



# Accommodation growth, dynamics, and the role of social media in promoting sustainable ecotourism to offbeat destinations and its impact

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## ABSTRACT

**Background:** Ecotourism emphasizes community-based development and environmental conservation, with homestays playing an increasingly important role in offbeat rural destinations. The rapid expansion of homestays, supported by digital platforms, raises both development opportunities and sustainability concerns. **Methods:** This study analyzes homestay evolution, operational characteristics, and spatial patterns in Sillery Gaon, Darjeeling Himalaya, India. Data were collected in 2023 from 35 homestays using a structured questionnaire. GIS-based spatial analysis was applied, alongside an assessment of Google Trends Relative Search Index (RSI) and user- and brand-generated YouTube content from 2014–2023 to evaluate the influence of digital media on ecotourism demand. **Findings:** Homestay growth, initiated in 2008–2009, accelerated after 2016 with increasing reliance on tour operators and digital platforms. Homestay expansion shows a positive relationship with online search interest and social media content, while elevation exhibits a negative correlation with homestay distribution. Although homestays enhance tourism visibility and local livelihoods, their continued growth is associated with land-use and environmental impacts. **Conclusion:** Digital platforms are central to promoting offbeat ecotourism and supporting community-based development. However, unmanaged homestay expansion poses environmental challenges, highlighting the need for sustainable planning and regulation. **Novelty/Originality of this article:** This study integrates spatial analysis with digital media indicators to reveal the interlinkages between homestay growth, online visibility, and sustainable rural ecotourism in a Himalayan offbeat destination.

**KEYWORDS:** digital platform; ecotourism; homestay; land-use; sustainability; user generated content.

## 1. Introduction

Ecotourism and homestays are two very popular concepts in the context of sustainable tourism. Ecotourism is considered a sub-component of the field of sustainable tourism (Kiper, 2013). 'By the 1980s, following the rise of global environmental issues in the late 1960s and 1970s (McCormick, 1995), the term 'ecotourism' had become firmly established' (Higham, 2007). Orams (1995) have mentioned that the term's origins can be dated back to the 1980s, whereas Higgins (1996) proposes that it can be traced back to the 1970s, specifically through Miller's work on eco-development. The term was first coined by Hector Ceballos-Lascurain in early 1983 (Anandaraj, 2015).

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Ecotourism, a novel concept in travel and hospitality, along with homestay options, serves as a primary alternative to traditional hotels, facilitating immersive cultural experiences that encompass the land, its people, culture, and cuisine. It boosts rural economies, alleviates poverty, and enhances biodiversity through nature-based tourism that has two primary attributes: livelihood improvement and biodiversity conservation. These benefits include capital flow, job creation, cultural exchange, and improved welfare. Ecotourism affects forest biodiversity, influencing regional forestry. It brings capital, jobs, cultural exchange, and welfare improvements (Snyman, 2017; Zhong & Liu, 2017; Shang et al., 2023). A chronological study of homestay accommodation is required, as analyzing historical homestay progression is crucial for understanding its evolution, impact, and sustainable development; identifying trends, challenges, and best practices; and informing responsible ecotourism policies and strategies. However, limited research has systematically examined the evolution and spatial dynamics of homestays in relation to digital content and social media influence in offbeat destinations of the Eastern Himalaya.

Currently, social media acts as an essential tool in influencing tourism marketing by transforming perceptions through visually engaging content, highlighting attractive travel destinations, increasing tourists' interest in authentic and reliable experiences, and conveying the feasibility and safety of travel (Park et al., 2018; Jara-Amézaga, 2023). Muneer & Khan (2025) examined YouTube's role in disseminating information and raising awareness about environmentally friendly transportation. People who record their journeys and share personal ideas in travel vlogs usually offer more authentic and trustworthy information, providing an approachable and often uncensored view of vacation destinations (Vyas et al., 2025; Zada et al., 2025). Today, social media is essential to tourism, impacting people's everyday lives, social structures, and businesses and entrepreneurship (Saini et al., 2024). That functions great for offbeat destinations. Even the web search also highlights the growing or declining popularity. Google Trends is a novel data source that shows the relative frequency of search queries over time and across regions (Google News Initiative, 2022; Hölzl et al., 2024). Social media, user-generated content (UGC), and brand-generated content (BGC) are anticipated to enhance ecotourism and lesser-known tourist destinations while also fostering community development. Research on perceptions of tourism indicates that local communities often pursue ecotourism initiatives for economic advantages such as job creation, financial influx, infrastructure enhancement, and foreign currency earnings (Lindberg, 2001; Bhuiyan et al., 2011; Brandt et al., 2019; Basak et al., 2021).

Geographical Information System is most suitable to develop and explain thematic maps and spatial relationships (Harishnaika et al., 2023). This aids in identifying homestays and analyzing accommodation variability through methods like Standard Deviation Ellipses, Inverse Distance Weighting (IDW), and thematic mapping, etc. While ecotourism can drive economic growth, it must avoid overtourism to ensure sustainability. Some countries rely on tourism for up to 40% of their GDP, yet rapid growth can harm natural attractions, local identities, and the environment, leading to pollution and resource depletion (Ballantyne et al., 2013; Mkono & Holder, 2019). Although previous studies have explored the role of social media in rural tourism behavior and promotion, limited attention has been given to the spatial and chronological growth of homestay accommodations. Recent community-based tourism (CBT) and sustainable ecotourism frameworks emphasize the integration of local participation, livelihood diversification, and environmental conservation to ensure long-term sustainability (Hafezi et al., 2023; Suriyankietkaew et al., 2025; Sahabuddin et al., 2026). This study addresses this gap by integrating UGC, BGC, online search trends, and GIS-based spatial analysis in an offbeat Eastern Himalayan destination.

The Darjeeling Himalayan region of West Bengal possesses substantial ecotourism potential, with numerous offbeat destinations experiencing steady growth in tourism activities. This study focuses on Sillery Gaon, an emerging offbeat destination in the Kalimpong district, and examines accommodation dynamics, development potential, and the role of social media in shaping its ecotourism growth. Surrounded by dense forests and

offering a panoramic 180° view of snow-clad Himalayan peaks, Sillery Gaon provides a close-to-nature experience enriched by rural hospitality, local culture, and traditional practices. The village is strategically located near several well-established ecotourism destinations, including Icche Gaon, Pedong, Shitong, Lamahata, and Ahaldhara, which further enhances its tourism appeal. While previous studies have explored ecotourism development and the influence of user-generated content (UGC) on tourism growth, this paper specifically investigates the expansion of homestay accommodations and the role of social media, UGC, and digital tourism agencies in promoting sustainable ecotourism in Sillery Gaon.

In addition to its scenic beauty, Sillery Gaon's lush tropical forests make it a haven for bird watchers and nature enthusiasts. Tourists are drawn to nearby attractions such as Silent Valley, Icche Gaon, Damsang Fort, and Ramitey View Point, which offer spectacular views of Mt. Kanchenjunga and the fourteen meanders of the Teesta River. Damsang Fort, originally constructed in 1690 by the Lepcha King Gyabo Achuk, has significant historical value, having been contested by various regional powers before being captured by the British during the Anglo-Bhutan War in 1864 (Lepcha, 2017; Das, 2021). With its rich natural, historical, and cultural assets, combined with increasing tourism visibility, Sillery Gaon demonstrates strong potential for ecotourism development, further enhanced by trekking routes to nearby scenic villages such as Icche Gaon.

## 2. Methods

This study seeks to evaluate the historical development and geographical distribution of homestays, as well as the influence of social media on tourism advancement. A survey conducted among 35 operating homestays indicated that 63% of the participants were male and 37% were female, with 51% falling within the age range of 20-40 years, 46% being over 40 years, and 3% under 20 years. During the field visit, data was gathered from the homestays, which can be categorized into two main sections: first, the location of the homestays, their year of establishment, the number of rooms available, and the presence of popular amenities; second, the utilization of social media, its various forms, perceptions regarding its impact, reliance on it, and its essential role in promoting offbeat ecotourism. The data were collected from all 35 operating homestays in June 2023 within the study area using a structured questionnaire, thereby representing a near-census of homestay operations at the local scale. To assess the duration of tourist stays, information was also gathered from 22 tourists present during the survey period. Weighting was applied to the various components. These components include the number of rooms, accommodation capacity, electricity backup, attached bathrooms, modern latrines, geysers, Wi-Fi, CCTV, water purifiers, electric kettles, housekeeping, room service, the number of online platforms utilized, and the presence of a dedicated website.

These factors are instrumental in determining the level of infrastructural facilities available, which ensures a comfortable experience for tourists. In this context, a greater number of rooms and higher accommodation capacity were assigned higher weights; similarly, the presence of additional amenities such as electricity backup, attached bathrooms, modern latrines, geysers, Wi-Fi, CCTV, water purifiers, etc., received higher weighting in the evaluation. Additionally, homestays having their own websites and multiple online platforms were assigned higher weighting. These were combined to produce a composite weighting, which was used as the Accommodation Development Index (ADI). All geospatial analyses were conducted using ArcMap 10.5 (ESRI), while statistical relationships were examined using the MS Excel Data Analysis ToolPak. FABDEM V1-2 (30 m resolution) has been used to represent physiographical setups like elevation and slope. ESRI Wayback Atlas and Google Earth historical images have been used to detect land use changes in the area. Homestays were represented as points with latitude and longitude, from which the mean centre was calculated. To assess spatial patterns, GIS tools including mean center analysis, standard deviation ellipse (SDE), and inverse distance weighting

(IDW) were applied. The Standard Deviational Ellipse (SDE) serves as an essential GIS instrument for illustrating the geographic distribution of features, effectively uncovering spatial trends through the analysis of the dispersion and orientation of observed samples. (Wang et al., 2015). The standard deviation ellipse, created using ArcMap 10.5's directional distribution tool, illustrates the concentration of homestays based on the mean center of location.

In addition, Inverse Distance Weighting (IDW) has been applied for spatial data interpolation. The IDW was used to analyze homestay capacity, off-season, peak-season tariffs, and room distribution; all primary data was collected in June 2023. All the rest of the surveyed homestays were already operating during that time. To study the impact and utilization of social media, Google Trends web search data of RSI and UGC (user-generated content) and BGCs (brand-generated content) in YouTube, i.e., travel content of that spot, has been used as indicators of digital visibility and popularity; however, these sources reflect relative interest rather than absolute tourist numbers and may be influenced by algorithmic and user-behavioral biases. Regression in MS Excel's Data Analysis ToolPak is used to determine relationships and significance between attributes.

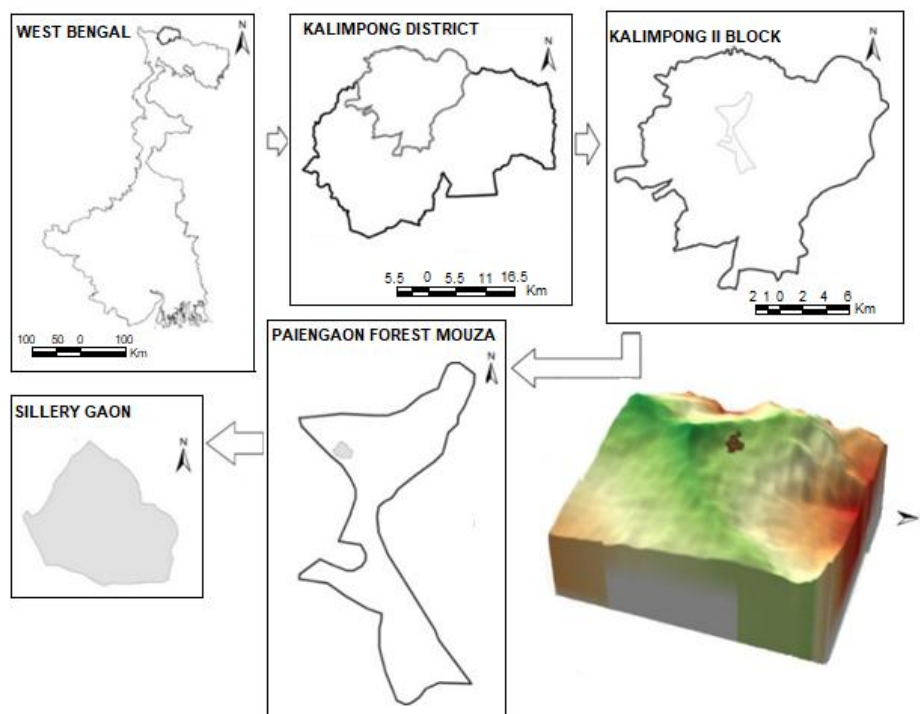


Fig. 1. Location map with a three-dimensional model of the village and its surroundings with homestay points.

### 2.1 Demographic profile, occupational pattern, and land use characteristics

Sillery Gaon, a small village with 37 families, has around 170 residents (53% males and 47% females). The majority are Buddhist (80%), followed by Hindu and Christian communities. The Gorkha community dominates, mainly the Tamang community (54%). Other communities include Rai (11%), Bhujel, Thapa, Sherpa, and Damai (Das, 2021). In an interaction with Sabina and Manita Tamang, the homestay owner confirmed the dominance of the Tamang community there. According to the owner of Alisha Deluxe Homestay, the majority of villagers primarily work in the tourism sector, owning homestays and providing hospitality services. Some also work as school teachers or in other sectors and manage homestay businesses simultaneously. Others engage in fuel collection, kitchen gardening, and other tasks alongside their main occupations. Some people teach, work in the formal sector, and manage homestay businesses nicely.

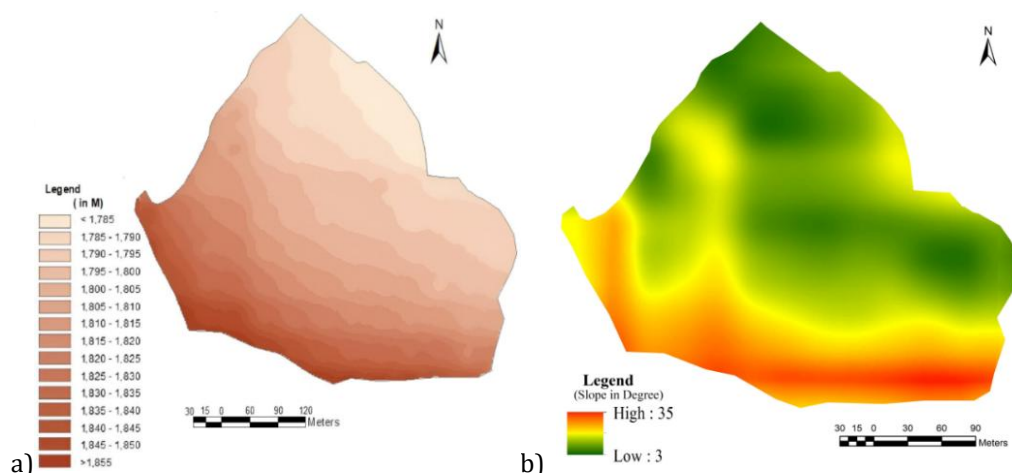


Fig. 2. a) Elevation map; b) Slope map of Sillery Gaon showing higher elevation and slope along the south and south-west part of the village and both elevation and slope gradually decreasing towards the north and north-east segment.

Sillery Gaon, covering approximately 7 hectares, had limited houses, with the majority of land used for cultivation, plantation, etc. It lacks a survey for land or plot types, as it is not a revenue village. Besides built-up and forested areas, most lands consist of Sukha-khet used for kitchen gardening, large cardamom, and maize. In the Kalimpong district, lands are classified as Sukha-khet (un-terraced, un-irrigated) or Panikhhet (terraced, irrigated) (Ghosal, 1990). Cold weather and rainfall eliminate the need for irrigation. Villagers use cow dung and seasonal rain (June to August) for crops. Maize, cardamom, and other crops and vegetables like rai sag, or mustard green, green chili, tomato, onion, and potato are grown mainly for consumption and tourism, organically. The village is encircled by forests, with a playfield at a lower elevation. Preliminary observations and discussions with nearby villagers suggested a significant change in land usage over the last decade

### 3. Results and Discussion

#### 3.1 Homestay – accommodation solution: Ecotourism

Ecotourism combines tourism with ecological conservation, benefiting natural habitats while supporting biodiversity conservation and sustainability. Even local communities may benefit economically, prompting a shift to sustainable practices while ignoring unsustainable resource extraction (Ouboter et al., 2021). Homestays have emerged locally in the last decade along the Silk Route and other lesser-known or offbeat spots of the Darjeeling Himalayan region of the eastern Himalayas. This emerging trend provides travellers with the opportunity to stay in smaller, family-owned houses instead of large, commercial hotels and resorts (Pasanchay & Schott, 2021; Basak et al., 2021).

As tourist numbers rise, more locals turn their residences into budget-friendly homestays, popular with budget-conscious travellers (Hinch & Butler, 1996). Homestays offer a warm and hospitable environment provided by local villagers. The food-lodging system is tourist-friendly, colloquially termed ‘fooding lodging,’ with rates ranging from INR 800 to 1,500 per head per day (as of 2023), covering accommodation and meals (lunch, dinner, two snacks, and tea). Homestay owners prioritize guest satisfaction, often hiring skilled cooks. This homely atmosphere is why the popularity of homestays is increasing, offering guests a peaceful and enjoyable experience, and they serve not merely as places to stay but also as tools for community-based ecotourism, which bolsters local economies while reducing significant environmental disruption.

### 3.1.1 Relief and slope pattern and location of homestays

Sillery Gaon, with elevations ranging from 1,776 m to 1,856 m, has around 35 homestays (Table 1). For analysis, the area was divided into fourteen zones based on 5 m elevation intervals to examine homestay distribution. The highest concentration (26%) occurs at 1,795–1,800 m, followed by 17% at 1,790–1,795 m, 14% at 1,815–1,820 m, and only 6% above 1,825 m. A null hypothesis was formulated stating that elevation has no relationship with the number of homestays and rooms. Statistical results show a significant negative correlation between elevation and the number of homestays (Pearson's  $r = -0.72$ ,  $p = 0.003$ ), while the correlation with the number of rooms is weak and statistically insignificant (Pearson's  $r = 0.20$ ,  $p = 0.22$ ).

Table 1. Homestays and Their Geo-Locations in Sillery Gaon

Homestays	Latitude	Longitude	Elevation
Alisha Delux	27.1395	88.5806	1,804.0
Shewangee Homestay	27.1399	88.5807	1,797.5
Banalatakazi Homestay	27.1406	88.5803	1,788.5
Tragopan Homestay	27.1401	88.5812	1,790.0
Sweet Sunny	27.1396	88.5818	1,794.5
Binayo Homestay	27.1389	88.5816	1,812.0
Nirmala Homestay	27.1389	88.5813	1,816.0
Mountain View Resort	27.1388	88.5809	1,823.0
Heaven valley Homestay	27.1395	88.5797	1,823.5
Tshering Homestay	27.1392	88.5805	1,812.3
Purple Orchid Homestay	27.1389	88.5803	1,824.4
La natures Homestay	27.1392	88.5806	1,812.0
Sillerysanket Homestay	27.1406	88.5807	1,785.0
Shivansh Homestay	27.1408	88.5807	1,786.0
Maankunj Homestay	27.1395	88.5814	1,796.0
Ajit Homestay	27.1398	88.5818	1,793.2
Pema Homestay	27.1390	88.5808	1,815.0
changma Homestay	27.1405	88.5808	1,787.0
Sillery Residency	27.1395	88.5816	1,796.2
Khaling Homestay	27.1396	88.5798	1,815.0
Renu Homestay	27.1389	88.5797	1,851.0
Mohorkunja Homestay	27.1393	88.5817	1,798.0
Nimasha Homestay	27.1401	88.5801	1,816.0
Aroshi Homestay	27.1402	88.5801	1,799.0
Sumiksha Homestay	27.1397	88.5798	1,815.5
Kafal Homestay	27.1394	88.5794	1,828.0
Sillery Gaon Retreat	27.1396	88.5821	1,793.6
Golden apple retreat	27.1395	88.5821	1,793.6
Rahul Homestay	27.1398	88.5811	1,795.0
Nature's Lap Retreat	27.1400	88.5804	1,798.8
Krishna Homestay	27.1394	88.5816	1,796.0
Himalayan Homestay	27.1399	88.5811	1,793.2
Arjeastik S. Homestay	27.1399	88.5803	1,800.8
Aashiyana Homestay	27.1392	88.5812	1,805.5
Architas Homestay	27.1394	88.5819	1,795.7

The slope of the area ranges from 3° to 35°, indicating moderately rugged topography that may influence construction feasibility and settlement patterns. Most homestays (49%) are located on slopes of 10°–15°, suggesting a preference for moderately gentle slopes that offer stability and scenic value. Meanwhile, 26% are situated on slopes below 10°, which are relatively flatter and safer for development. About 20% are built on slopes of 15°–20° and 6% on slopes of 20°–25°, showing a decline in homestay presence as slope steepness increases. No homestays are found on slopes above 25° (Fig. 3), likely due to higher construction risks, increased costs, and potential slope instability or landslide hazards.

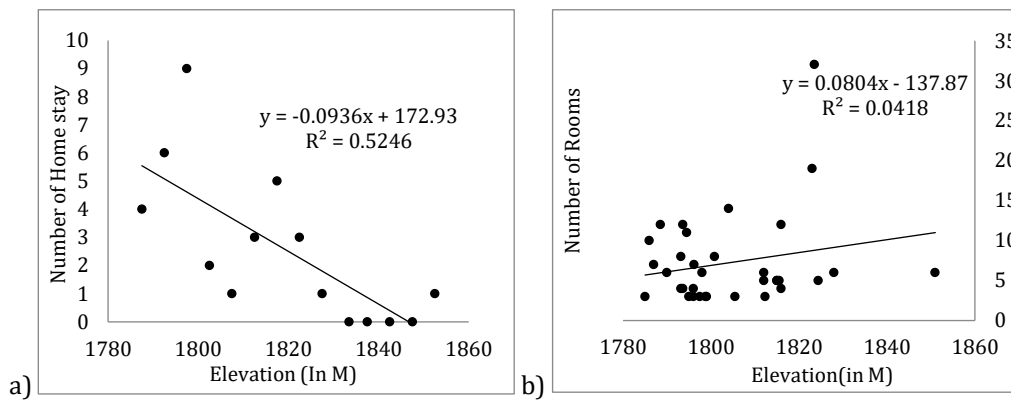


Fig. 3. a) Change of elevation and number of homestays. The scatter shows a moderate fit ( $R^2 = 0.52$ ), explaining 52% of variance; b) Change of elevation and number of homestay rooms: the scatter shows a moderate fit ( $R^2 = 0.04$ ), explaining 0.4% of variance.

### 3.1.2 Dynamics and chronological development of homestays in the area

With government support, the village now relies on ecotourism, expanding with more homestay accommodations. Four friends, Dilip Tamang, Kaji Tamang, Biru Tamang, and Kamal Tamang, initially started the ecotourism activities with a few cottages in 2009 onwards (Das, 2021). Kamala Tamang, owner of Alisha Deluxe Homestay, noted that only three to four homestays were operating during that time, with minimal options before 2015 (Appendix Table 1, Fig. 4a). The chronological distribution of homestays indicates multiple growth phases, with the most rapid expansion occurring from 2015 (Table 2, Fig. 4b).

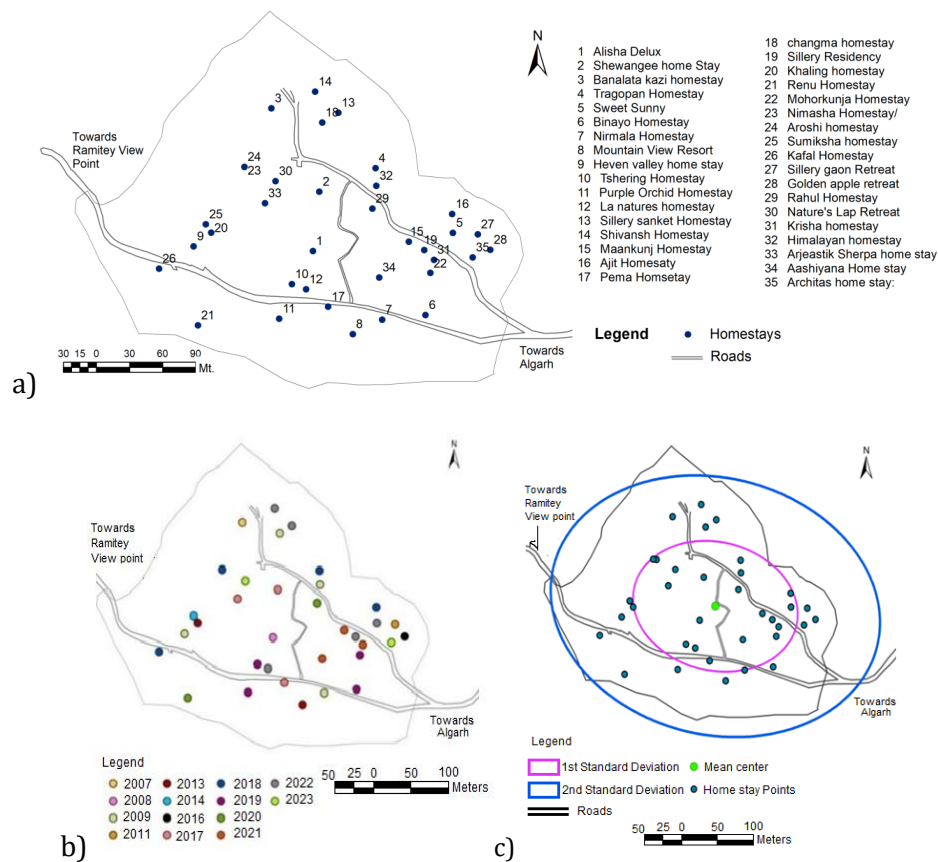


Fig. 4. a) Spatial distribution of homestays in the study area, showing their concentration clustering along accessible zones within the village landscape; b) Spatial and temporal expansion of homestays (2007–2023), illustrating progressive clustering around core access routes and village centers; and c). Standard deviation ellipse (SDE) representing the spatial orientation, dispersion, and eccentricity of homestays. High eccentricity reflects linear clustering.

To study the growth pattern, the selected timeline has been classified in eight phases. 2018-2020 shows the maximum growth percentage of homestays, and that almost continued into the subsequent two phases, i.e., >10%. It is found that the mean center of the homestay points is located at 88.5809° N, 27.1396° E, and within two standard deviation ellipses. All points are falling within the second standard deviation ellipse. Within the first deviation ellipse, 19 homestay points, i.e., 54%, fall within the 1st standard deviation ellipse, and 46% fall within the 2nd standard deviation. These ellipses show a stable spatial orientation of homestay locations, with both ellipses sharing the same mean center and rotation angle (98.49°), indicating a persistent directional trend. The increasing X and Y standard distance and fourfold rise in ellipse area in the second case reflect an outward expansion of homestays instead of a significant location shift. This actually suggests spatial growth along a consistent axis, i.e., terrain constraints (Fig. 4c). Essential building requirements, leading to unplanned construction growth. Homestay owners lease rooms for 50,000 to 1 lakh rupees annually. While ecotourism boosts income and local economies, it's crucial to consider and address environmental impacts.

Table 2. Year-Wise Number of operating Homestays at Sillery Gaon

	Year								
	< 2010	2010-2012	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	> 2022	Total
Number	6	1	2	2	4	08	5	7	35
in %	17	3	6	6	11	23	14	20	100

### 3.1.3 Accommodation distribution of rooms and meal expenses

Offbeat tourism encourages local villagers to establish homestays, leasing land and securing loans to provide accommodations for tourists. A previous survey by Das (2021) revealed 151 rooms and 412 beds in 14 homestays in 2018. By 2023, the number of homestays rose to 35, offering 250 rooms and a capacity of 919 beds. Sillery Gaon averages 7 rooms per homestay, with a standard deviation of 6 and a 79% coefficient of variation. Heaven Valley has 13% of the total rooms of Sillery Gaon. Among 35 homestays, 23% have over 10 rooms, while 83% offer fewer than 5, primarily catering to budget and deluxe tourists. Most rooms (79%) are four-bedded, and nearly all houses provide homestay facilities, catering to both deluxe and budget tourists.

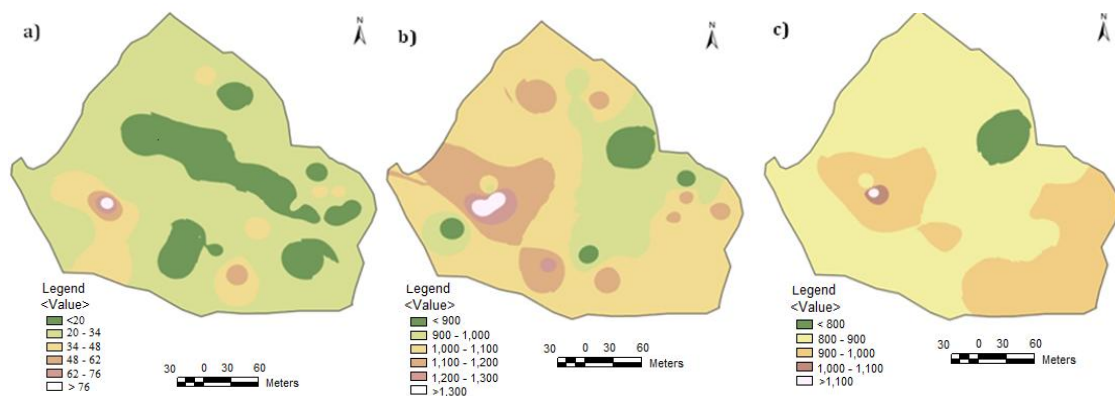


Fig. 5. IDW showing zones of a) Distribution of total beds of home stays, b) Fooding lodging cost in season of home stays, c) Fooding lodging cost in off-season of home stays.

Charges, including food and lodging for tourists, range from 800 to 1,500 rupees, varying by season. During the off-season, the rate is 800 rupees, rising to approximately 1,000 rupees in the peak season. Approximately 33% of surveyed homestays charge 800 rupees off-season, increasing to 1,000 rupees in-season. Additionally, 18% charge 900 rupees off-season, and 30% charge 1,200 rupees. Generally, there's a 200 rupee increase from off-season to season, though some homestays maintain consistent rates. IDW posits

that nearby points exhibit similar traits. Its application reveals variations in bed and food-lodging costs across seasons. The south-western village segment has the highest concentration, notably with Heaven Valley homestay, while the north-northeast segment displays lower IDW values with homestays with a limited number of rooms than the concentration zone. For food and lodging costs, though, a similar pattern is found, but the lowest food and lodging costs are found in homestays located northeast and in other directions, mainly located at lower elevations or lower Sillery Gaon (Fig. 5 a, b, c).

### 3.1.4 Basic and preferred amenities

Most homestays offer essential amenities like utensils, toilet supplies, low-power electricity, hot water, and drinking water. Many also provide inverter services. While 71% have geysers and 63% offer free Wi-Fi (with some restrictions and a recharge option for some homestays), 51% installed CCTV systems. Parking is generally accessible, with recent developments including designated parking areas; otherwise, parking can be found along roads or in vacant lots around the village.

### 3.2 Tourist inflow and booking protocols

Tourist flow in Sillery Gaon has risen over time, primarily due to its peaceful environment and significance as a spot on the Old Silk Route. On average, ten tourists visit the village daily, as reported by homestay owners and local residents. Tourism occurs for most of the year, excluding the monsoon season, with peak visitation during October–November and March–May, coinciding with school holidays and Durga Puja vacations and other festivals.

Table 3. Number of days tourists stay at Sillery Gaon

Number of days	1 day	2 days	>2 days	Total
Tourist stay	18	4	0	22
In %	82	18	0	100

Currently, 35 homestays operate in the village, indicating a substantial annual tourist volume. Most visitors stay for a single day, as reflected in the tourist survey (Table 3). Research by Das (2021) documented that visitor numbers grew from roughly 40,000 between 2015 and 2018, projecting around 61,000 in 2021. Recent discussions with locals suggest annual visits may now exceed 65,000, indicating continued growth following the COVID-19 disruption.

### 3.3 Role of online booking platforms, digital tourism agencies, and social media in promoting and succeeding in ecotourism

Before 2010, discovering unique travel spots relied on past tourists' publicity. This practice shifted to online platforms like MakeMyTrip, Agoda, Booking.com, and many more, simplifying homestay bookings and tour planning. Travellers now promote destinations through reviews on sites like YouTube and TripAdvisor, indicating that traditional tourism agencies are no longer the only players in the market, with users actively participating in marketing, as platforms like YouTube, TripAdvisor, and Expedia enable reviews and discussions of experiences. Following the trend, homestay owners also offer direct bookings on their webpages, and now, social media influencers, content creators, and YouTubers share travel information like contact numbers to keep things transparent.

#### 3.3.1 First appearance on social media

Social media greatly impacts tourism by igniting curiosity about destinations and transforming marketing strategies. High-quality videos and photos enhance understanding of tourist spots, while easy communication through social platforms facilitates connections.

Approximately 80% of homestay owners have embraced this trend, with 70% actively using social media. Since 2015, its influence has grown, particularly post-2021 due to COVID-19. In 2022, 29% of homestays began using social media for the first time, followed by 17% in 2019 and 2016. Social media's role in tourism is now crucial, with platforms like YouTube and Facebook serving as key information and connection sources. In 2015, 2020, and 2021, 8% of homestays began using social media; 4% started in 2017.

Heaven Valley and Sillery Residency owners acknowledge the benefits of social media campaigns, but not everyone agrees. Among 35 respondents, 51% support social media's role, while 49% prefer the influence of tour operators and previous visitors' reviews. 71% of homestays are linked to tour operators and digital tour agencies; the remaining 29% are not directly involved. Tour operators usually organize tourist groups. Among 24 homestays, 54% use Facebook, 33% use YouTube, and 13% use other platforms for promotion. Most homestays rely on tour operators and digital tour agencies for marketing on social media. Out of the 24 homestays, 38% market their own, while the remaining 62% are promoted by tour operators. A null hypothesis can be assumed: homestays using social media for the first time don't have any relation with time, i.e., year. A weak positive correlation ( $r=0.3$ ) exists between these two variables, but it is not statistically significant as the p-value of 0.45. The model explains only 9% of the variance in the dependent variable ( $R^2 = 0.09$ ), indicating limited explanatory power.

### 3.3.2 User and brand generated content such as YouTube content and associated promotion

Many YouTube travel channels shared videos about Sillery Gaon from 2014 to 2023; within them, 294 samples were analyzed for yearly uploads. On YouTube, tourists get realistic and immediate videos uploaded by the tourists. YouTube has emerged as one of the most impactful forms of user-generated content (UGC) in shaping tourists' decisions and enhancing their overall experiences (Vyas et al. 2025). From 2014 to 2019, less than 10% of the videos were uploaded. Gradually, after 2019, the number of videos uploaded increased. 14% of videos in 2020, 11% in 2021, 20% in 2022, and 29% in 2023 were uploaded. So, a gradual increase in tour vlogs or content has been observed. For analysis, the view of these contents is taken into consideration. Enhancing a tourist spot's content and view boosts popularity. From 2014 to 2023, a total of 902114 views were recorded. Initially, less than 10% were from 2014 to 2018, but this increased to more than 10% from 2019 to 2023, with a slight decline in 2020.

The peak views were in 2022, possibly linked to a post-COVID tourism surge. YouTube content doesn't just showcase tourist spots but also provides accommodation details. The acquired data is categorised into two classes: i) videos promoting specific homestays and ii) videos without promotion. Among 294 videos, 32% don't promote homestays, while 68% do. Banalata and Mountain View are mentioned in 11% and 10% of the videos, respectively. Other homestays have less than 10% coverage. Heaven Valley Homestay appeared in 8% of videos, Nirmala Homestay in 6%, and Sumiksha Homestay in 5%. Out of 902114 total views from 2014 to 2023, 80% promote specific homestays, with some less popular ones placed in a separate category.

Mountain view received 28% of the views, Banalata Homestay got 12%, and Nirmala and Renu Homestay had 10%. In maps, 2014 is not shown, as the videos of the selected homestay were not uploaded in 2014, but for calculation, it is kept, as the total number of videos is considered (Appendix 1, Fig. 6). This boosted the destination's popularity significantly. Reliable information from the West Bengal Government and Kalimpong Police attracted tourists to Sillery Gaon. Despite slow internet, the local community efficiently uses digital tools, aligning with the 'Homestay Tourism Policy - 2022' strategies. Targopan Homestay's leaseholders made their contact details public on social media for easy bookings. Tour operators work jointly with the homestay owner or leaseholder, promoting on YouTube and Facebook to increase the popularity of the homestay and tourist spots.

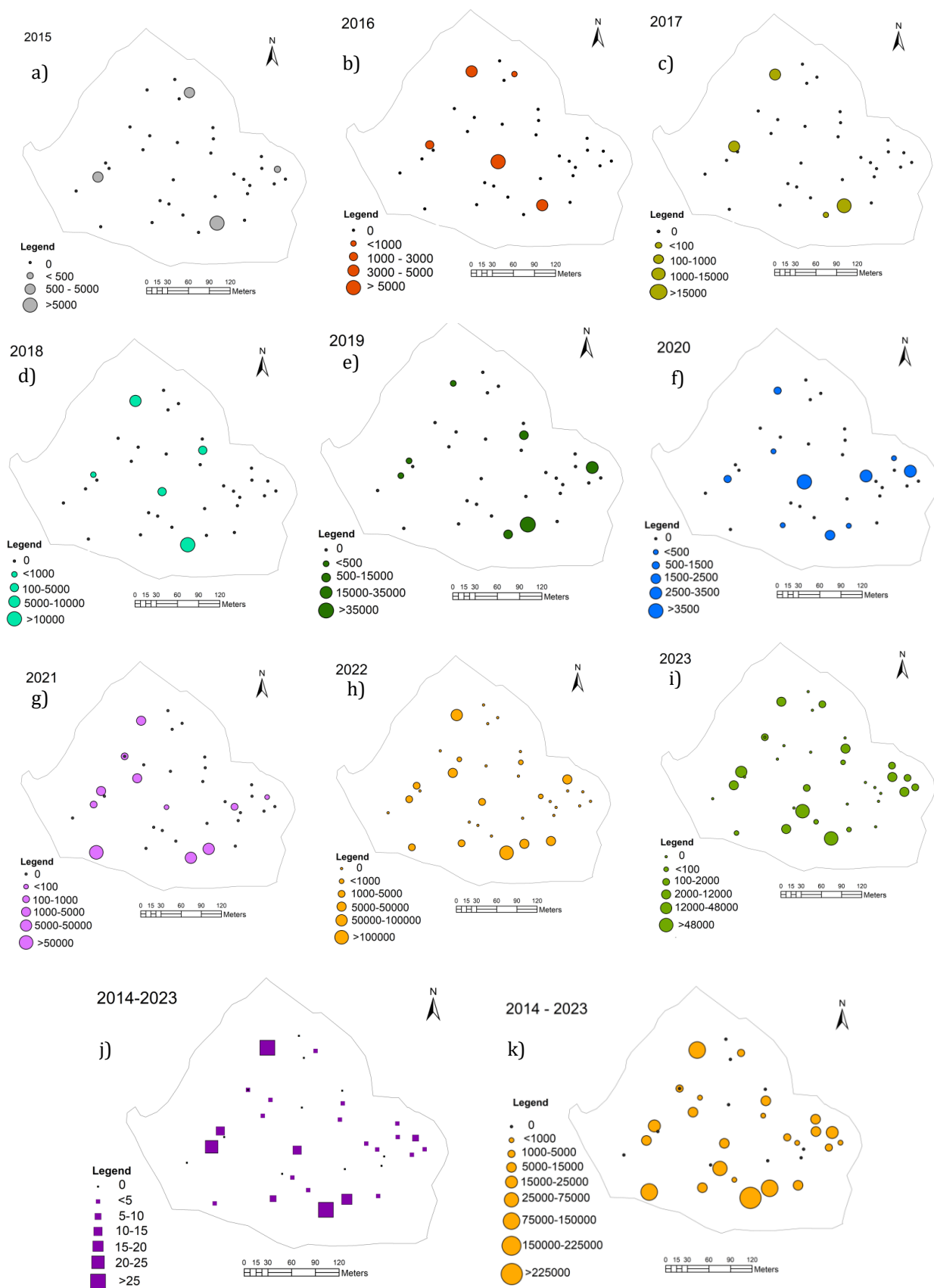


Fig. 6. Homestay wise views of YouTube contents UGCs and BGCs- a) 2015; b) 2016; c) 2017; d) 2018; e) 2019; f) 2020; g) 2021; h) 2022; i) 2023; j) total uploaded videos 2014-2023; k) total views 2014-2023.

### 3.3.3 Nature of web search

GoogleTrends offers normalised data on keyword search frequencies globally since 2004, presented as a Relative Search Index (RSI) from 0 to 100. Each index data point is adjusted to daily search numbers in the region to address seasonality. The maximum value of 100 is assigned to the highest search interest for the specified period, location, and keywords. Google provides the normalised index to enable unbiased comparisons of a topic's popularity over time, despite the overall growth of search queries since 2004 (Google News Initiative, 2022; Rogers, 2016; Hölzl et al., 2024). Detecting the popularity or search for a tourist spot can detect its popularity over time. The relative search index can be a good component and determinant to represent the gaining popularity. Google Trends can show the month-wise web search results of a term from 2004 to the present time. Analysis of the RSI of the term “Sillery Gaon” in Google Trends from 2010 to 2023 has been conducted (before 2010, there was no web search or RSI). The month-wise analysis of the RSI is also available, showing that on average, 12-29 RSI is present. More than 25 ARSI is found in 5 years, i.e., 42% of the selected twelve months; more than 20 but less than 25 ARSI is found in four months (i.e., 33%); and in one month, i.e., September, ARSI is found to be more than 15 but less than 20. The other two months, i.e., July and August, have the lowest average RSI, i.e., 12 for both, as these two are monsoon months. February has the highest average RSI, followed by March and December. Except for this April, May, June, October, November, and January have average RSI values more than 20. From 2010 to 2023, ARSI is 267, while the variability is 55%, though the total RSI is 3742. More than 10% of the total RSI is found in 2016, 2019, 2015, and 2018. In all other years, the less than 10% total RSI is found. However, the total RSI varies from 75 in 2012 to 472 in 2018. In 2011, no web search was found. The analysis examined how RSI varied by season from 2010 to 2023 to determine if search patterns changed seasonally.

Table 4. Month-wise relative search index and its temporal trend (2010-2023)

Month	Multiple R	R Square	Sig. F
January	0.63	0.40	0.02
February	-0.12	0.01	0.69
March	0.56	0.31	0.04
April	0.49	0.24	0.08
May	0.41	0.17	0.15
June	0.34	0.12	0.23
July	0.50	0.25	0.07
August	0.38	0.14	0.18
September	0.50	0.25	0.07
October	0.58	0.33	0.03
November	0.53	0.28	0.05
December	0.73	0.54	0.00

A null hypothesis can be assumed that there exists no relation between each month and the RSI of Sillery Gaon. Month-based analysis of these selected time spans can also detect the search and its change, including significance patterns. Except for February, all months have shown a positive trend, and the significance, or p-value, is less than 0.05 for January, March, October, November, and December; that means these months have a significant relation with RSI (Table 4, Fig. 7). Monsoon months, like June, July, August, and September, have shown a positive trend but have an insignificant relation. Winter and pre-summer, when the flowers bloom in Darjeeling Himalaya, exhibit a positive and significant trend. In another context, a null hypothesis can be assumed that there exists no relation between time, i.e., year, and RSI of Sillery Gaon. The regression has shown a moderately strong positive correlation ( $r=0.6$ ) between the year and the total number of year-wise RSI, indicating a growing trend, and the p-value is 0.04, representing a significant relation, and only 30% of the variance in the dependent variable is explained by the model, as the R-

square is 0.3 (fig. 8a). So, the alternative hypothesis should be accepted, meaning that with time, the RSI of Sillery Gaon has increased.

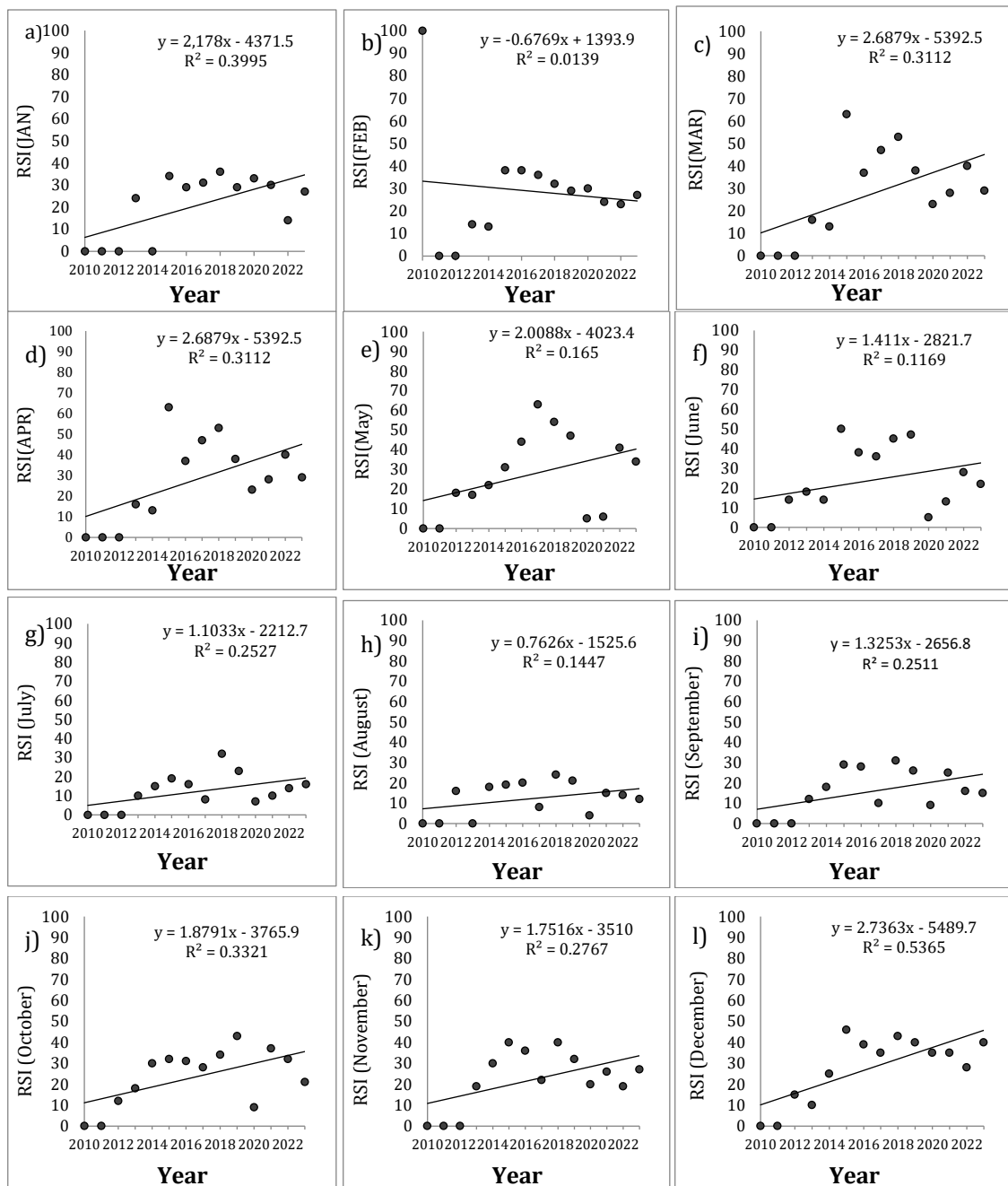


Fig. 7. Scatter diagram showing relationship between month-based a) January; b) February; c) March; d) April; e) May; f) June; g) July; h) August; i) September; j) October; k) November; l) December. All showing a positive trend except February. The scatter plots indicate low to moderate explanatory power, with R<sup>2</sup> values ranging from 0.01 to 0.54, suggesting that 1–54% of the variance in RSI is explained by the fitted models.

### 3.3.4 Role of digital travel platforms or agencies, social media, and accommodation development

Accommodation and facilities are crucial for ecotourism, as tourists often seek comfort even in remote areas, potentially conflicting with sustainability goals. While providing extensive amenities can detract from local authenticity, homestay owners must find a balance between comfort and environmental preservation. Enhancing ecotourism involves ensuring necessary comforts, such as hot water and Wi-Fi, while maintaining the essence of

local culture. The Homestay Regulation Act underscores the importance of meeting tourist needs. This analysis examines promoted YouTube content from 2014 to 2023. It also focuses on homestays and their features, including room details, capacity, electricity backup, modern bathrooms, Wi-Fi, electric kettles, housekeeping, room service, tour operators, their own websites, etc., and other amenities that contribute to a pleasant stay.

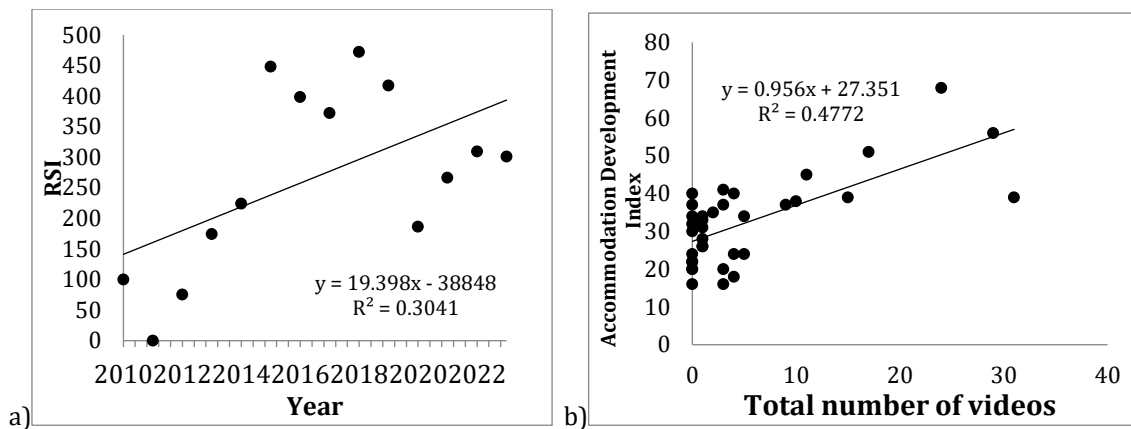


Fig. 8. a) Scatter diagram showing relationship between year-wise RSI; the scatter plot indicates moderate explanatory power, with an  $R^2$  value of 0.30, suggesting that 30% of the variance in RSI is explained by the fitted models; b) Scatter diagram showing relationship between total UGCs and BGCs and Accommodation Development Index. The scatter plot indicates moderate explanatory power, with an  $R^2$  value of 0.48, suggesting that 48% of the variance in the homestay accommodation development index is explained by the fitted models.

A composite index was created, weighing various features based on their presence or value. Videos uploaded up to 2023 were analysed, as data was collected in that year, suggesting that these videos played a role in boosting the popularity and development of homestay accommodations. A null hypothesis can be assumed that there exists no significant relation between the total uploaded videos of Sillery Gaon from 2014 to 2023 and the composite index of accommodation development. The regression value is  $r=0.7$ , while the p-value is 0.0, showing a highly significant positive relation, assuring the rejection of the null hypothesis and accepting the alternative hypothesis that, for homestays, the total uploaded videos have a significant positive impact on the Accommodation Development Index (Fig. 8b).

### 3.4 Promoting sustainable ecotourism and impacts

The goal of sustainable ecotourism development in India is to balance the expansion of the travel industry with the protection of the environment and cultural heritage; it ensures the advantages of tourism are inclusive and long-lasting for both current and future generations (Kansra et al., 2024). Ecotourism, which is synonymous with sustainable tourism, emphasizes environmental conservation. The West Bengal Tourism Department notes that Darjeeling Himalaya is popular for rural and adventure tourism, with 42% of visitors attracted to its natural beauty, local culture, and hospitality.

According to Ganguly-Scrase & Scrase (2015), Darjeeling Himalaya offers an authentic experience through community-managed homestay tourism. The CBT program increased homestay popularity, attracting more visitors (Basak et al., 2021). Vedwan (2006) noted that hilly communities in developing countries like India rely on pastoralism and agriculture, which increases their vulnerability to climate change and disasters. Villagers used to be economically poor prior to the expansion of ecotourism and relied on gardening, wood collection, and farming; however, ecotourism has drastically improved their economic status.

The village community in Sillery Gaon aims to develop community-based sustainable tourism, boosting income through employment opportunities and increasing the village's

revenue (Datta & Banerji, 2015). Tourists are drawn to the scenic beauty, greenery, Kangchenjunga, and hill culture. Arrival here offers a unique experience unlike crowded cities with tall buildings blocking sunlight like Darjeeling, Kalimpong, and Kurseong. In built-up, concentrated, and overcrowded urban areas, a connection with nature is scarce. Tourist spot for offbeat places with community-managed homestays offering homelike facilities, local culture, and cuisine (Kannegieser, 2015; Rai, 2020).

Initially, there were no tourists in Sillery Gaon before 2008–09, but gradually, the number of tourists increased. In an interview given to the Telegraph newspaper, Dilip Tamang said that it took almost two decades to reach the present situation (Sikdar, 2023). The village economy thrives on ecotourism, generating jobs in homestay management and partnerships with travel professionals while replacing traditional roles. Although homestay activities engage both women and men, women's greater involvement in daily management has strengthened their economic empowerment, while older children (above 10 years) also contribute to supportive tasks. Tour operators improve guest experiences with amenities like geysers, electric kettles, bed linens, and toiletries. Homestay owners benefit from collaborations, motivating others to join the burgeoning ecotourism sector. Leases typically last one to ten years, with longer leases rare; for instance, Humaro Home (2018) rebranded to Sillery Residency in 2022, and Tshering Homestay became Shivangan Homestay in 2019, etc., demonstrating the dynamic nature of this industry.

### 3.5 Discussion

The concentration of homestays at certain elevation ranges influences their accessibility, infrastructure development, forest clearance, and environmental and ecological sensitivity. Although higher elevations attract tourists, they also pose challenges related to road access, slope instability, forest and land degradation, landslide susceptibility, and water and waste management, indicating a need for elevation-sensitive planning to balance tourism development with environmental capacity. Not all homestays receive equal tourist attention, effective marketing, assistance, and promotion from tour operators. Their networks play crucial roles in attracting guests as well. Social media platforms like Facebook, YouTube, and WhatsApp are vital for the promotion of the homestays and tourist spots. Tourists often consult different tour operators, who recommend visiting web pages or social media for property insights.

Nowadays, user-generated content (UGC) allows tourists to directly contact homestay owners or operators, request images, and gather reliable information about accommodations, as contact numbers are also given. The study directs that homestay owners are becoming adept at using social media, often collaborating with popular YouTube influencers to showcase their properties. This strategy highlights recent updates, amenities, and pricing, broadening their reach and boosting popularity. Content creators enhance their videos with high-quality visuals, audio, and engaging music, increasing viewer interest. This approach aids in trip planning, provides entertainment, and strengthens social media marketing and branding, ultimately encouraging audiences to become tourists or clients. (Dwivedi et al., 2020). Recent research emphasizing and signifying the role of digital technologies in promoting sustainable rural ecotourism and managing tourism impacts in environmentally sensitive tourist destinations also supports the view (Zhang et al., 2024; Ji & Deng, 2025).

Content creators offer itineraries, sightseeing recommendations, and budget-friendly tour plans, helping tourists modify trips to their needs. Their videos serve as authentic references and, in turn, help foster a demand-supply cycle in tourism. Homestay owners and tour operators invest in ecotourism, promoting it through social media and BGCs, UGCs, etc. to encourage tourists to visit the destination and stay at their preferred homestay, familiar with them before arriving at the spot. This advance knowledge provides tourists with psychological security, alleviating concerns about staying at the destination and ensuring comfort during their stay. Demand for homestays benefits local economies, encouraging

investment in accommodations and amenities to attract tourists. However, advancements are limited to a few properties, while others focus on sustainable, budget-friendly options.

Specific amenities, like electric geysers, influence choices, reflecting rising expectations. This trend may increase environmental impact, with more plastic use. It's crucial for the tourists to enhance ecological consciousness and prioritize places committed to sustainability, it helps to nurture a responsible tourism model. Continuous tourist demand has altered the village's land use, leading to new roads, improved infrastructure, and increased accommodations like homestays (Fig. 9). While tourists often prioritize luxury over ecotourism values, this shift supports both tourism growth and infrastructure development, ultimately transforming the rural landscape and its cultural essence. Few homestay owners believe that the homestay is developed only in their courtyard or on bastu land (non-agricultural land used for settlement purposes) and doesn't trigger land use change.

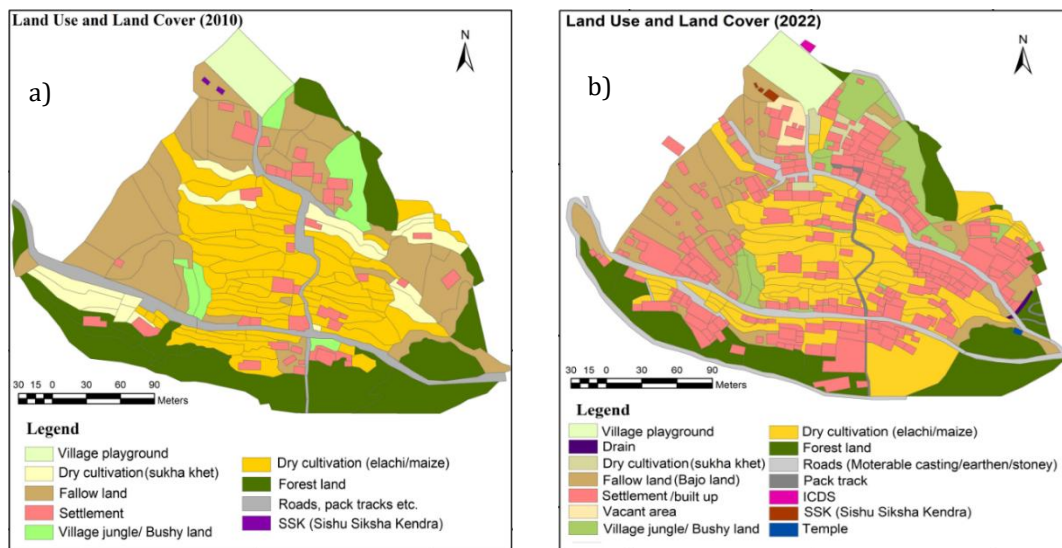


Fig. 9. Changing land use of Sillery Gaon: a) 2010; b) 2022, showing the conversion of cultivable and forested plots into built-up areas, reflecting settlement expansion associated with homestay development and tourism-led growth.

In memo No. 16/2454 (19) C/14, dated 15th July 2015, guidelines were published by The Director of Land Records and Surveys & Joint Land Reforms Commissioner to convert unsurveyed forest villages to revenue villages. Rising tourism boosts fuel, water, and plastic use, worsening pollution and biodiversity loss, particularly from homestays and land use changes. In village areas, moderate vegetation loss is evident despite overall stable vegetation cover. Datta & Banerji (2015) found increased forest cover despite tourism growth. As homestays surged post-2014 in Sillery Gaon, slight forest loss and land use change can be noticed (Fig. 10). Respondents noted rare wildlife hunting, attributing infrequent animal sightings to tourists' activities such as walking, trekking, and camping. Generally, water availability for common people in mountain regions depends on spring and stream water, and in Sillery Gaon, water is now collected from the northern Jhora using a 2.5-cm PVC pipe with a 1 HP pump. (Datta & Banerji 2015; Singh & Biswas 2017).

The rising number of homestays increases pump usage, with water occasionally supplied by tankers. Das (2021) also proposed a scenario about water availability and crisis in peak seasons. Initially, homestays were overlooked economically, but rising tourist numbers led governments to promote them for local economic development. (Bhuiyan et al., 2011). Recently, the homestay tourism policy boosted momentum. The government sanctions Rs. 1.5 lakh aid in three installments to enhance infrastructure (Sikdar, 2023). Travel professionals and agencies foster sustainable tourism by partnering with village hosts and overseeing marketing, training, and management. Identified six key features of ecotourism: exploring untouched natural areas and archaeological sites, emphasizing

learning and quality experiences, benefiting local communities, observing unique wildlife and scenery, highlighting local culture, and promoting environmental sustainability by restricting and controlling damage (Kiper, 2023).

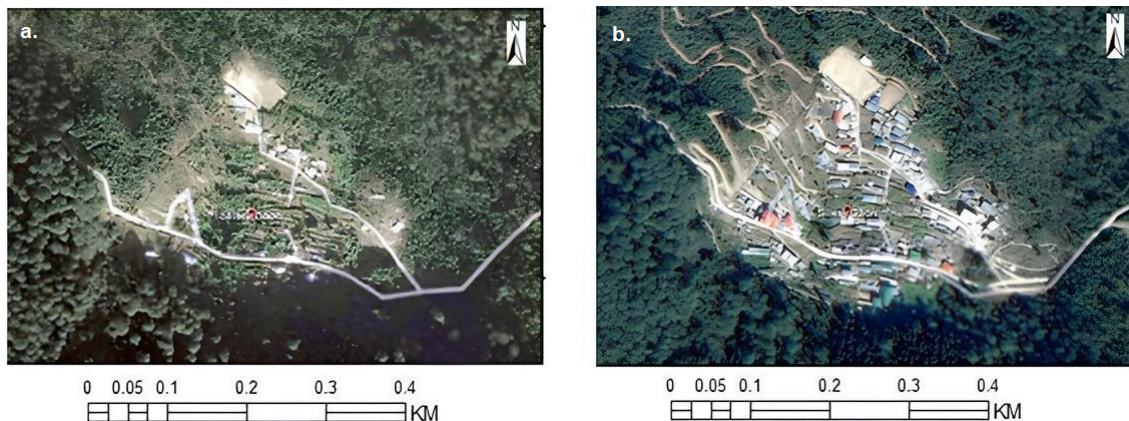


Fig. 10. Google Satellite image showing change of vegetation cover of Sillery Gaon, a) 2010; b) 2022.

Suitable planning, environmental and ecological protection, and sensible and responsible tourist behavior can support sustainable tourism outcomes in spite of the popularity of social media and UGCs. If vloggers, content creators, and homestay owners inform the general tourists and other publics who are interested about tourist spots, homestays, and the facilities available there, as well as environmental conservation and sustainable tourism, through their videos, content, reels, and shorts, then general tourists will also be inspired by it, and their behavior and thinking can become compatible with ecotourism, which is necessary for sustainable tourism. While this study provides insights into digital tourism and ecotourism impacts in offbeat Himalayan destinations, it has some limitations. The focus on selected locations and reliance on digital content and GIS indicators may not capture all aspects of tourist behavior or local community perspectives. Future research could expand to other regions, include longer-term data, or combine digital analysis with field surveys for a more comprehensive understanding of ecotourism and sustainable destination management.

#### 4. Conclusion

Ecotourism is prepared to be a key strategy for promoting sustainable tourism, with offbeat destinations gaining popularity for their serene, nature-rich environments. Rural ecotourism is increasingly valued as urban tourist spots lose this natural appeal, thus fostering local community development. Social media—especially UGCs and BGCs—play a vital role in boosting ecotourism, as digital tour operators and homestay owners collaborate to improve visitor experiences. Tour vloggers provide essential information, offering psychological assurance and reassurance to potential tourists and even their viewers.

However, while demand for homestays benefits local economies, it also raises environmental concerns due to land-use changes, fragile mountain ecosystems, and potential ecological threats. These results underscore the necessity for policy-oriented, elevation-sensitive planning, capacity management, and ecologically responsible homestay regulations that involve local communities and regulatory authorities. Achieving a suitable balance between environmental protection and livelihood generation is essential for sustainable tourism development. The integrated application of GIS-based spatial analysis and digital tourism indicators proposed in this research provides a replicable framework that can be applied and utilized in other unconventional rural destinations of the Himalayan region, supporting equitable tourism growth while ensuring environmental sustainability.

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## Author Contribution

Author have contributed to the conception, writing, and revision of this article.

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Not available.

## Informed Consent Statement

Not available.

## Data Availability Statement

The data supporting the findings of this study are publicly available in an online database. The datasets can be accessed at: <https://acesse.one/3vh04ls>

## Conflicts of Interest

The author declare no conflict of interest.

## Declaration of Generative AI Use

The author declare that generative AI tools were used only for language editing and grammar improvement during the preparation of this manuscript. The author take full responsibility for the content, interpretation, and originality of the work.

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## References:

- Anandaraj, M. (2015). Eco-tourism: Origin and development. *International Journal of Management and Humanities*, 2(1). <https://researchscript.in/wp-content/uploads/2015/06/IJMH020101.pdf>
- Ballantyne, R., & Packer, J. (2013). Developing ecotourists' environmentally sustainable behaviour. In R. Ballantyne & J. Packer (Eds.), *International handbook on ecotourism* (pp. 192–202). Edward Elgar Publishing. <https://doi.org/10.4337/9780857939975.00022>
- Basak, D., Bose, A., Roy, S., Roy Chowdhury, I., & Sarkar, B. C. (2021). Understanding sustainable homestay tourism as a driving factor of tourist satisfaction through structural equation modelling: A case of the Darjeeling Himalayan region, India. *Current Research in Environmental Sustainability*, 3, 100098. <https://doi.org/10.1016/j.crsust.2021.100098>

- Bhuiyan, M. A. H., Siwar, C., Ismail, S. M., & Islam, R. (2011). Ecotourism development in recreational forest areas. *American Journal of Applied Sciences*, 8(11), 1116–1121. <https://doi.org/10.3844/ajassp.2011.1116.1121>
- Brandt, J. S., Radeloff, V., Allendorf, T., Butsic, V., & Roopsind, A. (2019). Effects of ecotourism on forest loss in the Himalayan biodiversity hotspot based on counterfactual analyses. *Conservation Biology*. <https://doi.org/10.1111/cobi.13341>
- Das, P. K. (2021). Ecotourism and sustainable community development: A case study of Sillery Gaon, West Bengal. *International Journal of Social Sciences*, 10(1), 21–28. <https://doi.org/10.46852/2249-6637.01.2021.3>
- Datta, D., & Banerji, S. (2015). Local tourism initiative in an eastern Himalayan village: Sustainable ecotourism or small-scale nature exploitation? In D. Szymańska & K. Rogatka (Eds.), *Bulletin of Geography: Socio-economic Series* (No. 27, pp. 33–49). Nicolaus Copernicus University. <https://doi.org/10.1515/bog-2015-0003>
- Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2020). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, 59, 102168. <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- FABDEM v1-2. (n.d.). <https://doi.org/10.5523/bris.s5hqmjcdj8yo2ibzi9b4ew3sn> data.bris.ac.uk.
- Ganguly-Scrase, R., & Scrase, T. (2015). Darjeeling re-made: The cultural politics of charm and heritage. *South Asia: Journal of South Asian Studies*, 38, 1–17. <https://doi.org/10.1080/00856401.2015.1031203>
- Ghosal, S. (1990). *The Lepchas of Darjeeling and Sikkim: A study in cultural ecology and social change* (Doctoral dissertation, University of North Bengal). <http://ir.nbu.ac.in/handle/123456789/152>
- Google News Initiative. (2022). *Basics of Google Trends*. <https://newsinitiative.withgoogle.com/resources/lessons/basics-of-google-trends>
- Hafezi, F., Bijani, M., Gholamrezai, S., Savari, M., & Panzer-Krause, S. (2023). Towards sustainable community-based ecotourism: A qualitative content analysis. *Science of the Total Environment*, 891, 164411. <https://doi.org/10.1016/j.scitotenv.2023.164411>
- Harishnaika, N., Arpitha, M., Ahmed, S. A., & Ashwini, K. S. (2023). Geospatial investigation of site suitability for ecotourism development using AHP and GIS techniques in Uttara Kannada district, Karnataka State, India. *World Development Sustainability*, 3, 100114. <https://doi.org/10.1016/j.wds.2023.100114>
- Higgins, B. R. (1996). The global structure of the nature tourism industry: Ecotourists, tour operators, and local businesses. *Journal of Travel Research*, 35(2), 11–18. <https://doi.org/10.1177/004728759603500203>
- Higham, J. (Ed.). (2007). *Critical issues in ecotourism: Understanding a complex tourism phenomenon*. Butterworth-Heinemann.
- Hinch, T., & Butler, R. (1996). Indigenous tourism: A common ground for discussion. In R. Butler & T. Hinch (Eds.), *Tourism and indigenous peoples* (pp. 3–21). International Thomson Business Press. <https://doi.org/10.4324/9780080553962>
- Hölzl, J., Keusch, F., & Sajons, C. (2024). The (mis)use of Google Trends data in the social sciences: A systematic review, critique, and recommendations. *Social Science Research*, 126, 103099. <https://doi.org/10.1016/j.ssresearch.2024.103099>
- Huang, Q., Zhou, C., Li, M., Ma, Y., & Hua, S. (2024). An approach for mapping ecotourism suitability using machine learning: A case study of Zhangjiajie, China. *Land*, 13(8), 1188. <https://doi.org/10.3390/land13081188>
- Ji, X., & Deng, B. (2025). Digital technology driving sustainable development in rural ecotourism. *Economics & Management Review*, 6(1). <https://doi.org/10.37420/j.emr.2025.1013>

- Jara-Amézaga, C. (2023). The impact of YouTube in tourism destinations: A methodological proposal to qualitatively measure image positioning—Case: Saudi Arabia. *Sustainability*, 15(13), 9879. <https://doi.org/10.3390/su15139879>
- Kannegieser, I. (2015). *A home in the hills: Examining the socioeconomic benefits of homestay tourism on rural women and their communities in the Darjeeling district* (Independent Study Project No. 2205). School for International Training. [https://digitalcollections.sit.edu/isp\\_collection/2205](https://digitalcollections.sit.edu/isp_collection/2205)
- Kiper, T. (2013). Role of ecotourism in sustainable development. In *Sustainable development* (pp. 773–802). InTech. <https://doi.org/10.5772/55749>
- Lepcha, R. (2017). *Role of Pano Gaeboo Achyok in the construction of Lepcha identity* (Unpublished M.Phil. dissertation). Sikkim University. <http://dspace.cus.ac.in/jspui/bitstream/1/5467/1/Rongnyoo%20Lepcha-ANT.pdf>
- Lindberg, K. (2001). Economic impacts. In D. Weaver (Ed.), *The encyclopedia of ecotourism* (pp. 363–377). CABI Publishing. <https://anyflip.com/ghjw/xrql/basic>
- Liu, J., Linderman, M., Ouyang, Z., An, L., Yang, J., & Zhang, H. (2001). Ecological degradation in protected areas: The case of Wolong Nature Reserve for giant pandas. *Science*, 292, 98–101. <https://doi.org/10.1126/science.1058104>
- McCormick, J. (1995). *The global environmental movement*. Wiley-Blackwell.
- Mkono, M., & Holder, A. (2019). The future of animals in tourism recreation: Social media as spaces of collective moral reflexivity. *Tourism Management Perspectives*, 29, 1–8. <https://doi.org/10.1016/j.tmp.2018.10.002>
- Muneer, Q., & Khan, M. A. (2025). Role of YouTube in creating awareness of sustainable transportation: A latent Dirichlet allocation approach. *Sustainable Futures*, 9, 100607. <https://doi.org/10.1016/j.sftr.2025.100607>
- Orams, M. B. (1995). Towards a more desirable form of ecotourism. *Tourism Management*, 16(1), 3–8. [https://doi.org/10.1016/0261-5177\(94\)00001-Q](https://doi.org/10.1016/0261-5177(94)00001-Q)
- Ouboter, D. A., Kadosoe, V. S., & Ouboter, P. E. (2021). Impact of ecotourism on abundance, diversity and activity patterns of medium-large terrestrial mammals at Brownsberg Nature Park, Suriname. *PLOS ONE*, 16(6), e0250390. <https://doi.org/10.1371/journal.pone.0250390>
- Park, D., Kim, W. G., & Choi, S. (2019). Application of social media analytics in tourism crisis communication. *Current Issues in Tourism*, 22(15), 1810–1824. <https://doi.org/10.1080/13683500.2018.1504900>
- Pasanchay, K., & Schott, C. (2021). Community-based tourism homestays' capacity to advance the Sustainable Development Goals: A holistic sustainable livelihood perspective. *Tourism Management Perspectives*, 37, 100784. <https://doi.org/10.1016/j.tmp.2020.100784>
- Rai, R. (2020). Ecotourism potential in the Darjeeling hills: Prospects, challenges and possibilities. *EPRA International Journal of Multidisciplinary Research*, 6(7), 228–235. <https://doi.org/10.36713/epra2013>
- Roy, S. (2022). Rural homestay as a driver of community development and ecological sustainability: A case study of Buxa Tiger Reserve Forest, West Bengal. *International Journal of Mechanical Engineering*, 7(Special Issue 2), 2022. [https://www.kalaharijournals.com/resources/Spe2%20Jan\\_Feb\\_6.pdf](https://www.kalaharijournals.com/resources/Spe2%20Jan_Feb_6.pdf)
- Sahabuddin, C., Azis, S., Irmayani, N., et al. (2026). Evaluating key indicators for sustained environmental campaigns through a community-based tourism social policy model. *Discover Sustainability*, 7, Article 119. <https://doi.org/10.1007/s43621-025-02432-x>
- Saini, H., Kumar, P., & Verma, R. (2024). Social media and its influence on travel decision making. In N. Azman, M. Valeri, & A. Albattat (Eds.), *Decoding tourist behavior in the digital era* (pp. 261–282). IGI Global. <https://doi.org/10.4018/979-8-3693-3972-5.ch011>
- Shang, Y., & Xu, A. (2021). An evaluation of the impact of natural ecotourism on environmental pollution. *Environmental Science and Pollution Research*, 28, 1–7. <https://doi.org/10.1007/s11356-020-11440-5>

- Shang, Y., Bi, C., Wei, X., Jiang, D., Taghizadeh-Hesary, F., Rasoulinezhad, E. (2023). Eco-tourism, climate change, and environmental policies: Empirical evidence from developing economies. *Humanities and Social Sciences Communications*, 10, Article 275. <https://doi.org/10.1057/s41599-023-01777-w>
- Sikdar, B. (2023). Kalimpong district administration and police conduct awareness camps among homestays to ensure hassle-free stay. *The Telegraph (Online)*. <https://www.telegraphindia.com/west-bengal/kalimpong-district-administration-and-police-conduct-awareness-camps-among-homestay-owners-to-ensure-hassle-free-stay/cid/194730>
- Singh, E. I., & Biswas, A. (2017). Geo eye of Union Geographic Information Technologists. *Union Geographic Information Technologists*, 6(1). <https://ge.bujournals.com/downloadarticle.php?Article Unique Id=GE91andFull Text Pdf Download=True>
- Singh, N. R., & Saini, N. N. (2024). Role of social media in promoting tourism, hospitality and entrepreneurship: A study of Amritsar City. *International Research Journal of Advanced Engineering and Management*, 2(6), 2069–2077. <https://doi.org/10.47392/irjaem.2024.0304>
- Snyman, S. (2017). The role of private sector ecotourism in local socio-economic development in southern Africa. *Journal of Ecotourism*, 16(3), 247–268. <https://doi.org/10.1080/14724049.2016.1226318>
- Suriyankietkaew, S., Krittayaruangroj, K., Thinthan, S., & Lumlongrut, S. (2025). Creative tourism as a driver for sustainable development: A model for advancing SDGs through community-based tourism and environmental stewardship. *Environmental and Sustainability Indicators*, 27, 100828. <https://doi.org/10.1016/j.indic.2025.100828>
- The Director of Land Records and Surveys & Joint Land Reforms Commissioner, Government of West Bengal. (2015). *Memo No. 16/2454(19) C/14 dated 15 July 2015*. <https://wbllroa.in/wp-content/uploads/2023/09/Recording-of-Forest-Pattas-and-related-2.pdf>
- Vedwan, N. (2006). Culture, climate and the environment: Local knowledge and perception of climate change among apple growers in Northwestern India. *Journal of Ecological Anthropology*, 10(1), 4–18. <https://doi.org/10.5038/2162-4593.10.1.1>
- Vyas, N., Dubey, I., & Mehta, N. (2025). The role of user-generated content in the tourism industry: Examining the impact of YouTube travel vlogs in new age travel. *International Journal of Innovative Science and Research Technology*, 10(1), 2084–2093. <https://doi.org/10.5281/zenodo.14848286>
- Wang, B., Shi, W., & Miao, Z. (2015). Confidence analysis of standard deviational ellipse and its extension into higher dimensional Euclidean space. *PLOS ONE*, Article e0118537. <https://doi.org/10.1371/journal.pone.0118537>
- Zada, M., Bayram, G. E., Contreras-Barraza, N., Kaptangil, K., & Aylan, S. (2025). Integrating social media-driven service innovation and sustainable leadership: Advancing sustainable practices in tourism and hospitality. *Sustainability*, 17(2), 399. <https://doi.org/10.3390/su17020399>
- Zhong, L., & Liu, L. (2017). Ecotourism development in China: Achievements, problems and strategies. *Journal of Resources and Ecology*, 8(5), 441–448. <https://doi.org/10.5814/j.issn.1674-764x.2017.05.001>

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