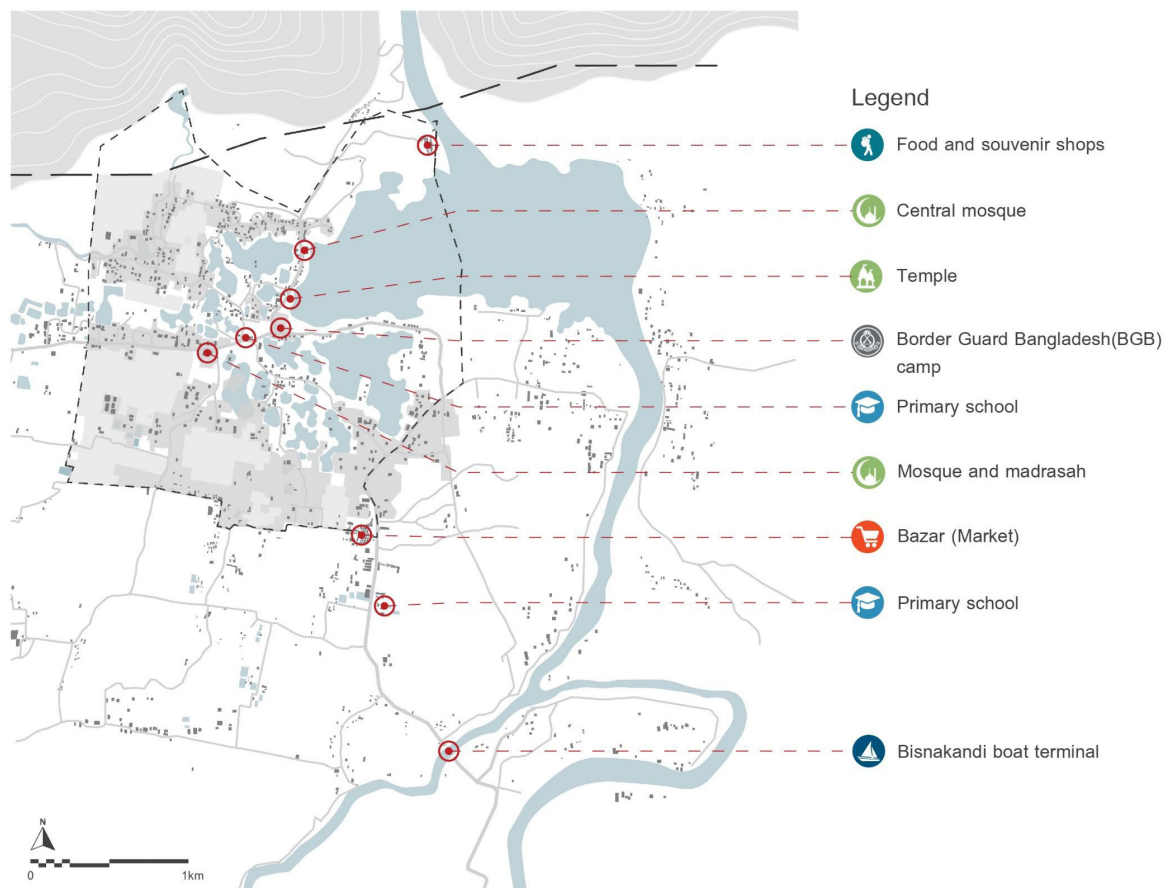
**Figure 9.** Major income sources in Bogaiya Village.  
Source: Survey data



**Figure 10.** Major livelihood throughout the year.  
Source: Survey data

In addition, the educational and healthcare infrastructure define the socioeconomic state of Bogaiya Village. The village offers limited amenities to meet the basic needs of the villagers. Figure 11 indicates the location of the major amenities available in the village. There are two primary schools, one Madrasah (Islamic religious educational institute), two mosques, and one temple, which serve as a centre for education and worship for the community. To meet everyday shopping needs, like fruits and vegetables, groceries, clothes, and other necessities, there is a bazaar (market) at the village's periphery that is shared with two other neighbouring villages of the same union. Additionally, there are some small grocery shops and stalls inside the village that offer convenient access to basic goods for the villagers. In the tourist area, Bisnakandi, there are small temporary food stalls and souvenir shops to serve the tourists. Besides, there is a BGB (Border Guard Bangladesh) camp in the village that ensures security.





**Figure 11.** Major amenities available in the village.

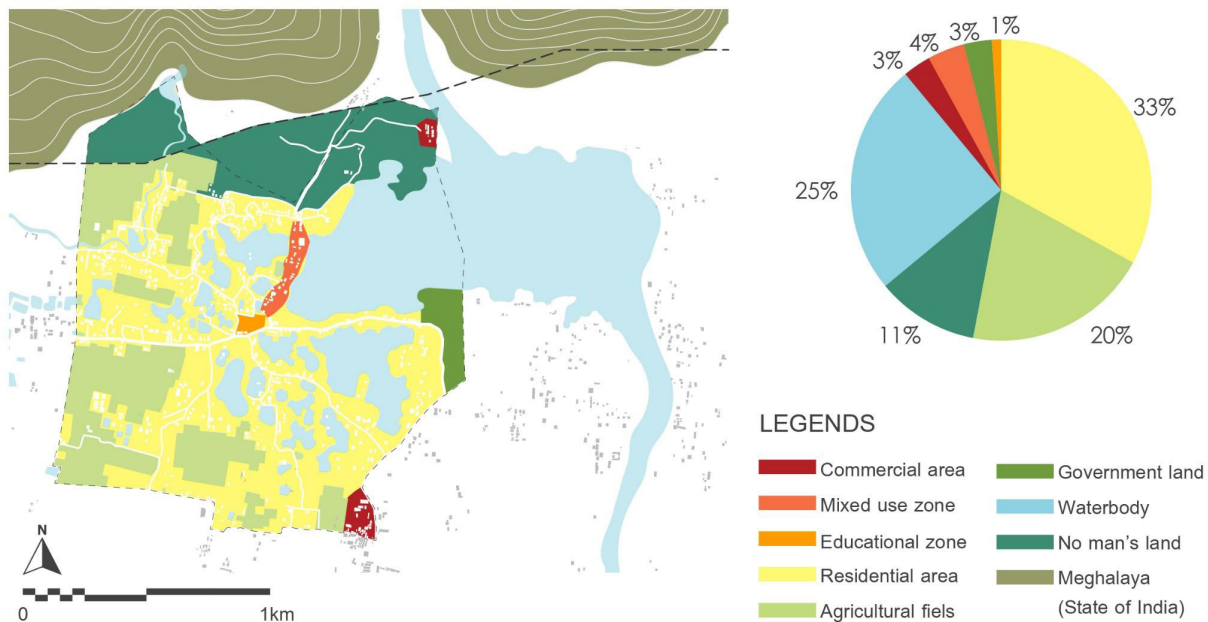
**Source:** Data collected through physical survey. Illustrated by the author.

However, for a wider range of amenities like advanced educational institutions, healthcare, and administrative services, the villages must rely on Gowainghat upazila or Sylhet City, which are at a distance of 20 km and 39 km from the village, respectively. In conclusion, the findings suggest that it is necessary to empower the people of the village for sustainable development. They need to be trained with basic knowledge and skills and need to be provided with basic health facilities within the village.

#### **4.1.3 Ecological study analysis:**

##### **A. Land use pattern analysis:**

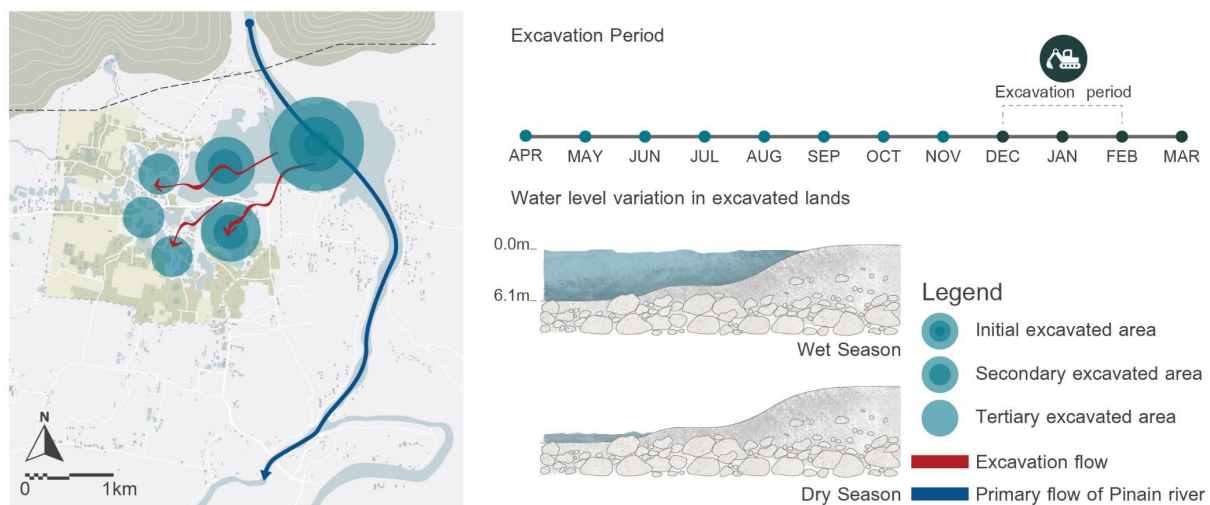
Bogaiya Village is situated adjacent to the Redcliff Line, marking the Bangladesh-India international border. It exhibits various land use patterns, knowledge of which is important for understanding its ecological status. As shown in Figure 12, residential areas take up about one-third of the area. Agriculture uses 20% of the land. About 11% of the area has been earmarked as a buffer zone (no man's land) to the border, where no permanent concrete structures are allowed. Water bodies and excavated lands cover almost a quarter of the village and remain underwater for seven to eight months. Additionally, 3 and 4% of the land is dedicated to commercial and mixed-use districts, respectively. The educational zone lies at the centre of the village, covering only 1% of the total space, while recreational space is limited to a large single government field on the eastern edge of the village, used for community sports and events. The village can be divided into two distinct sections: the western section, dominated by agriculture, and the eastern portion, primarily used for excavation activities. This division highlights the contrasting land use patterns and their implications for local ecology and economy.



**Figure 12.** Land use pattern analysis. Illustrated by the author

### B. Stone excavation impact analysis

Stone excavation, initiated in the early 21st century, quickly became the primary economic activity in Bogaiya Village. As shown in Figure 13, stone excavation initially focused near the Piyain River and then gradually expanded towards the village, converting homesteads and farmlands into stone mines. Excavation primarily occurs from December to February, with trenches reaching depths of up to 6.1 m, remaining filled with water for most of the year.



**Figure 13.** Chronological development of stone excavation. Illustrated by the authors.

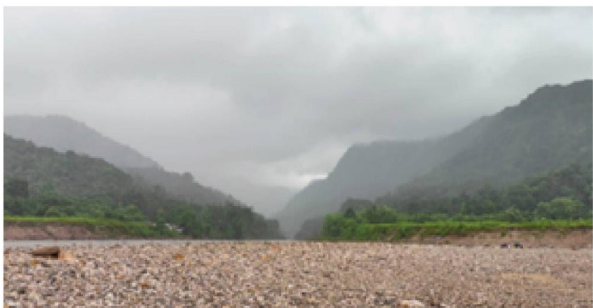


C. Blue-green network analysis

The blue-green network in Bogaiya Village includes streams, rivers, farmland, excavated land, and flat areas. Specifically, the Piyain River’s water level rises during the monsoon season due to heavy rainfall and stream water coming from Meghalaya. Excess water submerges excavated lands, turning them into temporary water bodies. On the other hand, the excavated lands turn into a desert of stone mines during the dry season. Figure 14 below shows an area adjacent to the Piyain River that once was flat land. The villagers cut down the tree and used it as a stone mine. Now, this area has a depth of 4-6.1 m and merges with the Piyain River. However, the expansion of stone mining has caused significant negative environmental impacts, including loss of vegetation, disruption of local habitats, and changes in the natural landscape. The area is famous among tourists as a Bisnakandi tourist spot. Near human settlement areas, dense green canopies are seen compared to barren excavation zones. Rice farming remains the most dominant agricultural activity throughout the year.



The year 2010, photographed by Ar. Reza Noor Muin



The year 2022, photographed by the author

Figure 14. Ecological changes due to stone excavation adjacent to Piyain River (dry season)

The ecological summary shown in Figure 15 highlights the normative influence of land use and stone excavation on the village. The land use pattern is characterised by expansive residential areas and excavation lands, which calls for sustainable environmental management. Hence, development measures should be taken that not only boost the economy of local villagers but also work effectively to preserve and protect the environment.

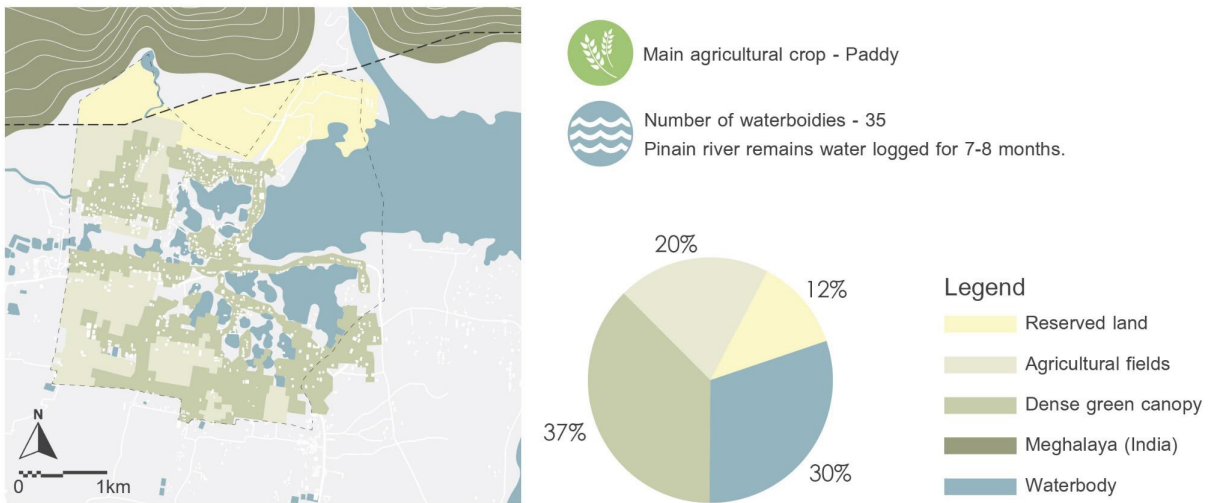


Figure 15. Blue-green network analysis. Illustrated by the author.

#### 4.1.4 Existing tourism study

Bisnakandi is one of Sylhet's most popular destinations and it was developed due to stone excavation. It lies along the Bangladesh-India border, with two tectonic plates on the threshold of slamming into one another. Several Layers of Khashi Hills in the Meghalaya region from both sides converge at a confluence near where the Piyain River enters Bangladesh. The beautiful splendour of Bisnakandi is enhanced during the wet season. During this time, several natural water fall in the Khasi Hills become activated, making the vista more pleasant (Figure 16).

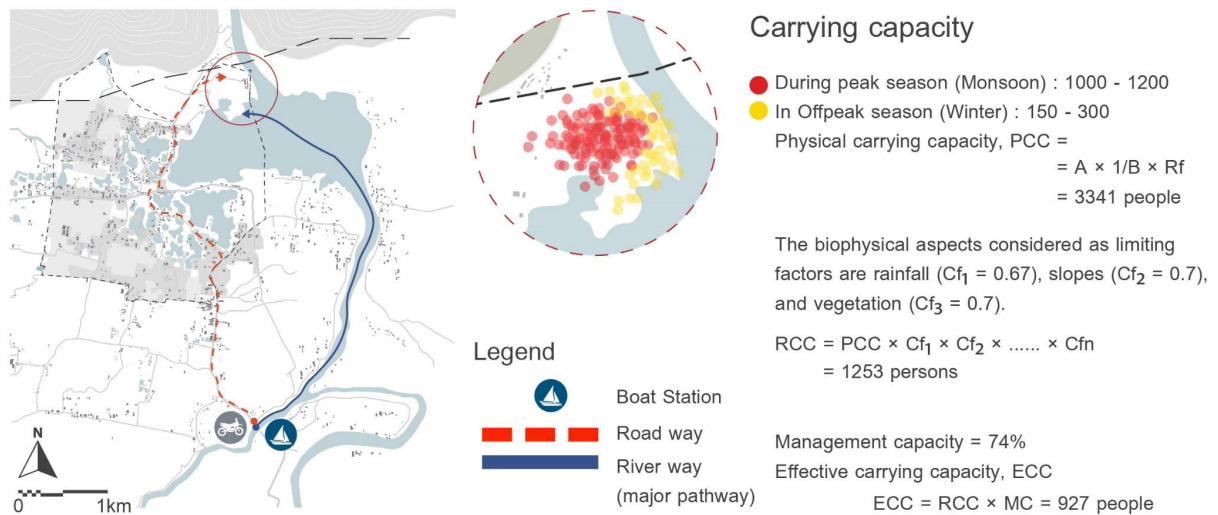


**Figure 16.** Image of Bisnakandi during wet season.

**Source:** Open internet sources (Travel Mate Bangladesh, 2020)

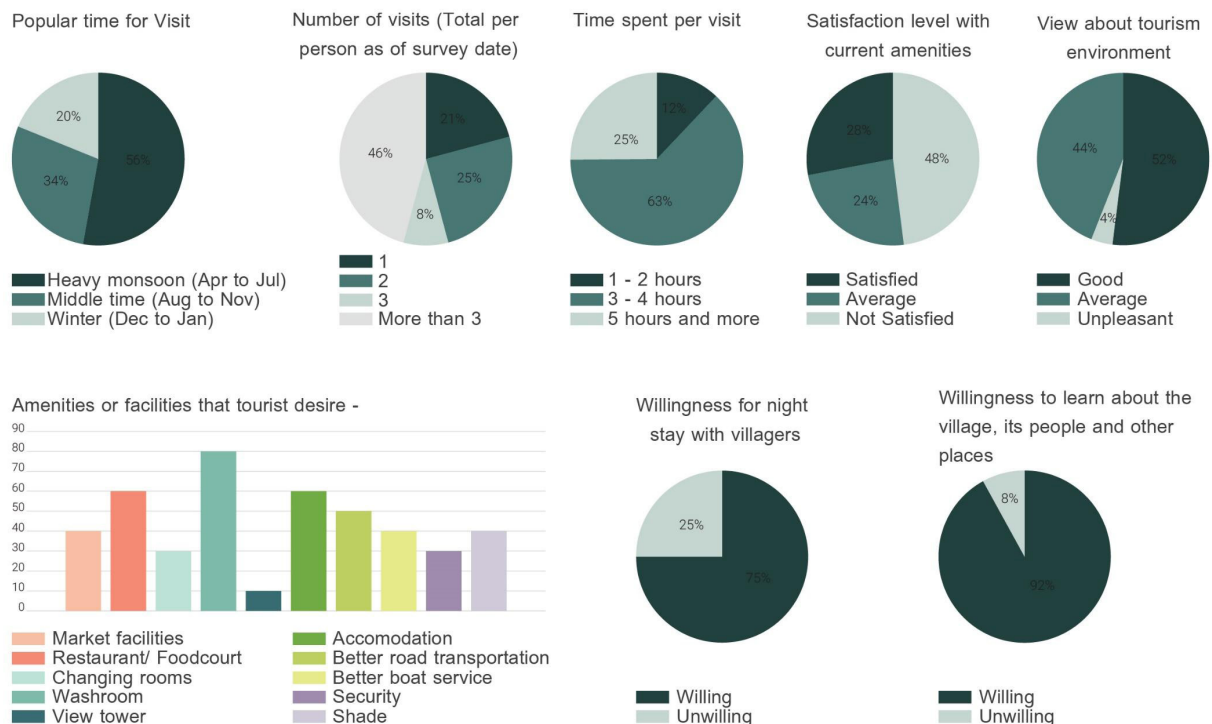
Visitors come to Bisnakandi all year round, especially during the monsoon season. They can travel to Hadarpar by road. Then, they must rent a boat at the Bisnakandi or Hadarpar Boat Station to reach the tourist spot. The villagers cook food in their houses and serve the tourists on the spot. Visitors also may purchase Indian cosmetics, goods, and sweets from temporary vendors on the premises.

To assess the capacity and sustainability of tourism in the area, three key metrics were calculated: PCC (Physical Carrying Capacity), RCC (Real Carrying Capacity), and ECC (Effective Carrying Capacity). These calculations determine the number of visitors the site can accommodate without negatively impacting the environment or diminishing the visitor experience. The results indicate that during the peak season, the number of visitors per day exceeds the ECC, negatively impacts the tourism experience in Bisnakandi. To ensure sustainable tourism in the area, it is necessary to either control the number of tourists or enhance existing tourism amenities and facilities. Figure 17 summarizes the existing footprint of tourists in Bisnakandi.



**Figure 17.** Existing tourism footprint. Illustrated by the author.

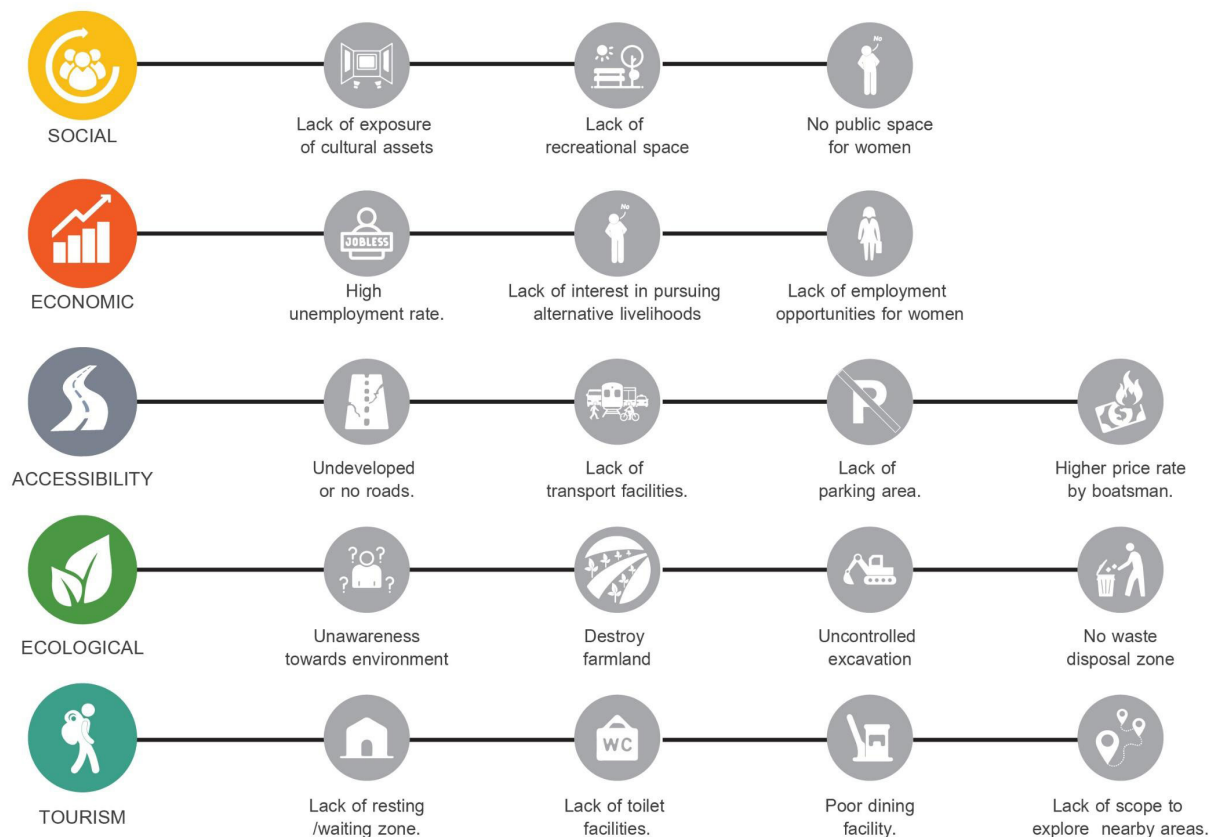
A questionnaire survey was conducted with 100 tourists to learn about the existing tourism conditions in Bisnakandi. The survey results are shown in Figure 18. The survey result demonstrated the time of the year tourists visit Bisnakandi most, as well as the typical duration of visit. Due to easy movement, this tourism remains active during the monsoon, and in the dry season, people cannot visit there due to pollution and the sound of stone mines. Tourists also expressed a positive desire to visit the village and learn more about it. An estimated desire for tourist needs was also calculated from the survey.



**Figure 18.** Questionnaire survey results analysis. Illustrated by the author.

## 4.2 Identifying Existing Conflicts

The research on Bogaiya Village revealed various conflicts through village context analysis, tourist surveys, and resident interviews. All identified conflicts of our study are categorised into the following types: social, economic, accessibility, ecological, and tourism, as illustrated in Figure 19. Social conflicts primarily were identified through resident interviews. Issues like social inequality, limited exposure to cultural and traditional activities (e.g., those of the Manipuri community), and lack of awareness about social rights were key concerns. Economic conflicts were identified by summarising socioeconomic and demographic study analyses and responses of various working residents. Issues highlighted were the high unemployment rate due to the shutdown of stone mining industries and the lack of alternative employment opportunities. Conflicts related to accessibility were identified through onsite observation, accessibility analysis, and tourist and residents' responses. Environmental concerns were identified through ecological and infrastructure assessments. Uncontrolled excavation and loss of agricultural and residential lands were reported as a major concern. Tourism-related issues were identified through tourist and resident surveys. Also, the lack of amenities and facilities was observed during the survey.



**Figure 19.** Identified conflicts. Illustrated by the author.

These conflicts, derived from comprehensive data analysis, summarise and highlight the challenges faced by Bogaiya Village. They also guided which issues should be addressed during the land use development and tourism path planning process and which assets should be utilised while forming implementation strategies to ensure sustainable development in the village.

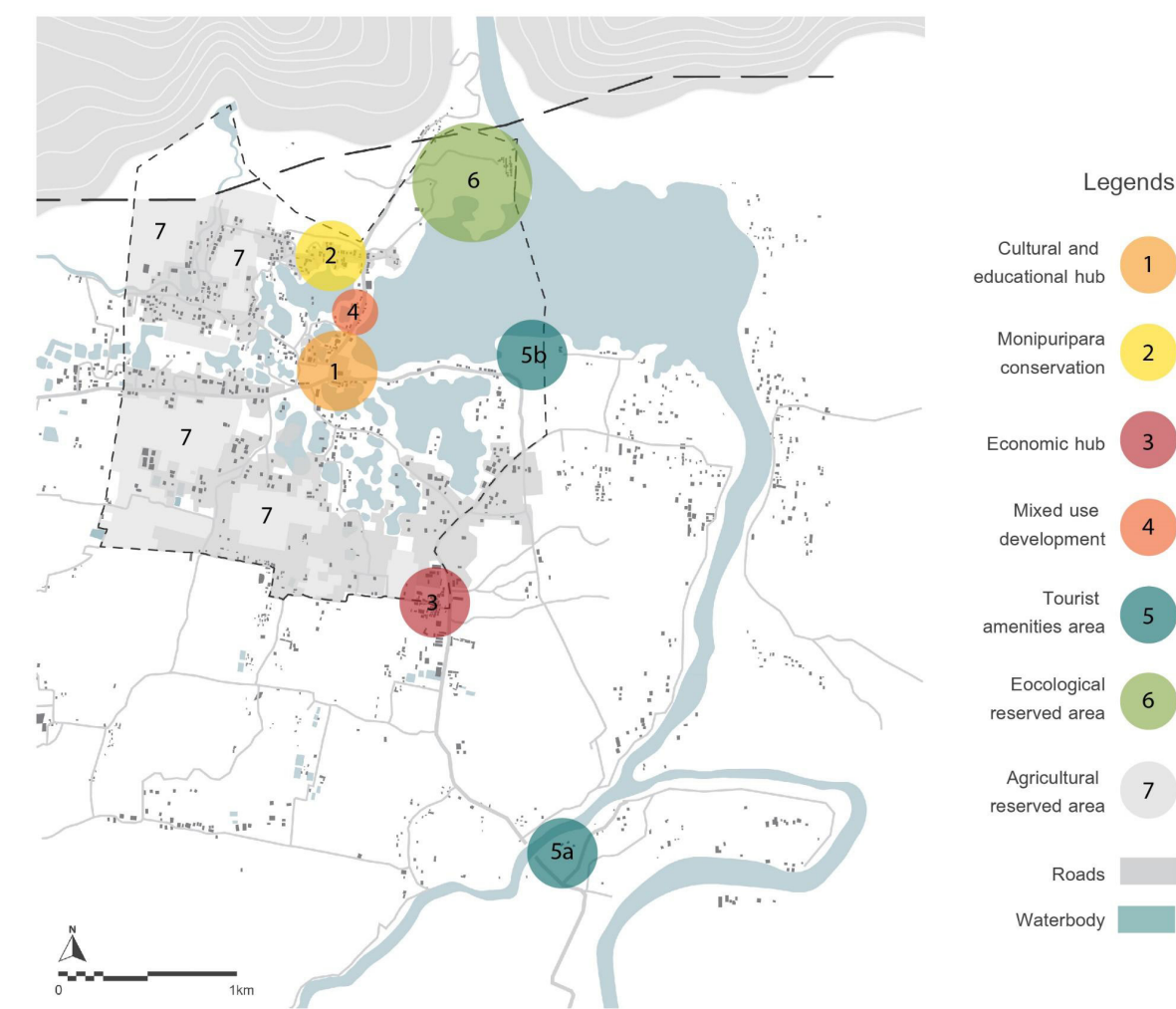


# 5. Recommendations

Sustainable rural tourism requires a tourism development plan that respects and complements the village’s land use development planning. In this section, the paper provides recommendations for land use development and tourism route plans based on the research findings to address the conflicts identified in Section 4.2. It also provides guidelines about the critical issues that must be considered for sustainable rural development and the implementation of integrated tourism.

## 5.1 Recommendations for Land use Development

Land use development is crucial to protect fragile ecosystems, stimulate livelihoods, spread business, concentrate society’s primary production resources, and help ensure cultural and social continuity in rural regions (Zhao et al., 2014). The proposed land use development for Bogaiya Village, as illustrated in Figure 20, includes strategies that directly address the conflicts identified. The strategies considered for the land use planning are described below:



**Figure 20.** Proposed Land use development scheme. Illustrated by the author.

### **I. Socio-cultural strategies –**

An educational and cultural hub (zone 1) was proposed in the village centre to foster cultural exposure and develop education and training facilities. This zone would include a cultural centre to promote activities such as weaving and Manipuri dance. A women-friendly space was designed to mitigate the lack of recreational and public space for women. The space would serve as a social and economic centre for women, fostering independence and promoting traditional crafts. Besides preserving the Manipuri heritage, an initiative is recommended to conserve the Manipuri Para (zone 2) and its traditions in the proposed land use scheme.

### **II. Economic strategies –**

Economic zones (zone 3) and mixed-use development areas (zone 4) are marked for future economic growth. These zones include spaces for local businesses, such as markets and roadside stalls, and would help to increase the rural economy. There are designated areas for training and skill development programs, which are included in the educational hub to encourage alternative income streams. These spaces provide facilities for vocational training, focusing on tourism-related skills. New job opportunities such as tour guides, waiters, salespeople, boatmen, etc., would be created for villagers within the tourist amenities zones. Additionally, spaces are developed in the cultural hubs for showcasing and selling handmade products to provide economic opportunities for women. These hubs would serve as venues for skill-building activities and small-scale entrepreneurship.

### **III. Accessibility-related strategies –**

To minimise transportation difficulties, a bridge connecting the two sides of the Piyain River at Hadarpar is proposed under the government initiative. In the tourism development zone at the Hadarpar area (zone 5a), ample parking spaces would be provided to prevent congestion in the village, and Ghats (a series of steps leading down to the water body) are proposed for safe and comfortable boat journeys.

### **IV. Ecological strategies –**

Ecologically reserved areas (zone 6) are strategically designated near the border zone to safeguard the village's natural environment and preserve its diverse landscape. Agricultural reserved areas (zone 7) would be established to prevent further encroachment on farmland, ensuring sustainable agricultural practices and the preservation of the village's agricultural heritage. To comply with the government's excavation ban, previously excavated areas are planned to remain untouched for the next decade, allowing nature to heal itself. These rehabilitated zones will serve as historical sites, narrating the region's stone mining legacy and adding an educational dimension to the tourism experience.

### **V. Tourism-related strategies –**

Two dedicated tourist zones are planned to address the lack of essential facilities. The tourist zone in Hadarpar (zone 5a) includes an information centre from where a guided tour journey to Bisnakandi would begin. The zone in the village (zone 5b) includes areas specifically designed to accommodate tourist amenities like waiting spaces, dining facilities, and toilets, ensuring a comfortable experience for tourists.



The land use development map for any other village will differ from the one above. However, the factors that affect the planning typically prevail in any village. The following recommendations for land use development planning should be considered by planners and policymakers when designing schemes for other villages:

- Preserve agricultural and ecological reserves.
- Conserve areas that have cultural, historical, or traditional values.
- Design commercial and mixed-use zones based on existing socioeconomic conditions for future expansion.
- Designate areas for new developments that complement existing land use patterns and community needs.
- Balance amenities and infrastructure for residents and tourists while respecting environmental constraints.
- Ensure infrastructure improvements (roads, services) align with zoning plans to support accessibility.
- Support sustainable use of resources and avoid developments that harm natural ecosystems.

## **5.2 Recommendations for Tourism Route Plan**

A well-designed tourism route plan minimises environmental impact while enhancing visitor experience and economic benefits. Mapping routes to key attractions ensures smooth navigation, balanced visitor distribution, and regional economic growth (Dimitrios, 2000). Incorporating both seasonal and permanent routes allows for year-round tourism, further supports local businesses, and helps maintain a steady income for residents (Mason & Cheyne, 2000). As illustrated in Figure 21, the proposed tourism route planning includes an additional route for Bisnakandi tourism to ensure year-round tourism. It also complements the land use development strategies, addressing key conflicts while fostering a sustainable, inclusive, and culturally sensitive tourism framework for Bogaiya Village. The strategies applied are described below:

### **I. Socio-cultural strategies –**

The tourism path begins at the Hadarpar Tourist Information Centre and leads to the amenities centre. Instead of heading directly to Bisnakandi, the path is thoughtfully designed to first guide visitors to the educational and cultural hub (zone C), offering tourists a deeper understanding of the village's traditions and promoting cultural tourism. Following this, tourists could take a guided tour to the Manipuri Para (zone D), where they can experience Manipuri culture and lifestyle. This access is limited in number to respect the privacy of the Manipuri community before the path finally leads to Bisnakandi.

### **II. Economic strategies –**

In the cultural centre, tourists will see village women displaying and selling handmade products. The space attracts tourists interested in local crafts, creating economic opportunities for women and promoting their involvement in the tourism sector. As the path through the economic zones, it boosts local businesses, creating direct benefits for the community and supporting the development of small-scale enterprises. The creation of a tourist information and amenities zone provides job opportunities, ranging from tourist guides and management staff to administrative roles, supporting local employment while also promoting the village's tourism infrastructure.

### **III. Accessibility-related strategies –**

A tourist information centre is proposed in the tourist zone at Hadarpar zone; it would regulate transportation services, including boats, and provide eco-friendly transport options. The pricing would be controlled, ensuring fair rates and better coordination for tourist transport, contributing to a more organised tourism experience.

#### IV. Ecological recommendations –

The reserved areas are incorporated into ecotourism initiatives. This area includes the present Bisnakandi (zone E), so people can enjoy the natural tourism in this place. Tourists will have the opportunity to explore the excavated areas, learning about the environmental impact of excavation and the history of the village. Waste bins will be placed along tourism paths to ensure that tourists dispose of waste responsibly, minimising environmental degradation.

#### V. Tourism-related recommendations –

The tourism path starts from Hadarpar (zone A) and continues to the tourist amenities zone (zone B) in the village where they will get all tourism-related amenities and facilities. Next, the path is developed to guide visitors through key cultural and natural attractions. These paths allow tourists to explore the village's cultural and traditional highlights, such as handicrafts, Manipuri dance, and local lifestyles. This strategy not only will enrich the tourist experience but also will encourage villagers to engage with and preserve their heritage.

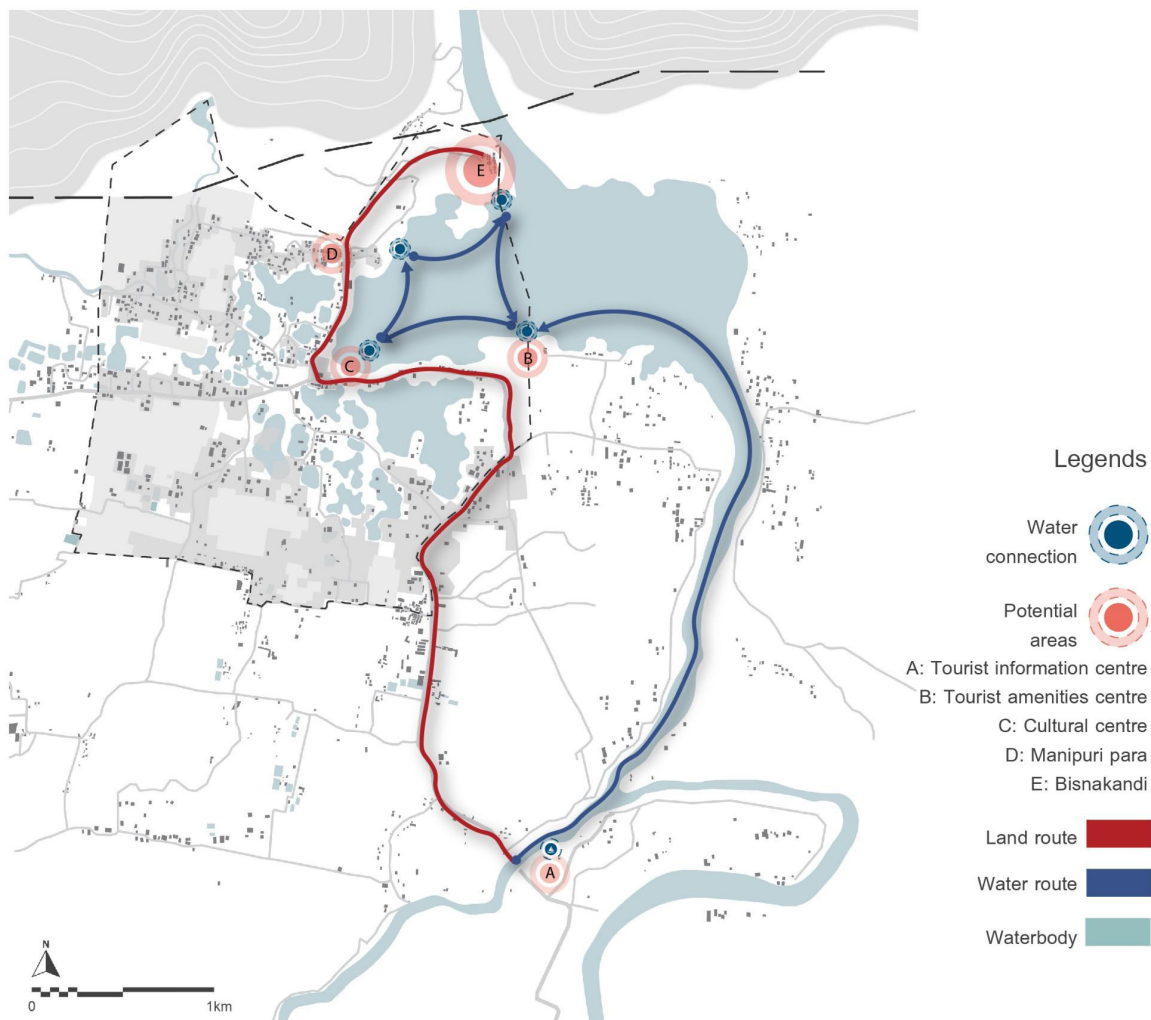


Figure 21. Proposed tourism circulation path. Illustrated by the author.

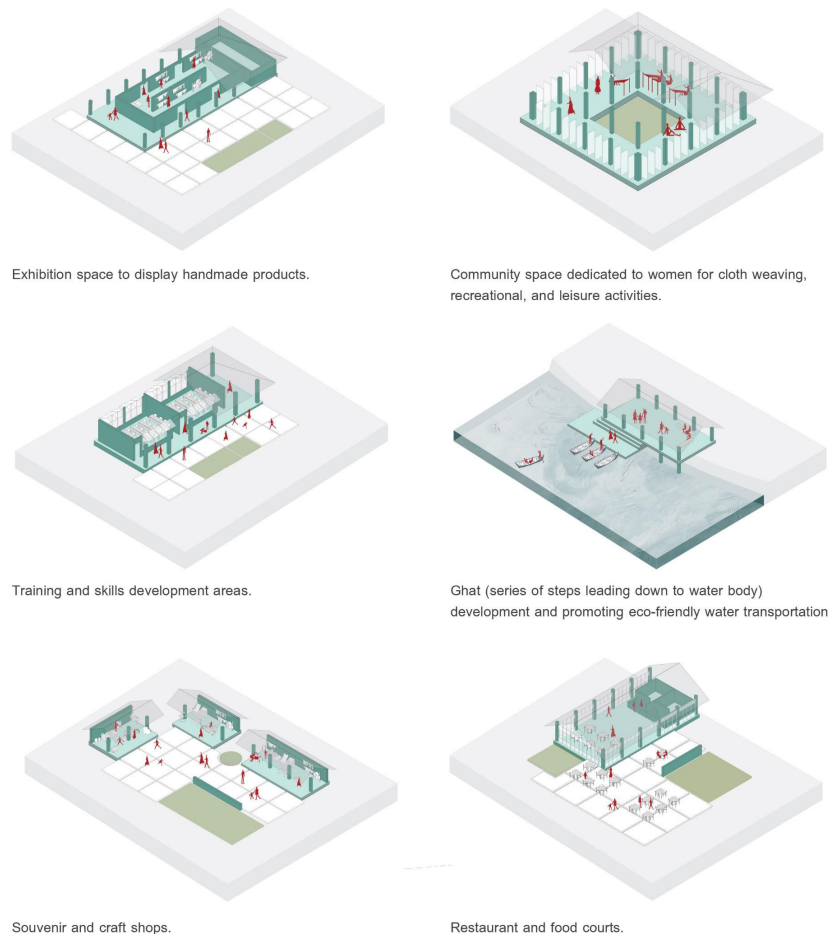
Tourism route plans in any village should aim to:

- **Promote Year-Round Tourism:** Develop wet and dry season routes to ensure tourism is not limited to specific times of the year, enhancing economic stability.
- **Integrate Key Tourist Zones:** Design routes that connect important tourist areas and potential development sites, making it easier for visitors to explore and engage with the village.
- **Support Sustainable Mobility:** To minimise environmental impact, encourage eco-friendly transportation options, such as walking paths, bicycle lanes, and registered boats.

Once the land use development planning is done and a new route is proposed, a sustainable rural tourism framework can be accomplished by integrating the proposed tourism circulation path across the proposed land use zoning.

### 5.3 Guidelines for Implementation

A sustainable rural tourism framework requires well-defined implementation strategies to translate plans into actionable outcomes. Figure 22 illustrates key developments that could be implemented in Bogaiya Village. These include providing space for weaving, exhibition space to display handmade products, space for vocational training and skills development, and women-friendly spaces in the cultural hub area. Besides the tourist information centre, ghats were designed to facilitate smooth and eco-friendly transportation. Souvenir shops, food courts, restaurants, waiting areas, and restrooms were strategically introduced in the tourism zone to enhance visitor experiences and create additional employment opportunities for villagers.



**Figure 22.** Proposed implementations in Bogaiya Village. Illustrated by the author

These initiatives were derived from the study findings in Bogaiya Village and reflect efforts to address local socioeconomic challenges while promoting tourism. The following guidelines are proposed to support the development and implementation of sustainable tourism in villages, ensuring the preservation of their unique character and environment while delivering economic and social benefits to the local community.

#### **Guidelines to Strengthen Social Fabric**

##### **i. Social sustainability initiatives:**

- Develop community-based tourism models that empower residents and ensure equal distribution of benefits.
- Provide education and awareness programs to tourists and residents related to preserving cultural heritage and the environment.

##### **ii. Cultural exchange programs:**

- Conduct cultural exchange activities and on-site experiential learning where visitors can interact with the local community, join in traditional skills-building efforts, and deep-dive into local customs and traditions through immersive experiences.
- Enable exchanges between tourists and residents to promote understanding and respect for cultural heritage.

#### **Guidelines for Economic Stability**

##### **i. Promotion of local products:**

- Promote local handmade products by giving them proper exposure.
- Exhibition spaces and display areas can be built to showcase Indigenous crafts, artworks, and souvenirs. This will enrich the cultural experience of those visiting while providing for local artisans and small business entrepreneurs.

##### **ii. Opportunities for entrepreneurship**

- Integrate gathering areas for tourists with new local entrepreneurship initiatives like restaurants, food stalls, tea stalls, and artisan shops.
- Support micro-enterprises providing tourist services on a small scale and boosting local development.

##### **iii. Employment creation and skill development**

- Tourism guides, management staff, and administration personnel to manage tourism-related operations.
- Foster skill development initiatives to equip local populations with the necessary competencies for various positions across the tourism sector, contributing towards overall employment generation and localisation of income opportunities.

#### **Guidelines for Accessibility Development**

##### **i. Investment in infrastructure:**

- Develop projects to improve infrastructure. The main tasks are to improve road access and pedestrian quality of services and create places for outdoor activities.
- Improve amenities such as public restrooms, waste management systems, and signage to ensure visitor comfort and safety while preserving the natural environment.

##### **ii. Initiation of an eco-friendly transport system:**

- Implement the use of eco-friendly vehicles and approved boats for transportation within tourist areas that cause the least environmental effects.
- Mobilize villagers as drivers and boatmen, creating livelihood opportunities for the locals to follow sustainable mobility practices that minimize impact to the natural ecosystem.

## **Guidelines for Ecological Preservation**

### **i. Environmental conservation strategies:**

- Implement conservation programs to protect natural habitats and biodiversity, ensuring that tourism activities do not harm the environment.
- Promote sustainable practices such as waste reduction, recycling, and renewable energy sources within the tourism sector.

## **Guidelines for Sustainable Tourism**

### **i. Sustainable land use planning:**

- Encourage sustainable land use planning that balances tourism development with preserving and ideally improving natural and cultural landscapes.
- Implement zoning regulations that protect sensitive areas from overdevelopment and ensure that tourism infrastructure is integrated harmoniously into the environment.

### **ii. Collaboration and roles of responsible stakeholders:**

- Establish a collaborative framework among policymakers, community leaders, developers, local businesses, and residents to ensure effective planning and implementation of sustainable tourism initiatives.
- Policymakers can develop supportive regulations and policies to attract investment and facilitate sustainable practices.
- Community leaders and local organisations can bridge gaps between the community and other stakeholders, ensuring that local interests and needs are represented.
- Development practitioners and private sector players can bring technical expertise and funding for infrastructure, training, and tourism facilities.
- Active participation and cooperation among all stakeholders in decision-making and implementation processes foster inclusivity, accountability, and long-term sustainability in tourism development.

## **6. Conclusion**

This study on Bogaiya Village in Gowainghat Upazila, Sylhet, Bangladesh, demonstrates the potential of sustainable tourism as a catalyst for socioeconomic development. The comprehensive analysis, including socioeconomic conditions, environmental impacts, and infrastructural challenges, undertaken in this work highlights critical areas for intervention. In particular, key findings reveal that tourism can offer opportunities for economic revitalisation, environmental conservation, and improved community well-being. The findings confirm that when integrated with local resources and community involvement, tourism can effectively address rural poverty and infrastructure deficiencies. By meeting the objectives of assessing existing conditions, identifying challenges, and proposing strategic guidelines, the study offers a clear pathway for sustainable development. The recommended strategies aim to address the existing problems and enhance the economic prospects of rural areas while promoting social equity and environmental stewardship. These guidelines provide a replicable model for other rural villages seeking to leverage their cultural and natural assets.

While the study offers valuable insights, certain limitations must be acknowledged. The reliance on existing data and the scope of participatory research, along with the ease of accessibility to some areas, may limit the generalisability of the findings. The evolving socioeconomic conditions and external factors such as government policies and global tourism trends also could impact the outcomes. These limitations highlight the

need for ongoing research and adaptive strategies. Future research should focus on the long-term impacts of tourism development and explore innovative approaches to improve community engagement. Furthermore, identifying new areas for sustainable tourism and assessing the effectiveness of implemented strategies will be crucial for continuous improvement.

In conclusion, the sustainable development of Bogaiya Village through integrated tourism is feasible and essential for its prosperity. The study underscores the importance of strategic planning, stakeholder collaboration, and environmental stewardship. By creating an enabling environment for tourism development, attracting investment, and fostering partnerships, the village can serve as a model for sustainable rural tourism. These efforts contribute to the broader goals of poverty reduction, economic growth, and environmental conservation, aligning with the 2030 Sustainable Development Goals. The insights provided by this research lay a strong foundation for future initiatives in sustainable rural development.

#### **Human Subject Declaration**

All research procedures involving human participants were conducted in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Participation in the study was voluntary, and informed consent was obtained for all research components involving human participants, in line with standard ethical practices.

#### **Author Contributions**

Conceptualisation: F. Moon; methodology: F. Moon, K. Saha; software: F. Moon; formal analysis: F. Moon; writing – original draft: F. Moon; writing – review & editing: F. Moon, K. Saha; visualisation: F. Moon; supervision: K. Saha.

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#### **Data Availability Statement**

Data may be obtained from the corresponding author upon written request.

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