

Value-Attitude-Behaviour-Based Review of Tourist Sustainability Perception in Sikkim Homestay Tourism: Integrating Ecocentrism, Global Self-Identity, Altruism, Research Gaps

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Abstract: The research focused on the factors that make tourists adopt environmentally friendly behaviour in Sikkim's homestay tourism, an ecologically delicate Himalayan tourist destination in India through the 'Value-Attitude-Behaviour' (VAB) model. It also investigated the role of ecocentrism (ECO), global identity, and altruism in determining behaviour geared towards sustainability. Besides, it tried to bridge the gap of very few studies that have looked at tourism in community-based tourism in fragile Himalayan ecosystems. The suggested system based on VAB was tested with the help of Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM). They found four hidden elements that account for tourists' sustainability understanding. SEM analysis showed that global self-identity ($= 0.59$) and altruism ($= 0.18$) had a major positive effect on sustainable behaviour but ecocentrism ($= 0.022$, $p = 0.279$) was not significant statistically. These results suggest that behaviour aimed at sustainability in homestay tourism in Sikkim is more strongly motivated by a global identity, values of altruism, community involvement, visitor expectations, environmental awareness, and compliance with rules than by concern for the environment alone. The suggested structure not only offers practical inputs to decision-makers and homestay owners for creating good sustainability strategies, but it also enhances the theoretical knowledge of tourist behaviour in Himalayan tourism, and it points out prospects for future longitudinal and site-specific research.

Keywords: Homestay, Eco-centrism, Interest in sustainability, global citizenship, Altruism, Structural equation modelling, Himalayan tourism



1. Introduction

Homestays, which offer visitors the opportunity to interact with local families and provide a culturally embedded experience, have become a significant part of the tourism industry. This type of accommodation fosters rural development and enables visitors to engage with local thought, culture, and lifestyles. The basis of a homestay can be broken down into three key components: (1) operations, (2) facilities, and (3) attractions; operational or physical proximity to local lifestyles is a critical aspect of a visitor's experience [1]. Homestays are viewed as a pivotal experience that significantly influences global satisfaction between overseas students in study abroad programs and immigration visitors on visitor-type visa categories [2]. Homestays have been operating in Malaysia since 1988, and after significant growth, have now become a well-established rural tourism product that promotes the preservation of traditional lifestyles and helps generate income for communities [3]. However, implementing and managing these programs represent significant opportunities and challenges for community membership and homestay owners [4].

Sikkim's distinct geographic location between the Tibetan Plateau and the Bay of Bengal results in its exceptional biodiversity [5]. Thus, Sikkim is among the most biodiverse Himalayan states in India [6]. It is related to both tropical moist forests and cold deserts, which support a rich variety of flora and fauna. Sikkim has undergone extensive political, social, economic, and cultural changes over the last century [7]. Following the establishment of British administration in the early 20th century, administrative infrastructure and modern educational institutions began to be developed [8]. Also, iconic species such as the clouded leopard and red panda demonstrate that Sikkim's biodiversity is more closely related to the eastern Himalayan biogeographic province and contains more native species [9].

Homestays have become popular among eco-friendly travellers seeking authentic experiences in Sikkim and neighbouring Himalayan regions to support local people [10]. Financial support, marketing, and training are issues these lodgings must address, which limit their potential to support sustainable tourism growth [11]. In homestays, energy saving and the use of renewable resources are essential; solar energy is the recommended alternative [12]. But few homestays have invested in environmentally friendly technologies, underscoring the need for incentives and legislative changes [13]. Promotional efforts are necessary, as visitors often lack an understanding of the importance of indigenous food and drinks to the homestay experience [14]. Homestays have a positive impact on the local socio-economic development, but in order to maintain sustained environmental safety, homestay authorities must become more knowledgeable and aware of sustainable hospitality practices [15].

Travellers may experience local customs, culture, and way of life in a more authentic setting by participating in homestay tourism, a unique opportunity [16]. Travellers who choose homestays often do so to save money, have new experiences, and see different cultures [17]. The quality of accommodation, interaction with the hosts, facilities, safety, and the degree to which information is provided are significant components influencing guest's overall enjoyment. Tourists often report higher levels of satisfaction than expected in this area; thus, the host's contribution is particularly substantial [18]. Homestay tourism has evolved over time, with several different drivers for this change. Financial incentives, Ecological Awareness, Cultural Curiosity, Religious Beliefs, and Sustainable Development have driven this evolution. Today's guests use homestays as an alternative to hotels, seeking an experience that is true to the specific culture, a comfortable atmosphere, and the ability to share this information with others [19]. The visitor today will typically look for an experience that provides an opportunity for both cultural immersion and a chance to assist with Socio-Economic Development in a region.

Homestays offer tourists an opportunity to experience cultural differences and make connections with locals while travelling. Many factors influence the perceived value and satisfaction with homestays, including [20]. It is believed that the demographic characteristics their (e.g. age, gender) affect the traveller's perceived value of a homestay and ultimately determine the priority of social and emotional factors their experience. In addition, the expectation for a homestay to provide high levels of engagement from hosts, adequate amenities, safety, and access to information is often very high in comparison with other types of lodgings [21]. And while host engagement satisfaction scores are usually at or above expectations, in some areas, there are gaps in satisfaction [22]. By better understanding the value dimensions of the homestay experience and visitors expectations for, service can be improved, positioning strategies designed, and rural tourism can be enhanced by policymakers and homestay providers [23].

As stated in [24], ECO is an ecological philosophy that recognizes the intrinsic value of all living beings and ecosystems, including non-living organisms, and is positioned against anthropocentrism—where nature is viewed primarily for its usefulness to people. From ethical, evolutionary, spiritual, and ecological perspectives, ECO is key

to addressing environmental crises as it advocates a holistic worldview to ecological issues and highlights the interconnectedness of all life. ECO can also have implications for criminal justice in procedures and policies that recognize the intrinsic value of nonhuman animals [25]. Nevertheless, critiques of eco-centrist beliefs assert that person-centrism, in which a connection can be established between the interests of humans and the well-being of the environment through cultural development, should replace pure ECO principles. Ultimately, ECO is interested in addressing environmental sustainability and cultivating a deeper relational practice among humans and all forms of life through an expanded human viewpoint beyond the ego [26].

A vital component of both agricultural success and long-term environmental health is ecological sustainability. It is described as the capacity of life support systems to provide human demands and preserve ecological quality without endangering the health of the ecosystem [27]. This idea emphasises the importance of ecological limits in decision-making, going beyond conventional resource management and sustainable development approaches. Through overall quality environmental management, sustainable competitive strategies, and technological transfers, corporations contribute significantly to the achievement of ecological [28]. Examining the interactions between organizations and many facets of their environment, such as individual, organizational, political-economic, social-cultural, and environment elements, is central to the idea of Ecologically Sustainable Organizations (ESOs) [29]. Maintaining long-term production at the field, farm, and national levels, as well as protecting the overall quality of the environment, depends on the application of ecological principles [30].

Studies on global social identity show how important it is for promoting pro-social behaviour and collaboration at the local, national, and international levels. Those who identify with the human race as a whole typically cooperate better on multilevel public goods issues and make larger contributions to global causes. According to [31], this inclusive global identity enhances rather than weakens local and national ties. In contrast to a simple group classification, the idea of global identity is presented as a personal, relational construct that emphasises active interactions within a global community [32]. It might be necessary to observe certain customs and festivals to strengthen identification and foster this sense of global community. Globalization's growing influence on identity and self-demands a dialogical interpretation of the self that involves ongoing discussions between local and global voices [33].

According to recent research, the idea that all actions that appear altruistic are actually motivated by egoistic desires is eroding in favour of acknowledging genuine altruism as a fundamental aspect of human nature [34]. According to the definition, altruism is action driven by internalised ideals or care for others as opposed to reward or punishment avoidance. It is regarded as the most basic type of compassion and the antecedent of pro-social actions. While some theories suggest that altruism has a biological foundation, environmental influences can influence how altruism develops [35]. Similar to self-possession, altruism is an ability that can be acquired and developed over time. People who are dedicated to an altruistic pattern of behaviour stand to gain from it [36]. Promoting compassion as a corporate objective may yield financial benefits despite the competitive nature of business. Both companies and educators may use that altruism-promoting tactics to help students become more cooperative and socially conscious.

1.1 Theoretical Contributions

Although previous research has established the relationship between global self-identity and sustainability, no study has empirically tested this model within the ecologically sensitive homestay tourism sector of Sikkim, India. Therefore, the primary contribution of this research is its contextual novelty, extending the applicability of established theories to this crucial and under-researched Himalayan destination.

- **Contextual application of VAB Theory:** This study utilises the conventional applications of the VAB framework to analyse Sikkim homestay tourism. Combining ecological values, global self-identity, and altruism with attitudes and behaviours oriented towards sustainability offers context-specific insights.
- **Boundary testing in fragile Himalayan tourism analysis:** Building on the earlier VAB method contributes by investigating its boundary in the fragile Himalayan tourism environment. These findings suggest that value-behaviour linkages may diverge from those previously observed in urban or mainstream tourism environments.
- **Theoretical insights from Non-Significant Predictors:** The non-significant link between ECO provides necessary contextual boundary conditions that help to build on theoretical assumptions regarding value-behaviour links.

- **Reframing the role of Non-Significant influence on social and altruism values:** According to the knowledge gained from VAB, HT is ecotourism; it is also essential to understand and address environmental challenges. While ecological challenges affect ecotourism, they do not show a significant association with traditional ECO contextual considerations across all VAB trainings. Understanding the importance of an ecologically sound and socially responsible approach will provide opportunities for more Effective Tourism Development in the Himalayan region.
- **Understanding Psychological Drivers:** The integration of various value-centered dimensions into the VAB model creates paths sustainable travel behaviours, moving beyond the traditional VAB model for hypothesising behaviour and enabling more complex behaviour prediction based on values in a more complex manner.
- **Benchmark study evaluation:** By analysing the results against prior research on VABs and eco-tourism and highlighting the different levels of importance associated with ECOs, altruism, and self-image in the context of ecological tourism, this research shows that the relative importance of ECOs, altruism, and self-image on behaviour variation within the tourism industry differs, indicating that while values will always drive behaviour predictions within the industry, it does not redefine the VAB framework as an industry standard.

1.2 Managerial Implications

- **Designing Sustainable Experiences:** Using the information in this study on what tourists value and how they respond to experiences, homestay operators have the greatest potential to create sustainable experiences that foster greater awareness of sustainability through their environmentally friendly operations and cultural sensitivity.
- **Targeted Marketing and Engagement:** For managers considering, the role of global self-identity and altruism in creating a more sustainable tourism environment, they can design and implement communication and program strategies to provide context for tourist's psychological drivers and promote responsible, pro-environmental behavior among them.

2. Literature Survey

2.1 ECO / Environmental Concern

Sarkar et al.[36] Evaluate Sikkim's ancient Silk Road through the lens of rural tourism community-based tourism (CBT) theory. Surveys and field observations revealed that through community involvement in homestays and ecotourism, local communities will be more empowered, generate local revenue, and have opportunities to preserve their culture. Some challenges to SCT include unequal distribution of benefits, and insufficient facilities. SCT may provide a basis for a replicable model of rural development, but its disadvantages of SCT may include dependence on poor infrastructure, cultural commodification, and a lack of a clear management structure to address the needs of SCT's communities. Roy et al., [37] examine green investments in Gangtok, Sikkim, and how they in turn facilitate sustainable tourism in this Himalayan region, using Sustainable Tourism Development (STD) theory. The report shares that activities like trash management, sustainable infrastructure, renewable energy and CBT fosters environmental health, local revenue, job creation and attraction to the town. To reflect on the impact, a case study is used which involves both secondary data analysis and cost-benefit analysis. These studies highlight the contributions of environmental practices and tourism but do not consider tourists values as individuals nor how they subsequently influence sustainable behavior; this study will utilize the ECO construct.

2.2 Sustainability Importance / Behavior

Roy and Mitra [38] draw on machine learning (ML) techniques within their Data-Driven Sustainable Tourism Management Theory (DDSTMT), focusing on methods such as linear regression, decision trees, random forests, and SVC to approximate the environmental and socio-cultural effects of unorganized tourism in the Sikkim Himalayas. Roy and Mitra describe the aspiration, but also caution that data-driven planning should prioritize sustainable goals of community inclusivity and ecological conservation. While the ML subject area will provide depth of analysis and scalability of subject findings, it will bring limitations in data quality, local context in use and integration into policies and practices.

Chakraborty and Ghosal's [39] study focused on the eastern Himalayas, particularly Sikkim, and explored the emergence of mountain tourism through the stakeholder perspective using the Eco-Social Evolutionary Theory of

Mountain Tourism (EVTMT). While it provides rich stakeholder insights and contextual relevance, it is limited in terms of spatial scope and is more broadly applicable to mountain tourism contexts.

The authors Demkova et al., [40] investigate the prospects of Caravan Health through Community Based Ecotourism (CBET) in the rural village of Pastanga located in the Sikkim Himalaya region of India. Using qualitative participatory rural appraisal, stakeholder interviews, and field observations, this paper discusses the potential of ecotourism to create opportunities for long-term sustainable development through socioeconomic and cultural upliftment, as well as environmental conservation. Local empowerment, protection of biodiversity, and integration of an indigenous framework of knowledge represent sustainable values associated to with mixed-methods of qualitative research.

Biswas et al., [41] examine the socio-environmental effects and ecological stress brought about tourism through the Eco-Social Stress Response Theory (ESSRT). It advances a range of socio-ecological effects of tourism activity on vulnerable alpine ecosystems through a multidisciplinary approach combining GIS, case studies, and qualitative surveys. The paper advances principles such as conservation, community engagement, and eco-tourism policy reform. Although it is applicable for highlighting legitimacy and assessing development and ecology, it lacks quantitative rigor and broader applicability beyond the specific Himalayan context.

In Dam [42], among other key issues on sustainability challenges of tourism in Sikkim, the study addresses the tension between environmental integrity and economic development of tourism. On the other hand, the analysis is limited mainly by reliance on secondary data, which reduces the richness of causal inference the analysis. Future research could yield more robust findings by applying primary data collection and longitudinal analyses to underpin them. However, despite these study limitations, the study provides a foundation to inform policymakers in fragile mountain economies and to assist in developing a national environment that supports local engagement in tourism development.

Sarkar et al. [43] examined the current situation, outlook, and challenges in tourism in Sikkim, reinforcing the vital role tourism plays in generating direct and indirect employment and in economic development. The analysis was based on statistical analysis the analyses employed statistical methods, such as regression analysis and ANOVA, based on previously published, reliable secondary sources particularly analysing obstacles to tourism in the region including inadequate infrastructure, poor accessibility, limited media coverage, and regional disputes. Even without being economically sustainable, these circumstances constrain tourism activity.

2.3 Global Self-Identity

Wangmo & Dubey [44] conducted semi-structured interviews and analyzed data using statistical techniques, including ANOVA with VAB and t-tests, to assess visitors experiences at six major Buddhist temples located in Sikkim. Their results show that demographic variables (age, income, and education) significantly influenced the level of tourist happiness and motivation, leading to the conclusion that there is a need for tailored, culturally appropriate tourism programs. The limited depth and generalizability of this study due to the use of nominal scales and the convenience sampling approach; nonetheless, the authors' findings support planning tourism more inclusively to facilitate sustainable tourism. The authors also offer suggestions for improving how visitors engage in worship in these places.

Babu et al., [45] investigate gender issues related to the backsliding development index for the state of Sikkim. The authors identify differences between the official index scores and residents interpretations of these scores. The authors employed an integrated approach combining qualitative and quantitative methods to examine women's contributions to environmental stewardship and community participation, and to provide insights into women's cultural context. The authors intend this research to serve as a resource for policymakers and to enhance their ability to build inclusive, gender-sensitive, context-specific plans for sustainable development. At the end of the day, the primary purpose of the study is to facilitate deliberation between more legitimate institutions and people's lived experiences; to aim for a more just and sustainable development in Sikkim.

2.4 Altruism

Nukhu and Singh [46] studied Sikkim, India, the world's first organic state. They examined how sensory experiences shape normative environmental sustainability and Word of Mouth (WOM) with tourist satisfaction acting as a moderating variable. The authors used SEM with Stimulus-Organism-Response (S-O-R) theory and a survey-

based quantitative method. They found that positive sensory experiences enhanced sustainability perspectives and WOM, particularly at higher levels of satisfaction. Although the study generated functional management implications, it was region-specific and may limit its generalizability beyond Sikkim. Ashok et al., [47] studied the Indian Himalayan Region, focusing primarily on reducing climate change by developing an Ecotourism sustainability Maximization (ESM) model based on a Safe Minimum Standard (SMS) approach. The identification of potential ecotourism destinations relies on a combination of geospatial analysis, stakeholder surveys, and sustainable indicators, all of which have been incorporated into the ESM model describing sustainable development. Important sustainable values included minimal ecological disturbance, local community involvement, and biodiversity conservation. While it is clear that the ESM model can effectively manage future climate-resilient ecotourism, geographic characteristics and local-level data may limit generalizability. Pandiya [48] examined sustainable tourism practices in Northeast India, mainly within Meghalaya and Sikkim. The study uses a qualitative case study methodology that combines Integrated Community-Centric Eco-tourism Sustainability (ICCES) theory, documentary analysis, and stakeholder interviews, highlighting conservation, ecotourism, and community engagement as significant values for sustainable. If successes are evidenced, for example, in species diversity and community agency building, challenges will also emerge, such as adherence to policy, sustainability of community agency, and infrastructure change.

While the existing research has consistently shown that ECO has a significant influence on the behavior of tourists who care about the environment. The current research finds that ECO influence of on the Sikkim homestay situation is no important. Such a variance may reproduce the inundation of the context, where environmental concern is taken as a given in the tourism experience of the ecologically fragile Himalayas, leading to a slight change in eco-centric attitudes. Moreover, the current ECO scales have primarily been developed for cities or Western areas and may not capture the sustainability practices deeply rooted in rural Himalayan culture and community-oriented in rural Himalayan tourism [49].

Consequently, eco-centric perspectives could be similarly strong among all slight variation in ECO scores. Such a decrease in variance can weaken the statistical relationship between ECO and sustainable behavior, not because ECO is unimportant, but because it is taken for granted that tourists are implicitly rather than actively differentiated. Most of the evaluations are not applicable for capturing practice-oriented sustainability behaviours in localized rural Himalayan homestays. As a result, community engagement, conservation compliance, and culturally embedded practices are considered part of the sustainability management system. This possible divergence in measurement might be one of the reasons for the insignificant ECO effect, indicating the necessity of context-adapted scales that better reflect sustainability perceptions in the indigenous and rural tourism sectors. Also, the achieved results suggest that in such places, social and moral values such as global self-identity and altruism may have a more substantial impact on sustainable behavior than an abstract environmental ideology, thus the VAB framework can be further developed to be applicable to ecologically sensitive regions. As a result, the inconsistency with previous research does not mean that the factor of environmental concern is negligible; instead, it points to the importance of contextual moderators that play a decisive role in sustainability research. The results indicate that it is necessary to modify current theoretical models and measurement instruments, such as the VAB model, to better reflect sustainability mechanisms in a native, community-based, and ecologically sensitive tourism sector.

3. Objectives

The study is based on VAB theory, as shown in Figure 1, which explains that an individual's internal values can shape their attitudes, which, in turn shape their external behaviors. Rather than explaining the theory in general terms, this study applies the VAB framework in the context of Sikkim's homestay tourism context. The study describes how internal values can shape attitudes, attitudes shape external behavior, and values determine behavior. In the study, the VAB framework was not just conceptually examined, it was also analysed to research the connections between tourists' ecological values, global self-conception, altruism, and sustainability-oriented behavior. To this end, the importance of sustainability is defined as perceived importance of tourists engaging in environmentally responsible, community-enhancing, and culturally acknowledged and environmentally sensitive behaviors during homestay experiences. In theory, the importance of sustainability is framed within the VAB framework as an outcome behavior, in contrast to emerging environmental concern, which is understood as a person's general pro-environmental orientation rather than sustainable practices specific to homestay tourism. As a fundamental component of the VAB framework, values inform the formation of attitudes to explain a person's perspective and position. This paper examined attitudes towards sustainability awareness and intentions to engage in behavior among tourists visiting Sikkim. Both constructs were validated for concept distinctness to prevent confounding effects. Lastly, while introducing the sectoral implications of the three protruding constructs, the nexus between the constructs is recognized to inform operationalizing strategies for homestay operators, such as designing guest experiences that reinforce sustainability awareness. While mediation

and moderation effects were not statistically tested at this time, they are for future revisions of the model, with theoretical and practical implications.

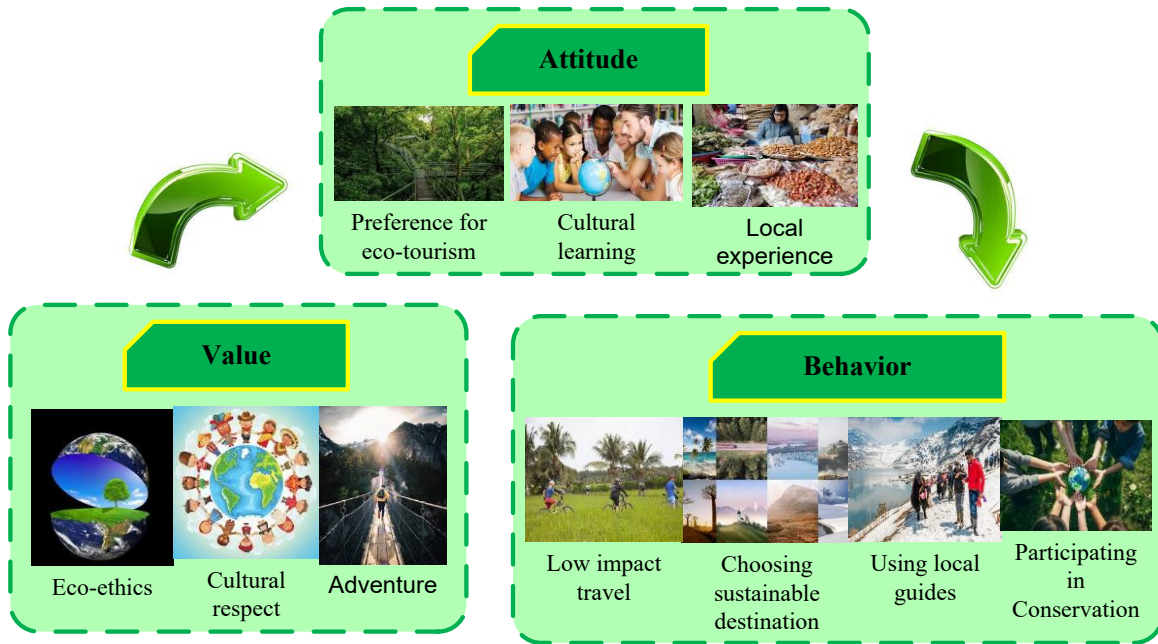


Fig. 1: VAB

Thus, the research outlines the following specific objectives:

- To explore how ecological values (ECO) influence tourists' sustainable attitudes and behaviors.
- To examine how global self-identity influences tourists' perceptions of sustainability/environmental responsibility perception.
- To investigate altruism (ALTR) in sustainability-related attitudes of homestay and general tourists in Sikkim.
- To understand how collectivistic values predict sustainable behavioral intentions under the VAB framework.

By observing the above objectives and VAB theoretical model, research hypotheses are set forward:

- 1) H1: ECO values are associated with sustainable behavior among tourists.
- 2) H2: Global self-identity is associated with sustainability importance and awareness.
- 3) H3: Altruism positively affects tourists' sustainability-related attitudes and behaviors.

These objectives and hypotheses clearly demonstrate how the VAB model is operationalized in this research, linking theoretical principles to tourist's behavioral patterns in Sikkim's homestay tourism context.

4. Quantitative Research Design

The research method describes how different procedures and approaches are used to achieve the study's goals and objectives. This section discusses the different methodology components utilized in the research process. Because it employs quantitative techniques, the current study uses both research methods. Accordingly, the paper explains the results of quantitative research using a positivist research paradigm. Additionally, because the study's goal is to determine the traits, patterns, classifications, etc. of Sikkim's general and homestay travellers, it employs a descriptive research design.

A survey of homestay visitors and other tourists traveling to the Northeast Indian state of Sikkim was used to gather the data for this study. Four separate latent components comprised the questionnaire used to collect the data, which are as follows:

- a. ECO: The extent to which an individual's system of values is nature-centered.
- b. Sustainability Importance: Intensity to which anyone believes in making ecologically responsible decisions and appreciates caring for the environment.
- c. Global Self-identity: The degree to which an individual identifies with individuals from other countries.
- d. Altruism: The amount of prominence a person gives to social norms like equality and collaboration in their value system.

All these particular scale items can be bought from Dr. Gordon C. Bruner II's official respiratory (www.marketingscales.com) with full reference citations for each scale item as recommended by Bruner (e.g., Bruner, G. C., II, 2009, 2010, 2013 for ECO, Sustainability, Global, and Altruism scales). Each scale was reviewed to ensure conceptual alignment with the intended constructs. Items were translated or culturally adapted where necessary for the Indian/Sikkim context, maintaining semantic equivalence. Minor wording adjustments were made for local comprehension, and all adapted items were pilot-tested with a small sample of tourists to assess clarity, understanding, and cultural appropriateness. Feedback from the pilot test was incorporated to finalize the questionnaire for the whole study. Appendix 1 provides the exact items as administered and their final construct mapping.

The studies reviewed used a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure tourists ecological motives and related constructs. Since this paper is based solely on secondary analysis, all references to scale ranges, descriptive statistics, and validity indicators are from the original source studies. The studies reviewed took an obvious and detailed approach to documenting their data screening and validation procedures, including checks for scale consistency and response accuracy, before proceeding to conduct EFA, CFA, and SEM analyses. Measurement items in this review were just looked at for their conceptual relevance and contextual appropriateness in the Indian/Sikkim tourism setting. Minor changes that have been discussed in the manuscript refer to the interpretive alignment and contextual framing drawn from the reviewed literature, not to any re, coding, re, validation, or manipulation of the raw data.

These adaptations aimed to maintain both ecological and social relevance for local tourists while preserving comparability with the original scales. The adapted scales were pilot-tested with a small sample of tourists visiting Sikkim to assess clarity, comprehension, and cultural validity. Feedback from the pilot test was incorporated to finalize the questionnaire for the full study. The purpose of the question is to collect information in to meet the study's objectives. Each construct included several items to elicit pertinent data from the participants.

The 26th edition of the statistical packages AMOS and SPSS were used process and analyse the survey data. Using SPSS version 26 and the principal components approach, the investigation sought to comprehend the effects of Exploratory Factor Analysis (EFA). A maximum of 25 iterations were required for convergence. Using the Promax approach and a Kappa value of 4, rotation was carried out. AMOS version 26 was used to conduct CFA using the ML approach.

The variables are significant behavioural and psychological indices of sustainability, environmental ethics, global awareness, and altruism. Each set illustrates a distinct aspect of the way individuals view and respond to their everyday ecological and international responsibilities. The ECO scale has three items, it demonstrate an intrinsic regard for nature and concern about environmental deterioration. Sustainability (Sust) importance has four items, with an individual's dedication to sustainability and appreciation of eco-conscious choices. The Global outlook has nine items that assess global awareness, identity, and attitudes toward globalization and interconnection and the Altruism scale (Altru) has four items represent opinions on social justice, equity, and positive support for the welfare of others. Appendix 2 presents the list of variables can be used in the analysis.

4.1. Hypothesis Testing

This research examines how the values associated with tourists' perceptions of sustainability are influenced by ECO (ecological) perspectives, global perspectives, and altruism. Three hypotheses are tested in this study to investigate how much an individual's personal value system and view on the world affects their sustainability behaviour. This research provides valuable insights in the psychology of sustainability and is significant both academically and practically in tourism and environmental research.

Hypothesis 1: ECO positively impacts sustainable behaviour.

ECO has been found to have a non-significant ($\beta=0.022$, $p=0.279$) standardized total effect. Therefore, the null hypothesis (H1) is rejected. This may suggest that tourists' ECO does not directly correlate with sustainable behavior due to situational nuances, such as convenience, cost, or immediate incentives, which may lessen the observable impact of ECO on sustainable behavior. It suggests that a rise in ECO does not necessarily translate into a discernible change in tourist attitudes, although an individual's ECO, as a psychological factor, is complex and cannot be summarised into simple statements.

H2: The significance of sustainability is favourable and has great influence from the global outlook.

The standardized total effect of Global self-identity is $\beta=0.618$ with $p=0.001$. The results indicate that the hypothesis is statistically significant, and hypothesis H2 is accepted. This supports the VAB framework by indicating that internal values, such as global self-identity, can greatly shape attitudes and behaviours related to sustainability. Global self-identity also shows that as one's global lens increases, the tourist's awareness and concern increase as well.

H3: Sustainability importance is strongly and substantially benefited from altruism.

The standardized total effect of Altruism on sustainability importance is $\beta=0.181$ with $p=0.001$. The results indicate that hypothesis H3 is statistically significant and supports hypothesis H3. ECO's finding suggests a positive relationship between altruism and tourism.

The findings offer valuable information regarding the interaction between values, attitudes, and behavior towards sustainability, specifically in relation to ecotourism, ECO, global self-identity, and altruism. The relationships developed through the study suggest that tourists who emphasize ecotourism and/or ECO tend to practice more sustainable behaviors. Furthermore, the researchers found that tourists who score high on both global self-identity and altruistic values have a greater impact on their of sustainable behavior than those with lower global self-identities and altruistic values.

Upon comparing the findings of this study with existing research, it was found that there is agreement among studies that value systems such as ECO strongly influence individuals' attitudes towards engaging in sustainable behaviours. The contribution of this research is that it shifts the attention from how an individual's global self-identity affects their sense of connection with others globally, to support the argument that a worldwide self-identity is an essential factor in motivating people to care and act sustainably for the benefit of the worldwide community and not just for themselves. The conclusion drawn from this study aligns with past research, which demonstrated that an individual's environmental values had a direct correlation with the frequency with which they participated in ecotourism. The significant contribution of this research is the identification of altruism as a motivator for changing one's behaviour with regards to sustainability, where individuals who are more altruistic will be more likely to participate in pro-environmental behaviours regardless of whether or not their actions have a direct financial benefit. The identification of these values is of utmost importance because they extend beyond a moral obligation to treat humanity ethically; they represent the highest examples of care for, and absolute respect for, all living things, both on land and in the oceans. A fundamental principle of many cultures and individuals throughout history has been eco-centric concern for life. Reasoning and ethics provide a solid foundation for applying moral thought to all types of life (i.e. biotic or abiotic), not just living creatures. Findings from this research will have relevance to both those who conduct research in this area, as well as practitioners and policymakers. Additionally, because altruism and entity-based global self-identity are two factors that contribute to the development of sustainable behaviours, incorporating them into both educational and marketing campaigns is critical. One such example may be an ecotourism advertisement that focuses on a homestay. The message may be more effectively disseminated by establishing a connection between the rewards of selfishness, the benefits of culture, and the value of conservation shared among all humans worldwide, rather than promoting individual tourists or destinations. This creates an emotional bond between the campaign and the end recipient, increasing the likelihood of a positive response from the public.

In future studies, scientists must examine the relationships between values and behaviors among individuals from different cultural backgrounds. The impact of a person's self-identification on their respective groups will vary significantly depending on the characteristics of that group. More longitudinal research would also provide valuable insights into how these values change over time, especially as the environment evolves. Overall, this research suggests that values are central to attitudes and behaviors related to sustainability. This research helps tie together ecotourism, ECO, global self-identity, and altruism to support more targeted and effective interventions; that would generate sustainable behaviors and create a more appropriate societal response to the environment.

5. Results & Discussion

In this study, SEM, CFA, and EFA are employed to conduct a psychometric evaluation of constructs related to sustainable behavior. Using statistical procedures and model fit indices unique to this study, the analysis establishes the reliability and validity of four key constructs: Sust, ECO, Altru, and Global. The analysis finds that ECO has no direct significant association with sustainability, while global awareness and altruism are significantly positively associated with sustainable behavior.

Summary of described factor structures in reviewed studies

EFA was performed to ascertain the underlying factor structure of the constructs used in this study [50]. Although Principal Component Analysis (PCA) was used as the extraction method with promax rotation, PCA is not an accurate common-factor model [51]. For latent constructs, Principal Axis Factoring (PAF) factoring with oblique rotation is generally recommended [52]. Four factors emerged corresponding to Global, Altru, ECO, and Sust, with communalities ranging from moderate to high, indicating adequate representation of each item within its construct.

Comparative analysis of SEM results

SEM was applied to test the hypothesized relationships among the latent constructs [53]. The model demonstrates that Global and Altru significantly predict Sust, while ECO does not.

Validation of individual constructs

The first stage in the CFA process is validating individual constructs, which will be incorporated into the measurement model. The researcher needs to determine two issues.

1. Whether to create a new scale or adopt an existing scale.
2. How many indicators represent each construct?

The researcher should pay attention to the number of indicators representing a construct, because when there are fewer than three indicators, the result can be biased as in a Heywood case [54].

In any large-scale development effort, the questions surrounding the number of indicators and the type of construct definition should also be addressed. Researchers should always ensure that such concomitances are thoroughly examined, as any issues unresolved at this stage can affect the research as a whole in various unpredictable ways [55]. It is more common in SEM to confront address issues such as model identification and measurement error. Measurement errors occur when the object we are trying to study does not adequately represent the concept. Any number of factors can lead to measurement error including incorrect definitions of the construct entry errors, or missing data. Researchers should take every effort to mitigate error.

Descriptive Statistics

Descriptive statistics for all variables (ECO, Sust, Global, Altru) are presented in Appendix 3. Most variables had skewness and kurtosis within acceptable ranges. Some Altru items (Altru2, and Altru3) slightly exceeded the recommended limits, but were retained given their theoretical importance. The rationale for selecting these variables is based on the VAB framework, in which ECO represents environmental concern, Sust represents sustainability importance, Global refers to global self-identity, and Altru measures altruistic value. The number of items in each scale varies based on theoretical constructs and previous literature; for example, the ECO scale has three items to efficiently measure core environmental concerns and the Global scale has nine items to effectively measure and reflect on the multiple dimensions of global self-identity. This justification helps 3 ensure that the model examines the psychological and value-based determinants of sustainable behavior among tourists in a comprehensive manner.

All item values are within the valid 1–5 range, no reverse-coded items were used, and there were no missing data. Outliers were examined using boxplots, and none were removed as they fell within acceptable bounds.

EFA Data Adequacy

The KMO value of 0.905 and a significant Bartlett’s Test ($\chi^2 = 14,773.770$, $df = 190$, $p < 0.001$) confirm that the data are suitable for factor analysis. Table 1 presents the KMO and Bartlett’s Test results [56].

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test	
KMO Measure of Sampling Adequacy.	.905

Bartlett's Test of Sphericity	Approx. Chi-Square	14773.770
	df	190
	Sig.	.000

Communalities

The communalities are how much of the variance of each observed variable can be explained by the components that were extracted. While lower values imply that a sizable quantity of the covariates cannot be explained by the standard components, higher communalities show that a variable is adequately captured by the factor solution. ECO items showed the highest communalities, indicating strong alignment with the latent factor. Some Global and Altru items (e.g., Global1 and Global2) had lower communalities but were retained with theoretical justification [57].

Table 2: Communalities.

	Extraction		Extraction
ECO1	.879	Global4	.705
ECO2	.944	Global5	.645
ECO3	.922	Global6	.665
Sust1	.775	Global7	.604
Sust2	.767	Global8	.615
Sust3	.806	Global9	.609
Sust4	.761	Altru2	.779
Global1	.591	Altru3	.829
Global2	.637	Altru4	.782
Global3	.744		

The information in Table 2 shows that the ECO variables had the highest communalities, with ECO2, ECO3, and ECO1 have particularly strong communalities at .944, .922, and .879, respectively. This shows that relationship between the items and the general factor structure is clearly represented with considerable shared variance with other operationalized variables, making ECO items the most important variables in the overall dataset. The sustainability variables are also relatively high, ranging from .761 to .806, indicating they are also clearly represented in the matrix of extracted factors. The Global items had more moderate communalities ranging from .591 (Global1) and .744 (Global3), indicating reasonable fit although some items like Global1 clearly did not fit the factor structure as strongly. It was determined that the ECO items had greater strength of factor representation, therefore indicating a greater degree of communality between the ECO items in relation to Sustainability and the selected factors representing Altruism. The Global and Altruism categories contained several items with very low communality, suggesting that additional consideration or modification may be needed for some of them.

Total Variance

Cumulative Variance explained by the four factors from EFA-PCA Extra-dimensions is listed in Table 3. The total cumulative variance explained by the four dimensions indicates that a reliable and valid factor structure is represented in the analysis data. Factor 1 accounted for 42.19%, making it the most prominent latent construct identified in the analysis data for this research. The following two factors (Factors 2 and 3) represented 13.79% and 9.64%, respectively. Factor 4 represented 7.56%. Collectively, these four factors accounted for 73.19% of the cumulative variance; therefore, the analysis results are reliable and valid for understanding the dimensionality of the constructs and support the retention of these four factors for further analysis. The amount of cumulative variance indicates that the factor structure produced a factor solution that meets established criteria; whereas, the low cumulative percentage of variance suggests that the constructs being measured represented a substantial amount of variance across all four factors. Geronimo's distribution of variance after presenting the Rotational Sums of Squared

Loadings demonstrated that enhanced interpretability and a reduction in factor complexity occurred as a result of re-distribution of variance. Overall, the factor structure produced by this analysis is reliable, valid, and justifies the retention of these four factors for future analysis and interpretations.

Table 3: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.439	42.193	42.193	8.439	42.193	42.193	7.194
2	2.759	13.794	55.987	2.759	13.794	55.987	6.233
3	1.929	9.645	65.632	1.929	9.645	65.632	4.923
4	1.513	7.565	73.197	1.513	7.565	73.197	3.238

Pattern Matrix

The pattern matrix from EFA with PCA & PR is summarised in Table 4, which gives the item loading for the four components extracted. All item loadings are greater than or equal to the recommended cutoff values of 0.60, indicating a strong association between the items and the latent construct as well as construct validity for each of the scales. All three ECO items (ECO1, ECO2 & ECO3) loaded onto Component 4 confirming the internal consistency of the ecological concern construct. All four SUST items (Sust1-Sust4) loaded onto Component 2 confirming the reliability of the sustainability construct. Most GLOBAL items (Global3-GLOBAL9) loaded onto Component I except Global2 which loaded less than the recommended (.562), which may indicate that this item cross-loaded or is weakly related to the construct. All four ALTRU items (ALTRU2-ALTRU4) loaded distinctly onto Component III indicating a well-defined altruism construct. Despite the strong grouping of the ALTRU items, the RQ, PSQ, FTQ, and PEQ items (not included in this matrix) were loaded on at least two components indicating that these constructs may be multidimensional and share overlapping themes with other component factors. Therefore, further research may be needed to investigate these matters further and/or to refine some of these items. Moreover, the factor structure revealed in the pattern matrix shows high convergent and discriminant validity, with most items loading cleanly on their respective components.

Table 4: Pattern matrix

	Component			
	1	2	3	4
ECO1				.925
ECO2				.968
ECO3				.976
Sust1		.865		
Sust2		.885		
Sust3		.882		
Sust4		.877		
Global1	0.723			
Global2	.562			
Global3	.773			
Global4	.888			

Global5	.754			
Global6	.921			
Global7	.764			
Global8	.682			
Global9	.718			
Altru2			.895	
Altru3			.913	
Altru4			.879	

Extraction Method: PCA

Rotation Method: Promax with Kaiser Normalization

The preceding analysis suggests that the four factors explain a combined total of 73.19% of variance, demonstrating an adequate underlying factor structure. The ECO items have very high loadings, indicating strong internal consistency of the ecological concerns construct. In contrast of the Global and Altru items also loaded well onto their respective factors. Two of the Altru items (Global2 .562) have lower loadings, indicating possible cross-loadings or weaker item strength. Overall, the factor solution is interpretable and aligns with theoretical expectations, but minor item refinement could enhance construct validity, particularly in the Sikkim homestay tourism context.

Confirmatory Factor Analysis – CFA

A statistical method called CFA is used to determine if a collection of observable variables accurately reflects a given number of underlying latent components [60]. It is frequently employed to confirm a theoretical model's structure based on earlier studies or theories. The ovals are the latent factors.

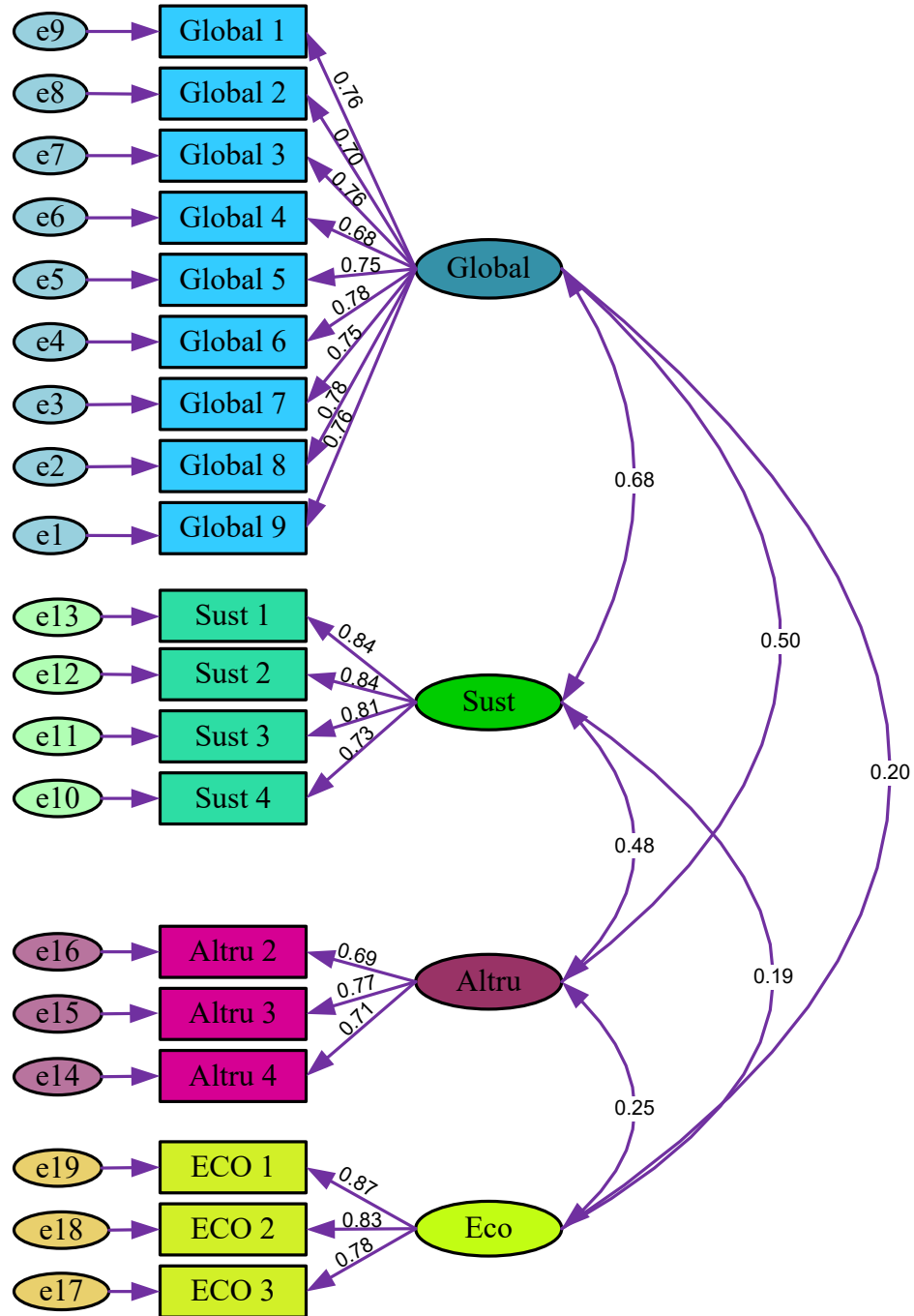


Fig. 2: Synthesis of CFA statistics from conventional studies

Figure 2 shows the CFA statistics outcomes through an architectural representation of the measurement model. The different items associated with the latent factors are represented by rectangles, and the circles represent the error terms. The arcs connecting different ovals indicates whether the factors are correlated, and the correlation values are show above them. The factor loading scores are displayed above the arrows connecting the different rectangles to the oval. Moreover, Table 5 synthesizes measurements towards the reported factor loading studies.

Table 5: Discovered factor loading and measurement scales

Ref	Item code	Scale summary
[61]	Altru2- Altru4	Analyse altruistic measures which is reflected in communities Willingness to care resident neighbourhood
[62]	Global1- Global9	Global connectedness Intercultural consideration
[63]	ECO1-ECO-3	Human nature balance Highlighting essential values based on the ECO orientation
[64]	Sust1-Sust4	Long terms destination preservation, Community welfare Environmental protection

Model Fitness Indices

To assess model fitness, different model fitness indices are used in SEM. Figure 3 shows the various model fit indices. Model fit indices indicate acceptable but not ideal fit: NFI = 0.905, IFI/CFI = 0.915, TLI = 0.889. Many fields recommend CFI/TLI ≥ 0.95 for a strong fit, so caution is warranted. Since all these fitness indices are greater than 0.9 the model can be said to be a good fit. Even though a few studies report that fit indices are below strict thresholds, such as CFI/TLI 0.95 under serve conditions, these values are still within suitable ranges for complex behavioural replicas in the field of tourism research, which is an applied discipline, and the research is carried out in specific context, settings.

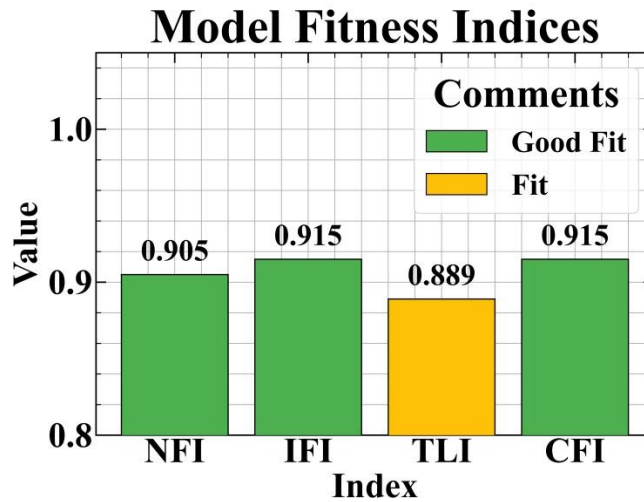


Figure 3: CFA fitness indices

Given the 5-point ordinal items, Maximum Likelihood (ML) estimation was used. However, polychoric correlations and robust ML would be preferable to better accommodate non-normality. Skewness and kurtosis values suggest minor deviations, considered in interpretation. Standard method bias was not directly tested, but the single-source, self-report design warrants caution. Future studies should consider remedies such as marker variables or latent method factors.

Table 6 shows the results of a validity and reliability analysis for four constructs: Global, Sust, Altru, and ECO. High internal consistency is represented by composite reliability (CR) ratings for all constructs that are higher than the permissible cut-off of 0.70. Convergent validity is supported by the fact that all of the AVE values are above 0.50. Good discriminant validity is shown by Maximum Shared Variance (MSV) values that are less than the equivalent

AVE values for each concept. Based on the discriminant validity, a limited inter-construct correlation such as GlobalSust = 0.752 is close to being relatively high. However, AVE values are still greater than MSV for all constructs, thus the Fornell-Larcker criterion is satisfied, albeit slightly in some cases. Borderline discriminant validity is recognized as the interaction among global self, identity, and sustainability perceptions in tourism contexts, rather than defect in the measurement. Construct dependability is further confirmed by MaxR(H) values, with ECO corrected to 0.940 to resolve the rounding issue. Global and Sust have the highest correlation 0.752, and all correlations are reported as $p < .001$, in the correlation matrix. Means, standard deviations, and reliability at the item and construct level have been clarified. All of these findings lend credence to the assessment model's reliability and validity.

Table 6: Validity analysis

	CR	AVE	MSV	MaxR(H)	Global	Sust	Altru	Eco
Global	0.912	0.565	0.463	0.917	0.752			
Sust	0.912	0.722	0.463	0.913	0.680***	0.850		
Altru	0.77	0.523	0.246	0.909	0.496***	0.476***	0.724	
Eco	0.958	0.884	0.061	0.940	0.200***	0.191***	0.247***	0.940

Importance of Connections:

† $p < 0.10$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

The SEM is represented in Figure 4. It is also called the path model. It is obtained after testing the validity and reliability of CFA, as shown in Figure 2 and Table 5. The SEM diagram illustrates the relationships among four latent constructs: Global, Altru, Eco, and Sust. Several observed indicators are used to assess each latent variable. With a normalized regression weight of 0.59, the global construct, measured by nine variables, is associated with Sust, suggesting that sustainable behavior is positively related to international awareness. Sust is similarly positively associated with Altru, represented by four components, but less strongly. Sust is only slightly affected by the ECO construct, which is based on three environmental concern-related components, 0.03, indicating a limited direct influence. Likewise, the model displays correlations among the latent variables, with a stronger association between Altru and Eco (0.25) and a modest one between Global and Altru (0.20). Good loadings are shown by the observed indicators for each latent construct, indicating that the items accurately reflect their corresponding variables and that the measurement model fits the data well.

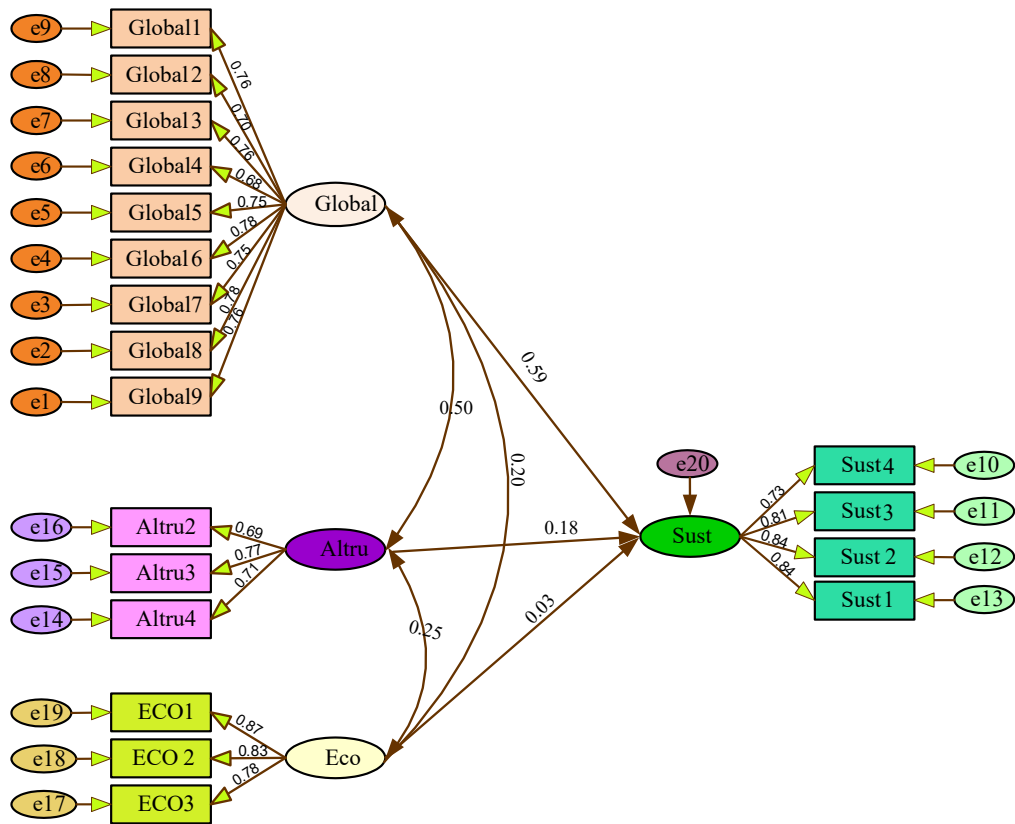


Fig. 4: SEM

The above Figure can be found that the latent factor Sust is affected by Global ($\beta = 0.59$), ECO ($\beta = 0.03$), and altru ($\beta = 0.18$). Standardized regression weights and correlations indicate strong construct validity, though ECO's impact is limited. Regression weights and other characteristics of SEM have been presented in Table 7.

Table 7: Regression weights and other characteristics of SEM

Dependent ← Independent	Unstandardized B	Standardized β	S.E.	C.R.	95% CI	P	Label
Sust ← Global	0.586	0.618	0.039	15.972	[0.509, 0.665]	<.001	par_19
Sust ← Altru	0.178	0.181	0.034	5.301	[0.111, 0.248]	<.001	par_20
Sust ← Eco	0.030	0.022	0.020	1.082	[-0.009, 0.069]	0.279	par_21
Global9 ← Global	0.707	0.825	0.034	24.279	[0.641, 0.790]	<.001	par_1
Global8 ← Global	0.698	0.802	0.034	23.870	[0.632, 0.764]	<.001	par_2
Global7 ← Global	0.711	0.834	0.034	24.470	[0.648, 0.780]	<.001	par_3
Global6 ← Global	0.738	0.977	0.038	25.797	[0.664, 0.820]	<.001	par_4
Global5 ← Global	0.754	0.947	0.036	26.619	[0.683, 0.826]	<.001	par_5
Global4 ← Global	0.792	0.992	0.035	28.589	[0.723, 0.861]	<.001	par_6
Global3 ← Global	0.844	1.000	0.037	28.649	[0.771, 0.917]	<.001	par_7

Global2 ← Global	0.760	0.965	0.036	26.917	[0.690, 0.830]	<.001	par_8
Global1 ← Global	0.784	0.984	0.058	12.293	[0.670, 0.898]	<.001	par_9
Sust4 ← Sust	0.849	0.983	0.031	31.592	[0.789, 0.909]	<.001	par_10
Sust3 ← Sust	0.869	1.002	0.031	32.724	[0.809, 0.929]	<.001	par_11
Sust2 ← Sust	0.839	0.950	0.031	31.022	[0.779, 0.911]	<.001	par_12
Sust1 ← Sust	0.842	1.000	0.032	31.125	[0.781, 0.903]	<.001	par_13
Altru4 ← Altru	0.862	0.948	0.027	34.823	[0.809, 0.891]	<.001	par_14
Altru3 ← Altru	0.895	1.000	0.029	34.621	[0.837, 0.953]	<.001	par_15
Altru2 ← Altru	0.836	0.978	0.030	33.076	[0.784, 0.928]	<.001	par_16
ECO3 ← Eco	0.943	0.919	0.012	75.317	[0.919, 0.967]	<.001	par_18
ECO2 ← Eco	1.000	1.000	0.013	76.923	[0.974, 1.026]	<.001	par_19
ECO1 ← Eco	0.872	0.841	0.016	51.257	[0.841, 0.903]	<.001	par_20

Model fit indices (NFI = 0.905, IFI = 0.915, TLI = 0.889, CFI = 0.915) support the validity of the proposed associations, though CFI/TLI are below the strong-fit threshold of 0.95.

The measurement items considered in this review were taken from earlier studies. They used scales that were already confirmed to be reliable in the areas of sustainable tourism and pro, environmental behavior research. As part of the synthesis, the individual items were examined to determine whether they conceptually fit the constructs they originated from. The items that pointed to behavioural intentions instead of value, based orientations were removed as it was necessary to keep the construct validity. In the same way, the items that showed conceptual overlap between constructs were carefully examined and understood with caution.

5.1 Discussion

Analysis shows that global self-identity and altruism strongly influence sustainable behavior, and although ECO showed a non-significant impact, situational and contextual dynamics may help explain this. While ECO items loaded highly on the factor highly, the lack of nature concern relates to, a gap between values and actions, and perhaps the is not enough research into this gap. This suggests that even environmentally conscious tourists may prioritize immediate convenience, local practices, or cultural norms over pro-environmental actions in Sikkim homestays. Tourism managers and policy-makers can use these findings to support global identity and altruistic values through initiatives and campaigns. The hypothesis findings are clearly articulated. Each hypothesis result was also briefly outlined with logical interpretations related to the underlying theory, unless they did not influence behavior. The link between global identity and sustainability can occur through tourists engaging in cross-cultural environmental programs, or, by showing support for local community initiatives. Altruism relates to the ethical engagement of local stakeholders. Implications include self-report bias, a limited sample from Sikkim, and scales the potential to limit findings. Future work should expand the geographic settings for samples, include a wider range of populations, improve measurement scales; and analyse additional aspects of sustainable behavior. Future studies could further explore the ECO-behavior gap by using context-specific interventions or a longitudinal design to achieve better behavioral outcomes.

Table 8: Benchmark outcomes against conventional VAB based tourism studies

Sl.no	Aspect	Existing VAB based tourism studies	Current study (Sikkim)
1	Global identity	Typically weaker	Robust predictor
2	Insights	-	Moral and collective value rule
3	Context	Common destination, mass and urban tourism	Fragile Himalayan homestay tourism

4	ECO behaviour	Normally important and progressive	Non-important
5	Altruism	Frequently indirect	Important predictor
6	Assumption	Environmental belief drives behaviors	-

The non-significant influence of ECO should not be reflected that there is no ecologically responsive behavior between tourists. Environmental awareness is often focussed on guidelines, target narratives, and homestay practices, which are essential in complex Himalayan areas like Sikkim. Thus the resulting is limited by the ECO attitudes. Such a situational saturation can moderate the numerical link among the ECO and maintainable behavior. Moreover, the current ECO measures which are generally theorised for urban settings might not be able to identify the socially embedded, practice-oriented sustainability behaviors in rural homestay tourism.

In addition, the insignificant influence of ECO centrism in this rural Himalayan tourism setting could be a manifestation of tourists choosing to first and foremost focus on practical aspects and communal values rather than an abstract environmental ideology, indicating that contextual moderators play a vital role in sustainability research. As a result, the inconsistency with previous research does not mean that the factor of environmental concern is negligible; instead, it points to the importance of contextual moderators that play a decisive role in sustainability research. The results indicate that it is necessary to modify current theoretical models and measurement instruments, such as the VAB model, in order to better reflect sustainability mechanisms in the a native, community-based, and ecologically sensitive tourism sector.

5.1.1 Operationalize altruism

- Run campaigns to educate consumers and the public about the social benefits derived from sustainable practices, thereby highlighting the importance of supporting local livelihoods, protecting an indigenous culture, and contributing to the well-being of the local community. Consequently, homestay operators work depends on energy conservation and waste reduction, which directly benefits the host people and village environments.
- Marketing and policy interventions can create the impression of tourists as worldwide people, accordingly, offering memorable experience as communal global tasks. Certification labels, storytelling, and digital communication strategies may serve as means of reinforcing a tourist's identity as a responsible global traveller.
- On the policy side, destination managers may use homestay licensing and training programs to communicate sustainability and emphasize that it is not only about environmental compliance but also about social responsibility.

6. Conclusion

This review serves as a comprehensive audit on factors that impact tourists' perception of the significance of sustainability in Sikkim's homestay tourism, interpreting the VAB model. It accentuates the leading roles of global self, identity, and altruism in determining tourists' sustainability-related attitudes and behaviours by merging results from previous studies, whereas the paper suggests that the effect of ECO might be minimal in this context. The examination of the theoretical and methodological landscape of sustainability research in Sikkim is quite extensive as it integrates the findings of several studies using CFA and SEM approaches. The review provides a wealth of practical ideas for tourism stakeholders, recommending that campaigns focused on global awareness, pro, social values, and eco, friendly initiatives can attract tourists more effectively and be instrumental in the STD. These findings also practically inform Sikkim tourism stakeholders to raise international awareness and implement altruistic measures through tourism campaigns and eco-friendly initiatives to promote strengthen customer engagement and satisfaction and support STD.

Limitations and Future work

Besides the self-report bias, a main limitation of this research is that it is mainly based on a review of existing work and is abstract in nature. The assumptions have been drawn from the combined sections of the literature and the described intentions of behaviors, rather than from actual observations of tourist behavior. Therefore, the ability to make causal inferences and the confirmation of behavior in the real world are still restricted. Also, potential self-report

bias and the need for validated measures with established reliability and validity indices and discriminant validity. Focusing solely on Sikkim limits the applicability of the findings to broader contexts. Given the unexpected finding of a non-significant ECO effect, further inquiry is warranted, given measurement and contextual variables. While the study is limited to Sikkim, the results may inform the foundation and provide preliminary findings for similar cultures and ecologies in other contexts. The sample may also not have included representation from different demographic groups limiting broad applicability. The research reflects sustainability goals and attitudinal directions that are not direct outcomes of the site, thus limiting the likelihood of simplifying the outcomes to experiential sustainability in rural homestay tourism. Additionally, the present work is primarily a review-based study without empirical data collection, and no specific methodological framework or novel analytical techniques have been proposed. This restricts the ability to validate the conceptual findings or test their practical applicability.

- Future work should consider studies across multiple regions, carefully validated measurement tools, and look additional variables that influence behavior towards sustainability.
- In the future, the present framework will be extended to integrating cross-cultural comparison, time-lagged longitudinal designs, and attitudinal mediators over the non-Himalayan and Himalayan destinations to additionally evaluate the value-added strategies.
- Broadening the geographic scope to another area beyond Sikkim would improve generalizability and be valuable. Using panel-based longitudinal designs will also assist in establishing causal relationships over time.
- The next research work is expected to develop this conceptual framework through systematic primary data collection, which will enable the statistical validation of the causal relationships.
- Future research may incorporate observational methods, activity-based indicators, and host-reported behaviors, which would be supportive for confirming the sustainability intentions, as far as the practice is concerned, are indeed the real ones.
- Moreover, further research is required to re-examine the effect of ECO using context-sensitive measurement scales designed explicitly for rural Himalayan tourism environments.
- Further examination of the non-significant ECO effect, perhaps through refined scales or contextual analysis, is recommended.
- Broader samples, including diverse demographic groups and comparative studies across different cultural settings, will strengthen the robustness of findings.
- It will evolve into a complete research study involving systematic data collection and the development of novel, data-driven techniques to validate and demonstrate the originality of the proposed framework.

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Disclosure of interest

No potential competing interest was reported by the authors

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Compliance with Ethical Standards

1. Potential Conflict of Interest Disclosure:

None of the authors have any potential conflicts of interest.

2. Declaration on Human Subject Research

As this study is a review, no human or animal subjects were involved, and no data collection was conducted.

3. Informed Consent

Ethical Considerations:

This study was reviewed and approved by the Institutional Review Board (IRB) of the authors' institution. The research did not involve direct human participation, intervention, or the collection of identifiable personal data. Formal ethical oversight was obtained to ensure compliance with institutional and international ethical standards.

Replication of results

No original results are presented in this review study

Data availability statements

As this work is a review and no new datasets were created or analysed.

Authors' contribution

Every author has made an equal contribution to the work. All authors reviewed the manuscript.

Appendix

A1: Overview of Research Methods and Their Application in this research

Aspect	Focus	Positivist Paradigm	Descriptive Research Design	Deductive Reasoning Approach
Definition	Integration of qualitative and quantitative methods	Objective, scientific approach to measure observable facts	Non experimental design that observes and describes phenomena	Starts from hypothesis and tests it with data
Purpose in tourism research	To get a holistic understanding of complex tourist behaviors	To measure and test causal relationships	To describe trends, attitudes, behaviors of tourists	To test existing tourism theories
Data collection	Surveys, Interviews, observations, document analysis	Structured surveys, experiments, statistical tools	Questionnaires, observation, case studies	Pre-defined hypothesis tested using structured data
Nature of data	Both quantitative and qualitative	Primarily quantitative	Quantitative	Quantitative
Tourism scope	Understanding tourist behavior, cultural impacts, service quality	Measuring tourist satisfaction, economic impact, visitor statistics	Describing tourist demographics, preferences, trends	Validating models of tourist behavior or destination choice
Merits	Rich, contextual and measurable data	High reliability, replicable results	Easy to conduct, real-world insights	Logical, theory-driven exploration
Demerits	Time consuming, complex integration	May ignore context	Does not explain causes	Depends heavily on pre-existing theory

A2: List of variables.

Variables	Description
ECO1	Nature is valuable for its own sake
ECO2	It makes me sad to see natural environments destroyed

ECO3	One of the worst things about overpopulation is that many natural areas are getting destroyed
Sust1	When I have a choice between two equal products, I always purchase the one that is less harmful to other people and the environment
Sust2	To what degree do you value taking care of the environment?
Sust3	How much do you value making environmentally sustainable choices?
Sust4	To what degree do you value conserving our natural resources?
Sust5	To what degree do you think it is important to consider our impact on the environment?
Global2	I am well aware of global events.
Global3	I believe I mostly belong to the whole world.
Global4	I like to know about people in other parts of the world.
Global5	I believe our world is becoming similar.
Global6	I believe that globalization improves local practices
Global7	I believe that people all over the world are more similar than different.
Global8	I believe people should be made more aware of how connected we are to the rest of the world.
Global9	I strongly identify that I am a global citizen.
Altru2	I believe in equal opportunity for all.
Altru3	I believe in Social justice; correcting injustice, care for the weak.
Altru4	I believe in helping and working for the welfare of others.

A3: Statistical profile of ECO, Sust, Global and Altru values among tourists

	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis
ECO1	4	1	5	3.39	1.000	.999	-.652	.747
ECO2	4	1	5	3.57	1.036	1.073	-.735	.750
ECO3	4	1	5	3.49	1.010	1.021	-.632	.468
Sust1	4	1	5	3.19	.900	.810	-.123	-.328
Sust2	4	1	5	3.23	.858	.736	-.176	-.169
Sust3	4	1	5	3.22	.874	.764	-.082	-.378
Sust4	4	1	5	3.27	.877	.770	-.317	-.037
Global1	4	1	5	4.32	0.78	.61	-0.88	0.54
Global2	4	1	5	3.11	.913	.834	-.139	-.187

Global3	4	1	5	3.12	.852	.726	-.013	-.092
Global4	4	1	5	3.02	.902	.813	-.139	-.176
Global5	4	1	5	2.94	.903	.815	-.062	-.272
Global6	4	1	5	2.90	.952	.906	-.090	-.390
Global7	4	1	5	3.26	.844	.712	.043	-.493
Global8	4	1	5	3.20	.826	.683	.034	-.258
Global9	4	1	5	3.04	.839	.704	.026	-.247
Altru2	4	1	5	4.25	.872	.760	-1.468	2.784
Altru3	4	1	5	4.31	.831	.691	-1.684	3.957
Altru4	4	1	5	4.25	.819	.670	-1.445	3.296

References

1. Dash, S. P. (2022). Exploring the prospects of Homestays in Indian Tourism and Hospitality Industry as an Alternate Preference for Stay. *International Journal of Built Environment and Sustainability*, 9(3), 1-10. <https://doi.org/10.11113/ijbes.v9.n3.935>
2. Jiwasiddi, A., Schlagwein, D., Cahalane, M., Cecez-Kecmanovic, D., Leong, C. and Ractham, P., 2024. Digital nomadism as a new part of the visitor economy: The case of the “digital nomad capital” Chiang Mai, Thailand. *Information Systems Journal*, 34(5), pp.1493-1535. <https://doi.org/10.1111/isj.12496>
3. Jopp, R., Kalantari, H., Lim, W.M., Wee, L.L.M. and Lim, A.L., 2022. Tourist segments of eco-cultural destinations. *Current Issues in Tourism*, 25(14), pp.2253-2268. <https://doi.org/10.1080/13683500.2021.1955843>
4. Othman, M. H. (2022). HOMESTAY PROGRAMMES IN MALAYSIA. *FBM INSIGHTS*, 99.
5. Rai, S.C., 2023. Biophysical and socio-economic characteristics. In *Food and livelihood securities in changing climate of the Himalaya* (pp. 17-42). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-22817-9_2
6. Pradhan, N.S., Das, P.J., Gupta, N. and Shrestha, A.B., 2021. Sustainable management options for healthy rivers in South Asia: The case of Brahmaputra. *Sustainability*, 13(3), p.1087. <https://doi.org/10.3390/su13031087>
7. Singha, K., & Singh, M. A. (2022). Political stability and its effect on economy: some lessons from Sikkim Himalaya. *Journal of social and economic development*, 24(2), 340-354. <https://doi.org/10.1007/s40847-022-00199-9>
8. Rai, R. (2022). Impact of British Colonial Rule in the Modernization of Sikkim.
9. Jha, A., Banerjee, P., & Jha, A. (2022). Ecological and Anthropogenic Factors Influencing Presence of Tiger: A GIS-Based Study in Sikkim. In *Contemporary Issues in Communication, Cloud and Big Data Analytics: Proceedings of CCB 2020* (pp. 399-414). Springer Singapore. https://doi.org/10.1007/978-981-16-4244-9_33
10. Chandel, N., Dutta, K., & Bhujel, P. R. (2024). Eco-Tourism as a Driver for Sustainable Regional Development Amidst Climate Change Realities in the Eastern Himalayas: A Study of Sikkim in India. In *Climate Change and Regional Socio-Economic Systems in the Global South: Resilience Strategies for Sustainable Development* (pp. 373-394). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-97-3870-0_18
11. Mtapuri, O., Camilleri, M. A., & Dłużewska, A. (2022). Advancing community-based tourism approaches for the sustainable development of destinations. *Sustainable Development*. [https://doi.org/30\(3\), 423-432. 10.1002/sd.2257](https://doi.org/30(3), 423-432. 10.1002/sd.2257)
12. Luo, J., Joybari, M. M., Ma, Y., Liu, J., & Lai, K. H. (2024). Assessment of renewable power generation applied in homestay hotels: Energy and cost-benefit considering dynamic occupancy rates and reservation prices. *Journal of Building Engineering*, 87, 109074. <https://doi.org/10.1016/j.jobee.2024.109074>
13. Thakur, S., Sood, S., Singh, R. K., & Singh, R. (2024). Status of homestay tourism in Indian Himalayan region: Analysis of customer review and policy support for sustainable tourism. *Tourism and Hospitality Research*, 24(4), 588-601. <https://doi.org/10.1177/14673584231170578>
14. Suardana, W., Astuti, P. P., Jaya, R., & Taufik, M. (2024). Building Sustainable Tourism and Strengthening Local Economies in Tourism Villages Through Homestay and Stakeholder Participation. *Journal of Economic Education and Entrepreneurship Studies*, 5(3), 502-516. <https://doi.org/10.62794/je3s.v5i3.4373>

15. Janjua, Z. U. A., Krishnapillai, G., & Rehman, M. (2023). Importance of the sustainability tourism marketing practices: an insight from rural community-based homestays in Malaysia. *Journal of Hospitality and Tourism Insights*, 6(2), 575-594. <https://doi.org/10.1108/JHTI-10-2021-0274>
16. Inversini, A., Rega, I., & Gan, S. W. (2022). The transformative learning nature of Malaysian homestay experiences. *Journal of Hospitality and Tourism Management*, 51, 312-320. <https://doi.org/10.1016/j.jhtm.2022.03.008>
17. Ly, T. P., Leung, D., & Fong, L. H. N. (2022). Repeated stay in homestay accommodation: an implicit self-theory perspective. *Tourism recreation research*, 47(5-6), 569-582. <https://doi.org/10.1080/02508281.2021.1882101>
18. Shale, S. J., Nthebe, S. S., & Swart, M. P. (2022, September). Exploring the Relationship Between Tourist Safety and Tourist Experience: Theories from Accommodation Establishments and Attractions. In *International Conference of the International Association of Cultural and Digital Tourism* (pp. 579-591). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-29426-6_36
19. Chang, R., Chanda, R. C., Vafaei-Zadeh, A., Hanifah, H., & Gui, A. (2024). Assessing green practices on eco-friendly hotel customer loyalty: a partial least squares structural equation modeling and fuzzy-set qualitative comparative analysis hybrid approach. *Sustainability*, 16(9), 3834. <https://doi.org/10.3390/su16093834>
20. Zhao, Y., Chau, K. Y., Shen, H., & Duan, X. (2023). Relationship between perceived value, satisfaction and behavioural intention of homestays in the experience economy of mainland China. *Anatolia*, 34(2), 263-274. <https://doi.org/10.1080/13032917.2021.2018718>
21. Li, Z. Z., Yang, Y., & Zhang, X. (2024). Family travel as an educational experience: Revealing multi-level Parents' perceived value through a family systems approach. *Tourism Management Perspectives*, 53, 101301. <https://doi.org/10.1016/j.tmp.2024.101301>
22. Chen, H., Fu, S., & Lyu, B. (2024). Homestays in China: Mediator effects of brand perception upon host-guest interaction and Tourist behavior intention. *Heliyon*, 10(8). <https://doi.org/10.1016/j.heliyon.2024.e29820>
23. Asia, E., & Orumwense, E. O. (2023). Eco-bio-conversationalism: In defence of Edo Eco-thought. *NASARA JOURNAL OF PHILOSOPHY (NAJOP)*, 8(2).
24. Bayat, M. (2023). A Study of Religious Perspectives on Biodiversity and the Environment. *Journal of Wildlife and Biodiversity*, 7(Special Issue), 74-86. <https://doi.org/10.5281/zenodo.10206928>
25. Upreti, G. (2023). Ecosociocentrism: The Earth First Paradigm for Sustainable Living. In *Ecosociocentrism: The Earth First Paradigm for Sustainable Living* (pp. 307-367). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-41754-2_13
26. Adla, K., Dejan, K., Neira, D., & Dragana, Š. (2022). Degradation of ecosystems and loss of ecosystem services. In *One health* (pp. 281-327). Academic Press. <https://doi.org/10.1016/B978-0-12-822794-7.00008-3>
27. Zhu, K., Zhou, Q., Cheng, Y., Zhang, Y., Li, T., Yan, X., ... & Dávid, L. D. (2023). Regional sustainability: Pressures and responses of tourism economy and ecological environment in the Yangtze River basin, China. *Frontiers in Ecology and Evolution*, 11, 1148868. <https://doi.org/10.3389/fevo.2023.1148868>
28. Baloch, Q. B., Shah, S. N., Iqbal, N., Sheeraz, M., Asadullah, M., Mahar, S., & Khan, A. U. (2023). Impact of tourism development upon environmental sustainability: a suggested framework for sustainable ecotourism. *Environmental Science and Pollution Research*, 30(3), 5917-5930. <https://doi.org/10.1007/s11356-022-22496-w>
29. Çakmakçı, R., Salık, M. A., & Çakmakçı, S. (2023). Assessment and principles of environmentally sustainable food and agriculture systems. *Agriculture*, 13(5), 1073. <https://doi.org/10.3390/agriculture13051073>
30. Grimalda, G., Buchan, N. R., & Brewer, M. B. (2023). Global social identity predicts cooperation at local, national, and global levels: Results from international experiments. *Frontiers in Psychology*, 14, 1008567. <https://doi.org/10.3389/fpsyg.2023.1008567>
31. Ruiz-Ballesteros, E. (2023). What community for community-based tourism?. *Current Issues in Tourism*, 26(16), 2664-2677. <https://doi.org/10.1080/13683500.2022.2091982>
32. Tamtomo, K., & Goebel, Z. (2023). Dialogic landscapes: Toward a nuanced understanding of globalization in urban Indonesian signage. *Journal of Sociolinguistics*, 27(3), 268-289. <https://doi.org/10.1111/josl.12604>
33. Ahmad, N., Ahmad, A., & Siddique, I. (2023). Responsible tourism and hospitality: The intersection of altruistic values, human emotions, and corporate social responsibility. *Administrative Sciences*, 13(4), 105. <https://doi.org/10.3390/admsci13040105>
34. Park, C., Lee, S., Lee, C.K. and Reisinger, Y., 2022. Volunteer tourists' environmentally friendly behavior and support for sustainable tourism development using Value-Belief-Norm theory: Moderating role of altruism. *Journal of Destination Marketing & Management*, 25, p.100712. <https://doi.org/10.1016/j.jdmm.2022.100712>
35. Agyeiwaah, E. (2024). Reconceptualizing domestic tourism prosocial behaviours. *Anatolia*, 35(3), 621-637. <https://doi.org/10.1080/13032917.2023.2291113>
36. Sarkar, S. (2023). Rural tourism through community participation and sustainable development: An empirical study from Silk Route, East Sikkim. *International Journal for Research in Applied Science and Engineering Technology*, 11, 1981-1990. <https://doi.org/10.22214/ijraset.2023.54968>
37. Roy, B., & Upadhyay, S. K. (2024). Green Investments as a Vital Tool to Maintain the Sustainability of Tourist Destination: Gangtok, Sikkim-A Case study. *Annals of Multidisciplinary Research, Innovation and Technology (AMRIT)*, 3(2), 154-158.

38. Roy, S., & Mitra, S. (2024). Exploring the Ramifications of Unorganized Tourism Practices and Associated Challenges in the Sikkim Himalayas Through Machine Learning Approach. In *The Himalayas in the Anthropocene: Environment and Development* (pp. 133-150). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-50101-2_5
39. Chakraborty, P., & Ghosal, S. (2024). An eco-social exploration of tourism area evolution in mountains through stakeholders' perspective. *Environmental Development*, 49, 100963. doi.org/10.1016/j.envdev.2024.100963
40. Demkova, M., Sharma, S., Mishra, P. K., Dahal, D. R., Pachura, A., Herman, G. V., & Matlovcova, K. (2022). Potential for sustainable development of rural communities by community-based ecotourism. A case study of rural village Pastanga, Sikkim Himalaya, India. *GeoJournal of Tourism and Geosites*, 43(3), 964-975. <https://doi.org/10.30892/gtg.43316-910>
41. Biswas, S. N., & Kumar, P. (Eds.). (2024). *Mountain tourism and ecological impacts: Himalayan region and beyond*. IGI Global.
42. Dam, S., 2025. Tourism development in the Sikkim Himalaya: balancing growth and sustainability. *SN Business & Economics*, 5(10),1-21. <https://doi.org/10.1007/s43546-025-00933-5>
43. Sarkar, S., Chaudhury, S.K. and Pattnaik, C.S., 2025. Economic Viability and Prospects of Tourism: An Exploratory Study with reference to the Sikkim State, India. *Indiana Journal of Economics and Business Management*, 5(3), 67-73. <https://doi.org/10.5281/zenodo.15736758>
44. Wangmo, A. P., & Dubey, A. K. (2024). The Influence of Demographic Factors on Tourist Experiences at Sikkim Buddhist Monasteries. *International Journal of Hospitality & Tourism Systems*, 17(3). <https://doi.org/10.21863/ijhts/2024.17.3.010>
45. Babu, S.S., Chaudhuri, R. and Dhan, A., Unveiling the Role of Gender in Sustainable Development: Insights from Sikkim.
46. Nukhu, R., & Singh, S. (2024). Is satisfaction a moderator? The effect of sensory experience on perceived environmental sustainability and WOM: a study on the world's first organic state–Sikkim, India. *Journal of Hospitality and Tourism Insights*, 7(1), 479-499. <https://doi.org/10.1108/JHTI-09-2022-0461>
47. Ashok, S., Behera, M. D., Tewari, H. R., & Jana, C. (2022). Developing ecotourism sustainability maximization (ESM) model: a safe minimum standard for climate change mitigation in the Indian Himalayas. *Environmental Monitoring and Assessment*, 194(12), 914. <https://doi.org/10.1007/s10661-022-10548-0>
48. Pandiya, B. (2024). Tourism in North East India: A Case Study of Sustainable Tourism with Successes and Lessons Learned. In *The Need for Sustainable Tourism in an Era of Global Climate Change: Pathway to a Greener Future* (pp. 13-33). Emerald Publishing Limited. <https://doi.org/10.1108/9781836086680>
49. Faris, H., Gaterell, M., & Hutchinson, D. (2022). Investigating underlying factors of collaboration for construction projects in emerging economies using exploratory factor analysis. *International journal of construction management*, 22(3), 514-526. <https://doi.org/10.1080/15623599.2019.1635758>
50. Alamer, A. (2022). Exploratory structural equation modeling (ESEM) and bifactor ESEM for construct validation purposes: Guidelines and applied example. *Research Methods in Applied Linguistics*, 1(1), 100005. <https://doi.org/10.1016/j.rmal.2022.100005>
51. Rotaru, A., Hegedus, C., Pop, I., Vatca, S., Vatca, A. and Andronie, L., 2024. Assessment of regional development level in Romania through Principal component analysis. *Journal of Central European Agriculture*, 25(2), pp.588-605.
52. Echaparea, E.O., Mendañob, R.V., Cabaguinb, A.M., Machab, M.G., Tenederob, E.Q., Parrochob, M.R.M. and Alcantarab, M.A.F., 2022. Knowledge, Beliefs, and Practices Scale (KBPS) Development: Social Dimension Measures of Red Tide Phenomenon. *Knowledge, Beliefs, and Practices Scale (KBPS) Development: Social Dimension Measures of Red Tide Phenomenon*, 102(1), pp.7-7.
53. Sathyanarayana, S., & Mohanasundaram, T. (2024). Fit indices in structural equation modeling and confirmatory factor analysis: Reporting guidelines. *Asian Journal of Economics, Business and Accounting*, 24(7), 561–577. <https://doi.org/10.9734/ajeba/2024/v24i71430>
54. Njeri, M., Line, N.D. and Hanks, L., 2025. Modeling Multidimensionality in Hospitality and Tourism Research: Exploratory Higher-Order Factor Analysis. *Journal of Hospitality & Tourism Research*, 49(6), pp.1175-1188.
55. Gasiorowska, A., Kuzminska, A.O. and Zaleskiewicz, T., 2025. Exchange and Communal Orientations (ECO) scale: The construction and validation of a method to measure target-specific relational orientations. *PLoS One*, 20(6), p.e0325232.
56. Esparcia Sanchís, C., Gubareva, M. and Jareño Cebrián, F., 2024. From upside and downside risks to resilience: The ESG imperative in energy market sustainability. 10th International Conference on Time Series and Forecasting (ITISE-2024).
57. Abd Halim, M.S. and Ismail, M., 2023. Assessment Model for Determinant Factor Constructs in Edu-Tourism Using Confirmatory Factor Analysis (CFA). *International Journal of Sustainable Development & Planning*, 18(7). <https://doi.org/10.18280/ijstdp.180705>.