

Exploring the Prospects of Eco-tourism for Sustainable Development: A Case of Chitlang

Sabin Khadgi ^a, Sangeeta Singh ^b

^{a, b} Department of Architecture, Pulchowk Campus, IOE, Tribhuvan University, Nepal

Corresponding Email: ^a sabinxyz@gmail.com, ^b sangeeta@ioe.edu.np

Abstract

Ecotourism, a branch of sustainable tourism, is a travel that is based not only on nature but also on the hosts, their needs, culture and their relationships with the land. Ecotourism focuses on conservation of biodiversity, integrity of resources, protection of environment, sustainable development of communities along with their economic enhancement. Poor tourism linkages with the rural communities, limited policies and guidelines to support eco-based tourism initiatives, exploitation of natural resources and limited considerations on factors of sustainability, has resulted in negative impacts on potential rural communities. This study intends to explore and investigate prospects of developing eco-tourism as means for sustainable development by analyzing the nexus between parameters: local communities, ecology and eco-tourism activities. Chitlang has the potential to be developed into an eco-tourism destination due to the range of characteristics it possesses. There are many types of eco-tourism services and integration of each in helps in sustainable development. Different types of eco-tourism services identified in Chitlang are community based, culture based, nature based, agrotourism based and adventure-based tourism activities. Chitlang is ideal for experiences regarding nature, spirituality, recreation, historical studies, cultural tours, linguistic, socio-economic activities, folk culture, entertainment, literature, biking, cycling, caving, sightseeing, trekking, hiking, bird watching, wildlife exploration and research activities.

Keywords

Eco-tourism, Eco-tourism services, Sustainable development, Analyzing nexus

1. Introduction

1.1 Background

Nepal's globally acclaimed and unique natural resources, with vibrant cultural heritage and friendly hospitable nature of Nepalese people, has significant potential for low cost and eco-friendly tourism activities, that contributes to socio-economic growth and sustainable development [1]. Eco-tourism addresses the traditional concern of eco-design with considerations to generate an environment that is economically sustained, visually pleasant, convenient, comfortable and conveys sensory attachment to the identity, pride and belonging to a place by creating a balance between the available tangible and non-tangible resources. Leaning towards economic development without considering the indicators of socio-cultural, energy and environmental impacts, has evidently disrupted the equilibrium between three pillars of sustainability; people, planet and prosperity

[2]. Tourism in Nepal is largely demand driven and identification of driving factors provide basis for assessing sustainability of potential tourism destinations. According to UNWTO, socio-economic sustainability aims for local control, participation, awareness, capacity building, cultural richness and community wellbeing; whereas environmental sustainability aims for resource efficiency, biological diversity, environmental quality, ecological inclusiveness and benefits from environment. Sustainability from grass root can be enhanced and emphasized in rural settlements that depend on local resources for their sustenance by combination of community development and environment conservation at local level for shaping a sustainable future. The potential of eco-tourism flourishes in a resilient human settlement where human activities are integrated in ways that are supportive for creating a balance between socio-cultural, ecological and economic sustainability [3].

1.2 Case Area

Chitlang, an old Newari settlement in Thaha Municipality, is located in the northern part of Makwanpur District in Province 3. Municipality comprises of 12 wards, where Chitlang village covers ward 9 and 10. Newar communities are dominant in the settlement cores while Brahman, Chhetri, Tamang and others are distributed in the surrounding area. The history of Chitlang dates back to Lichchavi era as an inscription established in Sambat 37 by Amshubarna was found in Toukhel, Chitlang. It states that Amshubarna had given lands to the Gopals (descendants of rulers of Gopal era) and established a settlement for them [4].

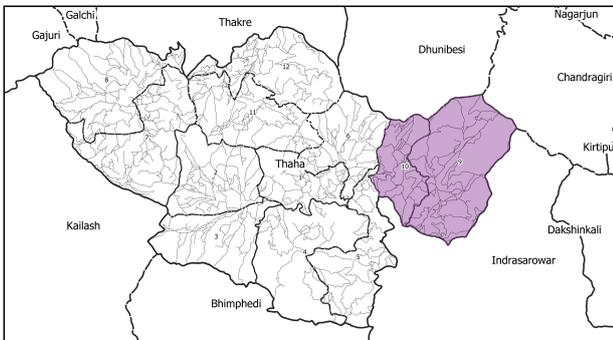


Figure 1: Study area

1.3 Research Purpose

The research aims to generate informed knowledge on: **How do the identified factors, in terms of local communities, ecology and eco-tourism services, contribute to the nexus (connection and linkage) for exploring the potential of eco-tourism in Chitlang for its sustainable development?**

Specific objectives are:

1. To assess and map current state of social and natural resources available in the case area.
2. To identify and explore the characteristics of eco-tourism, in response to identified parameters; local communities, ecology and eco-tourism services, that influence sustainable development.
3. To analyze nexus between the parameters that contributes to the prospects of eco-tourism and identify sustainable approaches in terms of viable projects/activities in the case area.

2. Literature Review

Sustainable tourism aims for meeting the requirements of tourists and host communities in the present condition while protecting and creating emerging situations for opportunities in the future, to meet their needs [5]. WTO has identified different baseline indicators for tourist destinations such as: energy management, resources consumption pattern, waste management, development control mechanisms, local production, amenities, freedom, recreation, spirituality and access to basic human needs. Eco-tourism is an approach for ecology conservation and sustainable community development where its efficiency depends on its ability to provide local benefits [6]. Ecotourism incorporates activities which are ecologically sustainable, conservation strategies and supporting measures that opts for sustainable development of a community through active stakeholder's participation [7]. Self-reliant communities that aim for income generation, conservation and preservation of biodiversity and culture, show immense potential for ecotourism. Accessibility improvement, pricing policy liberalization, empowerment of community, tourism facilities development and incorporating nature-based tourism products are some of the areas to generate socio-economic and environmental benefits from ecotourism. Tourism intervention activities are likely to promote social cohesion and promote cultural values that are conducive to social strengthening and harmony [8].

In case of Nepal, ecotourism has contributed in natural resource management and biodiversity conservation. Along with these, increase in forest cover, conservation and increased diversity of flora and fauna, increase in greenery and use of alternative energy sources were the positive environmental impacts of ecotourism [9]. Likewise, formulation of guidelines and standards for development of homestays, capacity building for management and services, environmental monitoring mechanisms, approaches for empowerment of women and community level ownership are some of the general positive social impacts of ecotourism in Nepal [10].

Analyzing the potential of tourism in any rural settlement as mentioned by [11] are: evaluating the suitability of the place, analyzing and identifying risks, evaluation of sustainability indicators, analyzing infrastructure requirements and identifying marketing strategies.

3. Methodology

Research objectives identified for this research relies on inductive approach for reasoning and rationalizing the prospects of eco-tourism, to develop comprehensive understanding about the impacts of different parameters and indicators of sustainability. Research design is exploratory, based on case study research methodology that aims to investigate the phenomenon in its real-life settings. Research approach accompanies mixing of data collection methods and data analysis procedures. Upon literature review, contextual parameters and indicators for understanding the nexus between the parameters were identified. Sustainability matrix was developed for the eco-tourism assessment of the case area.



Figure 2: Research design

Table 1: Parameter & Indicator: Local Community

Identity	Landmark, Culture, History, Architecture, Significance
Social groups	Participation, Activities, Skills
Architecture	Context, Culture, Identity
Heritage	Traditions, Sites, Festivals, Rituals
Attitude	Conservation, Sustainability
Income	Occupation, Service, Agriculture
Tourism	Activities, Facilities, Sites
Community	Homestays, Hotels, Resorts
Support	Finance, Plans, Programs, Projects

Table 2: Parameter & Indicator: Ecology

Location	Topography, Landscape, Significance
Resources	Land, Water, Forest, Human
Efficiency	Source, Use, Management Human, Materials, Protection
Materials	Local, Imported, Style
Waste	3Rs, Conversion, Bi-products
Energy	Demand, Use, Renewable Alternate energy use
Climate	Response, Passive design, technologies
Ecology	Status, Value, Protection, Pollution

Table 3: Parameter & Indicator: Eco-Tourism

Accessibility	Proximity, Location, Ease
Types	Potential types, services, activities
Potential	Evaluation, Suitability, Risks
Process	Participation, Stakeholders, Issues, Strategies, Sustainability
Therapeutic Comfort	Health, Well-being, Surrounding Recreational activities
Ammenities	Services, Infrastructures, Facilities
Spatial	Open areas, Spaces, Outdoor, Zoning
Planning	Routes, Structures, Feasibility, Circulation
Spiritual	Symbols, Sacred elements, Ceremonies
Safety and Security	Resilience, Friendliness, Management, Call systems, Surveillance

4. Findings and Analysis

4.1 Resources in Chitlang

Social Resources: Inventory of different social resources were prepared and mapped on following: social stratification; settlement distribution patterns; festivals, jattras and melas; cultural landmarks; market centers; social groups; stakeholders; community infrastructures; places of tourist attractions; social institutions (educational, financial, health) and social infrastructures (housing, transportation, services, open spaces).

Natural Resources: Chitlang is rich in natural resources due to its topographic characteristics and natural diversity. Variations in altitude offers areas covered with natural forests, fertile agricultural lands with free-flowing water streams. Forest covers around 60% of the total area while agriculture covers 35% area. Similarly, residential built-up area is 3%, military, water resources and others cover around 1.5%, 1% and 0.5% respectively. Elevation, slope and land cover maps are prepared. Current status of natural resources like forests, agricultural lands and water resources are studied comprehensively and list of available flora and fauna, patterns of agricultural productions, sources of water and irrigation canals, list of streams and ponds along with their respective consumption, conservation and management strategies are assessed and mapped.

GIS application was used to prepare and analyze maps using data sources from KVTDC (2015), Open Street Map and Bing aerial imageries.

recyclable. The climate of Chitlang is favorable for tourism activities any time of the year. Indicators that portray effect of climate change in Chitlang are: drying of water sources, rise in temperature, shift in weather patterns, erratic rainfalls, droughts and desertification, flooding during monsoon, forest fires, shift in species, etc. Specifically, natural assets like forest biodiversity, water resources, agricultural patterns and human health have been affected. Minimum strategies are followed to reduce the consumption and dependency on natural resources. The concept of segregation of waste is still minimal. Wastes from the houses are burnt directly. Dependency on non-renewable sources of energy is evident as very limited energy is generated from renewable sources such as sun, wind and biomass.

Table 4: CO₂ Emissions in Chitlang (Source: [12])

Location	CO ₂ Emissions	CO ₂ Per Capita	CO ₂ Intensity
Chitlang	1,470 t	0.32 t	45.1 t/km ²

Eco-tourism Services: The current trends of tourism in Chitlang mostly focuses on accommodation facilities in homestays and resorts. At present, there are 19 homestays and 5 resorts. The tourism packages are designed to offer similar itineraries to every guest, without considering their purpose and motives. The spatial characteristic such as settlement planning, routes, integration of human with ecology and guest-host relationship must aim for emphasizing the functional relation between varrious components of tourism. The tourism activities are hiking, trekking, bird watching, cycling, quad bike riding, historical sightseeing, engaging with local communities, visiting agro-tourism farms, picnicking, etc. Due to lack of tourism information cente, information about the village is not outreached to the guests and only limited to those who can hire guides. Records and documentation of the guests visiting Chitlang are not maintained which offers many negative consequences. Also, the map indicating attractions of the place is outdated and there are signages limited to direct the guests to respective homestays and resorts. Visitors expressed that information system is a big turn off as many of them found it hard to locate different destinations. The trails leading up to Chitlang bear no landmarks and signage posts. Also lack of financial services like ATM, banks and limited health service facilities need to be addressed.

4.3 Analyzing the prospects

Socio-Economic Impacts: The current trends of tourism have been beneficial for handful of hosts while some marginalized communities are still far off from the direct benefits from tourism. The Tamang communities residing on the hills are not included in the package for tourism activities. Indigenous Kapali community are deprived of opening homestays due to social restrictions like untouchability. Thus, eco-tourism activities must aim for indulging all the communities based on the resources and potential they hold to offer tourism services. Architecture, design and appearance of the community demonstrates that the community values art, beauty and aesthetic quality. The present trends of construction practices have negative impact on the contextual setting, as vernacular buildings are replaced with modern ones. Impact of eco-tourism on architecture of the place plays a vital role in maintaing the identity of place. The owners are compelled to design, construct and maintain traditional facades replicating vernaculararchitecture as preferred by the tourists. Thus, eco-tourism plays a vital role in expression and experience of beauty of the community via architecture. The current development of social infrastructures, emerging resorts and homestays must respect the contextual setting, significance and architecture of Chitlang to retain its authenticity. Integrated planning of the village is necessary according to the land-use pattern, that identifies respective areas for particular services to be provided, that addresses the suitability of different eco-tourism types. Gopals, the natives, have barely any direct economic gain from current tourism practices. They are mostly exploited by visitors and tour operators for photographs, interviews and sightseeing, which has barely improved their economic conditions. Thus, eco-tourism activities must aim for upliftment of these communities through activities and initiatives that provides direct economic benefit. Accessibility is one of the major concerns, especially during monsoon. In addition, limited tourism infrastructures need improvement. Tourist information center and information display facilities are lacking. Similarly, provision of rest stops, drinking water in trails, public toilet facilities, waste management system signage are necessary.

Various places of attractions in Chitlang were mapped, based on site visit, as shown in Figure 4.

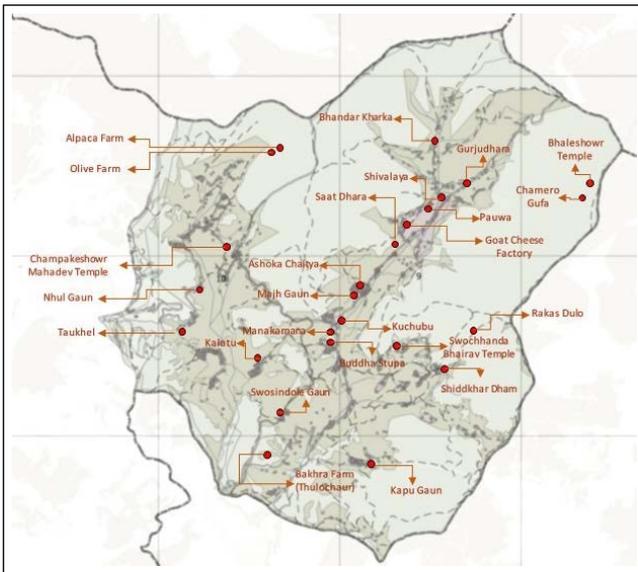


Figure 4: Places of attractions in Chitlang (Source: author)

Cultural Appreciation: The richness in culture and folk traditions of Chitlang is one of the major attractions for eco-tourists. Appreciation and promotion of culture through tourism services is necessary. The way culture and heritage are celebrated and preserved is one of the components of cultural eco-tourism. This can be directed towards the visitors through storytelling, written records, archives and celebrations. Ecotourism has the potential for development of local entertainers and entertainment, folk culture, literature, attires and overall traditional way of life. Cultural tours, knowledge and information on cultural rituals, customs, ceremonies, cultural services, etc. can enhance the socio-cultural status of the communities through tourism. This can create opportunities for indigenous communities like Gopals, Gamals and Kapalis to be directly benefitted. Despite having unique forms of tradition, folk culture and values, changes in recent times have resulted in their depletion. Thus, ecotourism can play a vital role for its conservation and promotion. Places like Ashoka chaitya, inscriptions in Toukhel, can be developed into archeological site to preserve them as natural heritages. Museums and galleries can act as a tourism destination to showcase various significant cultures and values the place beholds.

Environmental Advocacy: Kulekhani Indrasarovar reservoir is responsible for maintaining micro climate of Chitlang. Kulekhani Watershed and Conservation Project is one of the major advocates for this. The activities of this project should be strengthened and

more emphasis should be given to direct involvement of local user groups. Deterioration of resources leads to depletion of the available resources, affecting forest, its species, flora and fauna, water supply system, irrigation canals and eventually the livelihood of the people. Thus, it is necessary to monitor the conservation and management activities regularly with support from local communities. The patterns of urbanization need to be addressed through strategies which aim for protection and conservation of environment. Proper land use planning, with identification of expansion zones without affecting the natural environment is necessary.

Sustainable Resource Use: The increasing energy demand due to flow of tourist must be met by sustainable sources of energy. Chitlang holds a great potential for using renewable sources to cater energy demands via use of solar PV, solar thermal energy, improved cook stoves, biogas and solid waste management systems. The climatic graph shows that 2530 hours of sunshine are counted throughout the year with more than 70% of the land area exposed to direct sunlight. This clearly indicates the potential to harness solar energy through solar farms, at community level and through solar panels at household level.

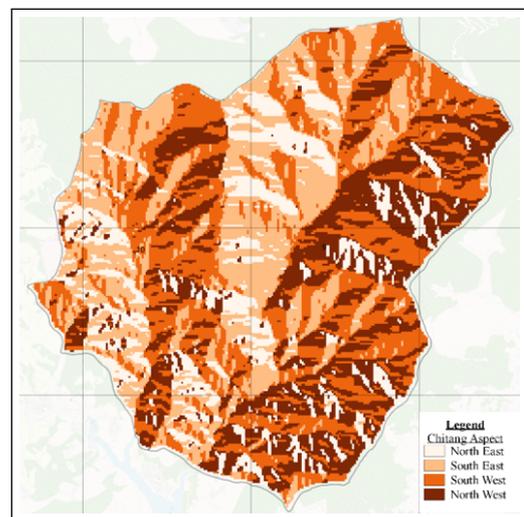


Figure 5: Aspect map (Source: author)

Natural Resources: The current trend of population growth is one of the threats for the available natural resources. Population projection graph shows that population of Chitlang will expand enormously after 2020, rising up to 6000 in 2030[13]. To address this issue, improvement of water supply and sanitation status by preservation of local water supply sources

and establishment of small-scale water supply schemes is necessary. Expansion of irrigation facilities through improved water management like retention ponds must be encouraged. Development on the flat lands along river banks has contributed in drying up off underground water. This calls for a need to develop riverside parks that would prevent riverside encroachment, amplify water recharge as well as provide open recreational spaces for the visitors.

Environmental Conservation: The protection and conservation of environment by proper system of waste management is necessary. As a tourism destination, more wastes are produced, which needs to be addressed using viable and sustainable mechanisms. Priority on reducing wastes in the first place, leading to change in behavior of the hosts and guests followed by waste management system is necessary. Waste water treatment plant and biogas reactors can be set up to convert wastes into energy. Segregation of solid waste to be used by biogas reactor and waste water to be sent to reed bed treatment plants holds enormous potential. Sludge can be used as compost fertilizer in agricultural farms.

Management Policy: Due to absence of management authority, formation of tourism management committee is the foremost need at present. Records of the guests, their objectives, preference, information, assistance, safety and surveillance are necessary. Management of emerging homestays, resorts, hotels and lodges must ensure its standards, quality and the their carrying capacity. Creating data base of available natural and social resources, cultural settlements, tangible and intangible heritages, biodiversity, etc would be helpful for planning eco-tourism services. Marketing strategies to promote lifestyle, social resources, natural resources, agricultural products and tourism services to national as well as international market must be encouraged. Harnessing the tourism potential by involving private investments and financing mechanisms is vital for its longterm sustenance. Identification of potential investment projects, mapping sites, activities and costs to explore various types of eco-tourism services is necessary.

Figure 6 summarizes the SWOT analysis of potential ecotourism services, based on the findings of the research. Further, identification of sustainable approaches in terms of viable projects and activities in the case area, for respective eco-tourism types were proposed.

5. Recommendation & Conclusion

Tourism activities must focus on exploring potential activities the place has to offer to accommodate every type of guests. Despite having lot of attractions, deficient capacity of receiving tourists, insufficient tourism facilities, products and services especially in terms of social activities, travel, accommodation, market and recreational services, are the major holdbacks. As different motive exists for different tourists, proper zonation of appropriate facilities and services with proper monitoring strategies are necessary to prevent mixing of activities. Proper guidelines and policies addressing the necessity, structural safety and its impact on tourism by combining local materials with safer construction techniques to construct vernacular buildings is necessary to revive the significance of Chitlang. Communal spaces and infrastructures for inclusiveness and participation, that strengthens communication system, helps in decision making, policies and sharing of resources is necessary. Integration of available natural resources while planning ecotourism destinations, with emphasis on protection, conservation and management of natural resources is necessary. Municipality, with support from the Government must provide economic support for eco-tourism industry by identification of projects and encouraging investments from the concerned stakeholders. Government institutions must encourage use of renewable energy technologies by providing training, incentive mechanisms and awareness programs. Integrated waste management system with awareness programs on importance, management and conservation and sustainable use of resources is necessary. Tourism management committee must be responsible for making policies, codes of conduct, setting standards and monitoring impacts of visitors for effective functioning of tourism sector. Mechanisms to increase duration of stay of guests by organizing eco-tours, diversifying itineraries, exploring areas of interest and increasing tourism services and amenities is necessary. National projects such as construction of a tunnel, linking Kathmandu and Hetauda holds enormous potential for Chitlang to be developed into a tourist hub. However, the potential threats the project holds, such as issues of urbanization, loss of lands, natural and environmental impacts, negative socio-cultural impacts and effects on eco-tourism services must be well analyzed to avoid any negative rebounds.

Strength	Weakness	Opportunities	Threats
1. Community-based Ecotourism			
-Existing homestays and resorts -Preserve identity and significance -Foster communal benefits, participation, ownership	-Community homestay system failed -Deficient carrying capacity -Inadequate services and facilities -Change in demands of guests	-Social stratification -Diverse communities: Tamang, Newar, Brahmins -Reviving traditional practices	-Emerging resorts -Change in contextual settings, modernization and urbanization
Activities: Community Homestays, Community-owned accommodation, guiding, Community owned infrastructures (schools, agricultural lands, halls, museums) where guests are engaged, Community based conservation and management activities, Promotion of local products (food, souvenirs) by mobilizing women and marginalized groups, Attraction for educational and ethnographic tourists, Community Development activities: Volunteering opportunities			
2. Cultural Eco-tourism			
-Attractions lie: Gurjadhara, Ashoka Chaitya, Buddhist stupas, -Inscriptions: kapu Gaun, Kalatu Gaun, toukhel -Religious: Siddheswor Dham, Swochhand Bhairav, Champakeshowr	-Inadequate participation -Social restrictions -Exploitation by other areas -Promotion and Conservation of culture	-Culturally rich settlements: Bhandarkharka, Swosindole, Kalatu, Majhgaun, Nhulgaun, Taukhel	-Change in cultural patterns -Cultural mixing -Limited cultural tourists, guest-host relationship
Activities: Cultural tours of heritages, Activities to promote cultural foods, attires, accommodation, Participation in cultural festivals and celebrations, Cultural literature, folk traditions and dance programs, Courses on cooking, art, embroidery, product making			
3. Nature-based Eco-tourism			
-Natural setting, ecology and climate -Diversity of natural resources -Maximum carrying capacity	-Change in ecology and climate -Exploitation of natural resources -Commercialization and modernization	- Hiking, Trekking, Spiritual, Art, Leisure -Flora and fauna --Eco-lodges for accommodation	- Climate change - Population growth pattern -Impacts from national level project
Activities: Hiking and trekking, Cycling; from Thankot-Chitlang, Tribhuwan Park- Chitlang, Phakhel-Chitlang, Birdwatching, Photography, Camping, Spiritual Programs, Eco-lodges for accommodation			
4. Agro-tourism			
-Cheese Factory, olive farm, Alpaca farm. Pear orchard, Goat development farm -Local entrepreneurs -Commercialization of products	- Change in ecology and climate - Exploitation of natural resources - Commercialization and modernization -Availability of resources	- Suitable location for agriculture and livestock -Accommodation facilities in farms -Agricultural activities, trainings, product	- Climate change - Limited agro-tourists -Decrease in productivity
Activities: Farming of commercial agricultural products, Livestock farming, Engaging visitors in agricultural activities, Production and Promotion of organic products, Diversification of products, Demonstration of farms and farmer's market			
5. Adventure-based tourism			
-Appropriate landscape, climate, resources -Existing adventure-based tourism services: Quad Bike Nepal (QBD) -Attractions like Rakas Dulo, Chamero Gufa	-Change in ecology and climate -Exploitation of natural resources -Commercialization and modernization	-Exploration of adventure sites -Identifying projects -Financial Investments	-Exploitation of resources -Impact on natural environment
Activities: Cycling, Mountain Biking, Dirt Biking, Caving, Rock climbing, Forest tours and camping, Horse riding			

Figure 6: Ecotourism Services Analysis

References

- [1] Ram Chandra Sedai. Assessing the sustainability of tourism in rural areas: A case study of tamang heritage trail, rasuwa. *A Master of Tourism Studies (MTS) dissertation in Kathmandu Academy of Tourism and Hospitality, Faculty of Management, Purbanchal University, Biratnagar, Nepal*, 2006.
- [2] Kai MA Chan and Terre Satterfield. Managing cultural ecosystem services for sustainability. In *Routledge handbook of ecosystem services*, pages 343–358. Routledge, 2016.
- [3] Robert Gilman. The eco-village challenge. *In Context: Living Together*, 29(10):10–15, 1991.
- [4] Shusil Shrestha. *Prospect and Problem of Rural Tourism: A Case Study of Chitlang Home Stay, Makwanpur*. PhD thesis, 2017.
- [5] Rob Harris, Peter Williams, and Tony Griffin. *Sustainable tourism*. Routledge, 2012.
- [6] Caroline J Stem, James P Lassoie, David R Lee, and David J Deshler. How'eco'is ecotourism? a comparative case study of ecotourism in costa rica. *Journal of sustainable tourism*, 11(4):322–347, 2003.
- [7] Ross K Dowling. Global ecotourism at the start of the new millennium. *World Leisure Journal*, 42(2):11–19, 2000.
- [8] Dhan Bahadur Gurung and Roland W Scholz. Community-based ecotourism in bhutan: Expert evaluation of stakeholder-based scenarios. *The International Journal of Sustainable Development & World Ecology*, 15(5):397–411, 2008.
- [9] Anup KC, Kedar Rijal, and Ramesh Prasad Sapkota. Role of ecotourism in environmental conservation and socioeconomic development in annapurna conservation area, nepal. *International Journal of Sustainable Development & World Ecology*, 22(3):251–258, 2015.
- [10] Baikuntha Prasad Acharya and Elizabeth A Halpenny. Homestays as an alternative tourism product for sustainable community development: A case study of women-managed tourism product in rural nepal. *Tourism Planning & Development*, 10(4):367–387, 2013.
- [11] Eva Šimková. Strategic approaches to rural tourism and sustainable development of rural areas. *Agricultural Economics*, 53(6):263–270, 2007.
- [12] Daniel Moran, Keiichiro Kanemoto, Magnus Jiborn, Richard Wood, Johannes Többen, and Karen C Seto. Carbon footprints of 13 cities. *Environmental Research Letters*, 13(6):064041, jun 2018.
- [13] Christina Corbane and Aneta Florczyk. Ghs-built r2018a - ghs built-up grid, derived from landsat, multitemporal (1975-1990-2000-2014). *European Commission, Joint Research Centre (JRC)*, 2018.