PROJECT REPORT

ROAD CONNECTIVITY AND REGIONAL DEVELOPMENT:

AN EMPIRICAL ASSESSMENT OF ECONOMIC AND TOURISM IMPACTS IN RANGAMATI, BANGLADESH

A Case Study of the Asambasti – Kaptai Connecting Road (18 km)



Dr. Arpita Datta
and
Md. Monirul Islam

Submitted by:
Nextstep Social & Public Health Research Society

Publication: **June 2026**

PROJECT REPORT SERIES

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Project Overview

01 The report assesses how the 18 km Asambasti-Kaptai Connecting Road has influenced mobility, local economic activity, tourism experience, and community attitudes toward further tourism investment.

02 The mixed-methods study draws on surveys of 57 local residents and business owners and 158 tourists, World Bank macroeconomic data for 1977-2024, and documentary evidence from five regional news reports.

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This project report examines the economic and tourism impacts of the 18 km Asambasti-Kaptai Connecting Road in Rangamati, Bangladesh. The analysis draws on field surveys of local residents,
business owners and tourists, secondary macroeconomic data, and documentary evidence. The views and observations presented in this report are those of the authors and are intended for academic and research purposes.

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57 local respondents/business owners
158 tourist respondents
World Bank data, 1977-2024

Keywords: Road infrastructure; tourism development; local economic impact; Chittagong Hill Tracts; Rangamati; Likert survey; LGED; Bangladesh; community-based tourism; eco-tourism.

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The authors declare no conflict of interest. All errors and omissions remain the sole responsibility of the authors.

Dr. Arpita Datta
Md. Monirul Islam
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List of Abbreviations

BDT	Bangladesh Taka
BRRI	Bangladesh Rice Research Institute
CHT	Chittagong Hill Tracts
CNG	Compressed Natural Gas (auto-rickshaw)
GDP	Gross Domestic Product
LGED	Local Government Engineering Department
N	Sample size
PANAS	Positive and Negative Affect Schedule
RCC	Reinforced Concrete Slab Construction
RMG	Ready-Made Garment
RSTU	Rangamati Science and Technology University
SD	Standard Deviation
SME	Small and Medium Enterprise
USD	United States Dollar
W	Wilcoxon signed-rank test statistic
WDI	World Development Indicators (World Bank)

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Executive Summary

The economic and tourism impacts of the Asambasti–Kaptai Connecting Road — an 18-kilometre road in Rangamati district, Chittagong Hill Tracts (CHT), Bangladesh — are explored in this project report after the road was reconstructed and widened between 2020 and 2023. This study uses mixed methods that include a primary field survey with 57 local residents and business owners, secondary macroeconomic data from the World Bank (1977–2024), and documentary evidence from five regional news reports to assess the changes in (i) mobility and service access, (ii) local economic activity and business income, (iii) tourism footfall and tourist experience and (iv) community attitudes towards further tourism investment.

Key findings highlight overwhelmingly positive perceptions of the impact of the road with mean Likert scores of all mobility items being above 4.4 out of 5.0, and 96-100% of the local population agreeing/strongly agreeing that the road has had a positive impact on access to essential services. When the 18 business owners who responded to both the pre-road and the post-road monthly income questions were compared, the median income rose by around 186% (mean 223%), which was statistically significant using the Wilcoxon signed-rank test ($W = 0.00$, $p < 0.001$). Of the 158 tourists surveyed, the mean satisfaction level with natural scenery is nearly perfect (4.88/5.0); however, the mean satisfaction level with facility adequacy (2.83/5.0) and transport services (3.16/5.0) are issues that highlight unmet needs that should be addressed in policy. There is a moderate association between tourist place-evaluation ratings and destination loyalty intentions (Spearman $r = 0.40$, $p < 0.001$). In the local literature, there is a theoretical link between infrastructure development and the improvement of livelihoods, and this link is supported by a moderate positive correlation ($r = 0.53$, $p < 0.001$) between perceived mobility gains and perceived economic gains.

The study concludes that Asambasti–Kaptai Road has played a very measurable catalizing role developing the economy through tourism in a hitherto neglected hill area. However, the unplanned resort development, escalating land values, deforestation issues and lack of infrastructure for tourism indicate the need for integrated development plan for eco-tourism that is correlated with the benefit of the local community and the conservation of the environment.

Keywords: *Road infrastructure; tourism development; local economic impact; Chittagong Hill Tracts; Rangamati; Likert survey; LGED; Bangladesh; community-based tourism; eco-tourism*

Chapter 1: Introduction

1.1 Background and Context

Transport infrastructure is well understood to be a key facilitator in economic development, poverty alleviation and quality of life, especially in remote and poorly connected areas.[1] The Chittagong Hill Tracts (CHT) is a mountainous, ecologically rich and historically neglected area in Bangladesh that offers unique challenges and opportunities. Accessibility has always been one of the key factors limiting livelihood development, market integration and tourism in the CHT.[2]

Administrative and cultural hub of the CHT, Rangamati is surrounded by lush green hills and blessed by rich indigenous culture and the Kaptai Lake, the largest man-made lake in Bangladesh. Yet the region's natural assets have historically been impediments to access, as the time required to reach settlements by boat travel up and down the lake corridor ranged from 1.5 to 2 hours, the only secure way to reach the area.[3] With the construction of the Asambasti-Kaptai Connecting Road and the severe damages in the catastrophic landslide of June 2017, the connectivity of this already fragile system has been disrupted, and communities have been cut off and now rely on road mobility.

As a result of the 2017 disaster, Local Government Engineering Department (LGED) of Bangladesh has made a major reconstruction and upgrading of the original 12ft single lane road into 18ft two-lane carriageway with three reinforced concrete (RC) slab bridges. The project, estimated to be at BDT 43-50 crore, began the widening process in 2020, with substantial completion achieved in June 2023. It did this by creating one of the most scenically dramatic road corridors in Bangladesh, a 18-kilometre stretch which runs along the Kaptai Lake on one side and towering green hillsides on the other, and which was once a tarmac road through the area.

[1] Khandker, S.R., Bakht, Z. and Koolwal, G.B. (2009). The Poverty Impact of Rural Roads: Evidence from Bangladesh. Economic Development and Cultural Change, 57(4), pp. 685-722.

[2] World Bank (2015). A Strategic Framework for Sustainable Development in the Chittagong Hill Tracts of Bangladesh. Washington DC: World Bank.

[3] Hannan, M. (n.d.). Valobashay morano muggdhatar ek shorak [A road captivating with love]. Sukhabar Protidin (Rangamati correspondent).

The road opened up and the tourism boom was reported extensively in the local media.[4][5][6] The famous "I Love Rangamati" landmark near the Asambasti viewpoint has emerged as a top photography spot in the district. Along the corridor, resorts, food stalls, transport services and informal tourism businesses have mushroomed. Every day, visitors from all over Bangladesh come to enjoy the natural beauty. But the fast pace and lack of planning of this development has also sparked environmental issues, such as deforestation, land sales to external investors and the lack of formal tourist facilities.[7]

1.2 Research Problem and Rationale

Although the road has already had a transformative impact on tourism and the local economy in Rangamati is clearly appreciated and reported, there has been no systematic empirical study based on survey to quantify the impact of the road on the three main categories of stakeholders—local people, business owners and tourists. The evidence base is limited and is comprised of journalistic accounts, which while useful, cannot replace structured primary data collection with statistical analysis.

This study fills that gap by providing the first empirical, multi-stakeholder analysis of economic and touristic impacts of the Asambasti–Kaptai Road and places these findings in the broader context of the macro-economic development process in Bangladesh, as well as in the academic literature on the effect of road infrastructure, tourist satisfaction and tourist loyalty on development outcomes.

1.3 Research Objectives

This study pursues the following objectives:

- To capture how the Asambasti–Kaptai Road affects mobility, service access and quality of life of local residents and businesses.
- To measure and compare business incomes before and after the reconstruction of road, to identify changes in economic performance by type of business.

[4]Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.
[5] Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.
[6]Rini, P. (n.d.). Kaptai-hoder buk chire muggdhatar shorak [The enchanting road piercing the heart of Kaptai Lake]. Rangamati correspondent report.
[7]
[7]Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.

- To measure the satisfaction of tourists with the natural, service and infrastructure characteristics of the corridor and to measure tourist's willingness to return to and recommend the corridor.
- To determine relationships between perceived mobility benefits, economic effects, and community attitudes toward tourism development.
- To place the road impacts in the context of national macro-economics in Bangladesh, and the academic literature on infrastructure-led development.
- To make policy recommendations for sustainable development of tourism along the corridor based on evidence.

1.4 Scope and Limitations

Geographically the study is confined to the Asambasti–Kaptai Road corridor in the area of Rangamati Sadar Upazila. The primary survey was done with a conveniences sample (purposive sample) of 57 residents and businessmen and 158 tourists, so the results cannot be generalised to the whole district of Rangamati. Financial data (income, investment) were self-reported, and there were about 10–15 range entries or text-based values in the cells that needed to be converted to numeric midpoints or excluded, as described in Section 4.3. The cross sectional design does not allow causal inferences; the income change reported is based on what respondents were able to recall about the pre-road conditions and not on a controlled before/after design. Nevertheless, the fact that the survey results dovetail with the media reports and macro-economic environment lends greater validity to the overall conclusions.

Chapter 2: Literature Review

2.1 Road Infrastructure and Rural Economic Development

A link between transport infrastructure and economic development has been well documented in the development economics literature. Roads are seen as empowering assets that connect regions, people and economic activities; shorten distances to destinations, travel times, and transaction costs; and provide access to markets, jobs, health services, and education.[8] In a pioneering panel study of rural roads in Bangladesh, Khandker, Bakht and Koolwal (2009) reported a 3–4 percentage point decrease in poverty incidence in poor villages, and 5–6 percentage point reduction in poverty incidence in poorest villages, as result of improved road transport, mostly due to increase in agricultural production, reduction in input costs and improvement in market prices, over the five-year period. [9]

The results were found in Bangladesh and have been replicated throughout the world. Warr (2010) reported that this improvement in roads led to a 13% decrease in poverty in rural regions of Laos. Bucheli et al. (2018) determined that in Nepal, each USD 90 million spent on rural roads lowered the poverty rate by 3%. Calvo-Mendieta et al. (2023) provided a comprehensive overview which found that investments in transport catalyze structural economic transformation as a shift from agriculture to manufacturing and services in rural areas.[10] Most fundamentally, it has been demonstrated that the poorest tend to benefit the most from improved roads, as was done by Khandker et al. (2009) and the IMF (2017).[11]

Poor accessibility is one of the main structural challenges to the development potential of the CHT, and according to the World Bank (2015), the region's development is hampered by a lack of infrastructure caused by its challenging terrain even though it has rich natural resources.[12] Islam, Wieland and Adiv (2008) pointed out the importance of roads for socio-economic impact transformation, especially the areas where people used to depend on slow and expensive boat transport.[13]

[8] Rahman, Md. T. (2018). Impacts of Rural Road Development on Local Traffic. Journal of Bangladesh Institute of Planners, Vol. 11.

[9] Khandker, S.R., Bakht, Z. and Koolwal, G.B. (2009). The Poverty Impact of Rural Roads: Evidence from Bangladesh. Economic Development and Cultural Change, 57(4), pp. 685–722.

[10] Calvo-Mendieta, I. et al. (2023). The Impact of Infrastructure on Development Outcomes: A Qualitative Review of Four Decades of Literature. World Bank Economic Review, 36(4).

[11] World Bank (2017). Trends and Challenges in Infrastructure Investment in Low-Income Developing Countries. IMF Working Paper 17/233.

[12] World Bank (2015). A Strategic Framework for Sustainable Development in the Chittagong Hill Tracts of Bangladesh. Washington DC: World Bank.

[13] Islam, D., Wieland, M. and Adiv, M. (2008). Roads Socio-Economic Impact Assessment. Washington DC: USAID.

The Asambasti–Kaptai Road is very much consistent with this literature. The residents interviewed by local media reported travel time from 1.5-2 hours by boat to 20 mins by road[14] consistent with access improvements that is thought to be the trigger for income and livelihoods improvements.

2.2 Tourism as a Driver of Local Economic Development

Tourism is widely acknowledged as being a strong force for local economic development, especially in the rural and ecologically rich areas in developing countries. Tourism provides jobs, encourages SMEs and creates alternative sources of income for communities. The World Tourism Organization has determined that in developing countries, tourism is 'almost universally the leading source of economic growth, foreign exchange, investment and job creation.[15]

In the context of CHT, community-based rural tourism (CBT) is relevant. Rahman et al. (2021) concluded that CBT in Bangladesh has great potential to ensure local economic development along with maintaining the traditional culture and environmental balance but it needs proper infrastructure, policy formation, and community participation.[16] Likewise, Roe and Elliott (2006) showed that ecotourism can help the poor to diversify their livelihoods, including trading activities, crafts and informal work and that ecotourism is positively associated with job creation, small business development and poverty alleviation[17]

Research on the CHT also shows that, in particular, tourism is seen as a world-class opportunity, but infrastructure is always the limiting factor. Rapid infrastructure development and ecotourism viability has been identified as a conflict in a strategic tourism impact assessment of the CHT (ResearchGate, 2020) as infrastructure projects can kill natural tourism potential if not guided by environmental impact assessment studies.[18] This tension applies directly to the Asambasti–Kaptai corridor which has witnessed unplanned resort developments and deforestation as concerns in connection with the tourism boom. [19]

[14]Hannan, M. (n.d.). Valobashay morano muggdhatar ek shorak [A road captivating with love and enchantment]. Sukhabar Protidin (Rangamati correspondent).
[15]Roe, D. and Elliott, J. (2006). Pro-poor conservation: The elusive win-win for conservation and poverty reduction. Policy Matters, 14, pp. 53-63.
[16]World Economic Forum (2023). This is how to leverage community-led sustainable tourism for people and biodiversity. World Economic Forum, October 2023.
[17]Roe, D. and Elliott, J. (2006). Pro-poor conservation: The elusive win-win for conservation and poverty reduction. Policy Matters, 14, pp. 53–63.
[18]Strategic Tourism Impact Management in the Chittagong Hill Tracts (CHT) Region, Bangladesh. ResearchGate. doi:10.13140/RG.2.2.25684.25607
[19]Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.

Studies on similar hill and lakeside corridors in Asia lend credence to the idea that access by roads alone is insufficient for sustainable tourism-led development. Community involvement, community ownership of tourism ventures and regulation to ensure that the environment is not damaged in an unplanned way are always identified as additional needs for long-term gains.

2.3 Tourist Satisfaction, Experience Quality, and Destination Loyalty

Since Kozak and Rimmington (2000), tourist satisfaction and its consequences on tourist destination loyalty (in terms of revisit intention and willingness to recommend) have been the focus of numerous studies in the field of tourism management. A consistent relationship is found in the literature: positive travel experience – satisfaction – loyalty intentions (revisit intention and word of mouth recommendation).[20][21]

In a study conducted by Wang et al. (2025) on Beijing's heritage attractions, the connection between experience and revisit intention was found to be mediated by tourist satisfaction, which means that positive travel experiences are likely to lead to higher revisit intentions.[22] A study investigating five influential factors of tourist loyalty (PLOS One, 2023) indicated that experience quality, which includes service quality, natural quality and cultural richness, is among the most significant factors that can influence tourists' revisit intention and positive word of mouth.[23]

The importance of Service Quality dimensions (reliability, responsiveness, assurance, empathy, tangibles) and their role in tourist satisfaction is especially crucial for the present study because the Section G service quality items in the survey operationalise these dimensions. A key finding in every study of developing country destinations is that while their natural attributes provide the initial impetus to visit, the lack of service facilities, sluggish service response and the security issues dampen overall satisfaction and loyalty.[24] These dynamics are reflected in the Asambasti–Kaptai corridor where the natural scenery is rated near perfect (4.88/5.0), but the facility's adequacy is below the neutral point (2.83/5.0).

[20]Wang, G. et al. (2025). The Impact of Tourist Expectations, Experiences, and Satisfaction on Revisit Intentions. SAGE Open, 15(1).
[21]PLOS One (2023). The five influencing factors of tourist loyalty: A meta-analysis. PLOS One, 18(4). doi:10.1371/journal.pone.0283963.
[22]Wang, G., Dong, X., Zheng, X., Liu, F. (2025). The Impact of Tourist Expectations, Experiences, and Satisfaction on Revisit Intentions: A Moderated Mediation Analysis. SAGE Open, 15(1).
[23]PLOS One (2023). The five influencing factors of tourist loyalty: A meta-analysis. PLOS One, 18(4). doi:10.1371/journal.pone.0283963.
[24]PLOS One (2023). The five influencing factors of tourist loyalty: A meta-analysis. PLOS One, 18(4). doi:10.1371/journal.pone.0283963.

A study of CHT tourism in particular has stated that, "the service infrastructure gap has been identified and the natural assets of the region are world-class, but it is needed that resourceful persons and developed nature of the framework identified with tourism should be available from the tourism area.[25] The present study aims to add to this literature by the first quantitative analysis of the satisfaction on five dimensions for the Asambasti-Kaptai corridor in particular.

[25]Tourism and state violence in the Chittagong Hill Tracts of Bangladesh (2017). Academia.edu. https://www.academia.edu/68872888/Tourism_and_state_violence_in_the_Chittagong_Hill_Tracts_of_Bangladesh

Chapter 3: Study Area and Macroeconomic Context

3.1 Rangamati and the Chittagong Hill Tracts

The Rangamati district is the largest among the 33 districts of the country in terms of area, comprising some 6116 km², in the Chittagong Hill Tracts which is the sole major hilly terrain in an otherwise riverine and deltaic nation. The district is bounded by the districts of Chattogram and Bandarban to the west and south of Bangladesh, Tripura and Mizoram to the north and east and Myanmar to the south-east. Widespread forest cover on ridges, narrow valley and the Kaptai Lake (726 km²) created in 1962 under the Karnaphuli Hydroelectric Power Project dominate the landscape of the terrain.

There are 13 major indigenous communities in the CHT such as Chakma, Marma, Tripura, Tanchangya, Khumi and Lushai etc. These communities have unique cultural, linguistic and land-use practices. From the 1970s until the 1997 Peace Accord, the area was plagued by a long armed conflict, with a significant impact on socio-economic development, such as reduced mobility, limited infrastructure development and unequal benefits of development.

Even though there have been slow improvements since the Accord, the CHT is still plagued with development issues, of a different character from the lowlands in Bangladesh. The World Bank (2015) has commented that "the livelihoods of the people in the CHT are more vulnerable to environmental and economic changes than those in lowlands" and further "sustainable development in the CHT is severely threatened by remoteness and poor accessibility, poor infrastructure and inadequate social and economic services".

The administrative centre of Rangamati district is Rangamati town (Rangamati Sadar Upazila), which is the main tourism hub in the district. The Kaptai Lake boat tour, the Chakma Royal Palace (Raj bari), the Buddhist temples and monastery complexes, the tribal villages and the Asambasti-Kaptai Road corridor (after reconstruction) are the main tourist attractions.

3.2 The Asambasti–Kaptai Connecting Road: History and Reconstruction

The Asambasti–Kaptai Connecting Road is a 18 km long road which runs along the western side of the Kaptai Lake connecting Asambasti Bazar in Rangamati town with Kaptai Upazila. The road was built as a single lane track with a width of about 12 feet and was badly damaged during the catastrophic landslides on 13 June 2017, which resulted in the loss of many infrastructures all over the city of Rangamati in the natural disaster.

As a result, the LGED (Local Government Engineering Department) of the jurisdiction of Rangamati Sadar Upazila took up a detailed reconstruction project. Starting in 2020, the road was made 18 feet (c. 5.5 m) wider for two-lane traffic. Three RCC (Reinforced Concrete Slab) bridges were constructed as part of the project. Total cost of the project was about BDT 43 – 50 crore (about USD 3,9 - 4,5 million at current exchange rates). Reconstruction was largely finished in June 2023. In this time the project won the Bangladesh Project Management Award for its geographical importance and excellence in implementation.

The road cuts through the following noteworthy locations: Asambasti Bazar commercial zone, the "I Love Rangamati" viewpoint, now a landmark installed by LGED, Barogang, Rainna Tongon, Berunya Lake, Bagi Lake Valley (all of which were previously accessible only by boat), the Buddhist memorial temple of Sadhananda Mahasthabir (Bonavanter) that attracts hundreds of pilgrims daily, and the permanent campus of Rangamati Science and Technology University (RSTU) along the roadway. The road has served to effectively establish a new land based tourism circuit of the lake, hills, indigenous villages, religious sites and the university campus.

Aerial Views of the Asambasti–Kaptai Road Corridor



Figure 3.1 – Aerial view of the road corridor near Asambasti, winding through hillside forest toward Kaptai Lake



Figure 3.3 – Aerial view of the road corridor cutting across the forested hill ridge above Kaptai Lake



Figure 3.2 – Aerial view of the Asambasti–Kaptai Road running along the lake shoreline amid the scattered islands of Kaptai Lake



Figure 3.4 – Aerial view of the road corridor bordered by the islands and inlets of Kaptai Lake

Road Reconstruction and Resurfacing Works (LGED Project Documentation)



Figure 3.5 – LGED road reconstruction works: base-course paving in progress with an asphalt paver



Figure 3.6 – LGED engineer supervising asphalt paving operations during road reconstruction



Figure 3.7 – LGED officials inspecting bridge works during the reconstruction project



Figure 3.8 – Resurfacing works on one of the reinforced concrete slab (RCC) bridges along the road

3.3 Bangladesh Macroeconomic Context (1977–2024)

The Asambasti–Kaptai Road story is embedded within Bangladesh's remarkable macroeconomic transformation over the past five decades. Using World Bank Development Indicators data (1977–2024)[26], Figure 3.1 illustrates the trajectory of six key macroeconomic variables: GDP (constant 2015 USD), exports and imports of goods and services, personal remittances received, and the official exchange rate.

[26]World Bank (2026). World Development Indicators: Bangladesh, 1971-2024 [Data file]. Washington DC: World Bank. Retrieved 8 April 2026.

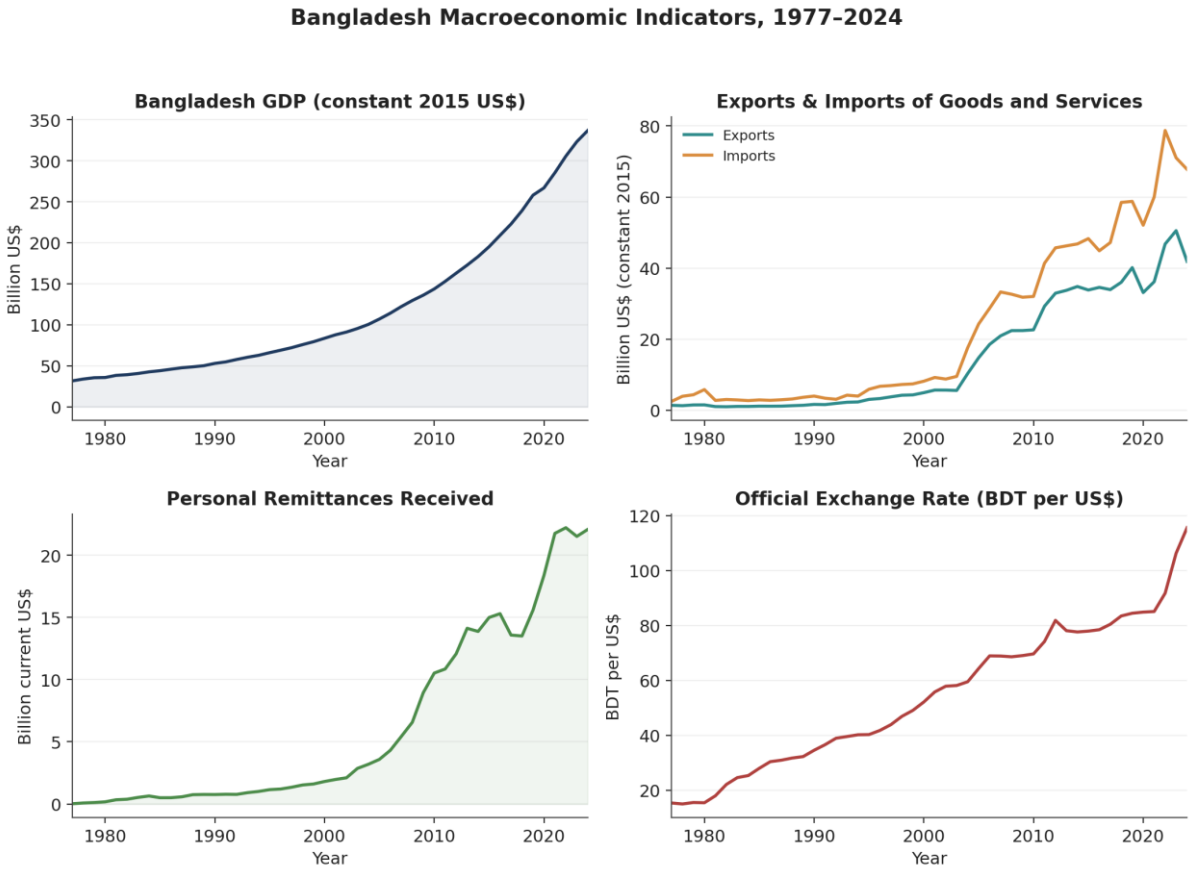


Figure 3.1: Bangladesh Macroeconomic Indicators, 1977–2024 (Source: World Bank WDI)

The real growth rate of Bangladesh's GDP (constant 2015 USD) was around 969.0% in 47 years between 1977 and 2024, an increase from about USD 31.5 billion to USD 336.9 billion. This steady growth is driven by the impressive expansion of the readymade garment sector, the remittance inflows surged by more than 1,000 times from USD 18.8 million in 1977 to USD 22.1 billion in 2024, and export revenue grew from USD 1.4 billion to USD 41.9 billion during the same period. Since 1977, the official exchange rate has fallen, from about BDT 15.4 per USD through the impact of inflation and currency adjustment to BDT 115.6 in 2024.

The following macroeconomic trajectory is pertinent for two reasons. First, it validates the fiscal and institutional ability of Bangladesh to invest in regional connectivity projects such as the Asambasti – Kaptai Road, which could have been unimaginable in the 1970s and is now possible to be funded and implemented by LGED. Second, it is an indicator of the emergence of a domestic middle class who have the income and mobility to do domestic tourism, which is the main market for the Asambasti–Kaptai corridor and is mainly visited by domestic tourists from all over the country.

Chapter 4: Research Methodology

4.1 Research Design

This study uses a mixed-methods approach in which the primary survey data consists of structured data collected from the concerned stakeholders (residents, businesses, and tourists) along the Asambasti-Kaptai corridor, while secondary macro-economic timerseries data are taken from the World Bank Development Indicators (WB DIs) and qualitative documentary evidence is gathered from the local newspaper reporting regarding the road and its impact. The cross-tabulating of the three data sources enhances the validity of any conclusions drawn from one source of data.

The empirical analysis is based on the main survey. The questionnaire was designed in Bangla and consisted of a common module (Section A) for collecting demographic data and road-use frequency, a semantic-differential mood module (Section C) for perception of mobility/access, ranging from 1 to 7; a destination/service evaluation module (Section G) ranging from 1 to 5; a business-owner-specific module (Section F) for financial performance data; and a tourist-specific module consisting of a semantic-differential mood module (Section C) ranging from 1 to 7; a destination/service evaluation module (Section G) ranging from 1 to 5; and a loyal intentions module (Section D-Tourist) ranging from 1 to 5.

4.2 Sampling and Data Collection

Data was gathered using face to face structured interviews and self-administered questionnaires in the Asambasti – Kaptai corridor and Asambasti Bazar. A purposive convenience sampling was used with three different groups of respondents:

- In the combined questionnaire, there were 57 valid local respondents and business operators: 27 local residents, 20 business operators, 8 dual identity (both local residents and business operators), 1 salaried employee, and 1 with undetermined identity.
- Tourists/visitors: N = 158 valid respondents (216 form entries, including 58 blank rows added by the data entry template for systematics reasons and not included in the analysis).

The respondents were picked-up from the Asambasti viewpoint, Barogang village entry point, roadside eateries and transport stands and the lakeshore of Kaptai. Tourist respondents were approached at the viewpoints and picnic areas of the corridor. The data were gathered through numerous field visits in the year 2025-2026.

4.3 Data Cleaning and Quality Control

The survey data was put into Microsoft Excel and then exported to Python for analysis (pandas, NumPy, SciPy). The following data quality issues were found and rectified:

- Unicode normalisation: The survey data exported had a different form of Unicode (composed vs. decomposed glyph sequences) for the Bangla text than the analysis scripts. To achieve consistent matching of all text columns, all text was first normalised to Unicode NFC form.
- Range formatted income entries: Ten cells in the income/investment category had ranges (for example, 30,000-35,000 BDT) instead of a single value. These were transposed as the arithmetic mean of the range mentioned (e.g. 32,500 BDT) and marked in the cleaning log. A single value that was not numeric ("Rent CNG") was not included in quantitative analysis.
- Zero pre-road income: One respondent (CNG driver) reported having BDT 0 as pre-road income that is, no income prior to the road. This respondent was included in the absolute income change analysis but not in the percentage-change analysis, which is undefined with a zero baseline.
- Five columns in the business sheet (which correspond to the "D-Section Tourism+Road" block in the tourist questionnaire) were completely blank, which is not the result of data missing but a structural element of the multi-respondent form design. These columns were not analyzed.

Table 4.1 summarises the income/investment cells that required cleaning.

Resp. ID	Field	Raw Value	Action	Result (BDT)
25	Monthly income	30,000-35,000`	Midpoint	32,500
39	Monthly income	30,000-35,000	Midpoint	32,500
41	Monthly income	25,000-30,000	Midpoint	27,500
56	Monthly income	15,000-20,000	Midpoint	17,500
57	Monthly income	25,000-30,000	Midpoint	27,500
35	Last year income	40,000-45,000	Midpoint	42,500
41	Last year income	40,000=45,000	Midpoint	42,500
35	Initial investment	Rent CNG	Excluded	—
5	Pre-road income	15,000-20,000	Midpoint	17,500
17	Pre-road income	8,000-10,000	Midpoint	9,000

Table 4.1: Data Cleaning Log — Income/Investment Fields

4.4 Analytical Methods

The following analytical techniques were used:

• Descriptive statistics: Frequency distributions, mean, standard deviation and percentage agreement (≥ 4 on a 5-point Likert scale) for all survey items.

• Likert-scale item analysis: analysis by the type of survey recipient (resident only, business only, dual) and by section of the survey.

• Pre/post income comparison: paired analysis for the subsample (N = 18) with both pre-road and current monthly income. This was performed using the Wilcoxon signed rank test (non-parametric and fitting for small N and skewed income distributions). In order to account for the right-skewed distribution of income caused by a few very large hotel/resort businesses, both mean and median changes are reported.

• Correlation Analysis: Spearman rank correlations (which are not affected by the ordinal data and by non-normality) were calculated between the mobility composite (mean of the items in Sec B), the economic impact composite (mean of Sec D items) and the tourism support attitudes composite (mean of Sec E items). Affect-loyalty and place-evaluation–loyalty relationships were calculated for tourist data.

• Macroeconomic trend analysis: Time series graphs were created using World Bank WDI data (1977-2024), to give the national economic context.

All analyses were performed in Python 3.12 with the packages pandas v2.2, NumPy v1.26, SciPy v1.12, and matplotlib v3.8. Embedding reports with charts was done at 200dpi.

Chapter 5: Results and Analysis

5.1 Respondent Profile

5.1.1 Local Residents and Business Owners (N = 57)

The local respondent sample consisted of 57 people. Twenty-seven of these (27, 47.4%) were local residents, 20 (20, 35.1%) were business owners, 8 (14.0%) were local residents and business owners and 1 (1.8%) were salaried employees. Male and female distribution: male (71.9%), female (26.3%) and 1 missing. The mean age was 41.9 years (SD = 10.1, range 22–68), which was a working age population. 35 respondents (61.4%) use the road on a daily basis, 18 (31.6%) weekly, and 4 (7.0%) monthly, further highlighting the road's importance in daily life.

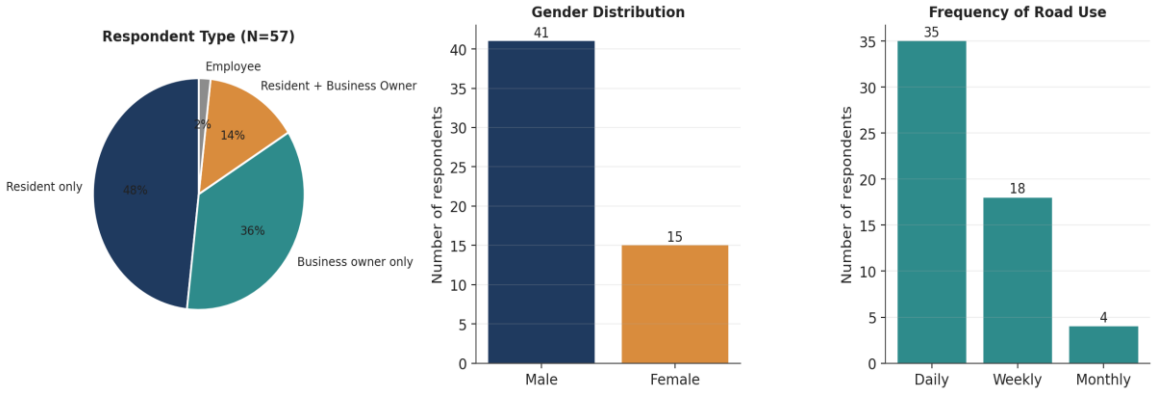


Figure 5.1: Respondent Type, Gender, and Road-Use Frequency Distribution (N = 57)

Characteristic	Category	N (%)
Gender	Male	41 (71.9%)
	Female	15 (26.3%)
	Missing	1 (1.8%)
Age	Mean ± SD	41.9 ± 10.1 years
	Range	22–68 years
Education	None / Informal	13 (22.8%)
	Primary	10 (17.5%)
	Secondary	11 (19.3%)
	Higher Secondary	9 (15.8%)
	Tertiary/Higher	12 (21.1%)
	Missing	2 (3.5%)
Respondent type	Resident only	27 (47.4%)

	Business owner only	20 (35.1%)
	Resident + Business Owner	8 (14.0%)
	Employee	1 (1.8%)
Road-use frequency	Daily	35 (61.4%)
	Weekly	18 (31.6%)
	Monthly	4 (7.0%)

Table 5.1: Demographic Profile of Local Respondents (N = 57)

5.1.2 Occupation and Business Profile

The occupational composition reflects the main economic beneficiaries of the road. Business owners (19 respondents, 33.3%) form the largest category, followed by homemakers (10, 17.5%), CNG/transport drivers (8, 14.0%), salaried employees (7, 12.3%), shop owners (5, 8.8%), students (3, 5.3%), food shop/stall owners (2, 3.5%), farmers (2, 3.5%), and one day labourer. Of the 31 respondents that reported their business type, food/restaurant operations dominate (11 respondents, 35.5%), transport (10, 32.3%), retail shops (5, 16.1%), hotel/resort (4, 12.9%) and other (1, 3.2%). For tourist customer share, 20 of the 32 reporting businesses (62.5%) say that over half of their customers are tourists, underlining the key importance of the road corridor to the local tourist economy.

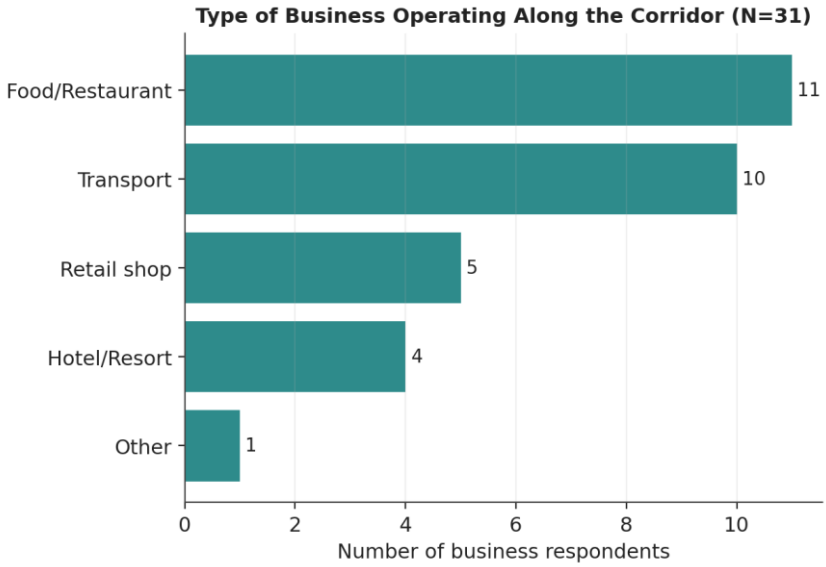


Figure 5.2: Business Type Distribution Among Corridor Business Operators (N = 31)

5.1.3 Tourist Sample (N = 158)

A total of 158 valid responses were collected from the tourists. Respondent ID numbers 1 through 103 were sequential and complete; ID numbers 104 through 212 were a systematic data-entry artifact; data-entry only occurred for odd-numbered ID numbers (105, 107, 109…213), leaving

even-numbered ID numbers as empty template rows which were not analyzed. This yielded a total of 158 valid tourist responses on all the dimensions of the survey.

5.2 Mobility and Access Perceptions (Section B)

In section B of the local survey, all 57 respondents were asked to use a 5-point Likert scale to rate four statements related to the effect of the road on mobility and access: 1 = Strongly Disagree, 5 = Strongly Agree. The results are shown in Table 5.2.

Statement	N	Mean	SD	%≥4	Interpretation
Reaching destinations is easier than before	57	4.53	0.50	100%	Very High
Daily tasks can be performed without major obstacles	57	4.44	0.68	96.5%	High
"Services & opportunities (market	NaN	NaN	NaN	4.51%	Moderate
"Improved connectivity has enabled a better	NaN	57.00	4.54	5%	Very High

Table 5.2: Mobility & Access Perceptions (Sec B, Scale 1–5, N = 57)

The results on mobility are quite extraordinary in their uniformity. All four items register means the score is >4.44 and 96.5-100% of the respondents scored 4 or 5. The top five items are "Improved connectivity has enabled a better, more satisfactory life" (mean 4.54, SD = 0.60); "Reaching destinations is easier than before" (mean 4.53, SD = 0.50); "New services and initiatives have been created to improve or ensure safe travel, including the new One Health Commission" (mean 4.47, SD = 0.61); "A more dependable, secure travel network has been established, including the new One Health Commission" (mean 4.46, SD = 0.62); and "The quality of the travel network has improved, including the new One Health Commission" (mean 4.42, SD = 0.56). This is true at both the level of the residents only, business owners only, and dual-identity respondents; the mean on all four items is above 4.3 for all types of respondents. The fact that this convergence is seen both among various stakeholder roles, from homemakers to transport drivers to resort owners, is a good indicator that the mobility benefit of this road is broadly felt and across many stakeholder positions.

5.3 Local Economic Impact Perceptions (Section D)

Eight Likert items were used in Section D to gauge perceptions of the economic impact of the road. All 16 items of the business/resident survey (Sections B, D, and E) are displayed in Figure 5.3 for easy comparison.

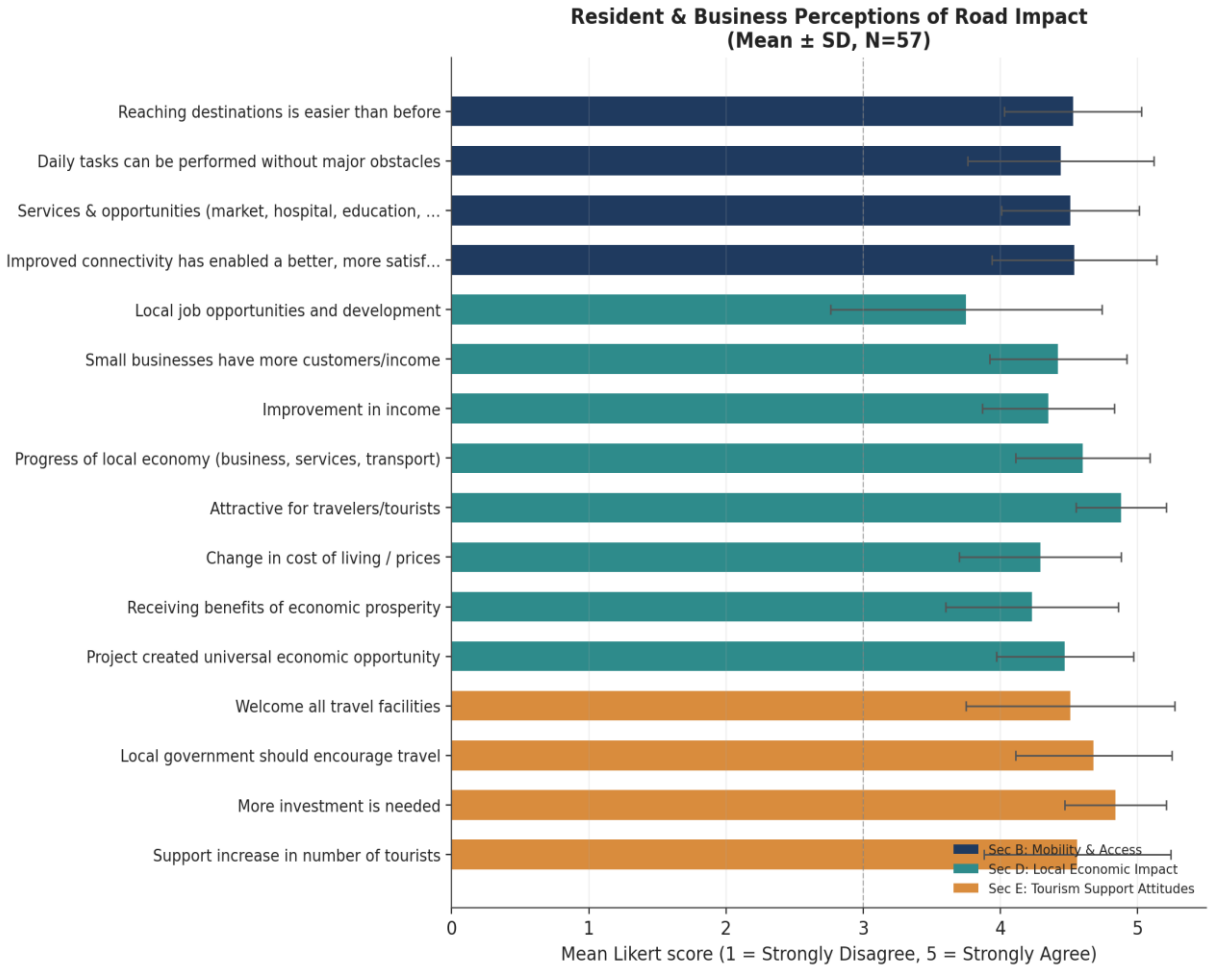


Figure 5.3: Resident & Business Perceptions of Road Impact Across All Sections (Mean ± SD, N = 57)

Economic Impact Item	N	Mean	SD	%≥4	Rating
Local job opportunities and development	57	3.75	0.99	78.9%	Moderate
Small businesses have more customers/income	57	4.42	0.50	100%	High
Improvement in income	57	4.35	0.48	100%	High
"Progress of local economy (business	NaN	NaN	57.00	0.49%	Below neutral
Attractive for travelers/tourists	57	4.88	0.33	100%	Very High
Change in cost of living / prices	56	4.29	0.59	96.4%	High
Receiving benefits of economic prosperity	57	4.23	0.63	96.5%	High
Project created universal economic opportunity	57	4.47	0.50	100%	High

Table 5.3: Local Economic Impact Perceptions (Sec D, Scale 1–5, N = 57)

The economic consequences show a largely favorable opinion, but with a particular twist. The road is the main attraction for tourists/travelers with the highest score on all 16 items in the survey (mean 4.88, SD = 0.33). “Progress of local economy (business, services, transport) (mean 4.60) and “Small businesses have more customers/income (mean 4.42) are also highly rated. The one

weakest economic item, however, is 'Local job opportunities and development' (mean 3.75, SD = 0.99) with about 21.1% rating it 3 or below, a significant minority opinion that indicates that employment advantages are not as widespread as commercial advantages. This is consistent with the literature indicating that the benefits of tourism income may initially be experienced by the commercial sector, and then spread to employment.

5.4 Business Performance: Pre- vs. Post-Road Income

The financial performance data was taken from the business-owner subsample in Section F of the business survey. 18 of these respondents reported valid self-reported monthly income for both the current period and the period before the road was reconstructed, and thus allowed for a paired comparison. The income distribution before and after the upgrading of the road is visualised in Figure 5.4.

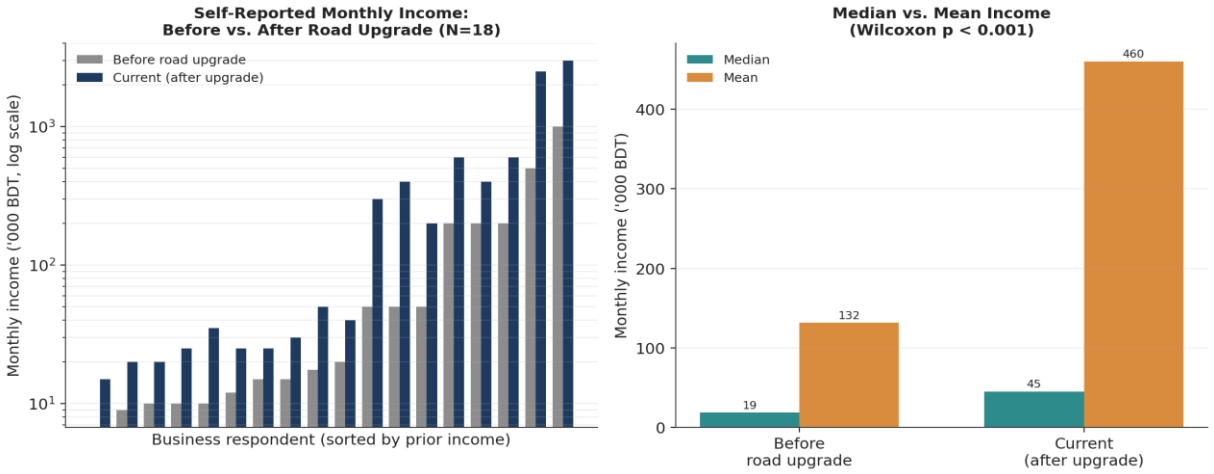


Figure 5.4: Self-Reported Monthly Income Before vs. after the earthquake. After Road Upgrade (N = 18; Log scale left panel; Mean vs. Median right panel)

The paired income data shows a dramatic upward swing for virtually all business types and sizes. The overall data is shown in Table 5.4.

Metric	Before Road Upgrade	Current (Post-Upgrade)
Sample size (valid paired respondents)	18	18
Mean monthly income (BDT)	131,583	460,278
Median monthly income (BDT)	18,750	45,000
Mean absolute change (BDT)	—	+ 328,694
Median % change	—	+ 185.7%
Mean % change (excl. zero baseline)	—	+ 222.5%

Wilcoxon signed-rank test	W = 0.00, p < 0.001 (highly significant)	

Table 5.4: Pre- vs. Post-Road Business Income Comparison (N = 18 Paired Respondents)

The Wilcoxon signed-rank test (W = 0.00, p = 0.0002) supports that the income gain is not due to chance. The median increase was 185.7% – most businesses more than tripled their earnings as a percentage of their pre-road levels – and the median of monthly earnings doubled, from BDT 18,750 to BDT 45,000, or 140% in absolute terms. The mean figures are much higher (BDT 131,583 vs. BDT 460,278) because some of these are large-scale hotel/resort, and food park operations which have very high absolute incomes, which means that the income distribution is right-skewed as is usually the case in tourism-led economic booms. Interestingly, 32 businesses reported on tourist customer share, of which 62.5% report having more than 50% of their customers being tourists (Figure 5.5), which is an immediate link between tourist numbers and revenue for businesses.

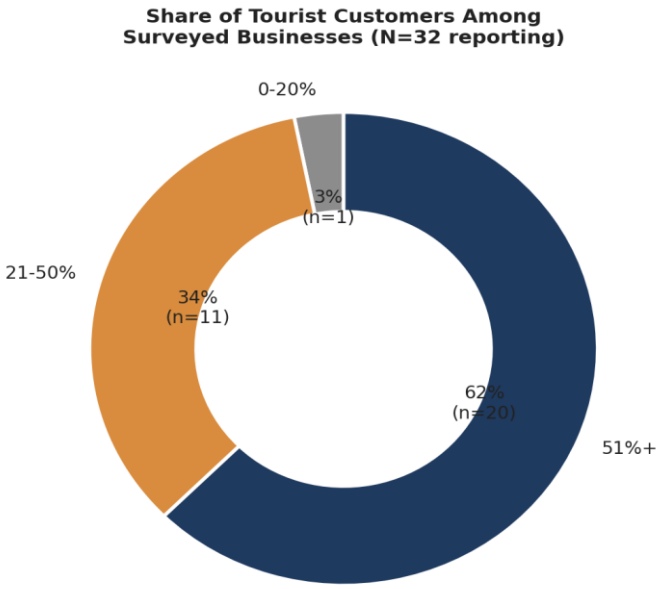


Figure 5.5: Tourist Share of Customers Among Corridor Businesses (N = 32 reporting)

5.5 Tourism Support Attitudes (Section E)

Four items were included in Section E to measure the local residents and business owners' attitudes on tourism development in the area. The results are shown in Table 5.5.

Tourism Support Item	N	Mean	SD	%≥4	Rating
Welcome all travel facilities	57	4.51	0.76	96.5%	Very High
Local government should encourage travel	57	4.68	0.57	98.2%	Very High

More investment is needed	57	4.84	0.37	100%	Very High
Support increase in number of tourists	57	4.56	0.68	96.5%	Very High

Table 5.5: Tourism Support Attitudes (Sec E, Scale 1–5, N = 57)

The scores for the tourism support attitudes section of the local survey are the highest. The item mean with the highest level of agreement by the community, measured at 100% (joint with the item "More investment is needed") is 4.84 (SD = 0.37), indicating a clear and unanimous need for more investment in infrastructure and services. The items "Local government should encourage travel" (mean=4.68) and "Support increase in number of tourists" (mean=4.56) also have high scores. The score of residents is slightly more moderate on E4 (support more tourists: mean 4.26 for residents only vs. 4.90 for business owners only), while the scores of business owners are consistently slightly higher on all E-items, particularly on E.3: More investment is needed, (means 5.00 for business owners only). This indicates that some residents may differentiate between tourism in principle and unconditional support for more tourists.

5.6 Correlation Analysis: Mobility, Economic Impact, and Tourism Support

Spearman rank correlation was calculated for three composite indices: the mobility/access composite (mean of the items in Sec B), the economic impact composite (mean of the items in Sec D) and the tourism support attitudes composite (mean of the items in Sec E). Results are presented in Table 5.6 and Figure 5.6.

	Mobility Composite	Economic Composite	Tourism Support
Mobility Composite	1.000	0.529***	−0.093
Economic Composite	0.529***	1.000	0.087
Tourism Support	−0.093	0.087	1.000

*Table 5.6: Spearman Correlation Matrix — Composite Indices (N = 57; *** p < 0.001)*

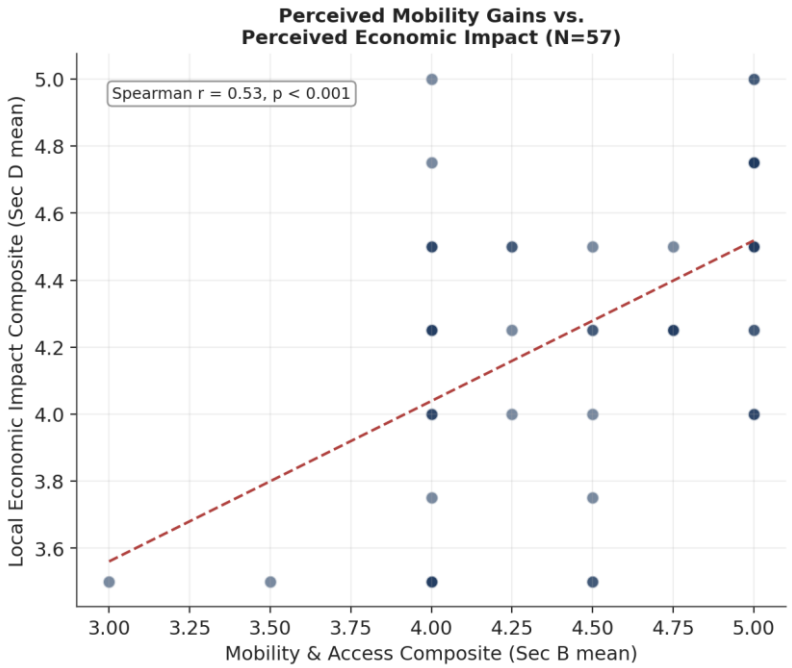


Figure 5.6: Scatter Plot — Mobility Composite vs. Economic Impact Composite (Spearman r = 0.53, p < 0.001)

The moderate positive correlation between the mobility composite and the economic impact composite ($r = 0.529$, $p < 0.001$) is the study's most theoretically significant correlation finding. At the individual respondent level, it validates the aggregate Likert finding that those who see greater benefits in mobility from the road also tend to see greater benefits in the economy, as per existing literature on the infrastructure–development causal pathway (Khandker et al. 2009; see the transport-economics literature). Support for tourism development was not found to be greatly influenced by economic composite ($r = 0.087$, $p = 0.52$), which indicates that community support for tourism development is broadly held, not just by the people who benefit most economically.

5.7 Tourist Experience and Satisfaction

5.7.1 Emotional Experience (PANAS-Style Semantic Differential, Sec C)

By using a nine-item semantic differential scale (1 = negative pole, 7 = positive pole), Section C measured tourists' emotional experience during the travelling of the corridor. The mean score of the bipolar pairs is shown in Figure 5.7.

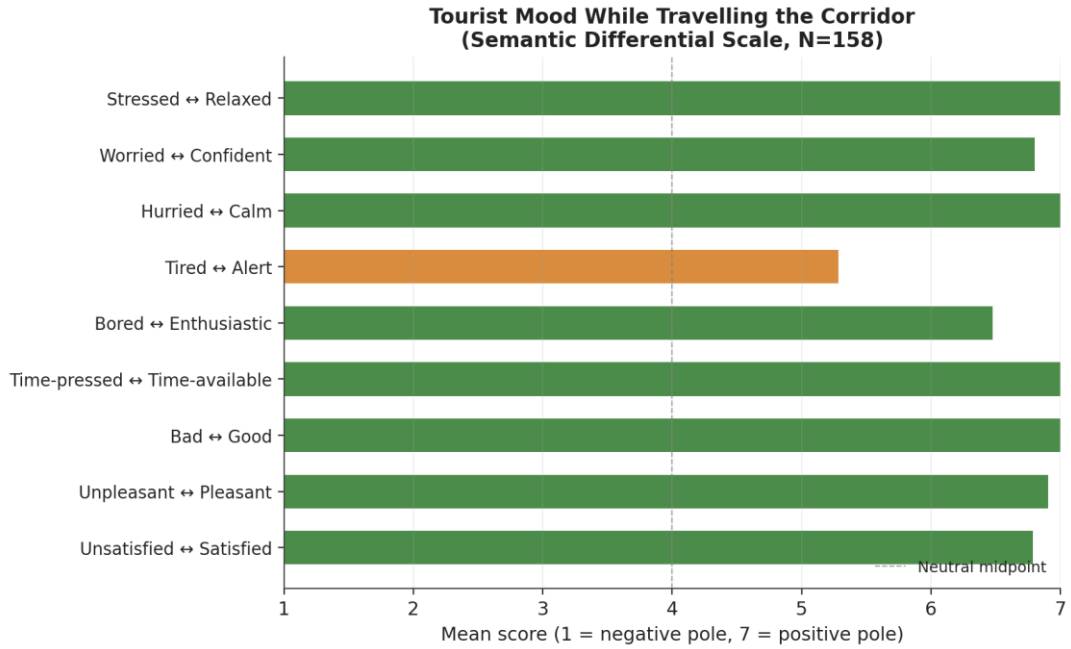


Figure 5.7: Tourist Mood Profile While Travelling the Corridor (Semantic Differential Scale, 1–7, N = 158)

Seven out of the nine items had a mean score of 6.48 or higher, meaning that most tourists who responded to each item chose the positive pole. The mean for all endorsed PANAS items is 6.68/7.0 — which is very near the most positive possible score. The two slightly lower-scoring items "Tired ↔ Alert" (5.29) and "Bored ↔ Enthusiastic" (6.48) may be semantic differential artifacts, with the fatigued from the journey indicating the slightly negative end of the spectrum for tiredness; the enthusiastic item shows the greatest difference in the respondents' experiences. These results clearly validate the results presented in the tourism literature on the importance of emotional affect as an antecedent to satisfaction and loyalty: the road journey itself creates a significantly positive emotional affect.

5.7.2 Destination and Service Quality Ratings (Section G)

The tourists' evaluation of the destination and service quality were measured in section G through four sub-modules: place evaluation (GA, 5 items), service quality (GB, 5 items), satisfaction with corridor attributes (C, 5 items), and loyalty intentions (D, 3 items). All 18 items are shown in figure 5.8.

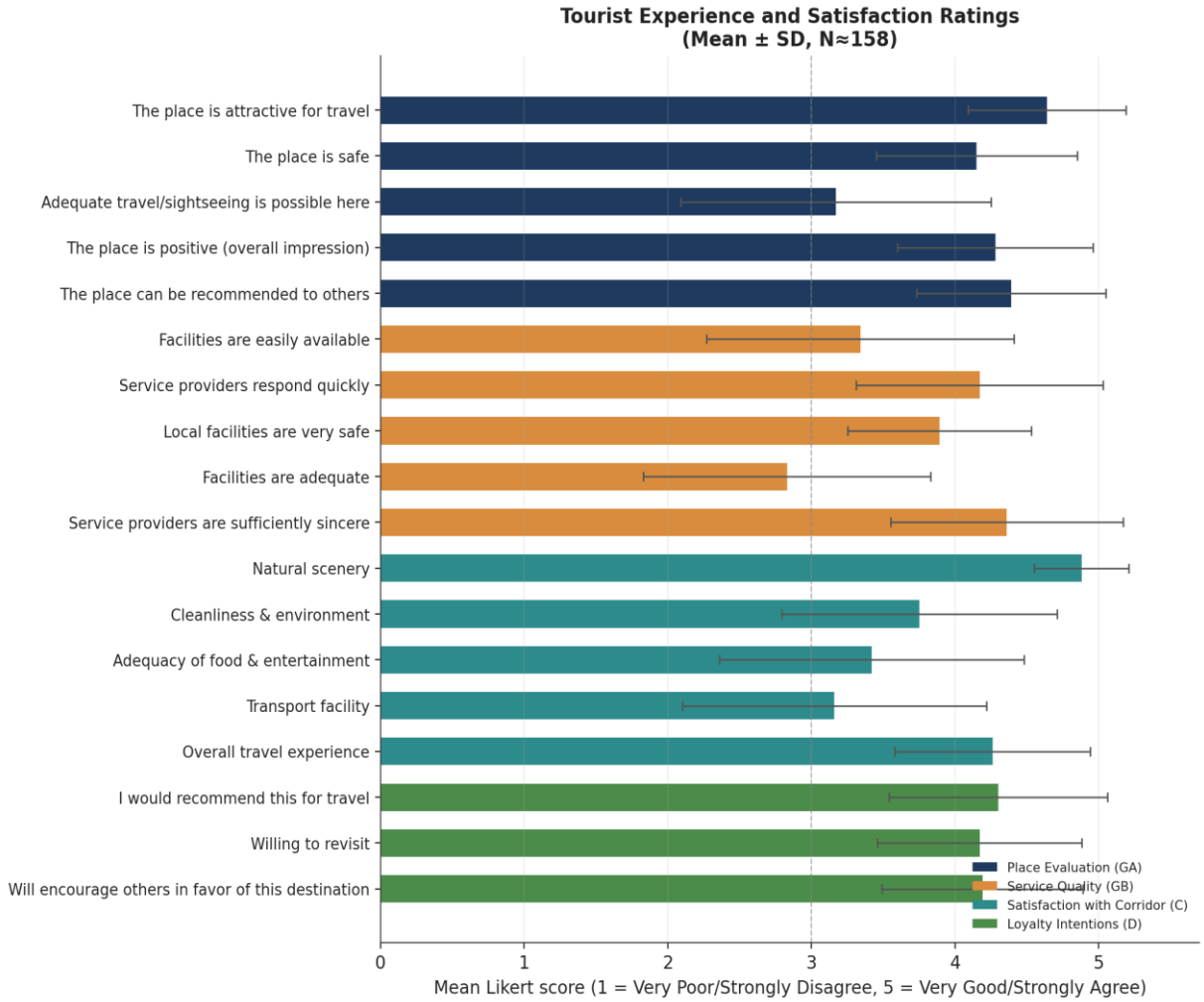


Figure 5.8: Tourist Experience and Satisfaction Ratings (Mean ± SD, N ≈ 158)

Item	N	Mean	SD	%≥4	Rating
The place is attractive for travel	157	4.64	0.55	98.7%	Very High
The place is safe	156	4.15	0.70	93.6%	High
Adequate travel/sightseeing is possible here	156	3.17	1.08	51.3%	Below avg
The place is positive (overall impression)	157	4.28	0.68	96.2%	High
The place can be recommended to others	157	4.39	0.66	96.8%	High
Facilities are easily available	157	3.34	1.07	61.1%	Below avg
Service providers respond quickly	157	4.17	0.86	87.9%	High
Local facilities are very safe	157	3.89	0.64	90.4%	Moderate
Facilities are adequate	156	2.83	1.00	39.7%	Low
Service providers are sufficiently sincere	157	4.36	0.81	91.7%	High
Natural scenery	156	4.88	0.33	100%	Very High
Cleanliness & environment	157	3.75	0.96	79.6%	Moderate

Adequacy of food & entertainment	157	3.42	1.06	64.3%	Below avg
Transport facility	157	3.16	1.06	54.8%	Below avg
Overall travel experience	156	4.26	0.68	94.2%	High
I would recommend this for travel	157	4.30	0.76	93.6%	High
Willing to revisit	157	4.17	0.71	92.4%	High
Will encourage others in favor of this destination	157	4.19	0.70	93.6%	High

Table 5.7: Tourist Destination and Service Evaluation Ratings (Scale 1–5, N ≈ 158)

The tourist satisfaction results show a distinct pattern of strengths and unmet needs. With a 100% agreement, natural scenery is the highest mean of all items in the study, which validates that the scenic corridor is indeed the main attraction of the corridor. The ratings for place attractiveness (4.64) and place recommendability (4.39) are also very high. The overall travel experience (4.26) is above 4.0 along with 3 destination loyalty dimensions: "would recommend" (4.30), "willing to revisit" (4.17) and "will encourage others" (4.19) – all scoring above 4.0 at over 92% agreement.

But two service quality items emerge as obvious weaknesses: "Facilities are adequate" (mean = 2.83, SD = 1.00, only 39.7% agreed) and "Adequate travel/sightseeing is possible here" (mean = 3.17, SD = 1.08, 51.3% agreed). The other three dimensions—cleanliness and environment (3.75), food/entertainment adequacy (3.42) and transport facility (3.16)—also give below-average scores. The results indicate a known discrepancy in the development of tourism: natural resources draw tourism, but inadequate service development limits tourists' satisfaction and can even inhibit longer-term loyalty.

5.7.3 Correlations: Tourist Affect, Place Evaluation, and Loyalty

The Spearman correlation coefficients between the three main tourist composite indices (the affect index, the place evaluation composite and the loyalty composite) are shown in Table 5.8.

Pair	r (Spearman)	p-value	N
Affect index → Loyalty composite	0.326	< 0.001	156
Place evaluation → Loyalty composite	0.401	< 0.001	156

Table 5.8: Tourist Composite Index Correlations (N = 156)

Both the correlations are statistically significant at 0.001 level. The correlation between place evaluation and loyalty is moderate (r = 0.401), and slightly greater than the correlation between affect and loyalty (r = 0.326), indicating that cognitive appraisal of place quality is a slightly

better predictor of revisit/recommend intentions than the affect mood state alone.[27] This aligns with the meta-analysis literature of tourist loyalty which include the quality of the experience as one of the main determinants of tourist loyalty. The findings of the tourists collectively support the fact that the Asambasti–Kaptai area offers extraordinary affective experience and almost universal destination loyalty, but that the satisfaction level of the 'natural spectacle' needs to be improved to become 'full tourism experience' through service quality improvements in physical infrastructure, transport access, and destination management."[28]

[27]PLOS One (2023). The five influencing factors of tourist loyalty: A meta-analysis. PLOS One, 18(4). doi:10.1371/journal.pone.0283963.

[28]Wang, G., Dong, X., Zheng, X., Liu, F. (2025). The Impact of Tourist Expectations, Experiences, and Satisfaction on Revisit Intentions: A Moderated Mediation Analysis. SAGE Open, 15(1).

Chapter 6: Discussion

6.1 The Road as a Development Catalyst

The survey findings, documentation and macro-economic background point in one direction, that is, the Asambasti-Kaptai Road has been a strong economic development facilitator in the Rangamati corridor and widely perceived as such. The high median income increase (186%) among paired business respondents with the statistically significant p value of < 0.001 and the near-unanimous Likert responses (96-100% agreement across mobility items) as well as the presence of active commercial development (hotels, resorts, food parks, transport services) along the previously inaccessible corridor all indicate a speedy economic transformation driven by the road. This result is in line with the theory of infrastructure-development put forth by Khandker et al. (2009) which states that better rural road transport lowers poverty by decreasing transaction costs, increasing market prices, and creating new commercial opportunities.[29]

A Bonik Barta correspondent quoting the former chairman of the Department of Tourism and Hospitality Management at Rangamati Science and Technology University stated that the road is "vitally important for tourism" and its community corridor potential needs to be utilized to connect the surrounding indigenous communities to the benefits of the tourism boom, rather than the benefits being enjoyed by commercial tourism operators and external investors only.[30] This expert assessment, in conjunction with the survey result that the "local job opportunities" item scores lowest among all economic items (mean 3.75), indicates that the distribution of economic gains is not equal, and commercial tourism is generating economic gain more quickly than formal jobs.

6.2 The Natural Asset–Service Quality Gap

One of the most interesting structural insights from the tourist data is that there was a big gap between the appreciation of the natural assets (scenery mean 4.88/5.0) and the facilities (mean 2.83/5.0). This isn't just a statistical difference, it is a 2.05-point difference on a 5-point scale between the corridor's strongest attribute, and its most vulnerable weakness. The great majority of tourists like the scenery very much, while the tourism infrastructure is found to be very poor.

[29]Khandker, S.R., Bakht, Z. and Koolwal, G.B. (2009). The Poverty Impact of Rural Roads: Evidence from Bangladesh. Economic Development and Cultural Change, 57(4), pp. 685–722.

[30]Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.

This situation is completely in line with what the literature describes as the "natural beauty trap", which is a situation that occurs when ecotourism suitable destinations are already attracting visitors due to their scenic values and the service infrastructure is not yet in place to meet the expectations of the visitors. The ratings for transport facility (3.16), adequacy of food and entertainment (3.42), and cleanliness/environment (3.75) indicate that although the road has provided physical access, the range of additional tourism services — clean toilets, viewing platforms, food and entertainment services, transport connectivity, waste management — is still underdeveloped.

Notably, the fact that the destination loyalty scores (recommend: 4.30; revisit: 4.17) are relatively high despite these service gaps indicates that tourists are now “forgiving” the infrastructure deficit, as the natural experience is so exceptional that it outweighs these shortcomings. But as the volume of tourists grows and expectations rise (as is the case in tourist lifecycle research), this tolerance may be threatened. Without pro-active responses to quality gaps in its services, the corridor faces the possibility of becoming an "overwhelmed and degraded natural destination" rather than an "emerging natural destination".

6.3 Environmental Concerns and the Sustainability Imperative

A key discovery from the documentary evidence – which was broadly supported by the cost of living item (Sec D6, mean: 4.29, showing perceived increases in prices) – was the environmental and social stress that has occurred alongside the tourism boom. The Pranto Rini correspondent report in particular provides evidence of deforestation, hillside clearance for the construction of resort areas, and local families selling their land to outside investors. These are classic early stage negative externalities of tourism-led development in ecologically sensitive areas that have been well documented in the CHT literature.

The strategic tourism impact assessment of the CHT region highlighted that "infrastructure projects can destroy the potential for ecotourism in sensitive areas" if not supported by strong environmental frameworks. The Asambasti–Kaptai corridor is at this critical tipping point: it has become accessible and it has stimulated economic activity—but the potential of the natural resources that make it attractive to tourists—the lake, the hills, the forest—is threatened unless a land-use, environmental management and community-benefit regime is put in place.

The World Economic Forum guidance on community-led sustainable tourism (2023) is helpful here in that it calls for the development of local supply chains, community-based tourism that boosts residents' income, and the overall business environment to stimulate development, all

while preserving indigenous community rights. The Khumi-Lushai tribal groups who live along the road and who were already mentioned in media reports as a cultural tourism resource are especially deserving of reaping the economic benefits of the road, which may not be their at the moment.

6.4 The Macroeconomic Backdrop and Future Investment Capacity

The macroeconomic trajectory of Bangladesh, which has grown by ten times in real GDP since 1977, has a large and growing domestic middle class, and sustained export and remittance inflows, present macro-economic conditions in Bangladesh that provide a platform for continued investments in regional connectivity and tourism infrastructure. The domestic market has seen a tremendous increase, given its accessibility for a larger share of the population after an increase in their income levels. Asambasti–Kaptai corridor is an early case of the fruits of this domestic tourism expansion.

The BDT 43–50 crore spent on road repair will translate to a very positive social return on public investment in infrastructure, since hundreds of millions of dollars have already been invested in private businesses along the road corridor. This is line with the IMF's overall conclusion that multiplier effects on infrastructure investment in developing countries are larger in rural and remote regions, and are larger for the poorest.

Chapter 7: Conclusions and Policy Recommendations

7.1 Key Conclusions

This study has systematically examined the economic and tourism effects of Asambasti–Kaptai Connecting Road in Rangamati, Bangladesh, for the first time in an empirical way. A mixed-methods study that combined survey data from 57 locals and 158 tourists, World Bank macroeconomic data (1977-2024), and documented evidence from five regional news sources led to the following conclusions:

- Near-universal positive perceptions regarding the enhancement of mobility and access have been achieved by the road among local residents and business operators with 96-100% of respondents stating improved mobility and access to destinations, services and quality of life.
- Paired business respondents have reported median monthly income increased by around 186% since road reconstruction, with a statistically significant increase (Wilcoxon $p < 0.001$), suggesting a significant increase in business incomes along the corridor. The main reason is tourism: 62.5% of reporting businesses report having more than half tourists as their customers.
- The experience of tourists visiting the corridor is highly positive, with high scores for the appreciation of natural scenery (mean = 4.88/5.0) and high emotional affect (PANAS mean = 6.68/7.0), leading to high intentions of destination loyalty (recommend: 4.30; revisit: 4.17). Yet, facility adequacy (2.83) and transport service quality (3.16) are important and outstanding unmet needs.
- The theoretically predicted infrastructure–livelihood pathway at the individual respondent level is confirmed by the moderate positive Spearman correlation ($r = 0.529$, $p < 0.001$) between perceived mobility gains and perceived economic impact.
- There is a moderate correlation between tourist place evaluation and loyalty ($r = 0.401$, $p < 0.001$), which indicates that improving the quality of the service and management of tourist places will positively impact on the level of tourist loyalty to their places of visit and recommendations for other visitors in the future.
- The natural asset base which forms the basis for the tourism appeal of the corridor is at risk from deforestation and unplanned resort growth, and is a critical risk from environmental concerns if not addressed.

- Community employment benefits are not as high as commercial gains: The lowest-scoring economic item is "local job opportunities" (mean 3.75), suggesting that so far income gains have not trickled down from business owners.

7.2 Policy Recommendations

The evidence-based policy recommendations are directed towards the three major stakeholders i.e. Local Government Engineering Department (LGED) Rangamati, the Rangamati Hill District Council, and the Bangladesh Tourism Board.

7.2.1 Infrastructure Investment (LGED Priority)

- Ensure purpose-built tourist rest stops, clean public washrooms and viewpoint platforms are developed at key points along the 18 km corridor (at least 3 - 4 locations). The existing "I Love Rangamati" landmark at Asambasti can serve as a model.
- To extend the two-lane highway and enhance the pavement condition of the highway to cater for peak tourist traffic volumes especially during weekends and public holidays. Traffic management planning should begin before overcrowding of roads becomes an issue for visitors.
- To conduct a formal condition survey of the three RCC bridges every year to ensure structural safety with the growing tourist numbers.

7.2.2 Eco-Tourism and Environmental Management (Hill District Council)

- Create a formal Corridor Eco-Tourism Management Zone, including zoning of land uses, including zones for resort and accommodation, protected hillside buffer zone, and community-access zones. Environmental clearance by the Department of Environment should be made a prerequisite for construction of new resorts.
- Implement Hillside Clearing Moratorium in the Kaptai Lake Shoreline within 200 metres and apply existing Forest Protection laws in the Hillside Clearing buffer zone.
- Create a community-benefit revenue sharing scheme, such as a corridor tourism levy on commercial accommodation operators that would provide funds for local employment schemes and skills training of members of the indigenous community and environmental restoration.
- Register and promote the indigenous Khumi-Lushai community village and the Sadhananda Mahasthabir memorial temple formally as cultural heritage tourism sites with community managed visitor programmes and entry fees that benefit the community.

7.2.3 Destination Management and Marketing (Bangladesh Tourism Board)

- Make Asambasti-Kaptai route an official eco-tourism destination of Bangladesh Tourism Board so that it can be featured in the national tourism promotion literature and international promotion.
- Establish a food safety and service quality grading system for the food stalls and restaurants on the corridor, which were identified with below average food and entertainment satisfaction scores in this study.
- Promote the development of organised guide service and boat tour packages to be used by visitors so that they have a circular tour providing maximum time and money for visitors in the area: The use of corridor road and Kaptai Lake boat tour to produce a circular tour.
- Commission an annual visitor satisfaction survey (based on this study instrument) to monitor satisfaction trends, to gain awareness of any arising gaps in the services offered and to assess the effect of investment in tourist infrastructure.

7.3 Directions for Future Research

There are some methodological limitations in this study that should be taken into account in future research. First, a probabilistic sampling design would allow for more powerful generalisation, because the sample size of each stakeholder group is so large (N>200). Second, a longitudinal panel design (recording the same business owners or residents across various survey waves) would enable causal inference, rather than retrospective recollection. Thirdly, the deforestation concern reported in news sources would be quantified by environmental impact assessment using remote sensing data (satellite imagery of the change in land use at the hillside before and after the reconstruction of the road). Fourth, a willingness to pay study with tourists might be able to estimate the economic value of proposed improvements in service quality, giving a cost-benefit approach for infrastructure investment decision making. Lastly, the need is great for a study exclusively on indigenous community members, who are under-represented in this survey, to determine if the economic opportunities of the road are equitably shared among ethnic groups and genders.

References

Bonik Barta (2024). Paryatan shilpe notun matra Kaptai Asambasti songjog sarak [New dimension in tourism: Kaptai-Asambasti connecting road]. Bonik Barta, 7 April 2024.

Bucheli, J., et al. (2018). Rural Roads and Local Economic Development. International Food Policy Research Institute Working Paper.

Calvo-Mendieta, I., Foster, V., Straub, S., and Vagliasindi, M. (2023). The Impact of Infrastructure on Development Outcomes: A Qualitative Review of Four Decades of Literature. World Bank Economic Review, 36(4).

Hannan, M. (n.d.). Valobashay morano muggdhatar ek shorak [A road captivating with love and enchantment]. Sukhabar Protidin (Rangamati correspondent).

IMF (2017). Trends and Challenges in Infrastructure Investment in Low-Income Developing Countries. IMF Working Paper WP/17/233. Washington DC: International Monetary Fund.

Islam, D., Wieland, M. and Adiv, M. (2008). Roads Socio-Economic Impact Assessment. Washington DC: USAID.

Khandker, S.R., Bakht, Z. and Koolwal, G.B. (2009). The Poverty Impact of Rural Roads: Evidence from Bangladesh. Economic Development and Cultural Change, 57(4), pp. 685–722.

Kozak, M. and Rimmington, M. (2000). Tourist Satisfaction with Mallorca, Spain, as an Off-Season Holiday Destination. Journal of Travel Research, 38(3), pp. 260–269.

PLOS One (2023). The five influencing factors of tourist loyalty: A meta-analysis. PLOS One, 18(4). doi:10.1371/journal.pone.0283963.

Rahman, Md. T. (2018). Impacts of Rural Road Development on Local Traffic. Journal of Bangladesh Institute of Planners, Vol. 11.

Rini, P. (n.d.). Kaptai-hoder buk chire muggdhatar shorak [The enchanting road piercing the heart of Kaptai Lake]. Rangamati correspondent report.

Roe, D. and Elliott, J. (2006). Pro-poor conservation: The elusive win-win for conservation and poverty reduction. Policy Matters, 14, pp. 53–63.

Strategic Tourism Impact Management in the Chittagong Hill Tracts (CHT) Region, Bangladesh (2020). ResearchGate. doi:10.13140/RG.2.2.25684.25607.

Tourism and state violence in the Chittagong Hill Tracts of Bangladesh (2017). Academia.edu. Available at: https://www.academia.edu/68872888/

Wang, G., Dong, X., Zheng, X., Liu, F. (2025). The Impact of Tourist Expectations, Experiences, and Satisfaction on Revisit Intentions: A Moderated Mediation Analysis. SAGE Open, 15(1).

Warr, P. (2010). Roads and poverty in rural Laos: An econometric analysis. Pacific Economic Review, 15(1), pp. 152–169.

World Bank (2015). A Strategic Framework for Sustainable Development in the Chittagong Hill Tracts of Bangladesh. Washington DC: World Bank.

World Bank (2026). World Development Indicators: Bangladesh, 1977–2024 [Data file]. Washington DC: World Bank. Retrieved 8 April 2026.

World Economic Forum (2023). This is how to leverage community-led sustainable tourism for people and biodiversity. World Economic Forum, October 2023.

Appendix A: Survey Instrument Summary

Two different instruments were used for the primary survey: (1) a resident/business instrument, and (2) a tourist-specific instrument. Both the instruments were designed in Bangla language and face to face administered. The following table provides an overview of the key parts of each of the instruments.

Section	Instrument	Content	Scale / Format
Sec A	Resident/Business	Respondent demographics: age, gender, education, occupation, road-use frequency and reason	Multiple choice
Sec B (1–4)	Resident/Business	Mobility & Access perceptions (4 items)	5-point Likert (SD–SA)
Sec D (1–8)	Resident/Business	Local Economic Impact perceptions (8 items)	5-point Likert
Sec E (1–4)	Resident/Business	Tourism Support Attitudes (4 items)	5-point Likert
Sec F (A,B)	Business owners only	Business type, years operating, monthly income, employees, initial investment, tourist customer share, pre-road monthly income, market share, income growth, ROS, ROI performance ratings	Open-ended numeric + 5-point comparative rating
Sec C	Tourist	Emotional mood while travelling the corridor (9 semantic-differential pairs)	1–7 bipolar semantic differential
Sec G (A,B)	Tourist	Place evaluation (5 items) + Service quality (5 items)	5-point Likert
Sec C (Likert)	Tourist	Satisfaction with corridor attributes: scenery, cleanliness, food/entertainment, transport, overall experience (5 items)	5-point Likert
Sec D (Tourist)	Tourist	Loyalty intentions: recommend, revisit, encourage others (3 items)	5-point Likert

Table A.1: Survey Instrument Section Summary

Appendix B: Data Availability Statement

Survey data used in this study were primary data gathered from fieldwork and are available from the corresponding author on reasonable request, with consideration given to the anonymity of the participants. The macroeconomic time-series data is open and available via the World Bank World Development Indicators portal (https://databank.worldbank.org/source/world-development-indicators).

Data cleaning, statistical analysis and chart creation python scripts are available on request. In this study, the World Bank data set (DATA.xlsx) includes indicators for Bangladesh from 1971 until 2024, which were last updated in April 2026.

Nextstep Social & Public Health Research Society is an independent, non-profit research organization committed to generating rigorous, evidence-based knowledge at the intersection of social development, public health, and community welfare in Bangladesh. The Society undertakes primary field research, mixed-methods impact assessments, and policy-oriented studies focused on the lived experiences of marginalized and underserved populations, with particular attention to regions facing structural disadvantages in access to infrastructure, healthcare, education, and economic opportunity.

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The present report, Asambasti–Kaptai Road: Impact Assessment, Rangamati, Bangladesh, represents the Society's commitment to filling critical evidence gaps in infrastructure-led development research in the Chittagong Hill Tracts, a region whose development challenges and opportunities have long deserved more systematic empirical attention.