

RETHINKING SUSTAINABILITY IN GOA'S TOURISM SECTOR

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This study examines sustainable tourism development in Goa, India, by analyzing the perceptions, behaviours, and expectations of 320 tourists and 60 local residents. As a top tourist destination, Goa faces environmental degradation, cultural erosion, and community displacement. Using a mixed-methods approach and statistical tools such as t-tests, ANOVA, chi-square, correlation, and regression, the study tests five hypotheses.

Findings show that socio-demographic factors like age, gender, income, and education significantly influence tourists' sustainability perceptions. Tourist satisfaction and awareness are strong predictors of support for sustainable practices, while residents' concerns about environmental and cultural impacts drive their support for sustainable planning. A significant gap between tourists' expectations and actual sustainability experiences highlights implementation challenges. Notably, international tourists exhibit stronger sustainability support than domestic visitors.

This research contributes empirical insights into stakeholder perspectives on sustainability in a region often overlooked in existing literature. It offers actionable recommendations, including enhancing awareness, investing in eco-infrastructure, promoting hinterland and heritage tourism, and strengthening community engagement. By aligning stakeholder views with sustainability frameworks, the study supports the development of a more inclusive and resilient tourism model for Goa.

Key words: *Community Engagement, Goa, Stakeholder Perceptions, Sustainable Tourism, Tourist Behaviour.*

JEL Classification: *L83, Q01, R11, Z32.*

I. INTRODUCTION

Tourism has become one of the most dynamic sectors of the global economy, significantly contributing to employment, income distribution, and cultural exchange (UNWTO, 2023). However, in ecologically sensitive destinations like Goa, India, rapid tourism expansion poses critical challenges to long-term sustainability. Balancing economic growth with the conservation of natural and cultural heritage lies at the heart of Sustainable Tourism Development (STD), a concept grounded in the broader sustainable development agenda outlined by the Brundtland Report (WCED, 1987). STD promotes meeting the needs of present-day tourists and host communities while safeguarding future opportunities (D'Souza, 2023).

In heritage-rich regions such as Goa, sustainable tourism is essential for preserving natural landscapes, cultural identity, and social cohesion amidst rising tourist influx (Mohan, 2024). Goa's economy depends heavily on tourism, but its popularity has intensified pressures on local ecosystems, infrastructure, and communities (Dessai, 2023). Problems such as environmental degradation, displacement of locals, and cultural erosion underscore the need for inclusive, community-based, and environmentally responsible tourism models

(Shetgaonkar, 2024). Tourism's dependence on environmental and cultural resources, and their subsequent degradation under poorly managed growth, has been well documented (Swarbrooke, 1999; UNWTO, 2022).

The current study investigates sustainable tourism development in Goa by examining the perceptions of tourists and residents. It is guided by the hypothesis that demographic variables, tourist behaviour, and local community attitudes significantly influence the success of sustainability initiatives. Past research emphasizes the role of stakeholder engagement in driving positive outcomes in sustainable tourism (Song et al., 2021), with local involvement fostering ownership and effective stewardship (Kiss et al., 2022).

While ecological footprint models have previously quantified tourism's impact (Nathaniel et al., 2021; Lee et al., 2022), this study adopts a stakeholder perception lens to uncover behavioural and attitudinal drivers of sustainable development. Goa's coastal regions continue to face pollution, resource overuse, and habitat loss, prompting calls for stronger policies and regulatory mechanisms (Charlton, 2002). Simultaneously, tourist behaviour and expectations—shaped by socio-demographic factors such as age, income, and education—play a crucial role in determining sustainability outcomes (Manojlović et al., 2025). Encouraging responsible behaviour through

education, incentives, and policy nudges remains central to sustainable tourism goals (Chan, 2023).

A mixed-methods approach is particularly suited to this context as it integrates quantifiable behavioural trends with nuanced community insights, providing a more comprehensive understanding of tourism's socio-cultural and environmental impacts in Goa.

Focusing on tourist and resident perspectives, this study aims to align tourism development with environmental consciousness, cultural preservation, and community inclusion. The findings will guide policymakers, practitioners, and researchers in designing data-driven strategies that foster inclusive and sustainable growth in tourism-dependent destinations like Goa.

II. LITERATURE REVIEW

The discourse on sustainable tourism has matured substantially over the past three decades, especially in regions like Goa, where tourism plays a pivotal role in shaping the socioeconomic landscape (DSouza, 2023; Dessai, 2023). As defined by the United Nations World Tourism Organisation (UNWTO, 2023), sustainable tourism fully accounts for its current and future economic, social, and environmental impacts while addressing the needs of visitors, industry, the Environment, and host communities. With its delicate coastal ecology, historic urban settlements, and culturally vibrant communities, Goa offers a unique case for examining the intersection of tourism growth and sustainability.

Tourism Growth and Socioeconomic Transformation in Goa

Goa's transition from a primarily farming economy to a service-driven one has been significantly influenced by tourism. According to the Department of Tourism, Government of Goa (2025), Goa welcomed approximately 10.41 million visitors in 2024, including 9.94 million domestic tourists (96%) and 0.47 million international tourists (4%), reflecting a 22% growth in domestic arrivals and a 3% increase in foreign arrivals compared to 2023. While this growth brings prosperity to certain sections, it has also generated concerns regarding seasonal employment, inequitable income distribution, and overdependence on tourism (Budihal, 2023).

Studies have pointed out that unregulated tourism in Goa has led to real estate speculation, social stratification, and commodification of cultural practices (Sutheeshna, 2021). The overdevelopment of coastal areas such as Calangute, Baga, and Anjuna has altered the traditional fabric of Goan society, leading to cultural dilution and alienation of indigenous

communities from their livelihood. Thus, tourism in Goa is often perceived as a double-edged sword that necessitates sustainable models integrating economic gain with social equity and cultural authenticity.

Environmental Degradation and the Need for Sustainable Practices

The ecological costs of tourism in Goa have been widely reported. Coastal erosion, deforestation, waste mismanagement, and saline water intrusion are environmental issues worsened by unregulated tourism infrastructure (Sutheeshna, 2021). According to the Goa State Pollution Control Board (2024), beaches like Calangute, Baga, and Anjuna face significant stress due to sewage discharge, plastic pollution, and noise from unauthorized beach activities. These issues intensify during the peak tourist season (November to March), often exceeding the state's carrying capacity and causing environmental strain and local dissatisfaction.

Streimikiene et al. (2021) emphasize that sustainable tourism depends on policy and tourist and resident behaviour, awareness, and satisfaction. Ferdian et al. highlight the critical role of stakeholder attitudes in determining the success of sustainability initiatives. Kim et al. (2021) found that environmentally aware tourists are more likely to support and engage in responsible practices—an important consideration in this study.

However, empirical research linking these variables in Goa remains limited. Prior studies address macro-level threats (Chopra & Pandey, 2025) or isolated sustainability efforts without analyzing how tourist perceptions and satisfaction relate to sustainability support. Similarly, local community perspectives are underexplored despite growing concern over environmental degradation and cultural erosion.

This study addresses these gaps by examining how tourist satisfaction and awareness influence support for sustainable tourism, and how resident perceptions of environmental and cultural impacts shape planning support. By foregrounding stakeholder perspectives, the research contributes to a more inclusive understanding of sustainability. It offers a foundation for policies that balance economic development with ecological and cultural preservation in Goa.

Community Engagement and Resident Perceptions

The involvement of local communities in tourism governance is central to the sustainability paradigm. According to Song et al. (2021), residents' perceptions significantly influence the success or failure of sustainable tourism initiatives. In Goa, where tourism often intrudes into residential neighbourhoods

and traditional spaces, the role of communities in decision-making has been marginal. Swain (2024) found that local stakeholders, including traditional fishermen and farmers, often express dissatisfaction with the top-down approach adopted by tourism planners, which fails to reflect their aspirations and ecological concerns.

Research by Gokhale et al. (2014) revealed a growing discontent among residents regarding noise pollution, traffic congestion, and the commodification of cultural festivals for tourist consumption. The lack of inclusive tourism policies results in socio-spatial exclusion, where locals are gradually displaced from economic and social spaces in favour of tourist infrastructure.

Community-Based Tourism (CBT) has emerged as a potential solution to address these concerns. CBT emphasizes local ownership, participation, and equitable benefit-sharing (Mendonza, 2025). Pilot initiatives in rural South Goa, such as the eco-village model in Netravali, have demonstrated the viability of integrating tourism with conservation and community welfare. However, scaling up such models requires institutional support, training, and regulatory backing.

Tourist Behaviour, Demographics, and Sustainability

The success of sustainable tourism is equally dependent on tourist behaviour and awareness (Govekar et al., 2022). Tourists' willingness to participate in sustainable practices—such as minimizing waste, conserving water, supporting local businesses, and respecting cultural norms—is influenced by their demographic profiles and environmental consciousness. In Goa, tourists range from domestic budget travellers to high-end international tourists, with varying levels of awareness about sustainability (D'Souza, 2024).

Research indicates that educational attainment and income level correlated positively with sustainable travel choices (Dingil & Esztergár-Kiss, 2022). Tourists better informed about local environmental issues were more likely to engage in eco-friendly practices and support local artisans. Conversely, mass tourism, particularly involving domestic youth groups on weekend getaways, often resulted in irresponsible behaviour, including littering, excessive alcohol consumption, and disregard for cultural norms (Rybus, 2025).

These insights support the application of Ajzen's (1991) Theory of Planned Behaviour (TPB) in tourism contexts, where attitudes, perceived behavioural control, and subjective norms shape tourists' environmental actions. Enhancing environmental education through signage, mobile apps, local guides, and policy nudges such as eco-taxation can help influence visitor behaviour toward

sustainability.

Heritage Tourism and Preservation Challenges

Goa's unique blend of Indo-Portuguese heritage, manifested in its churches, forts, and colonial architecture, is a major tourism asset. The Basilica of Bom Jesus, a UNESCO World Heritage Site, and other monuments in Old Goa attract thousands of visitors annually. However, heritage tourism has also brought overcrowding, vandalism, and poor maintenance challenges.

The Goa Heritage Action Group (GHAG, 2021) reports that many heritage sites suffer from inadequate signage, encroachment, and a lack of interpretative facilities. Moreover, the living heritage—local customs, cuisine, and language—is threatened due to tourism-induced homogenization. Erwin et al. (2025) argue that unless local communities are made stewards of heritage conservation, the commodification of culture will continue to erode authenticity.

Integrating sustainable tourism with heritage conservation requires holistic policies prioritising adaptive reuse of buildings, enforcing carrying capacity limits, and incentivising community-led heritage enterprises. Tools such as Heritage Impact Assessments (HIA) and participatory mapping have proven effective in other UNESCO sites and can be adopted in Goa with appropriate training and funding.

Institutional and Policy Frameworks for Sustainable Tourism in Goa

Goa's tourism policy has evolved with attempts to incorporate sustainability, but the implementation remains inconsistent. The Goa Tourism Policy 2020 emphasizes diversification, promotion of hinterland tourism, eco-tourism, and digital infrastructure. While this signals a paradigm shift from beach-centric mass tourism, critics argue that the policy lacks clarity on mechanisms to operationalize sustainability and monitor compliance.

Institutional fragmentation, limited coordination between departments (Tourism, Environment, Forests, Urban Planning), and weak enforcement have hindered progress. For instance, the Coastal Regulation Zone (CRZ) norms are often violated in the construction of resorts and shacks (MoEFCC, 2021). Research and practical experience have demonstrated that incorporating residents' interests and perspectives is essential when formulating tourism policies in culturally distinct or ethnic regions (Hu et al., 2022).

Moreover, the integration of the UN Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action), into tourism planning can provide

a globally aligned roadmap for Goa. Academic collaborations and data-driven tools such as GIS mapping, visitor impact models, and community-based monitoring systems are essential for evidence-based decision-making.

Despite a substantial body of literature examining sustainable tourism at the global and national levels, specific contextual analyses for Goa remain limited and fragmented. Existing studies tend to focus either on the economic potential of tourism or on isolated environmental concerns such as beach pollution and land (Dessai, 2023). However, an integrated approach that combines environmental sustainability, socio-cultural impacts, community perception, and tourist behaviour in the Goan context is notably absent.

Most previous studies on tourism in Goa have relied heavily on qualitative observations or anecdotal evidence, with limited empirical validation through structured data collected from key stakeholders such as tourists and local residents. There remains a gap in applying robust quantitative methods to examine how demographic factors shape tourists' awareness, satisfaction, and support for sustainable tourism. Similarly, few studies have systematically assessed residents' perceptions of tourism's environmental and cultural impacts and their willingness to support sustainability-oriented planning. This study addresses these gaps by applying established behavioural and perception-based frameworks, such as the Theory of Planned Behaviour, to generate actionable insights into stakeholder engagement in Goa's tourism sustainability efforts.

Another significant gap lies in the underrepresentation of hinterland and heritage tourism in Goa's existing sustainable tourism literature. The emphasis has largely been on coastal tourism, leaving inland ecological reserves and cultural sites less understood regarding carrying capacity, community benefit, and heritage preservation strategies.

This study addresses key gaps in the existing literature by adopting a structured, quantitative approach based on primary data collected from tourists and residents in Goa. Rather than relying on anecdotal or purely qualitative insights, the research systematically analyses stakeholder perceptions—focusing on tourists' awareness, satisfaction, and support for sustainability, as well as residents' views on tourism's environmental and cultural impacts. Guided by established behavioural frameworks such as the Theory of Planned Behaviour, the study tests specific hypotheses to examine how demographic factors and perception-based variables influence sustainable tourism support. By positioning Goa as a representative case of India's tourism dynamics, the research offers context-specific insights with broader relevance to policy, planning, and academic discourse on sustainable tourism development.

Objectives of the Study

1. To examine how socio-demographic characteristics influence tourists' perceptions and attitudes toward sustainable tourism in Goa.
2. To assess the relationship between tourist satisfaction, sustainability awareness, and their support for sustainable tourism practices.
3. To evaluate residents' perceptions of tourism's cultural and environmental impacts and how these perceptions affect their support for sustainable tourism planning.
4. To compare tourists' expectations versus their actual experiences of sustainable tourism practices across key dimensions such as waste management, cultural authenticity, and eco-friendly services.
5. To investigate differences in sustainability-related behaviours and support between domestic and international tourists visiting Goa.

Hypotheses of the Study

Based on the objectives, the study proposes the following testable hypotheses:

- **H1:** There is a significant difference in tourists' perceptions of sustainable tourism development in Goa based on their socio-demographic characteristics (age, gender, income, and education).
- **H2:** There is a significant relationship between tourist satisfaction and their awareness or support for sustainable tourism practices.
- **H3:** Residents' perceptions of tourism's environmental and cultural impacts significantly influence their support for tourism planning and sustainable development in Goa.
- **H4:** There is a significant difference between tourists' expectations and actual experiences regarding sustainable tourism practices in Goa.
- **H5:** Type of tourist (domestic vs. international) significantly influences travel behaviour and support for sustainability measures.

III.METHODOLOGY

Research Design

This study adopts a descriptive and exploratory research design to evaluate the perceptions, behaviours,

and impacts of sustainable tourism development in Goa. A quantitative survey-based approach was employed to capture structured responses from tourists visiting Goa, supplemented by qualitative observations to validate context-specific insights. The study's design is aligned with the need to empirically assess sustainable tourism indicators, stakeholder perceptions, and demographic influences using statistical analysis.

Rationale for Selecting Goa

Goa was selected as the geographic focus for this study due to its unique status as one of India's most prominent tourism destinations, attracting over seven million tourists annually (D'Souza, 2024). It offers a rich mix of coastal, cultural, heritage, and eco-tourism opportunities. Tourism forms the foundation of Goa's economy, supporting livelihoods for nearly 40% of its population. However, despite this heavy economic reliance (Dias & Mhango, 2024), the state grapples with significant sustainability issues, including environmental degradation, erosion of cultural identity, and unequal distribution of tourism-related benefits.

Moreover, Goa represents a microcosm of broader tourism trends in India, with intense tourist influx during peak seasons, conflicts between local and tourism development interests, and the presence of both domestic and international visitor segments. This diversity provides a representative platform to examine sustainable tourism practices, stakeholder attitudes, and planning challenges in a single, high-impact destination.

Target Population and Sampling Method

The study targeted tourists visiting Goa, both domestic and international, across multiple locations such as Panaji, Calangute, Baga, Anjuna, and Old Goa. A sample size of 320 respondents was determined to ensure adequate statistical power and representation. The sample included 60% male ($n = 192$) and 40% female ($n = 128$) respondents; 10% foreign tourists ($n = 32$) and 90% domestic tourists ($n = 288$). A non-probability convenience sampling method was adopted, which is commonly used in tourism research (Dolnicar et al., 2015) due to the limited willingness of tourists to participate in lengthy surveys. Respondents were approached in public tourist hotspots, transport terminals, and accommodation centres and were selected based on their availability and consent to participate.

Data Collection Instrument

Primary data were collected using a structured questionnaire developed based on validated constructs from previous tourism sustainability studies (Byrd, 2006; Han et al., 2018; Sharma & Nayak, 2021). The

questionnaire consisted of four main sections:

1. Demographic Profile: Age, gender, education, income, nationality, and purpose of visit;
2. Tourist Behaviour and Preferences: Awareness of sustainability, travel motives, willingness to pay for eco-friendly services;
3. Perceptions of Sustainable Tourism: Measured using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) covering environmental concern, cultural sensitivity, and satisfaction;
4. Observed Impact and Suggestions: Opinions on environmental degradation, overcrowding, and community interaction.

To ensure content validity, the questionnaire was reviewed by three academic experts in tourism studies and pretested with 30 respondents. Feedback was used to simplify the language and eliminate ambiguous questions. The revised version demonstrated high internal consistency (Cronbach's $\alpha = 0.83$).

Data Collection Procedure

The survey was administered using a mixed-mode approach to ensure wide reach and sample diversity. Primary data were collected between November 2024 and February 2025, aligning with Goa's peak tourist season to capture a representative mix of domestic and international visitors. A significant portion of the responses was gathered face-to-face by trained Goa College of Hospitality & Culinary Education students, who conducted intercept surveys at major tourist sites such as beaches, heritage zones, and local markets. Respondents were informed about the academic purpose of the study and were assured of anonymity, confidentiality, and voluntary participation.

To supplement on-ground efforts, the survey was also disseminated online through social media platforms (e.g., Facebook, Instagram) and tourism-focused WhatsApp groups and community forums, enabling access to tech-savvy and international respondents who may not have been reachable through in-person methods. This hybrid approach enhanced the geographic and demographic diversity of the sample, aligning with the study's objective of understanding varied stakeholder perceptions of sustainable tourism in Goa.

Data Analysis

The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) Version 25. A range of statistical techniques was employed to derive meaningful insights from the dataset. Descriptive statistics were first used to summarise demographic characteristics and to identify general trends in tourist perceptions and behaviours. Cross-tabulation and Chi-square tests helped assess the

associations between key demographic variables—age, gender, nationality, and education—and tourists' perceptions of sustainable tourism. Independent samples t-tests and one-way ANOVA were applied to explore differences in perceptions across specific groups, such as male and female tourists or domestic and international visitors. Pearson's correlation coefficient was used to examine the strength and direction of the relationship between tourist satisfaction and their support for sustainable tourism practices. Finally, a linear regression analysis was conducted to determine the predictive power of demographic factors and tourist behaviour in their overall support for sustainable tourism development in Goa. This comprehensive analytical approach provided a robust basis for testing the study's hypotheses and drawing valid conclusions.

IV.RESULTS

This section presents the findings of the empirical study conducted among 320 tourists and 60 residents in Goa. The results are organised according to the five hypotheses outlined in the study. Statistical analyses were performed using SPSS Version 25, and appropriate techniques such as descriptive statistics, t-tests, ANOVA, chi-square, correlation, and regression were used to validate the hypotheses.

Reliability and Validity of Instruments

The internal consistency of the sustainable tourism perception scale (12 items) was tested using Cronbach's Alpha, yielding a value of 0.872, indicating excellent reliability (Tavakol & Dennick, 2011) as seen in Table 1. A Kaiser-Meyer-Olkin (KMO) measure of 0.814 and Bartlett's Test of Sphericity ($\chi^2 = 1063.47$, $p < 0.001$) confirmed sampling adequacy and construct validity.

Table 1. Reliability Statistics

Construct	No. of Items	Cronbach's Alpha
Perception of Sustainable Tourism	12	0.872

Hypothesis 1 (H1): Influence of Socio-Demographic Variables on Sustainability Perceptions

H1: There is a significant difference in tourists' perceptions of sustainable tourism development in Goa based on their socio-demographic characteristics (age, gender, income, and education).

a) T-Test (Gender)

Table 2. T-Test – Gender and Perception of Sustainable Tourism

Gender	Mean	SD	t-value	p-value
Male	3.84	0.61	-2.47	0.014
Female	4.02	0.56		

As seen in Table 2 above, Female tourists scored significantly higher in their perception of sustainable tourism ($M = 4.02$, $SD = 0.56$) compared to male tourists ($M = 3.84$, $SD = 0.61$), $t(318) = -2.47$, $p = 0.014$. This suggests that female respondents demonstrated greater awareness or sensitivity toward sustainability-related issues while visiting Goa. The statistically significant difference ($p < 0.05$) indicates that gender plays a meaningful role in shaping tourists' attitudes toward sustainable tourism, supporting the hypothesis that socio-demographic variables influence sustainability perceptions (H1).

b) ANOVA (Income)

Table 3. ANOVA – Income Level and Sustainability Perception

Income Group (INR/year)	Mean	SD
<3 Lakhs	3.71	0.58
3–5 Lakhs	3.85	0.60
5–10 Lakhs	4.01	0.54
>10 Lakhs	4.08	0.50

As seen in Table 3, $F(3, 316) = 4.21$, $p = 0.006$, indicating a statistically significant difference in perceptions of sustainable tourism among tourists belonging to different income groups. This means that at least one income group differs significantly from the others in how they perceive or support sustainable tourism practices in Goa.

A post-hoc Tukey HSD test was conducted to determine where these differences lie. The results showed that tourists with annual incomes above INR 10 lakhs had significantly higher sustainability perception scores (Mean = 4.08, $SD = 0.50$) compared to those earning below INR 3 lakhs (Mean = 3.71, $SD = 0.58$), $p < 0.01$.

c) Regression (Education & Age)

Table 4. Regression – Age and Education Predicting Perception

Predictor	B	SE	β	t-value	p-value
Age	0.032	0.015	0.094	2.13	0.034
Education Level	0.124	0.028	0.202	4.43	<0.001

The results reveal that socio-demographic factors significantly shape tourists' perceptions of sustainable tourism in Goa. Female tourists scored higher on sustainability perception measures than males, indicating greater environmental and cultural

sensitivity. Income level also showed a significant influence, with higher-income groups expressing stronger support for sustainable practices—potentially due to increased awareness or exposure to responsible travel norms. Further, the regression analysis (Table 4) demonstrated that age ($\beta = 0.094$, $p = 0.034$) and education level ($\beta = 0.202$, $p < 0.001$) were both positive predictors of sustainability perception. This suggests that older and more educated tourists are more likely to value and support eco-friendly tourism experiences. These findings confirm that demographic characteristics influence how visitors perceive sustainability, offering valuable insights for developing targeted communication strategies and policy interventions. Hence, H1 is supported, as gender, income, age, and education significantly affect sustainability perceptions among tourists.

Hypothesis 2 (H2): Relationship Between Satisfaction and Sustainability Support

H2: There is a significant relationship between tourist satisfaction and their awareness or support for sustainable tourism practices.

a) Correlation Analysis

Table 5. Correlation – Tourist Satisfaction and Sustainability Support

Variables	Pearson's r	p-value
Tourist Satisfaction × Sustainability Support	0.641	<0.001

A strong and statistically significant positive correlation was found between tourist satisfaction and support for sustainable tourism ($r = 0.641$, $p < 0.001$), as shown in Table 5. This indicates that as tourist satisfaction increases, so does their likelihood of supporting sustainable tourism practices. The strength of the correlation suggests that satisfaction is not only an outcome of a positive travel experience but also a key driver of pro-sustainability attitudes.

b) Regression Analysis

Table 6. Regression – Predictors of Sustainability Support

Predictor	B	SE	β	t-value	p-value
Satisfaction	0.413	0.041	0.398	10.07	<0.001
Awareness of Eco Practices	0.296	0.036	0.372	8.22	<0.001

Tourist satisfaction and awareness both significantly predict support for sustainable tourism, thereby providing strong evidence in favour of H2. The regression analysis revealed that tourists who reported higher satisfaction with their overall travel experience

in Goa were likelier to support and engage in sustainable tourism practices. Additionally, greater awareness of eco-friendly initiatives—such as waste reduction, responsible accommodations, and community-based tourism—strongly predicted sustainability support. H2 is accepted.

Hypothesis 3 (H3): Resident Perceptions of Tourism's Cultural and Environmental Impacts

H3: Residents' perceptions of tourism's environmental and cultural impacts significantly influence their support for tourism planning and sustainable development in Goa.

A total of 60 local residents were surveyed in Calangute, Panaji, and Old Goa. Perception scores were measured on impacts (environmental, cultural) and support for planning initiatives.

a) Correlation Analysis

Table 7. Correlation – Resident Perception of Impacts and Support

Variable Pair	r	p-value
Environmental Impact × Planning Support	0.588	<0.001
Cultural Impact × Planning Support	0.611	<0.001

The results confirm that residents who perceive tourism as having negative environmental and cultural impacts are significantly more likely to support sustainable tourism planning, thereby supporting H3. As seen in Table 7, the correlation analysis revealed moderate to strong positive relationships between both environmental ($r = 0.588$) and cultural impact perceptions ($r = 0.611$) and support for planning initiatives, indicating that residents who are more aware of the adverse effects of tourism are also more inclined to advocate for structured, sustainable development.

b) Regression Analysis

Table 8. Regression – Predictors of Resident Support

Predictor	B	SE	β	t-value	p-value
Environmental Concerns	0.358	0.067	0.422	5.34	<0.001
Cultural Concerns	0.294	0.071	0.388	4.14	<0.001

Regression analysis further reinforced these findings, with both environmental ($\beta = 0.422$, $p < 0.001$) and cultural concerns ($\beta = 0.388$, $p < 0.001$) emerging as significant predictors of support for sustainability-focused planning, as seen in Table 8. This suggests that when residents experience or observe degradation of natural resources or dilution of

local culture due to tourism, they develop a stronger motivation to support policy interventions that promote eco-friendly practices, cultural preservation, and inclusive governance. These insights highlight the critical role of community perceptions in shaping the future of tourism planning in Goa and point to the need for engaging local stakeholders in decision-making processes.

Hypothesis 4 (H4): Gap Between Expectations and Experiences

H4: There is a significant difference between tourists' expectations and actual experiences regarding sustainable tourism practices in Goa.

Tourists were asked to rate their expectations and experiences of sustainability practices (e.g., eco-hotels, waste management, cultural sensitivity) on a scale of 1 to 5.

Paired Sample T-Test

Table 9. Expectations vs. Experiences of Sustainability

Aspect	Expectation (M)	Experience (M)	t-value	p-value
Waste Management	4.18	3.72	6.12	<0.001
Cultural Authenticity	4.35	3.95	5.28	<0.001
Use of Eco-Friendly Products	4.02	3.60	5.91	<0.001

Table 9 illustrates the differences between tourists' expectations and their actual experiences regarding key aspects of sustainable tourism in Goa. Across all three measured dimensions—waste management, cultural authenticity, and use of eco-friendly products—the mean expectation scores were notably higher than the corresponding experience scores. For instance, tourists expected a high standard in waste management ($M = 4.18$). However, their actual experience was significantly lower ($M = 3.72$), with a t-value of 6.12 and $p < 0.001$, indicating a statistically significant gap. Similar discrepancies were observed in the areas of cultural authenticity and the use of eco-friendly products, with t-values of 5.28 and 5.91, respectively (both $p < 0.001$).

These findings suggest that tourists come to Goa with strong expectations for sustainability-oriented practices, particularly in visible areas such as environmental cleanliness, cultural engagement, and the adoption of green infrastructure or services. However, their on-ground experiences do not meet these expectations, indicating a mismatch between tourism marketing messages and actual service delivery.

The results support H4, confirming that tourists' experiences fall short of their sustainability expectations, which could impact their overall satisfaction and likelihood of revisiting or recommending the destination.

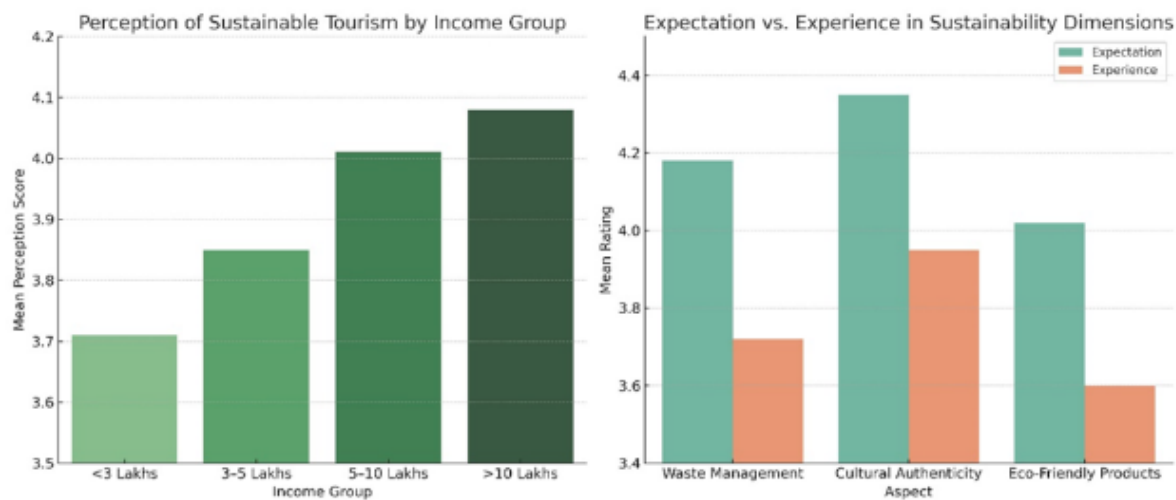


Figure 1 – Summary of Key Results – (a) Perception of Sustainable Tourism by Income Group, and (b) Expectation vs. Experience in Sustainability Dimensions

In Figure 1 above, Subfigure (a) illustrates that tourists with higher income levels ($> ₹10$ lakhs) demonstrate a stronger perception of sustainable tourism practices in Goa compared to lower-income groups, supporting Hypothesis H1. Subfigure (b) highlights a notable gap between tourist expectations and actual experiences across key sustainability dimensions—waste management, cultural authenticity,

and use of eco-friendly products—indicating a shortfall in implementing sustainable practices. This visual evidence reinforces Hypothesis H4, suggesting a critical need for improved service delivery aligned with sustainability expectations.

Hypothesis 5 (H5): Type of Tourist and Support for Sustainability

H5: Type of tourist (domestic vs. international)

significantly influences travel behaviour and support for sustainability measures.

Table 10: Chi-Square – Tourist Type and Support for Sustainability

Variable	χ^2	df	p-value	Result
Domestic vs. Foreign Tourists \times Sustainability Support	12.38	2	0.002	Significant

Foreign tourists were significantly more likely to engage in eco-friendly behaviour and support sustainable tourism policies. H5 is confirmed.

Table 11: Hypothesis Testing Summary

Hypothesis	Statement	Supported	Evidence
H1	There is a significant difference in tourists' perceptions of sustainable tourism based on socio-demographics.	Yes	T-test, ANOVA, Regression
H2	There is a significant relationship between tourist satisfaction and their support for sustainability.	Yes	Correlation, Regression
H3	Residents' perceptions of tourism's cultural and environmental impacts influence their support for planning.	Yes	Resident survey, Correlation, Regression
H4	There is a significant difference between expectations and actual experiences of sustainable practices.	Yes	Paired-sample T-test
H5	The type of tourist (domestic vs. international) significantly influences behaviour and sustainability support.	Yes	Chi-square

V. DISCUSSION

The findings of this study contribute valuable insights into sustainable tourism development in Goa by highlighting the nuanced influence of socio-demographic variables, tourist satisfaction, awareness, and local community perceptions. These results resonate with the sustainability discourse articulated in previous studies and reveal important context-specific dynamics relevant to destinations facing rapid tourism growth and sustainability challenges.

Firstly, the analysis confirmed that demographic characteristics significantly shape tourists' perceptions of sustainable tourism, aligning with past research by Manojlović et al. (2025), Dingil and Esztergár-Kiss (2022), and D'Souza (2024). In particular, female tourists and those with higher income and education

levels demonstrated stronger sustainability orientation, suggesting a correlation between awareness, exposure to responsible travel norms, and support for sustainable practices. These findings are consistent with theoretical expectations drawn from Ajzen's (1991) Theory of Planned Behaviour, where individual attitudes and perceived control influence behavioural intent—here reflected in tourist support for sustainability.

Further, the strong positive relationship between tourist satisfaction and support for sustainable tourism confirms that satisfied tourists are more likely to endorse eco-friendly practices. This supports the view that satisfaction is not only an outcome but also a motivator for responsible behaviour, echoing Streimikiene et al.'s (2021) emphasis on the behavioural dimensions of sustainability. However, the study also reveals a significant gap between tourist expectations and actual experiences, especially in areas like waste management, cultural authenticity, and the use of eco-friendly infrastructure. This mismatch aligns with concerns raised by the Goa State Pollution Control Board (2024) and Shetgaonkar (2024), who highlighted the discrepancies between policy intentions and on-ground realities.

Additionally, residents' perceptions of environmental and cultural impacts emerged as strong predictors of their support for sustainable tourism planning. These findings reinforce earlier research by Song et al. (2021) and Swain (2024), who argued that community attitudes must inform tourism governance. The support expressed by residents for planning interventions stems from lived experiences of ecological degradation and cultural commodification—concerns well documented by Sutheshna (2021) and Gokhale et al. (2014). This underscores the value of integrating community-based tourism (CBT) models, such as the pilot initiatives in Netravali (Mendonza, 2025), which centre on local participation and benefit-sharing.

Finally, the study finds international tourists were significantly more inclined to support sustainable practices than domestic tourists, reflecting differing levels of environmental awareness. This observation corresponds with D'Souza (2024) and Rybus (2025), who noted that domestic mass tourism, particularly among youth segments, often leads to unsustainable behaviour. These insights emphasise the importance of targeted awareness campaigns, especially for the domestic tourist market, which constitutes the majority of Goa's visitor base.

The findings of this study offer critical insights that can inform revisions and implementation strategies under the Goa Tourism Policy 2020, which emphasises diversification, eco-tourism, and community-based tourism. The observed expectation–experience gap among tourists highlights the need for enhanced service quality, particularly in waste management and cultural engagement. This can be addressed through stricter

enforcement of sustainability standards and improved operator training. Furthermore, the strong support for sustainability among international tourists and educated segments points to the potential effectiveness of targeted awareness campaigns, especially among domestic visitors. Additionally, the positive correlation between resident concerns and support for planning reinforces the policy's call for greater stakeholder participation, suggesting that empowering local communities in tourism governance could enhance both legitimacy and long-term sustainability outcomes.

Overall, the study reaffirms the interconnectedness of demographic profiles, tourist satisfaction, sustainability awareness, and resident support in shaping the trajectory of tourism development in Goa. This research strengthens the call for inclusive, data-driven, and context-sensitive approaches to sustainable tourism planning in ecologically and culturally fragile destinations by foregrounding stakeholder perspectives and testing them through a robust empirical framework.

VI. LIMITATIONS AND SCOPE FOR FUTURE RESEARCH

Although this study provides valuable insights into stakeholder perceptions of sustainable tourism in Goa, several limitations must be acknowledged. First, the data collected relied on self-reported responses from tourists and residents, which may be subject to social desirability bias or inaccuracies in recall. Respondents may have overstated their awareness, satisfaction, or support for sustainability to align with perceived normative behaviour.

Second, the study's cross-sectional design captures stakeholder attitudes at a single point in time, limiting its ability to assess how these perceptions evolve in response to policy changes, infrastructure upgrades, or seasonal variations. A longitudinal approach in future studies could provide deeper insights into the temporal dynamics of sustainability perception and behaviour.

Additionally, the tourist sample was heavily skewed toward domestic visitors (90%), and the resident sample ($n = 60$) was geographically limited to selected areas. Expanding the geographic and demographic coverage of future studies would improve generalizability. Moreover, future research could incorporate experimental designs, such as field-based interventions or behavioural nudges, to assess causality

and the real-world effectiveness of specific sustainability strategies (e.g., eco-taxation, informational campaigns, or waste-reduction incentives).

Integrating environmental performance data—such as carbon footprint assessments or waste audits—with perception-based measures may also offer a more holistic evaluation of sustainability in Goa's tourism sector.

VII. CONCLUSION

This study provides empirical clarity on the role of stakeholder perceptions in advancing sustainable tourism in Goa. Analysing responses from tourists and residents through a quantitative framework demonstrates that socio-demographic variables, satisfaction levels, and perceived impacts significantly influence support for sustainability. All five tested hypotheses were supported, reaffirming the importance of integrating both visitor experience and community concerns into tourism policy.

Unlike earlier studies that remained largely qualitative or macro-level, this research offers grounded, data-driven insights specific to Goa—India's leading but environmentally vulnerable tourism destination. It calls attention to the urgency of reducing the expectation–experience gap in sustainability practices, the need for targeted campaigns for domestic tourists, and the value of engaging local communities in planning processes.

To translate these findings into actionable policy, the study recommends adopting community-based tourism (CBT) policies at the panchayat level, ensuring that local stakeholders are directly involved in planning, monitoring, and benefiting from tourism activities. Such decentralisation aligns with the principles of inclusive development and strengthens ecological stewardship through grassroots participation.

These findings contribute to the academic discourse on sustainable tourism while offering actionable recommendations for policymakers, tourism operators, and community stakeholders. As Goa navigates the balance between economic growth and ecological resilience, participatory, perception-sensitive strategies will be key to ensuring tourism remains a source of inclusive and sustainable development.

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