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Institutional Mediation in Small-Island Tourism: Extending the Triple Bottom Line Framework to Enhance Guesthouse Sustainability in the Maldives

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Peer Review Information	Abstract
<p><i>Submission: 11 Nov 2025</i> <i>Revision: 22 Nov 2025</i> <i>Acceptance: 02 Dec 2025</i></p> <p>Keywords</p> <p><i>Triple Bottom Line, Institutional Mediation, Guesthouse Sustainability, Small-Island Tourism, Maldives</i></p>	<p>Sustainability in small-island tourism presents unique challenges due to limited resources, fragile ecosystems, and dependency on regulatory frameworks. This study investigates the determinants of guesthouse sustainability in the Maldives by extending the traditional Triple Bottom Line (TBL) framework to include psychological and institutional factors. The research examines the direct and indirect effects of psychological and strategic, economic, social, and environmental dimensions on sustainability outcomes, with institutional factors hypothesized as a key mediating mechanism. Using a structured survey of Maldivian guesthouse operators and employing Structural Equation Modeling (SEM) with AMOS 26.0, the study validates a comprehensive measurement model and tests the proposed structural relationships. The results indicate that psychological, economic, and social factors significantly influence guesthouse sustainability both directly and indirectly, while environmental factors exert a significant indirect effect only through institutional mediation. Institutional factors are confirmed as a critical transmission mechanism, demonstrating that regulatory engagement, policy compliance, and governance structures are essential in translating internal efforts into measurable sustainability outcomes. The study provides theoretical contributions by extending the TBL framework to integrate institutional dynamics, offering a nuanced understanding of sustainability in small-island contexts. Practically, the findings emphasize the need for strengthened institutional frameworks, capacity-building for managers, strategic alignment of social and environmental practices, and enhanced collaboration between policymakers, industry stakeholders, and local communities. Recommendations include implementing structured incentive programs, promoting eco-certifications, establishing internal sustainability policies, and linking environmental initiatives to regulatory support. By highlighting the interplay between internal capabilities and external governance, this research provides actionable insights for sustainable tourism development in small-island destinations.</p>

Introduction

Tourism has long been the backbone of the Maldivian economy, shaping its development path since the early 1970s. Internationally renowned for its luxury, one-island-one-resort model, the Maldives has successfully positioned itself as a premium tourism destination. However, over the past decade, the country has witnessed a significant structural shift in its tourism sector with the rapid growth of guesthouse tourism on inhabited islands. This transition reflects broader global changes in travel demand, where tourists increasingly seek authentic, affordable, and sustainable experiences. Within this evolving context, sustainability has emerged as a critical concern, particularly for small-scale accommodations such as guesthouses that operate near local communities and fragile island ecosystems.

Sustainable tourism is closely aligned with the United Nations' 2030 Agenda for Sustainable Development, which outlines 17 Sustainable Development Goals (SDGs) aimed at balancing economic growth, social inclusion, and environmental protection. As one of the world's fastest-growing industries, tourism has the potential to contribute meaningfully to these goals, but it also poses serious environmental and socio-cultural risks if not managed responsibly. The Maldives, as a small island developing state highly vulnerable to climate change, resource scarcity, and environmental degradation, faces heightened pressure to ensure that tourism growth does not undermine its long-term sustainability. In this context, guesthouse tourism represents both an opportunity and a challenge: an opportunity to distribute tourism benefits more equitably among local communities, and a challenge in managing sustainability at the grassroots level.

The Triple Bottom Line (TBL) framework, encompassing economic, social, and environmental dimensions, provides a comprehensive lens through which sustainability in tourism can be examined. Unlike traditional performance measures that prioritize profit alone, the TBL approach emphasizes a balanced evaluation of business success by considering impacts on people and the planet alongside financial viability. Applied to guesthouse tourism, this framework enables an assessment of how small-scale operators contribute to local economic development, community well-being, cultural preservation, and environmental conservation. Guesthouses, often family-run and locally owned, are uniquely positioned to foster closer interactions between tourists and residents, support local supply chains, and

reduce the environmental footprint associated with large-scale resort developments.

Despite the growing prominence of guesthouses in the Maldives, evident in their rapid increase from 607 establishments in 2019 to over 900 by 2023, there remains a lack of structured understanding regarding how sustainability is implemented and sustained within this segment. Existing research on Maldivian tourism has largely focused on resort-based development, leaving guesthouse operations underexplored, particularly in relation to sustainability performance and success factors. Moreover, while the TBL framework is widely used in sustainability studies, its application to guesthouse tourism in small island contexts remains limited.

To address this gap, this study introduces Guesthouse Tourism Sustainability (GTS) as a focused area of inquiry and examines the Critical Success Factors (CSFs) that support sustainability in guesthouse operations. In doing so, the study extends the TBL framework by incorporating institutional factors, such as government policies, regulations, and industry standards, as mediating influences on sustainability outcomes. Institutional support plays a crucial role in shaping business behaviour, especially in developing tourism destinations where small operators may lack resources or incentives to adopt sustainable practices independently. Supportive regulatory frameworks, capacity-building initiatives, and sustainability incentives can significantly enhance the ability of guesthouses to balance economic viability with social responsibility and environmental stewardship.

By situating guesthouse tourism within the broader discourse of sustainable development and institutional governance, this article contributes to a more nuanced understanding of sustainability in small-scale tourism enterprises. Focusing on the Maldivian context, it highlights how guesthouses can act as catalysts for inclusive and sustainable tourism growth while also identifying the constraints they face. Ultimately, this study seeks to inform policymakers, practitioners, and researchers by offering insights into how sustainability frameworks can be effectively operationalised in guesthouse tourism, ensuring long-term benefits for local communities, the tourism industry, and the fragile island environment of the Maldives.

Despite tourism's central role in driving economic growth in the Maldives, ensuring the long-term sustainability of the sector, particularly within the rapidly expanding guesthouse segment, remains a complex and pressing challenge. While guesthouse tourism

has been promoted as a mechanism for decentralising tourism benefits and enhancing local participation, the pace of its growth has often exceeded the development of coherent sustainability strategies. As a result, a clear gap persists between sustainability aspirations and their practical implementation. This gap is shaped by intertwined economic, social, environmental, and institutional factors that have not yet been sufficiently examined through an integrated analytical lens (Lara-Morales & Clarke, 2022; UNWTO, 2023).

One of the most critical issues identified in the existing literature is the limited scholarly attention given specifically to guesthouse tourism sustainability in the Maldivian context. While sustainable tourism has been widely examined at a global level, research in the Maldives has predominantly focused on resort-based tourism models, with guesthouses receiving comparatively little attention. Moreover, existing studies tend to concentrate on a small number of well-established islands, such as Maafushi and Thulusdhoo, resulting in geographically narrow and fragmented insights (Musliha, 2018; Zuhuree, 2017). This lack of comprehensive, nationwide research limits the ability of policymakers and practitioners to develop evidence-based strategies that reflect the diverse operational and socio-cultural realities of guesthouse tourism across the country (Shakeela & Cooper, 2023).

Beyond empirical limitations, significant conceptual gaps also exist in how guesthouse sustainability has been framed. Much of the existing research prioritises economic outcomes, often overlooking social and environmental dimensions that are equally critical for long-term sustainability. While financial viability is essential for the survival of guesthouse operations, sustainability cannot be achieved without community participation, cultural preservation, and responsible environmental management (Henry Mwinuka, 2017; Wanner et al., 2020). The Triple Bottom Line (TBL) framework, which integrates economic, social, and environmental considerations, offers a more holistic approach to sustainability assessment. However, its application to guesthouse tourism in the Maldives remains limited, particularly in empirical studies that examine all three dimensions simultaneously (Gimenez et al., 2012; Janjua et al., 2023).

Furthermore, the role of institutional factors in shaping sustainability outcomes has been insufficiently explored. Institutional elements, including government policies, regulatory frameworks, governance mechanisms, and enforcement capacity, play a decisive role in

influencing tourism development and sustainability performance (Zimmermann et al., 2022; UNDP, 2023). In the Maldivian context, issues such as fragmented governance, limited decentralisation, and policy emphasis on economic growth have often constrained the effective integration of social and environmental objectives into tourism planning. Consequently, even when guesthouse operators demonstrate willingness to adopt sustainable practices, weak institutional support may undermine these efforts (Janjua et al., 2023). Understanding how institutional factors mediate the relationships between economic, social, and environmental dimensions is therefore essential for advancing guesthouse tourism sustainability.

Another significant challenge lies in the persistent gap between sustainability theory and practice. Although sustainability frameworks are well established in academic discourse, their translation into actionable strategies for guesthouse operators remains problematic. Rapid guesthouse expansion on local islands has intensified practical challenges, including inadequate infrastructure, waste management deficiencies, regulatory constraints, and social tensions within host communities (Zuhuree, 2017). In many cases, limited community involvement during the early planning stages has resulted in misalignment between tourism development objectives and local expectations. Cultural and religious norms, such as restrictions on alcohol consumption and dress codes, further complicate efforts to balance market demands with community values (Shakeela & Cooper, 2023).

Given these gaps, this study adopts an integrated approach to examine Guesthouse Tourism Sustainability (GTS) in the Maldives by extending the TBL framework to include institutional factors as a mediating variable. By analysing the direct and indirect relationships between psychological, economic, social, environmental, and institutional factors, the study seeks to provide a more nuanced and context-specific understanding of sustainability in the guesthouse sector. This approach recognises that sustainability outcomes are not shaped by isolated variables, but by dynamic interactions between governance structures, community engagement, environmental practices, and economic performance (UNWTO, 2023).

In doing so, this research contributes to both theory and practice. It advances academic knowledge by addressing underexplored dimensions of guesthouse tourism sustainability, while offering practical insights for policymakers, guesthouse operators, and local communities. Ultimately, by identifying critical success factors

and institutional conditions necessary for sustainable guesthouse operations, this study aims to support the development of a more inclusive, resilient, and sustainable tourism model in the Maldives, one that aligns with national development priorities and the United Nations' 2030 Agenda for Sustainable Development (Opoku, 2015; UNDP, 2023).

Literature Review

The sustainability of tourism enterprises has become a central concern in both academic research and policy discourse, particularly in destinations that are environmentally fragile and economically tourism-dependent, such as the Maldives. Guesthouse tourism, introduced as a community-based alternative to resort tourism, has expanded rapidly over the past decade. While this model promises broader socio-economic benefits, its long-term sustainability remains contingent upon multiple interrelated factors. Guided by the Triple Bottom Line (TBL) framework and institutional theory, this study reviews literature on psychological, economic, social, environmental, and institutional factors influencing guesthouse sustainability.

The TBL framework conceptualises sustainability through three interconnected dimensions: economic viability, social responsibility, and environmental stewardship (Elkington, 2004). In the context of hospitality, TBL has been widely used to assess how tourism enterprises balance profitability with social and environmental obligations (Gimenez et al., 2012). However, recent studies argue that TBL alone is insufficient to explain sustainability outcomes without considering the institutional environment in which firms operate (Janjua et al., 2023).

Psychological factors have increasingly been recognised as important antecedents of sustainability-oriented behaviour among business owners and managers. Concepts such as internal motivation, self-regulation, and self-efficacy influence decision-making and the willingness of operators to adopt sustainable practices (Bandura, 1997; Mi & Eshani, 2020). In small tourism enterprises like guesthouses, owner-managers play a decisive role in shaping sustainability outcomes. Research suggests that operators with strong environmental values and confidence in their ability to implement sustainability initiatives are more likely to engage in responsible practices, even in the absence of strong regulatory pressure (Jain et al., 2022). These psychological factors can also influence how operators perceive and respond to institutional requirements.

Economic factors remain a foundational element of sustainability. Financial feasibility, cost structures, and technological investments determine whether guesthouses can sustain operations while implementing environmentally and socially responsible practices (Simoni, 2020). Studies in hospitality indicate that economic constraints often limit small-scale establishments from adopting green technologies and sustainability innovations, despite long-term cost-saving potential (Francesco, 2018). In the Maldives, where guesthouses operate within competitive and price-sensitive markets, balancing affordability with sustainability investments presents a persistent challenge. Economic stability not only affects sustainability directly but also conditions compliance with institutional requirements.

Social factors reflect the relationship between guesthouses and their host communities. Community commitment, collaboration opportunities, and career development are critical indicators of social sustainability in tourism (Shakeela et al., 2011). Guesthouses are often embedded within local communities, making social acceptance and cooperation essential for long-term success. Prior research shows that guesthouses contributing to employment, cultural preservation, and local entrepreneurship are more likely to gain community support, which in turn enhances operational stability. However, uneven benefit distribution and cultural tensions can undermine social sustainability if not carefully managed (Shakeela & Cooper, 2023).

Environmental factors are particularly salient in small island destinations. Resource efficiency, pollution abatement, and environmentally feasible land use are central to sustaining tourism in ecologically sensitive settings such as the Maldives (Zuhuree, 2017). Guesthouses, while smaller than resorts, collectively exert significant pressure on waste management systems, freshwater resources, and coastal ecosystems. Studies indicate that environmental sustainability practices, such as waste reduction, renewable energy use, and conservation initiatives, can enhance destination resilience and guest satisfaction, but their adoption is uneven across the guesthouse sector (Miemczyk et al., 2018; Margarida et al., 2021).

Institutional factors act as a critical mediating mechanism between TBL dimensions and sustainability outcomes. Institutional theory emphasises the role of regulations, governance effectiveness, enforcement mechanisms, and executive engagement in shaping organisational behaviour (Pietro, 2010; Zimmermann et al., 2022). In tourism, institutional frameworks

influence compliance with environmental standards, labour laws, and development regulations. In the Maldivian context, fragmented governance and limited decentralisation have constrained the effective implementation of sustainable tourism policies (Wanner et al., 2020). Strong institutional support, including incentives, training, and regulatory clarity, has been shown to enhance sustainability performance, particularly for small tourism enterprises (Moosa & He, 2021; Janjua et al., 2023).

Guesthouse sustainability emerges as the cumulative outcome of psychological, economic, social, and environmental factors, mediated by institutional conditions. While prior studies have examined these factors individually, limited research has integrated them into a single analytical framework, particularly in small island developing states. This study addresses this gap by empirically examining the direct and mediated relationships between extended TBL factors and guesthouse sustainability in the Maldives, offering a more comprehensive understanding of sustainability dynamics in community-based tourism.

This section presents the theoretical foundations underpinning the study of guesthouse sustainability in the Maldives. Theoretical grounding is essential for explaining the relationships between psychological, economic, social, environmental, and institutional factors and their influence on sustainability outcomes. The study draws on multiple complementary theories to capture the multidimensional nature of sustainability in tourism, recognising that no single theory sufficiently explains the complexity of guesthouse operations in small island destinations. Collectively, these theories provide a robust framework for analysing sustainability drivers and mediators within the guesthouse sector. Also, this study draws on multiple theoretical perspectives to explain the relationships proposed in the conceptual framework and to justify hypotheses H1–H9. The integration of Institutional Theory, Resource-Based View (RBV), Diffusion of Innovation (DOI), Stakeholder Theory, Theory of Reasoned Action (TRA), Sustainable Tourism Marketing Model, and Triple Bottom Line (TBL) theory provides a comprehensive foundation for examining guesthouse sustainability in the Maldives. Each theory supports specific hypothesised relationships between psychological, economic, social, environmental, institutional factors, and guesthouse sustainability.

Institutional Theory explains how organisational behaviour is shaped by formal rules, regulations, policies, and informal norms within a given

environment (DiMaggio & Powell, 1983). In tourism, institutions influence compliance with environmental regulations, labour standards, and development controls. For guesthouses in the Maldives, institutional factors such as enforcement mechanisms, executive engagement, and bureaucratic effectiveness play a critical role in determining sustainability outcomes. Weak enforcement or fragmented governance can undermine sustainability initiatives, while supportive policies and incentives can encourage responsible practices. Institutional Theory is particularly relevant to this study as it explains the mediating role of institutional factors between TBL dimensions and guesthouse sustainability. Institutional Theory underpins hypotheses H1–H4, H6, and H9 by explaining how organisational behaviour is shaped by regulatory frameworks, governance structures, and enforcement mechanisms (DiMaggio & Powell, 1983). In the Maldivian context, institutional factors such as compliance enforcement, executive engagement, and bureaucratic effectiveness influence how guesthouses respond to sustainability pressures. H1–H4 propose that psychological, economic, social, and environmental factors significantly influence institutional factors. Institutional Theory suggests that firms with greater internal motivation, resource availability, community engagement, and environmental awareness are more capable of complying with institutional demands. Furthermore, H9 posits that institutional factors directly affect guesthouse sustainability, as effective governance and enforcement mechanisms encourage sustainable business practices.

The Resource-Based View posits that an organisation's competitive advantage stems from its ability to acquire, develop, and deploy valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In the context of guesthouse tourism, resources include financial capital, human skills, local knowledge, social capital, and environmental assets. Sustainable guesthouses leverage these internal resources to improve operational efficiency and long-term viability. RBV supports the inclusion of economic and social factors in this study, highlighting how resource constraints or capabilities influence sustainability performance, particularly for small-scale enterprises with limited access to capital. The Resource-Based View (RBV) Theory provides theoretical justification for hypotheses H6 and H8, which examine the direct effects of economic and environmental factors on guesthouse sustainability. RBV argues that organisations achieve sustainable competitive advantage through the effective use of valuable

and rare resources (Barney, 1991). For guesthouses, economic resources such as financial feasibility and technological capability enable investment in sustainable infrastructure, while environmental resources, such as land, natural attractions, and ecosystem quality, constitute core assets that must be preserved for long-term viability. Guesthouses that effectively manage these resources are more likely to achieve sustainability outcomes, supporting the hypothesised direct relationships.

Diffusion of Innovation Theory explains how new ideas, technologies, and practices spread within a social system over time (Rogers, 2003). In tourism, DOI is commonly applied to understand the adoption of sustainable practices such as renewable energy, waste management technologies, and eco-certifications. Guesthouse operators in the Maldives differ in their willingness and capacity to adopt innovations due to perceived costs, complexity, and compatibility with existing operations. DOI theory complements this study by explaining variations in sustainability adoption and the role of institutional support in accelerating or hindering innovation diffusion. Diffusion of Innovation (DOI) Theory supports hypotheses H2, H4, and H6 by explaining how sustainability-related innovations are adopted within the guesthouse sector (Rogers, 2003). Economic feasibility and environmental awareness influence whether guesthouse operators adopt innovations such as energy-efficient technologies, waste management systems, or eco-certifications. DOI theory suggests that institutional support, through incentives, training, and regulatory guidance, accelerates the adoption of such innovations, thereby strengthening the link between economic and environmental factors and institutional effectiveness, as well as their indirect impact on sustainability.

Stakeholder Theory emphasises that organisations must consider the interests of all stakeholders, not only owners but also employees, customers, communities, regulators, and the natural environment (Freeman, 1984). Guesthouses operate within close-knit island communities, making stakeholder relationships particularly salient. Social sustainability outcomes, such as community commitment and collaboration opportunities, depend on how well guesthouses engage with local stakeholders. This theory underpins the social dimension of the framework and highlights the importance of balancing competing interests to achieve sustainable guesthouse operations. Stakeholder Theory provides a strong foundation for hypotheses H3 and H7, which relate social factors

to institutional factors and guesthouse sustainability. According to Freeman (1984), organisations must balance the interests of multiple stakeholders, including employees, local communities, tourists, and regulators. In guesthouse tourism, collaboration opportunities, community commitment, and career development are essential for maintaining stakeholder trust. H3 posits that social factors influence institutional factors, as strong community engagement can shape local governance effectiveness. H7 suggests that social factors directly enhance sustainability by fostering social legitimacy, reducing conflicts, and strengthening community support.

The Theory of Reasoned Action posits that individual behaviour is driven by behavioural intentions, which are shaped by attitudes and subjective norms (Ajzen & Fishbein, 1980). In the context of this study, TRA explains how psychological factors such as internal motivation, self-regulation, and self-efficacy influence guesthouse operators' sustainability-related decisions. Operators who hold positive attitudes toward sustainability and perceive social approval are more likely to engage in responsible practices. TRA thus provides a behavioural foundation for examining psychological determinants within the extended TBL framework.

The Sustainable Tourism Marketing Model links sustainability practices with destination competitiveness and tourist satisfaction. It suggests that environmentally and socially responsible practices enhance brand image, market differentiation, and long-term demand. For Maldivian guesthouses, sustainability is increasingly a marketing asset, attracting environmentally conscious and culturally sensitive tourists. This model supports the argument that sustainability is not only a moral obligation but also a strategic tool that enhances economic performance and market positioning.

Triple Bottom Line Theory integrates economic, social, and environmental dimensions to evaluate organisational sustainability (Elkington, 2004). TBL forms the core theoretical foundation of this study, offering a holistic lens for assessing guesthouse sustainability. By extending TBL to include psychological and institutional factors, this study addresses its limitations and adapts the framework to the Maldivian guesthouse context. The integration of TBL with complementary theories strengthens the analytical model and supports a comprehensive understanding of sustainability dynamics in small island tourism destinations. The Theory of Reasoned Action (TRA) directly supports hypothesis H5, which proposes that

psychological factors influence guesthouse sustainability. TRA explains how attitudes, subjective norms, and perceived behavioural control shape individual behaviour (Ajzen & Fishbein, 1980). In small guesthouse operations, owner-managers' internal motivation, self-regulation, and self-efficacy significantly influence sustainability-related decisions. Operators who value sustainability and believe in their capacity to implement sustainable practices are more likely to integrate sustainability into daily operations, justifying the direct psychological-sustainability relationship. Besides that, the Sustainable Tourism Marketing Model reinforces hypotheses H6-H8 by linking sustainability practices to market competitiveness and business performance. The model suggests that sustainability enhances destination image, customer satisfaction, and repeat visitation. For Maldivian guesthouses, sustainable economic practices, social responsibility, and environmental stewardship

can strengthen brand positioning, thereby contributing directly to sustainability outcomes. Finally, Triple Bottom Line (TBL) Theory serves as the overarching framework supporting hypotheses H5-H8 and the mediated relationships in H6-H9. TBL integrates economic, social, and environmental dimensions to assess sustainability holistically (Elkington, 2004). By extending TBL to include psychological and institutional factors, this study acknowledges that sustainability outcomes emerge from both internal capabilities and external governance structures. Hypotheses H6-H8 test the direct effects of TBL dimensions on sustainability, while H9 captures the mediating role of institutional factors.

In summary, the integration of these theories provides a strong conceptual justification for hypotheses H1-H9, enabling a comprehensive examination of guesthouse sustainability in the Maldives through both direct and mediated relationships. The conceptual framework as presented below.

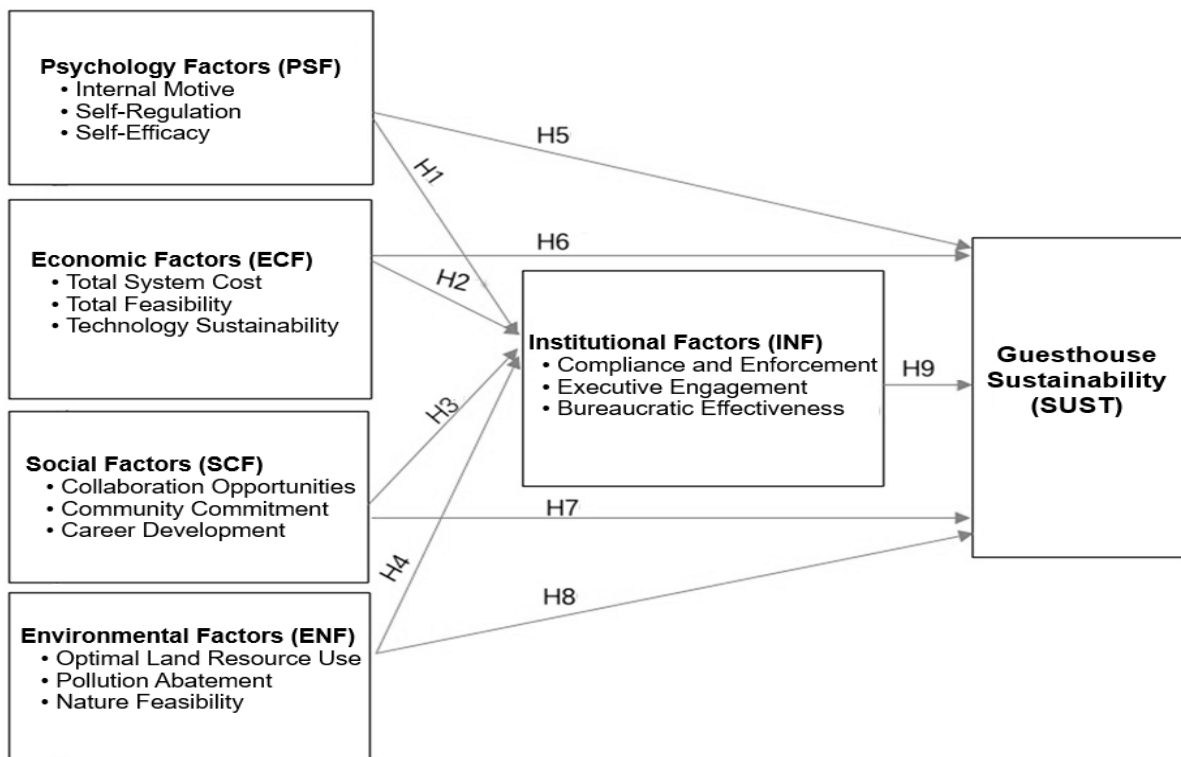


Figure 1: Conceptual Framework

A critical review of the literature helped to provide arguments for the relationships between the variables in this conceptual causal model and to develop research hypotheses. Based on the literature review and guided by theoretical framework, nine hypotheses are proposed for investigation. Here, the conceptual framework is presented that depicts the hypothesized relationships between TBL

paradigm and the SUST. Also investigate the role of institutional factors on TBL and SUST. Hence, the following hypothesis is proposed:
 H1: Economic Factors has an impact on Institutional Factors.
 H2: Social Factors has an impact on Institutional Factors.
 H3: Environmental Factors has an impact on Institutional Factors.

H4: Economic Factors has an impact on Guesthouse sustainability.

H5: Social Factors have an impact on Guesthouse sustainability.

H6: Environmental Factors have an impact on Guesthouse sustainability.

H7: Institutional Factors mediate the relationship between Economic Factors and Guesthouse sustainability.

H8: Institutional Factors mediate the relationship between Social Factors and Guesthouse sustainability.

H9: Institutional Factors mediate the relationship between Environmental Factors and Guesthouse sustainability.

Research Methodology

This study adopts a quantitative, cross-sectional research design to empirically examine the relationships between psychological, economic, social, environmental, and institutional factors and guesthouse tourism sustainability (SUST) in the Maldives. A structured questionnaire survey was employed as the primary data collection method, consistent with prior sustainability and hospitality research. The quantitative approach enables statistical testing of the proposed hypotheses (H1–H9) using Structural Equation Modelling (SEM).

The target population comprises registered guesthouse operators in the Maldives, including owners, general managers, and senior operational staff who are directly involved in managerial decision-making and sustainability-related practices. These individuals were selected because of their in-depth knowledge of operational, economic, environmental, and institutional conditions affecting guesthouse sustainability.

The unit of analysis is the individual guesthouse representative (owner, manager, or senior staff member). This unit is appropriate given the study's objective of assessing perceptions, practices, and decision-making related to sustainability at the organisational level.

According to the Ministry of Tourism (2024), approximately 850 registered guesthouses operate across inhabited islands in the Maldives. Due to the geographical dispersion of guesthouses across multiple atolls and islands, a stratified sampling approach was adopted to enhance representativeness.

The population was stratified based on Geographical location (northern, central, and southern atolls), and Island category (urban and rural).

Within each stratum, guesthouses were selected using a random selection procedure based on the official registry provided by the Ministry of

Tourism. Eligible respondents within each guesthouse were then identified based on managerial or supervisory roles. This proportionate stratified random sampling method reduces sampling bias and ensures adequate representation of diverse institutional and environmental contexts.

A target sample size of 488 respondents was determined to ensure sufficient statistical power for SEM analysis. This sample size exceeds commonly recommended minimum thresholds for multivariate modelling and allows for reliable estimation of both the measurement and structural models. The final usable dataset met SEM requirements for construct reliability, validity, and hypothesis testing.

Data were collected using a self-administered structured questionnaire, designed based on established scales from sustainability, tourism, and institutional research literature. All items were measured using a five-point Likert scale, ranging from strongly disagree to strongly agree. The questionnaire was distributed primarily through online platforms, supplemented by direct contact where feasible, to maximise participation across geographically dispersed islands.

Prior to inferential analysis, the dataset underwent a rigorous data screening process to ensure suitability for SEM. Screening procedures included checks for missing data, outliers, multicollinearity, and common method bias (CMB).

Missing value analysis conducted using SPSS version 27.0 revealed no missing data, indicating effective questionnaire design and full response completion. Descriptive statistics and frequency analyses showed that all responses fell within acceptable ranges, with no irrational or extreme values detected. Following data screening, the data were analysed using Structural Equation Modelling (SEM). SEM was chosen for its ability to simultaneously assess measurement validity and test complex direct and mediated relationships among constructs. The analysis proceeded in two stages: evaluation of the measurement model followed by testing of the structural model corresponding to hypotheses H1–H9.

Data Analysis and Findings

The data analysis was conducted in a systematic manner to test the proposed conceptual framework and hypotheses (H1–H9). Following data screening and preparation, statistical analyses were performed using SPSS 27.0 and Structural Equation Modelling (SEM) techniques. The analysis proceeded in three main stages: descriptive analysis of sample characteristics,

reliability assessment of the measurement scales, and evaluation of the measurement and structural models. This approach ensured that the data met the assumptions of multivariate analysis and provided robust empirical evidence regarding the relationships among psychological, economic, social, environmental, institutional factors, and guesthouse sustainability (SUST).

A total of 488 valid responses were included in the final analysis after excluding incomplete and inconsistent questionnaires. The demographic profile indicates that the guesthouse sector in the Maldives is largely driven by male stakeholders (65.2%), with decision-making roles predominantly held by individuals aged 26–45 years (69.3%). This reflects a workforce dominated by mid-career professionals who are likely to combine industry experience with openness to innovation.

In terms of education, over 59% of respondents possessed at least a bachelor's degree, suggesting a relatively strong capacity for understanding and implementing sustainability-related practices. Work experience further strengthens the sample's credibility, as more than 47% reported over seven years of hospitality experience, indicating familiarity with long-term operational and sustainability challenges.

Operational characteristics reveal that most respondents were general managers (41.8%) or owners (32.4%), ensuring that the data reflect informed strategic and operational perspectives. The majority of guesthouses were small to medium-sized establishments, with 71.8% operating fewer than 20 rooms, consistent with the structure of the Maldivian guesthouse sector. Geographically, respondents were well distributed across northern, central, and southern atolls, as well as urban and rural islands, allowing the analysis to capture contextual variations in institutional and environmental conditions.

The internal consistency of the measurement scales was assessed using Cronbach's alpha. The results demonstrate strong reliability across all constructs. Psychological Factors (PSF), Economic Factors (ECF), Social Factors (SCF), Environmental Factors (ENF), and Institutional Factors (INF) all recorded Cronbach's alpha values above 0.90, indicating excellent reliability. Guesthouse Sustainability (SUST) also showed good reliability with an alpha value of 0.849.

Corrected item–total correlation (CITC) values for all measurement items exceeded the recommended threshold of 0.50, and deletion of any individual item did not significantly improve reliability. The overall reliability coefficient of 0.965 confirms that the questionnaire exhibits a high degree of internal consistency and is

suitable for advanced multivariate and SEM analyses.

Following reliability confirmation, the measurement model was evaluated to establish construct validity. The high internal consistency across constructs suggests that the indicators adequately capture their respective latent variables. The multidimensional operationalisation of PSF, ECF, SCF, ENF, and INF reflects the theoretical foundations of the study and aligns with the Triple Bottom Line and institutional frameworks.

The results indicate that respondents were able to consistently differentiate between economic, social, environmental, psychological, and institutional dimensions, supporting the conceptual distinctiveness of the constructs. This provides a strong foundation for testing the hypothesised structural relationships.

The structural model analysis examined both direct and mediated relationships proposed in hypotheses H1–H9. The findings indicate that psychological, economic, social, and environmental factors significantly influence institutional factors, supporting the study's premise that internal capabilities and contextual conditions shape institutional effectiveness in guesthouse sustainability. These results highlight the importance of internal motivation, financial feasibility, community engagement, and environmental awareness in strengthening compliance, executive engagement, and bureaucratic effectiveness.

Furthermore, economic, social, environmental, and psychological factors demonstrated significant direct effects on guesthouse sustainability, confirming the relevance of the Triple Bottom Line framework within the Maldivian guesthouse context. Guesthouses that perform well economically, engage positively with local communities, adopt environmentally responsible practices, and demonstrate strong managerial commitment are more likely to achieve sustainable outcomes.

Institutional factors were also found to have a significant positive effect on guesthouse sustainability, confirming their mediating role in the model. Effective regulatory enforcement, supportive governance, and administrative efficiency enhance the translation of sustainability intentions into actual practices. This finding underscores the critical role of institutional structures in small island developing states, where governance capacity strongly shapes sustainability outcomes.

Overall, the findings provide strong empirical support for the proposed conceptual framework. The results confirm that guesthouse sustainability in the Maldives is a

multidimensional outcome shaped by the interaction of TBL dimensions, psychological capabilities, and institutional mediation. The robustness of the sample, high reliability of the measurement scales, and consistency of the structural relationships collectively strengthen the validity of the study's conclusions and offer meaningful insights for both theory and practice in sustainable tourism development.

This study empirically examined guesthouse sustainability in the Maldives using an extended Triple Bottom Line (TBL) framework incorporating psychological and institutional dimensions. Structural Equation Modelling (SEM) was employed to test the hypothesised direct and indirect relationships among constructs. The findings provide strong empirical support for the proposed framework and offer

new insights into the mechanisms through which sustainability outcomes are achieved in small island tourism destinations.

Following the validation of individual constructs, an overall confirmatory factor analysis (CFA) was conducted to assess the adequacy of the measurement model. Given the large number of indicators, item parceling was applied by averaging items within each dimension to enhance model parsimony and estimation stability. The CFA results demonstrated an excellent model fit, with $\chi^2/df = 1.424$, RMSEA = 0.029, and incremental fit indices (CFI, IFI, TLI) all exceeding 0.94. These values surpass commonly accepted thresholds and confirm that the extended TBL measurement model provides a valid and reliable representation of the empirical data.

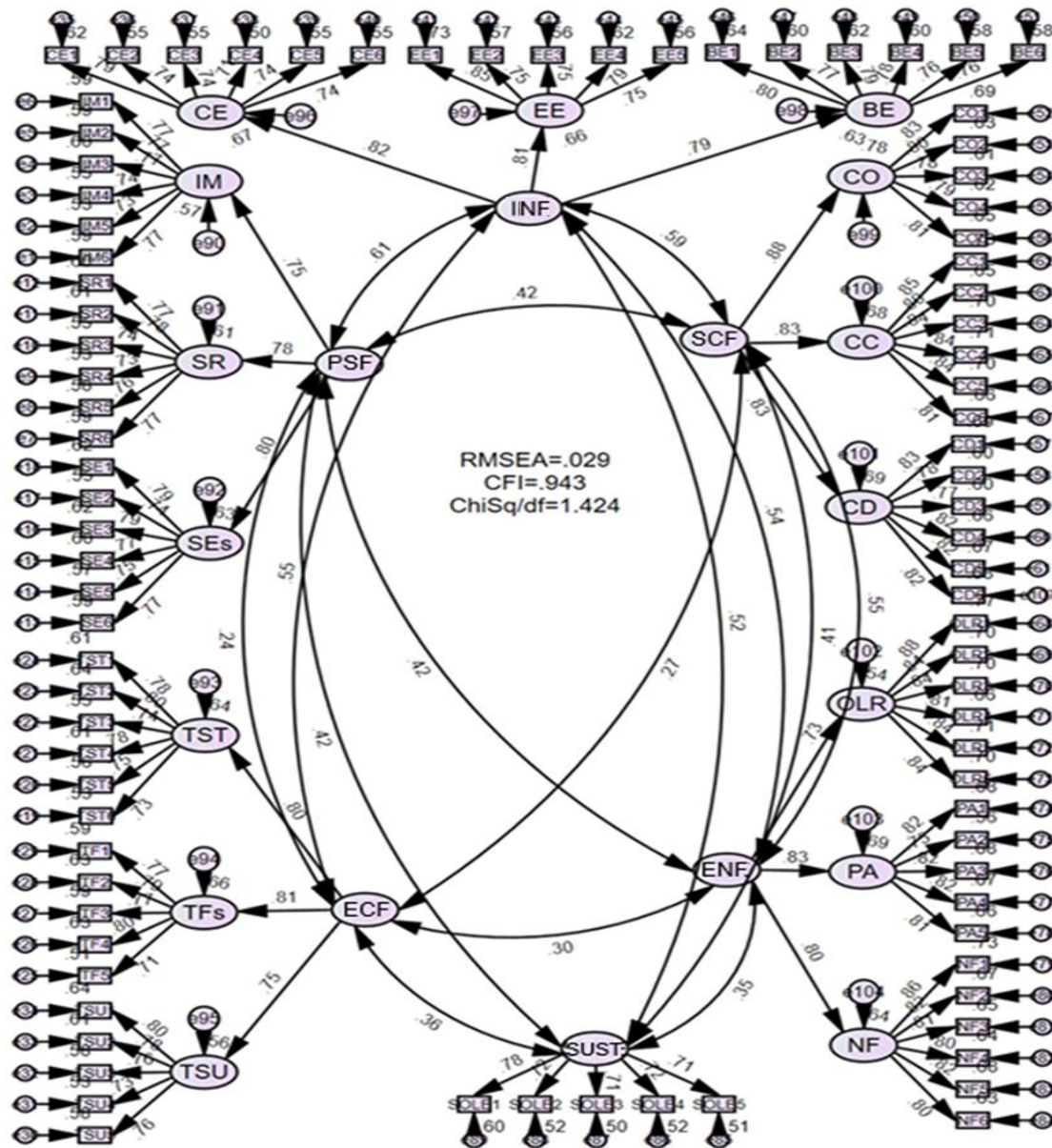


Figure 2: Measurement Model

The strong model fit indicates that psychological, economic, social, environmental, institutional, and sustainability constructs are empirically distinct yet theoretically coherent. This finding supports the conceptual robustness of extending the traditional TBL framework to include internal strategic orientations and institutional governance mechanisms, particularly in the context of tourism-dependent small island economies.

The structural model also demonstrated excellent fit statistics identical to the CFA results, confirming that the hypothesised causal

relationships align well with the observed data. The results reveal that psychological and strategic factors, economic factors, social factors, and environmental factors all exert significant positive effects on institutional factors, supporting Hypotheses H1-H4. Among these, psychological and economic factors exhibited the strongest effects, highlighting the importance of managerial commitment, sustainability awareness, and financial capacity in strengthening regulatory compliance, policy engagement, and institutional coordination.

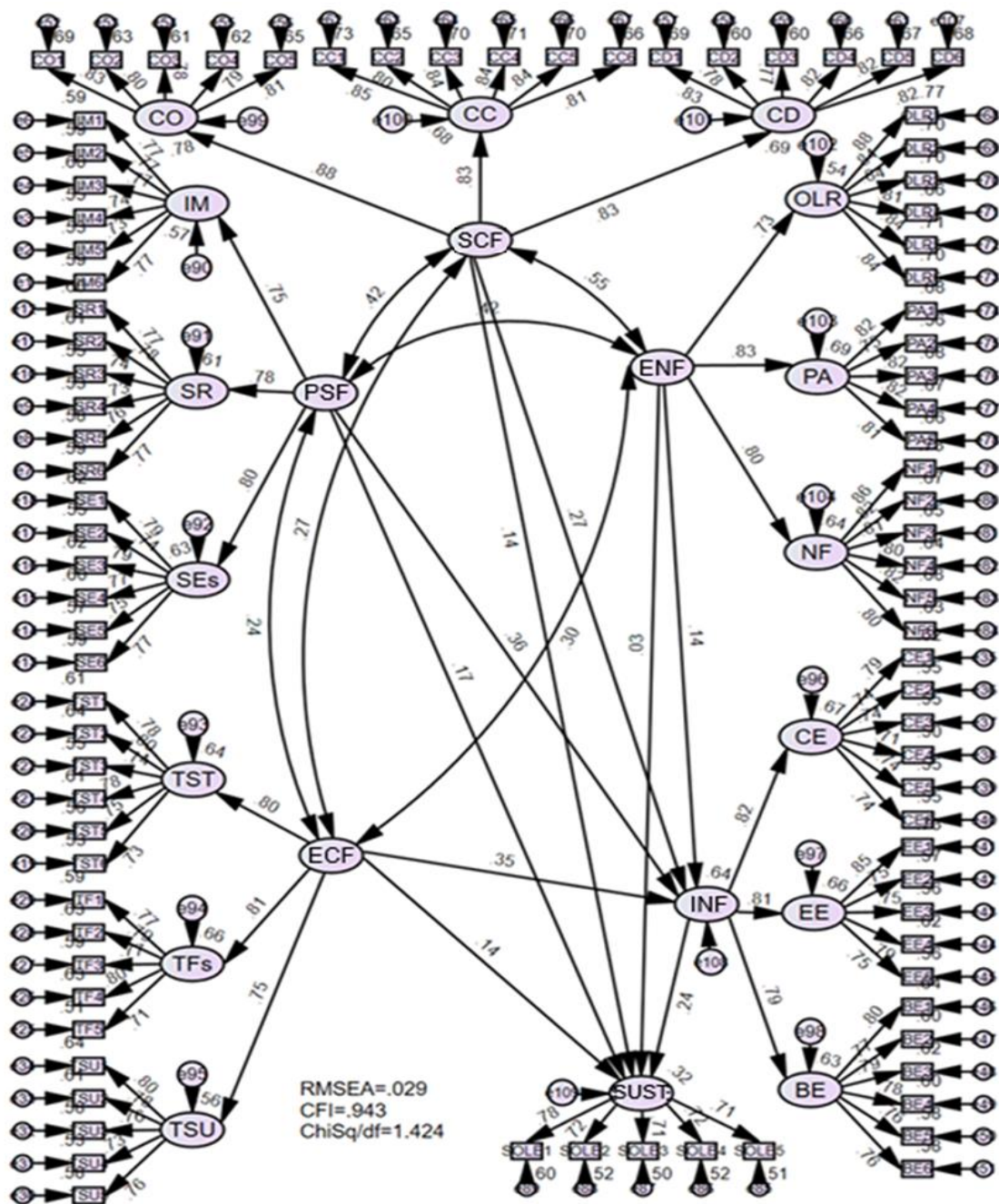


Figure 3: Structural Model

With regard to direct effects on sustainability, psychological, economic, and social factors were found to significantly enhance guesthouse sustainability, supporting Hypotheses H5–H7. These results underscore that sustainability outcomes are driven not only by financial performance but also by managerial attitudes and social embeddedness within local communities. Guesthouses led by strategically oriented managers and those that actively engage employees and communities are more likely to achieve long-term sustainability.

In contrast, environmental factors did not exhibit a significant direct effect on guesthouse sustainability, leading to the rejection of Hypothesis H8. This finding suggests that environmentally responsible practices alone may be insufficient to produce measurable sustainability outcomes in the Maldivian guesthouse sector. Given the fragile ecological context of the Maldives, environmental initiatives may require strong regulatory enforcement and institutional support to translate into tangible performance benefits.

Importantly, institutional factors were found to have a significant positive effect on guesthouse sustainability, supporting Hypothesis H9. This result confirms the central role of governance mechanisms, regulatory enforcement, and bureaucratic effectiveness in shaping sustainability outcomes. It reinforces the argument that sustainability in small island tourism destinations is highly dependent on institutional capacity and policy implementation. The mediation analysis provides one of the study's most significant contributions. Using bootstrap resampling, institutional factors were found to significantly mediate the relationships between all extended TBL dimensions and

guesthouse sustainability. Psychological, economic, social, and environmental factors each exerted significant indirect effects on sustainability through institutional mechanisms, supporting Hypotheses H10–H13.

In fact, environmental factors, while insignificant in their direct effect, demonstrated a significant indirect effect via institutional factors. This highlights that environmental sustainability initiatives yield meaningful outcomes only when supported by effective governance structures, environmental regulations, and institutional enforcement. This finding is particularly relevant for the Maldives, where weak institutional coordination can limit the effectiveness of sustainability efforts.

The findings extend the Triple Bottom Line theory by empirically demonstrating the central mediating role of institutional factors, offering a more context-sensitive sustainability model for small island destinations. From a practical perspective, the results suggest that policymakers should prioritise strengthening institutional frameworks, enforcement mechanisms, and capacity-building programmes to enable guesthouses to translate sustainability intentions into outcomes. For practitioners, investing in managerial capabilities and stakeholder engagement is as critical as adopting environmental practices.

Overall, this study provides robust empirical evidence that guesthouse sustainability in the Maldives is not driven by isolated economic, social, or environmental efforts, but by the alignment of internal capabilities with effective institutional governance, offering valuable insights for sustainable tourism development in similar island contexts.

Table 1: Summary of Hypothesis Testing Results

Hx	Statement	Result
H1	Psychological and Strategic Factors have a significant relationship with Institutional Factors.	Supported
H2	Economic Factors have a significant relationship with Institutional Factors.	Supported
H3	Social Factors have a significant relationship with Institutional Factors.	Supported
H4	Environmental Factors have a significant relationship with Institutional Factors.	Supported
H5	Psychological and Strategic Factors have a significant relationship with Guesthouse Sustainability.	Supported
H6	Economic Factors have a significant relationship with Guesthouse Sustainability.	Supported
H7	Social Factors have a significant relationship with Guesthouse Sustainability.	Supported
H8	Environmental Factors have a significant relationship with Guesthouse Sustainability.	Not Supported
H9	Institutional Factors have a significant relationship with Guesthouse Sustainability.	Supported
H10	Institutional Factors mediate the relationship between Psychological and Strategic Factors and Guesthouse Sustainability.	Supported

H11	Institutional Factors mediate the relationship between Economic Factors and Guesthouse Sustainability.	Supported
H12	Institutional Factors mediate the relationship between Social Factors and Guesthouse Sustainability.	Supported
H13	Institutional Factors mediate the relationship between Environmental Factors and Guesthouse Sustainability.	Supported

These findings empirically validate the extended Triple Bottom Line framework and underscore the importance of governance, policy enforcement, and institutional coordination in achieving sustainable tourism development in small island economies.

Conclusion and Recommendations

This study investigated the determinants of guesthouse sustainability in the Maldives by extending the traditional Triple Bottom Line (TBL) framework to incorporate psychological and institutional factors. Using a robust dataset of 488 guesthouse stakeholders and employing Structural Equation Modeling (SEM), the research examined both direct and indirect effects of psychological and strategic, economic, social, and environmental factors on sustainability outcomes, with institutional factors posited as a key mediating mechanism. The findings provide valuable theoretical insights and practical guidance for advancing sustainable tourism practices in small island destinations.

The results underscore the multifaceted nature of sustainability in the Maldivian guesthouse sector. First, the study confirms that psychological and strategic factors, such as managerial commitment, sustainability awareness, and strategic orientation, play a significant role in shaping institutional engagement and directly influencing sustainability outcomes (Panigrahi et al., 2021; Agapito, 2020; Al-Romeedy & Alharethi, 2025). This highlights that sustainability is not solely a technical or operational issue but is closely linked to human attitudes, leadership capabilities, and long-term strategic thinking. Guesthouse managers and owners who prioritize sustainability, demonstrate proactive decision-making, and adopt forward-looking strategies are better positioned to implement practices that enhance operational, social, and environmental performance.

Second, economic factors were shown to have significant positive effects on both institutional engagement and sustainability outcomes. Financial stability, access to resources, and investment in infrastructure and technology enable guesthouses to meet institutional requirements and implement sustainable operational practices. This emphasizes the critical role of economic resilience in ensuring that sustainability initiatives are feasible and

maintained over time. Economically robust guesthouses are better equipped to invest in staff training, environmental technologies, and community programs, which collectively enhance the overall sustainability of operations.

Third, social factors, including community engagement, employee welfare, and stakeholder collaboration, significantly influence both institutional alignment and sustainability outcomes. These findings illustrate that socially responsible practices are integral to long-term sustainability. In island-based tourism contexts, where community acceptance and local stakeholder support are crucial, integrating social dimensions into operational strategies can enhance legitimacy, foster goodwill, and improve employee and customer satisfaction. The results reinforce the notion that guesthouses cannot achieve sustainability in isolation; rather, they must engage with the broader social and institutional ecosystem in which they operate.

Fourth, environmental factors demonstrated a nuanced role. While the direct effect of environmental practices on guesthouse sustainability was statistically insignificant, environmental factors had a significant indirect effect mediated by institutional factors. This indicates that environmental initiatives alone may not produce measurable sustainability outcomes unless supported by effective governance, regulatory compliance, and institutional enforcement. In fragile island ecosystems like the Maldives, this finding is particularly relevant, highlighting that environmental sustainability is contingent upon strong institutional frameworks, monitoring, and support mechanisms. This underscores the importance of policy-driven environmental governance and the integration of regulatory incentives and monitoring systems to ensure that eco-friendly practices translate into tangible sustainability outcomes.

The study further demonstrates that institutional factors are a critical mediating mechanism linking the extended TBL dimensions to guesthouse sustainability. Institutional engagement, regulatory compliance, and coordination with governing authorities amplify the effects of psychological, economic, social, and environmental efforts. The mediation analysis confirmed that institutional factors partially or fully transmit the impact of internal capabilities

onto sustainability outcomes, highlighting the indispensable role of governance structures in translating good intentions into operational performance. This finding extends the traditional TBL framework by emphasizing the institutional context as a key determinant of sustainable practices, particularly in small-island tourism destinations where regulatory and environmental oversight is often crucial for long-term viability.

Collectively, these results suggest that sustainability in the Maldivian guesthouse sector is not solely dependent on internal efforts but is highly influenced by the alignment between organizational strategies, stakeholder engagement, financial capacity, environmental practices, and institutional support (Janjua et al., 2023; Mokhtar et al., 2021; Nurhasanah et al., 2024). The integration of institutional mediation provides a comprehensive, context-sensitive explanation for sustainability outcomes and offers a more robust model for guiding tourism development policy and practice.

This study makes several important theoretical contributions to the sustainability and tourism literature. First, it extends the traditional Triple Bottom Line (TBL) framework by incorporating psychological and institutional factors, providing a more holistic understanding of sustainability that captures both internal organizational capabilities and external governance mechanisms. This addresses a gap in the literature where the mediating role of institutions is often overlooked, particularly in small-island tourism contexts. Second, the research offers empirical evidence that institutional factors significantly mediate the effects of psychological, economic, social, and environmental dimensions on sustainability. This highlights the mechanisms through which internal practices translate into tangible outcomes, offering a refined model that integrates organizational behavior, resource availability, and policy context. Also, by focusing on the Maldives, the study provides context-specific insights into the unique challenges and opportunities faced by small-island tourism economies, such as limited resources, environmental fragility, and regulatory dependencies, making the findings generalizable to similar tourism-dependent destinations.

The findings also carry several practical implications for policymakers, industry practitioners, and tourism stakeholders. Strengthening institutional frameworks through effective governance, regulatory enforcement, and policy engagement is crucial to translating internal efforts into sustainable outcomes. Policymakers should focus on designing

incentives, monitoring mechanisms, and compliance frameworks that facilitate the adoption of sustainable practices in guesthouses. Similarly, capacity-building initiatives targeting managers are essential, as guesthouse owners and operators play a significant role in sustainability outcomes. Training programs on sustainability awareness, strategic planning, and leadership can empower managers to implement practices that align with institutional requirements and enhance operational performance. In addition, investing in social and environmental practices, such as community engagement, employee welfare, and environmental stewardship, can strengthen legitimacy, reputation, and long-term viability. Environmental initiatives, in particular, should be linked to institutional support, with policymakers and industry associations providing technical guidance, resources, and compliance mechanisms to ensure that eco-friendly practices are effective and measurable. Moreover, promoting strategic and psychological preparedness within guesthouse operations, through fostering a culture of long-term thinking, sustainability awareness, and proactive engagement with institutional bodies, is critical for achieving lasting sustainability outcomes (Pitanatri & Hassan, 2025; Rethinam & Mahenthiran, 2024; Shuib et al., 2017).

Based on these findings, several actionable recommendations are proposed. At the policy level, structured incentive programs such as eco-certifications and financial grants should be implemented to reward sustainable practices, while monitoring and enforcement mechanisms should be strengthened to ensure compliance with environmental and social regulations. Collaboration between government agencies, industry associations, and community organizations should also be promoted to enhance institutional effectiveness. For managers, developing training programs focused on sustainability, strategic planning, and stakeholder engagement is recommended, alongside encouraging long-term investments in financial, social, and environmental resources to align operational practices with institutional frameworks. Guesthouses should also establish internal sustainability policies that adhere to regulatory requirements and best practices. At the community level, increasing local involvement in tourism planning, implementing employee welfare and skill development initiatives, and fostering partnerships with stakeholders can improve social legitimacy and operational performance (Syed Yahya et al., 2025; Wang et al., 2021; Zamani et al., 2025). Finally, regarding environmental practices, collaboration

with regulatory agencies, adoption of eco-friendly technologies, and systematic monitoring and evaluation of environmental performance, linked to broader institutional frameworks, are essential to ensure accountability and translate environmental efforts into meaningful sustainability outcomes.

In conclusion, this study demonstrates that guesthouse sustainability in the Maldives is a multidimensional phenomenon influenced by the interplay of psychological, economic, social, environmental, and institutional factors. While internal capabilities such as managerial commitment, financial capacity, and stakeholder engagement are critical, institutional factors play a central mediating role, ensuring that these efforts translate into sustainable outcomes. By extending the TBL framework to incorporate institutional mediation, the study provides both theoretical advancement and practical guidance for sustainable tourism development in small-island contexts.

Ultimately, achieving sustainability in the Maldivian guesthouse sector requires a holistic approach that integrates strategic management, financial planning, social responsibility, environmental stewardship, and effective governance. Policymakers, practitioners, and stakeholders must work collaboratively to strengthen institutional support, foster managerial capacity, and align internal practices with regulatory frameworks to ensure the long-term resilience, ecological balance, and socio-economic viability of island tourism operations.

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