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*Sustainable Hospitality Excellence: Cultivating Environmental Stewardship in Turkish Hotels Through Cultural Heritage Integration, Climate Resilience and Guest Engagement**

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Abstract

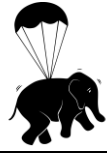
The purpose of this study was to develop and test an integrative model of sustainable hospitality in the Turkish hotel sector by combining environmental management with cultural heritage preservation, climate resilience and certification practices. The mediating roles of employee engagement and guest participation, as well as the moderating influence of location type and regulatory support, were inspected. To empirically test the model, survey data were gathered from 58 hotels, including the perspectives of managers, employees and guests. The dataset was analyzed using structural equation modeling to capture the direct, indirect and mediating effects among the studied variables. The findings reveal that the integration of cultural heritage values, the adoption of climate resilience practices and higher levels of sustainability certification collectively exert a positive influence on hotels' environmental performance. Employee engagement in sustainability was found to mediate the effects of cultural heritage integration and certification. Guest awareness and involvement were observed to mediate the impact of climate resilience practices and location type and regulatory environment shape these relationships. In this perspective, coastal areas and regions characterized by supportive policy frameworks demonstrated more obvious effects.

Keywords: sustainable tourism, cultural heritage, climate resilience, certification, employee engagement, environmental performance

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Sürdürülebilir Konaklama Mükemmelliği: Kültürel Mirasın Entegrasyonu, İklim Direnci ve Misafir Katılımı Yoluyla Türk Otellerinde Çevresel Sorumluluğun Geliştirilmesi

Öz

Bu çalışmanın amacı, Türkiye otel sektöründe çevre sorumluluğunu kültürel mirasın korunması, iklim direnci ve sertifikasyon uygulamalarıyla birleştirerek sürdürülebilir konaklamaya yönelik bütünleştirici bir model geliştirmek ve test etmektir. Çalışma ayrıca, çalışan bağlılığı ve misafir katılımının aracılık rolleri ile konum türü ve düzenleyici desteğin etkilerini incelemiştir. Modelin ampirik olarak test edilmesi amacıyla, yöneticiler, çalışanlar ve misafirlerin görüşlerini içeren 58 otelden anket verileri toplanmıştır. Veri seti, incelenen değişkenler arasındaki doğrudan, dolaylı ve aracılık etkilerini ortaya koymak için yapısal eşitlik modellemesi kullanılarak analiz edilmiştir. Bulgular, kültürel miras değerlerinin entegrasyonu, iklim direnci uygulamalarının benimsenmesi ve daha yüksek düzeyde sürdürülebilirlik sertifikasyonunun birlikte otellerin çevresel performansı üzerinde olumlu bir etki yarattığını göstermektedir. Çalışanların sürdürülebilirlik konusundaki bağlılıklarının, kültürel miras entegrasyonu ve sertifikasyonun etkilerine aracılık ettiği bulunmuştur. Misafir farkındalığı ve katılımının ise iklim direnci uygulamalarının etkilerine aracılık ettiği gözlemlenmiştir. Ayrıca, konum türü ve düzenleyici ortamın bu ilişkileri şekillendirdiği anlaşılmıştır. Bu çerçevede, kıyı bölgeleri ve destekleyici politika çerçeveleriyle karakterize edilen bölgelerde daha belirgin etkiler görülmüştür.

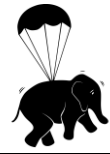
Anahtar Kelimeler: sürdürülebilir turizm, kültürel miras, iklim dayanıklılığı, sertifikasyon, çalışan katılımı, çevresel performans



1. INTRODUCTION

Türkiye's tourism industry has grown rapidly in recent decades. In 2024, the country hosted over 55 million international visitors (Küçük, 2025). Major destinations such as Istanbul and Antalya reported peak-season occupancy rates above 85% (Fallz Hotels, n.d.). This sustained growth has cemented the hospitality sector as a central driver of the national economy and regional development. However, this expansion has brought significant challenges as well. An increasing visitor population has increased pressure on natural resources, cultural heritage sites and local communities. In fact, water scarcity, high energy usage, waste management problems, cultural commodification and overtourism in popular destinations have emerged as critical issues (Hawela et al., 2025). These issues are compounded by the risks of climate change, particularly for Türkiye's coastal and water-stressed regions (TTG Asia, 2025). To cope with such issues, in 2022, Türkiye launched the world's first mandatory national sustainable tourism program in partnership with the Global Sustainable Tourism Council (GSTC) (GSTC, 2022). Building on the Safe Tourism Certification Program implemented in 2020, an initiative that aims to align Türkiye's tourism industry with international sustainability standards by 2030. By April 2025, 1,059 hotels and facilities had been certified under the mentioned program (GoTürkiye, n.d.). Sustainability is a multidimensional and global concept, yet its challenges vary across countries. While Türkiye shares many of the world's environmental and socio-economic sustainability problems, several issues are particularly acute in the national context. Globally, sustainability concerns include climate change, biodiversity loss, air and water pollution, soil degradation and resource overconsumption. These challenges are linked to population growth, industrialization and unequal development patterns. Many nations also struggle with energy dependence on fossil fuels, increasing waste generation and insufficient adaptation to climate change. Türkiye faces several of these challenges but exhibits unique national characteristics.

Research on sustainable hospitality has grown, but key gaps remain. Most studies focus on environmental management or corporate responsibility, treating sustainability as a technical issue instead of a holistic process (Bohdanowicz and Zientara, 2008; Kasim, 2006). Few integrate environmental stewardship, cultural heritage and guest participation (Laksmi et al., 2024). In Türkiye, research is fragmented and concentrates on energy and waste management, ignoring how heritage assets drive sustainability (Yilmaz et al., 2024). The interplay among heritage preservation, environmental management and guest experience is underexplored. Climate resilience is also neglected, especially for heritage hotels that face architectural constraints. Guest engagement studies often stop at attitudes, not actual participation, leaving the intention-behavior gap unresolved (Kim et al., 2019). Methodologically, quantitative surveys dominate; longitudinal and mixed-method designs are rare (Hair Jr et al., 2010). Theoretically, existing models like the triple bottom line fail to link cultural identity with sustainable management (Laksmi et al., 2024). Future research should develop integrative models combining environmental, cultural and behavioral dimensions to advance sustainable hospitality in Türkiye.



In this study, sustainability is examined within the Turkish context as a system of interlinked environmental, economic and institutional processes. The study highlights how local structural constraints (such as energy dependency, water scarcity and limited policy enforcement) shape the trajectory of sustainable development in Türkiye, distinguishing it from broader global patterns. However, despite these advances, scholarly understanding of the implementation of sustainability in Turkish hotels remains limited. In fact, most of the existing literature focuses on individual aspects such as green human resource management (Hawela et al., 2025) and certification programs (Gündüz, 2024), rather than adopting a multidimensional approach. Considering Türkiye's global tourism standing and the scope of its national sustainability program, this study argues that there is a need for research that addresses the interplay between environmental, cultural, social and economic factors. Therefore, this study aims to fill this gap by developing and testing a comprehensive model of sustainable hospitality excellence in Türkiye. The main objective of this study was to develop and test an integrative model of sustainable hospitality in the Turkish hotel sector by combining environmental management with cultural heritage preservation, climate resilience and certification practices.

The current study seeks to demonstrate how sustainable tourism and hospitality practices contribute to improved environmental performance and how, in turn, enhanced environmental outcomes generate business and community benefits. It further investigates the mediating roles of employee engagement and guest participation, as well as the moderating influence of location type and regulatory support. By doing so, the study provides a multidimensional framework that advances theoretical understanding while offering practical guidance for sustainability strategies in hospitality.

This study offers several distinct contributions to sustainable hospitality literature. It builds a comprehensive model grounded in multiple theoretical perspectives, Resource-Based View (RBV), Stakeholder Theory and Cultural Sustainability Theory (CST), to capture the multidimensional nature of sustainability in the Turkish hotel sector. This integrative framework differs from prior research that treats sustainability as a purely environmental or managerial issue by positioning it as an interconnected system of environmental, cultural and institutional dynamics. The study introduces a theoretical innovation by linking cultural heritage preservation with environmental management and organizational behavior, demonstrating that heritage-based identity can serve as a strategic resource that enhances environmental and business performance. It also empirically examines the mediating roles of employee engagement and guest participation and the moderating effects of location type and regulatory support, offering a richer understanding of behavioral and contextual mechanisms driving sustainability outcomes. Beyond theory, the study addresses concrete national challenges, such as energy dependence, water scarcity and weak policy enforcement, by proposing an actionable framework for hotel managers and policymakers to strengthen the effectiveness of Türkiye's national sustainability certification program. The model contributes to solving specific issues like fragmented sustainability governance, the underutilization of heritage assets in sustainability strategies and the limited behavioral integration of guests and



staff. In doing so, the research advances both theoretical discourse and practical implementation of sustainable hospitality, providing a replicable model for emerging economies facing similar structural constraints.

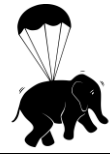
2. THEORETICAL BACKGROUND

2.1. Sustainable Tourism and Hospitality

Sustainability is now central to global tourism strategy. Sustainable Tourism and Hospitality (STH) go beyond environmental regulations, functioning as a long-term framework for economic, social and ecological balance. The UNWTO (n.d.) defines sustainable tourism as development that considers the current and future impacts of tourism while meeting the needs of visitors, businesses, environments and host communities. In practice, this means reducing waste and resource use, protecting biodiversity, preserving cultural identity, ensuring fair working conditions and strengthening local economies (Bohdanowicz and Zientara, 2008; Kasim, 2006). Yet the hospitality sector remains one of the most resource-demanding industries. Hotels require intensive energy for heating, cooling and lighting and consume large volumes of water for cleaning, laundry and landscaping. They also produce substantial waste from food, packaging and amenities (Mensah, 2007). Alreahi et al. (2023) emphasize that these operational realities make sustainability both a moral and strategic imperative. Achieving progress requires system-level redesign, not incremental improvements. Integrating cultural preservation, efficient technology and stakeholder engagement will define the next phase of truly sustainable hospitality.

The hospitality sector depends heavily on global supply chains, which can harm local ecosystems and cultural landscapes. This makes a systems-based approach to sustainability essential (Tepelus, 2008). Around the world, hotels are increasingly adopting sustainable practices that reflect a commitment to environmental care and social responsibility. This shift stems from growing consumer awareness, stricter regulations and competition for market advantage (Horng et al., 2012). Current trends include securing green building certifications like LEED and BREEAM, investing in renewable energy, applying circular economy principles to waste, sourcing food and materials locally, supporting community development and publishing transparent sustainability reports (Kim et al., 2019; Nicholls and Kang, 2012). However, the extent of these practices varies with market demand, available technology, funding capacity and policy context (Chan and Wong, 2006). Sustaining tourism's economic benefits while protecting fragile coastlines and cultural sites requires coordinated planning and innovative management (Briassoulis, 2002). Embedding sustainability in hospitality operations is therefore not optional. It is key to the long-term resilience and competitiveness of regions that depend on tourism.

Literature on sustainable tourism regarding Türkiye can be divided into three main parts: First, cultural heritage integration is recognized as a unique dimension of sustainability. Hotels increasingly preserve culture through architecture, cuisine and crafts, yet application remains

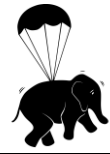


inconsistent. Studies show that few eco-certified hotels in Türkiye systematically link heritage to sustainability planning, calling for stronger partnerships with local communities and cultural bodies (Aydm and Yüce, 2025; Hazarhun et al., 2023). Second, climate resilience practices target energy, water and waste efficiency. Large resorts adopt renewable energy, greywater reuse and waste reduction systems, while smaller hotels struggle to follow. Scholars note that such practices reduce vulnerability to drought and heatwaves, strengthening long-term viability (Erdoğan, 2024; Kilinc et al., 2023). However, few studies focus directly on hotel-level adaptation to specific climate hazards. Third, guest engagement drives environmental stewardship. Turkish travelers increasingly reward visible green actions such as towel reuse and energy-saving technologies. Research based on behavioral models finds that eco-certification, energy efficiency and water conservation improve guest satisfaction and loyalty (Genç and Zengin, 2025; Can et al., 2013). Effective communication and culturally framed messages enhance participation, though the attitude-behavior gap persists. Turkish hotels have made progress in certification and environmental management, but cultural heritage integration and long-term guest engagement remain underdeveloped (Genç and Zengin, 2025; Hazarhun et al., 2023). Broader implementation, shared learning and consistent policy support are needed for authentic sustainability transformation.

Sustainability in hospitality can be understood through three major theories: Stakeholder Theory (ST), Resource-Based View (RBV) and Cultural Sustainability Theory (CST). Each provides a distinct yet complementary lens. Laksmi et al. (2024) demonstrated through a comprehensive review that culture can serve as a strategic organizational resource within RBV. They argued that sustainability-oriented cultures promote environmental, social and governance integration into everyday management, leading to stronger legitimacy and financial outcomes. Strategic orientation and intellectual capital mediate this link, but symbolic adoption without real change remains a barrier. ST, introduced by Freeman (1984), highlights that firms must account for all legitimate stakeholders, not only shareholders. In hospitality, these stakeholders include guests, employees, suppliers, local communities and the natural environment (Roberts, 1992). Applying ST allows hotels to balance stakeholder expectations, improve reputation and strengthen long-term viability. RBV explains how internal capabilities and VRIN resources (valuable, rare, inimitable and non-substitutable) generate sustainable competitive advantages (Barney, 1991; Wernerfelt, 1984). In practice, eco-certifications, efficient technologies and trained staff can function as VRIN resources that increase brand strength and efficiency (Hart, 1995; Russo and Fouts, 1997).

CST emphasizes the role of culture and heritage in sustainable development (Axelsson et al., 2013; Soini and Dessein, 2016). It views sustainability as the preservation and transmission of cultural identity, practices and values across generations (Hawkes, 2001).

When these frameworks are combined, they provide an integrated understanding of sustainability as both a strategic and cultural process. In Türkiye, hotels that align stakeholder needs, build VRIN-based environmental capabilities and embed local culture in service design



gain environmental and strategic benefits. Yet, challenges such as limited capital, fragmented regulation and inconsistent sustainability reporting persist. Treating sustainability as a shared cultural and strategic responsibility can increase authenticity, resilience and long-term competitiveness in Turkish hospitality.

2.2. Effect of Cultural Heritage Integration (CHI) on Environmental Performance (EP)

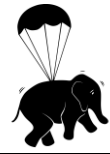
Cultural heritage constitutes an asset for Türkiye's tourism sector, encompassing both tangible elements, such as historical sites, archaeological remains and traditional architecture and intangible dimensions, including local customs, crafts, music and gastronomy (Timothy and Boyd, 2006). Embedding this concept within hotel operations and sustainability initiatives offers a distinctive means of differentiation while enriching guest experiences (Fallz Hotels, n.d.). From a sustainability perspective, CHI has the potential to enhance EP. The preservation and adaptive reuse of historic structures typically require less energy and fewer new materials than constructing new facilities, thereby reducing the embodied carbon footprint (Karimov et al., 2024). Emphasizing traditional building methods and locally produced natural materials can further decrease environmental impact and improve climate resilience (Boarin et al., 2013).

Additionally, promoting local culture and producing goods locally can reduce transportation-related emissions and support the local economy, in line with broader sustainability objectives (Sims, 2009). However, a strategically managed CHI approach can foster synergies between cultural preservation and environmental protection. Prior studies indicate a positive association between culturally sensitive tourism development and environmental responsibility (McKercher et al., 2005). Based on this reasoning, the following hypothesis is proposed:

H₁: CHI has a positive effect on EP in Turkish hotels.

2.3. Effect of Climate Resilience Practices (CRP) on Environmental Performance (EP)

The hospitality sector significantly contributes to climate change through high energy use and greenhouse gas emissions, while also facing heightened vulnerability to its impacts, especially in coastal and water-scarce regions such as many areas of Türkiye (Scott et al., 2012). CRP refers to a set of strategies designed both to reduce the sector's environmental footprint and to adapt operations to evolving climatic conditions. Key measures include enhancing energy efficiency via improved insulation, energy-saving appliances and smart energy management systems, conserving water through low-flow fixtures, rainwater harvesting and greywater recycling, adopting comprehensive waste minimization, reuse and recycling programs and transitioning to renewable energy sources such as solar power (Becken, 2013; Chan, 2010; Kasim, 2009). Empirical evidence shows that implementing such practices yields tangible improvements in environmental performance, including reductions in energy and water use, waste generation and carbon emissions (Claver-Cortés et al., 2007; Molina-Azorín et al., 2009). In the context of Türkiye, hotels that adopt CRP are therefore expected to demonstrate superior environmental outcomes.



H₂: CRP has a positive effect on EP in Turkish hotels.

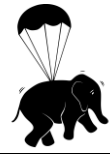
2.4. Effect of Sustainability Certification Level (SCL) on Environmental Performance (EP)

Sustainability certifications are increasingly used in the hospitality industry to demonstrate a hotel's commitment to environmental and social responsibility, enhance market differentiation and potentially improve overall performance (Font and Tribe, 2001; Tzschentke et al., 2008). A range of international and national schemes exist, each with distinct criteria and auditing procedures. In Türkiye, certification options include Green Key, LEED, BREEAM and notably, the national sustainable tourism certification developed in partnership with the GSTC (Gündüz, 2024; GoTürkiye, n.d.). The national program, which is government-backed and mandatory, represents a significant driver for the widespread adoption of sustainability practices in the sector (GSTC, 2022). The link between certification and measurable improvements in EP remains an active area of research. In principle, the certification process requires hotels to implement defined standards and practices in areas such as energy efficiency, water conservation and waste management, which should contribute to enhanced EP (Ayuso, 2007). Certification also provides a formal framework for environmental management and promotes ongoing improvement through periodic audits (GoTürkiye, n.d.). However, in this context, empirical studies show mixed results. Indeed, while some studies have found a positive relationship between certification and environmental outcomes (e.g., Erdogan and Baris, 2007, in the Turkish context; Tzschentke et al., 2004), others suggest that the effect depends on the stringency of the certification scheme and the hotel's underlying motivations (Font, 2002; Scanlon, 2007). Certifications pursued primarily for marketing purposes risk becoming instances of "greenwashing" with limited substantive impact. However, given the mandatory nature and GSTC endorsement of Türkiye's national program, higher SCLs are expected to reflect genuine operational improvements and result in stronger EP.

H₃: SCL has a positive effect on EP in Turkish hotels.

2.5. Effect of Environmental Performance (EP) on Business Performance (BP)

The relationship between EP and business performance (BP) in the hospitality industry is a key area of scholarly interest, as financial viability often shapes the scope and scale of sustainability initiatives (Alvarez Gil et al., 2001). Enhanced EP achieved through measures such as improving energy and water efficiency or reducing waste can generate direct cost savings and, in turn, improve profitability (Butler, 2008; Kasim, 2009). In addition to operational savings, strong EP can strengthen brand image and reputation, appealing to environmentally conscious consumers who are increasingly willing to pay a premium for sustainable accommodation options (Han et al., 2009; Millar and Baloglu, 2011). This reputational advantage may translate into higher occupancy rates, greater revenue per available room (RevPAR), improved guest satisfaction and stronger guest loyalty through repeat bookings (Inoue and Lee, 2011; Kang et al., 2010). Moreover, organizations with superior EP can attract and retain skilled employees who prioritize corporate social responsibility (CSR), thereby fostering higher service quality



(Turban and Greening, 1997). Although market dynamics and contextual factors can moderate this relationship, the prevailing evidence in the literature supports a positive link between environmental and BP (Carmona-Moreno et al., 2004; Orlitzky et al., 2003).

H4: EP has a positive effect on BP in Turkish hotels.

2.6. Effect of Environmental Performance (EP) on Community Impact (CI)

Sustainable tourism underscores the need for tourism activities to generate positive outcomes for host communities (UNWTO, n.d.). As key stakeholders in local destinations, hotels can play a pivotal role in enhancing community well-being or in perpetuating social and economic disparities (Simpson, 2008). EP is closely intertwined with community impact (CI). Hotels that effectively manage their environmental footprint, by reducing pollution, conserving water and other local resources, protecting biodiversity and implementing responsible waste management, can significantly reduce negative externalities on local communities (Stabler and Goodall, 1997). In contrast, inadequate environmental management can contribute to ecosystem degradation, place additional pressure on local infrastructure and diminish residents' quality of life (Ko and Stewart, 2002). Proactive environmental stewardship can also generate tangible benefits for communities. Initiatives such as sourcing local and organic food products support regional farmers, while preserving natural landscapes enhances recreational opportunities for both residents and visitors. Engaging local stakeholders in conservation activities can foster social cohesion and environmental awareness (Scheyvens, 2002). Moreover, hotels with strong EP are likely to enjoy greater community approval, strengthening their social license to operate and improving stakeholder relationships.

H5: EP positively influences the community impact of Turkish hotels.

2.7. Effect of Employee Sustainability Engagement (ESE) on Environmental Performance (EP)

Employees drive real sustainability in hotels, their engagement transforms policy into practice (Kim et al., 2019). When employees understand, value and act on sustainability goals, environmental and social outcomes improve. Employee Sustainability Engagement (ESE) measures how informed, committed and involved staff are in achieving sustainability objectives (Boiral et al., 2015). High ESE shows in daily actions like conserving resources, joining green initiatives and proposing improvements. Organizational culture matters. Cultural Heritage Integration (CHI) strengthens employees' sense of belonging and responsibility to protect both cultural and natural assets. Sustainability Certification Level (SCL) reinforces this through structured training, awareness programs and communication processes. Together, CHI and SCL build shared purpose and competence. Engaged employees accurately apply sustainable procedures, detect inefficiencies and sustain environmental gains. ESE connects institutional strategies to measurable environmental performance (Jones, 2010). Studies confirm that employee pro-environmental behavior mediates the relationship between green management and environmental outcomes (Hawela et al., 2025; Pinzone et al., 2016). In short, sustainability



succeeds when it is humanized, embedded not only in systems but in the daily choices of employees.

H₆: ESE mediates the relationship between CHI and EP.

H₈: ESE mediates the relationship between SCL and EP.

2.8. Effect of Guest Awareness and Participation (GAP) on Environmental Performance (EP)

Guests are not passive consumers but active partners in sustainability. Guest Awareness and Participation (GAP) describe how much guests know about a hotel's sustainability efforts and how willing they are to act on that knowledge. These actions include reusing towels, saving water and energy and recycling (Barber et al., 2014; Dolnicar and Leisch, 2008; Juvan and Dolnicar, 2014). Clear communication increases engagement. Signage, in-room explanations and small rewards help guests understand their impact (Goldstein et al., 2008; Mair and Jago, 2010). When hotels make sustainability visible through actions like installing solar panels or smart water systems, awareness rises (Bohdanowicz, 2006). Guests who understand both the purpose and local context of these efforts, such as water scarcity, are more likely to cooperate (Chen and Tung, 2014). When awareness is low, even advanced systems fail. For example, guests may override energy-saving thermostats. GAP therefore acts as a bridge between technical sustainability measures and real environmental gains. Research confirms that guest behavior significantly shapes a hotel's total environmental footprint (Gössling et al., 2019).

H₇: GAP mediates the relationship between CRP and EP.

2.9. Effects of Hotel Location Type (HLT) and Regulatory Support (RS) on Environmental Performance (EP)

The effectiveness of sustainability practices is influenced by contextual factors (Aragón-Correa and Sharma, 2003). Hotel Location Type (HLT), which refers to whether a hotel is situated in an urban, coastal, or cultural/historical area, can affect the relevance and effectiveness of specific sustainability practices. For example, water conservation measures may be significant and yield greater improvements in EP in water-stressed coastal regions compared to urban areas that have more reliable water sources (Scott et al., 2012). Likewise, waste management challenges may be more pronounced in densely populated urban centers. These variations in environmental pressures and opportunities suggest that the effectiveness of CRP may differ according to location.

H₉: Hotel Location Type (HLT) moderates the relationship between CRP and EP, with more potent effects observed in locations characterized by higher environmental sensitivity (e.g., coastal areas).

Regulatory Support (RS), on the other hand, refers to the degree to which governmental policies, incentives and enforcement mechanisms promote or mandate sustainability initiatives



(Henriques and Sadorsky, 1996). In the Turkish context, the national sustainable tourism program represents a prominent form of regulatory support (GSTC, 2022). High RS encompassing financial incentives for green investments, technical guidance, clearly defined standards and rigorous monitoring can enhance the positive relationship between SCL and EP (Murillo-Luna et al., 2011). When regulatory frameworks reinforce certification standards, certified hotels are more likely to sustain superior performance and engage in continuous improvement. Conversely, low RS may attenuate these benefits, particularly in contexts with weak enforcement mechanisms.

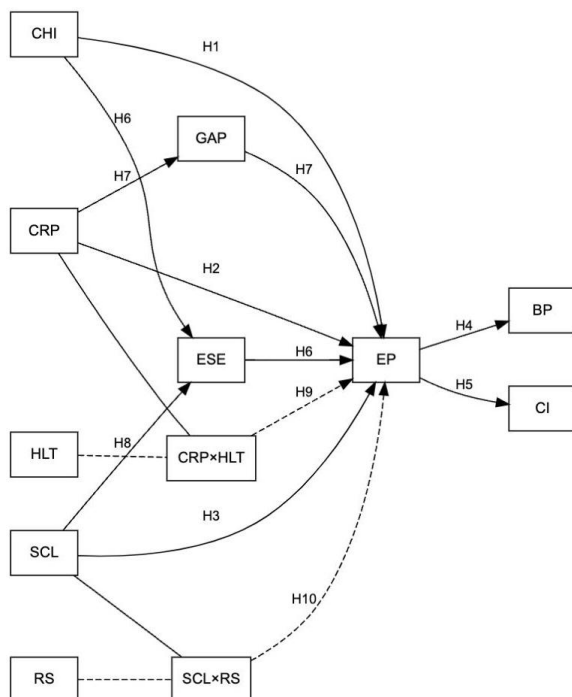
H10: Regulatory Support (RS) moderates the relationship between SCL and EP, with more potent effects observed under conditions of high regulatory support.

3. METHODOLOGY

3.1. Conceptual Model

Building on the previous literature review and theoretical foundations, Figure 1 illustrates the proposed conceptual model for this study. This model outlines the hypothesized direct relationships among key variables: Cultural Heritage Integration (CHI), Climate Resilience Practices (CRP), Sustainability Certification Level (SCL), Environmental Performance (EP), Business Performance (BP) and Community Impact (CI) within the Turkish hotel industry. This integrative framework serves as the foundation for empirically examining the complex interactions that influence sustainable hospitality performance in Türkiye. The following sections detail the methodology employed to test these hypotheses.

Figure 1. Research model





Direct relationship hypotheses are:

- CHI has a positive effect on EP in Turkish hotels (H₁)
- CRP has a positive effect on EP in Turkish hotels (H₂)
- SCL has a positive effect on EP in Turkish hotels (H₃)
- EP has a positive effect on BP in Turkish hotels (H₄)
- EP positively influences the CI of Turkish hotels (H₅)

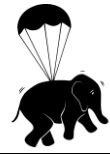
In this study, the following hypotheses are also investigated:

- ESE mediates the relationship between CHI and EP (H₆)
- GAP mediates the relationship between CRP and EP (H₇)
- ESE mediates the relationship between SCL and EP (H₈)
- HLT moderates the relationship between CRP and EP, with more potent effects observed in locations characterized by higher environmental sensitivity (e.g., coastal areas) (H₉)
- RS moderates the relationship between SCL and EP, with more potent effects observed under conditions of high regulatory support (H₁₀)

3.2. Participants

Data was collected from various sources within each participating hotel, including general managers (or sustainability managers), employees and guests. Specifically, managers provided information on hotel characteristics, CHI, CRP, SCL, RS, EP, BP and CI. Employees reported on their ESE, while guests provided data on their GAP regarding the hotel's sustainability initiatives. The target population for this study consisted of hotels operating in Türkiye that had implemented sustainability initiatives or obtained sustainability certifications. In alignment with the national sustainable tourism program, the scope included a diverse range of hotels varying by region, size and star rating. A stratified random sampling approach was employed to ensure representation across key characteristics, specifically Hotel Location Type (HLT: urban, coastal, cultural/historical) and SCL (national program stages, other certifications, or no certification but actively implementing sustainability practices). The sampling frame was developed using comprehensive databases from the Turkish Ministry of Culture and Tourism, the Türkiye Tourism Promotion and Development Agency (TGA), relevant hotel associations (e.g., TUROB, AKTOB) and online travel agencies.

Sample size requirements were determined based on guidelines for Structural Equation Modeling (SEM). Consistent with recommendations indicating a minimum of 10-20 respondents per estimated parameter or a general benchmark of 200-500 cases for models of moderate complexity (Hair Jr et al., 2010; Kline, 2016), the study targeted participation from at least 50 hotels. Within each hotel, data was to be collected from multiple respondent groups: managers, 5-10 employees and 10-20 guests. This multi-respondent design was intended to enhance data robustness and triangulation. Employed structured questionnaires administered both online and in person. The data collection process yielded responses from 58 hotels across



Türkiye, exceeding the target of 50 hotels. From these participating hotels, complete data was obtained from 58 managers, 412 employees (average of 7.1 per hotel) and 873 guests (average of 15.1 per hotel).

3.3. Materials

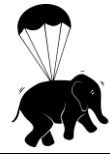
The measurement instruments used in this study were developed based on validated constructs from prior research in sustainable tourism, environmental management and stakeholder engagement. The scales were adapted to capture multiple perspectives which includes those of hotel managers, employees, and guests. This allowed for a comprehensive assessment of sustainability integration across organizational levels. The selected items cover a wide range of constructs, from cultural heritage integration and climate resilience practices to employee and guest engagement, certification levels and regulatory support. In addition, variables such as hotel location type and performance indicators were measured using both subjective (self-reported) and objective (secondary) data sources. The following subsections describe each construct, its theoretical foundation, and measurement approach in detail:

Cultural Heritage Integration (CHI): Items adapted from cultural tourism and heritage management literature ([Garrod and Fyall, 2000](#); [Timothy and Boyd, 2006](#)) assessed the degree to which hotels incorporate local architecture, design, cuisine, arts, crafts and cultural experiences (Managers' perspective). Items include statements such as "Our hotel integrates local architectural elements (design, materials, etc.) into its physical structure" and "Our hotel uses local handicrafts and traditional motifs in interior decoration." The scale consists of five items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Climate Resilience Practices (CRP): Items adapted from environmental management literature ([Chan, 2010](#); [Claver-Cortés et al., 2007](#); [Molina-Azorín et al., 2009](#)) measured implementation of energy efficiency, water conservation, waste management and renewable energy practices (Managers' perspective). Items include statements such as "Cleaning materials are eco-friendly and biodegradable." and "Recycling and composting practices are implemented in waste management." The construct consists of six items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Sustainability Certification Level (SCL): Managers reported the type and stage of certifications held (e.g., GSTC-recognized, National Program Stage 1/2/3, Green Key, LEED, BREEAM, none), which were coded as ordinal or categorical variables (Managers' perspective).

Employee Sustainability Engagement (ESE): Adapted from pro-environmental behavior and employee engagement research ([Boiral et al., 2015](#); [Norton et al., 2015](#); [Paillé et al., 2014](#)), items measured employees' awareness, motivation, participation and proactivity (Employees' perspective). Items include statements such as "I am regularly informed about our hotel's



sustainability goals.” and “I believe eco-friendly practices enhance our hotel’s reputation.” The construct consists of five items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Guest Awareness and Participation (GAP): Items adapted from studies on guest behavior in sustainable tourism ([Barber et al., 2014](#); [Dolnicar and Leisch, 2008](#); [Juvan and Dolnicar, 2014](#)) assessed awareness of hotel initiatives and participation in practices such as towel reuse, energy saving and recycling (Guests’ perspective). Items include statements such as “I used recycling or waste separation bins.” and “The hotel’s eco-friendly practices influenced my accommodation choice.” The construct consists of four items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Hotel Location Type (HLT): Classified as urban, coastal, or cultural/historical based on secondary data, verified by managers (Managers’ perspective & secondary data).

Regulatory Support (RS): Items adapted from institutional theory ([Henriques and Sadorsky, 1996](#); [Murillo-Luna et al., 2011](#)) measured managers’ perceptions of governmental support, incentives, guidance and enforcement (Managers’ perspective). Items include statements such as “Government guidelines/regulations on sustainable tourism serve as a reference for our operations.” The scale consists of four items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Environmental Performance (EP): Assessed through managers’ self-reported performance relative to competitors in energy, water and waste reduction, supplemented where possible with objective data (e.g., utility consumption trends, waste diversion rates) ([Hart and Ahuja, 1996](#); [Russo and Fouts, 1997](#)) (Managers’ perspective & objective data). This scale includes items such as “Our water-saving rate is above the industry average.” and “We require our suppliers to hold environmental certifications.” The scale consists of six items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Business Performance (BP): Perceptual measures compared performance against competitors on occupancy, RevPAR, guest satisfaction and profitability, supplemented where possible with objective financial data ([Inoue and Lee, 2011](#); [Kang et al., 2010](#)) (Managers’ perspective & objective data). This scale includes items such as “Our occupancy rate is higher than that of our competitors.” The scale consists of five items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

Community Impact (CI): Items adapted from CSR and sustainable tourism literature ([Scheyvens, 2002](#); [Simpson, 2008](#)) measured perceived positive and negative impacts on local employment, economy, cultural preservation and social development (Managers’ perspective). Items include statements such as “Our hotel plays an important role in providing employment for the local community.” The construct consists of five items measured on a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.



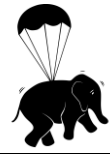
3.4. Procedure

Data analysis was conducted using IBM SPSS Statistics for preliminary procedures and IBM SPSS AMOS for Structural Equation Modeling (SEM). The process comprised the following stages: Raw data were examined for missing values, outliers and normality assumptions. Missing values were addressed using appropriate techniques, such as mean substitution or multiple imputation, depending on the extent and pattern of missingness (Hair Jr et al., 2010). Descriptive statistics, including means, standard deviations and frequencies, were calculated for all variables and sample characteristics. Confirmatory Factor Analysis (CFA) was performed to evaluate the validity and reliability of the measurement scales for each latent construct. Model fit was assessed using indices such as Chi-square/df, CFI, TLI, RMSEA and SRMR, following established guidelines (Hu and Bentler, 1999; Kline, 2016). Convergent validity was evaluated through item loadings and Average Variance Extracted (AVE), while discriminant validity was assessed by comparing AVE values with squared inter-construct correlations (Fornell and Larcker, 1981). Internal consistency was measured using composite reliability (CR) or Cronbach's alpha. Upon validating the measurement model, the structural model representing the hypothesized relationships (Figure 1) was tested using SEM. Structural Equation Modeling (SEM) was used because the research aimed to test complex relationships among multiple latent constructs simultaneously, including both direct and indirect effects. Therefore, SEM was appropriate for this study's objective of empirically verifying the proposed theoretical framework involving multiple interrelated latent variables. Path coefficients (standardized regression weights) and their statistical significance (p-values) were examined to assess the direct effect hypotheses (H₁-H₅). The structural model's overall fit was evaluated using the same indices applied in the CFA. Mediation effects of Employee Sustainability Engagement (ESE; H₆, H₈) and Guest Awareness and Participation (GAP; H₇) were tested using bootstrapping procedures within SEM (Preacher and Hayes, 2008). Confidence intervals for indirect effects were generated, with mediation supported when the intervals did not include zero. The moderating effects of Hotel Location Type (HLT; H₉) and Regulatory Support (RS; H₁₀) were examined using multi-group SEM for categorical moderators or interaction terms within the structural model for continuous moderators (Baron and Kenny, 1986; Dawson, 2014). Moderation was indicated by significant differences in path coefficients across groups or by significant interaction effects.

3.4.1. Common Method Bias Assessment

Given that some data were collected via self-reports from single respondents (e.g., managers), potential standard method bias (CMB) was examined using Harman's single-factor test and more robustly, by incorporating a common latent factor (CLF) into the CFA model (Podsakoff et al., 2003).

This study used Structural Equation Modeling (SEM) with Confirmatory Factor Analysis (CFA) and multi-group analysis to examine the relationships among the key variables. SEM



was chosen because it allows testing multiple dependent and independent relationships at the same time, which fits the study's complex framework that includes both organizational practices and stakeholder-level factors. Since the data came from managers, employees and guests, SEM provided an efficient way to integrate multi-source data and control for measurement error. CFA was used to confirm that the observed indicators accurately represented their underlying constructs, ensuring reliability and validity. The method also enabled simultaneous testing of direct, indirect and moderating effects, which helped evaluate the hypothesized mediation by employee and guest engagement and the moderation by hotel type and regulatory support. Bootstrapping increased the robustness of the mediation analysis by reducing dependence on normality assumptions. Compared with traditional regression, SEM offered stronger analytical power through its ability to estimate measurement and structural models together, assess global model fit using indices such as CFI, TLI, RMSEA and SRMR and provide more precise parameter estimates. Overall, SEM was the most appropriate method for this research because it aligns with the study's goal of understanding how cultural, environmental and institutional factors jointly shape environmental, business and community outcomes in Turkish hotels.

4. RESULTS

4.1. Sample Characteristics

The data collection process yielded responses from 58 hotels across Türkiye, exceeding the target of 50 hotels. From these participating hotels, complete data were obtained from 58 managers, 412 employees (average of 7.1 per hotel) and 873 guests (average of 15.1 per hotel). Table 1 presents the demographic profile of the sample hotels.

Table 1. Demographic profile of sample hotels

Characteristic	Category	Frequency	Percentage
Hotel Location Type	Urban (Istanbul, Ankara, etc.)	21	36.2%
	Coastal (Antalya, Bodrum, etc.)	24	41.4%
	Cultural/Historical (Cappadocia, etc.)	13	22.4%
Hotel Size	Small (≤ 50 rooms)	14	24.1%
	Medium (51-150 rooms)	22	37.9%
	Large (>150 rooms)	22	37.9%
Star Rating	3-star	8	13.8%
	4-star	23	39.7%
	5-star	27	46.6%
Chain Affiliation	Independent	19	32.8%
	National Chain	14	24.1%
	International Chain	25	43.1%
Hotel Age	<5 years	11	19.0%
	5-10 years	17	29.3%
	>10 years	30	51.7%



Sustainability Certification	National Program Stage 1	18	31.0%
	National Program Stage 2	15	25.9%
	National Program Stage 3	9	15.5%
	Other International Certification	12	20.7%
	No Formal Certification	4	6.9%

The sample represents a diverse cross-section of the Turkish hotel industry, with a slight predominance of coastal hotels (41.4%), reflecting the importance of beach tourism in Türkiye. The majority of hotels in the sample are medium to large in size (75.8%) and have four or 5-star ratings (86.3%), indicating a focus on higher-end establishments where sustainability initiatives might be more prevalent. The sample includes both chain-affiliated (67.2%) and independent hotels (32.8%), allowing for comparison between these categories. Most hotels (51.7%) have been operating for more than 10 years, suggesting established operations with potential for long-term sustainability planning. Regarding sustainability certification, 72.4% of the sample hotels participate in the national sustainable tourism program at various stages. In comparison, 20.7% hold other international certifications and only 6.9% operate without formal certification but implement some sustainability practices.

Table 2 presents descriptive statistics for the key variables in the study, including means, standard deviations and correlations.

Table 2. Descriptive statistics and correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. CHI	5.24	1.18	1									
2. CRP	5.37	1.05	.42**	1								
3. SCL	3.82	1.27	.38**	.51**	1							
4. ESE	4.89	1.31	.53**	.47**	.49**	1						
5. GAP	4.62	1.42	.36**	.58**	.43**	.39**	1					
6. RS	4.15	1.53	.29**	.33**	.47**	.31**	.25**	1				
7. EP	5.08	1.12	.45**	.61**	.54**	.56**	.52**	.38**	1			
8. BP	5.21	1.24	.39**	.42**	.37**	.35**	.41**	.27**	.48**	1		
9. CI	4.76	1.36	.57**	.40**	.35**	.42**	.33**	.31**	.52**	.43**	1	
10. HLT	-	-	-	-	-	-	-	-	-	-	-	1

Note: ** $p < .01$; HLT (Hotel Location Type) is a categorical variable, so correlations are not reported; SCL was treated as an ordinal variable for correlation analysis.

The descriptive statistics reveal generally positive assessments of sustainability practices and outcomes, with mean scores above the midpoint (4.0) for all variables. CHI and CRP show relatively high mean scores (5.24 and 5.37, respectively), suggesting substantial implementation of these practices among the sampled hotels. ESE and GAP show moderate to high levels (4.89 and 4.62, respectively), while RS has the lowest mean score (4.15), indicating room for improvement in government support for sustainability initiatives. EP and BP are rated positively (5.08 and 5.21, respectively), while CI shows a slightly lower but still positive assessment (4.76).



The correlation matrix indicates significant positive relationships among all variables, providing preliminary support for hypothesized relationships. Notably, the strongest correlations are observed between CRP and EP (.61), CHI and CI (.57) and ESE and EP (.56), suggesting the importance of climate practices for EP, CHI for CI and ESE for EP.

4.2. Measurement Model Assessment

Confirmatory Factor Analysis (CFA) was conducted to evaluate the validity and reliability of the measurement scales. The initial measurement model incorporated all latent constructs, CRP, Employee Sustainability Engagement (ESE), Guest Awareness and Participation (GAP), Regulatory Support (RS), Environmental Performance (EP), Business Performance (BP) and Community Impact (CI), with their respective indicators. SCL and Hotel Location Type (HLT) were excluded from the CFA as they were measured as categorical variables.

The initial model demonstrated acceptable but suboptimal fit ($\chi^2/df = 2.87$, CFI = 0.91, TLI = 0.90, RMSEA = 0.068, SRMR = 0.057). After reviewing modification indices and standardized residuals, minor model adjustments were made, such as allowing correlated errors between theoretically related items within the same construct. The refined measurement model achieved improved fit indices ($\chi^2/df = 2.31$, CFI = 0.94, TLI = 0.93, RMSEA = 0.052, SRMR = 0.048), meeting established criteria for good model fit (Hu and Bentler, 1999).

Table 3 presents the measurement model results, including standardized factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE) for each construct. All standardized factor loadings exceeded the recommended threshold of 0.70, ranging from 0.74 to 0.88, indicating strong indicator reliability. CR values ranged from 0.88 to 0.93, surpassing the 0.70 threshold and demonstrating excellent internal consistency. AVE values ranged from 0.62 to 0.69, above the 0.50 benchmark, supporting convergent validity.

Discriminant validity was established by comparing the square root of AVE for each construct with its inter-construct correlations. In all cases, the square root of AVE was greater than the corresponding correlations, satisfying the Fornell–Larcker criterion (Fornell and Larcker, 1981).

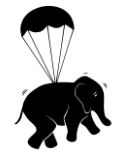
Common method bias (CMB) was assessed using Harman’s single-factor test and the common latent factor approach. The single-factor model accounted for only 28.7% of the total variance, well below the 50% threshold for substantial CMB. The common latent factor analysis revealed minimal differences in standardized loadings (all < 0.2), indicating that CMB was not a significant concern. Additionally, the multi-respondent data collection design, incorporating responses from managers, employees and guests, further mitigated potential CMB.



Table 3. Measurement model results

Construct	Items	Factor Loadings	CR	AVE
Cultural Heritage Integration (CHI)	CHI1	0.82	0.89	0.63
	CHI2	0.78		
	CHI3	0.85		
	CHI4	0.76		
	CHI5	0.74		
Climate Resilience Practices (CRP)	CRP1	0.81	0.92	0.67
	CRP2	0.85		
	CRP3	0.79		
	CRP4	0.83		
	CRP5	0.87		
	CRP6	0.76		
Employee Sustainability Engagement (ESE)	ESE1	0.84	0.91	0.66
	ESE2	0.79		
	ESE3	0.82		
	ESE4	0.85		
	ESE5	0.77		
Guest Awareness and Participation (GAP)	GAP1	0.80	0.88	0.64
	GAP2	0.83		
	GAP3	0.78		
	GAP4	0.81		
Regulatory Support (RS)	RS1	0.85	0.90	0.69
	RS2	0.88		
	RS3	0.79		
	RS4	0.81		
Environmental Performance (EP)	EP1	0.83	0.93	0.68
	EP2	0.85		
	EP3	0.79		
	EP4	0.82		
	EP5	0.86		
	EP6	0.80		
Business Performance (BP)	BP1	0.84	0.91	0.67
	BP2	0.82		
	BP3	0.79		
	BP4	0.85		
	BP5	0.80		
Community Impact (CI)	CI1	0.81	0.89	0.62
	CI2	0.78		
	CI3	0.83		
	CI4	0.76		
	CI5	0.74		

Note: All factor loadings are significant at $p < .001$



4.3. Structural Model and Hypothesis Testing

Following validation of the measurement model, the structural model was estimated to test the hypothesized relationships. The model demonstrated good fit to the data ($\chi^2/df = 2.48$, CFI = 0.93, TLI = 0.92, RMSEA = 0.056, SRMR = 0.051). Table 4 summarizes the direct effect results for hypotheses H₁–H₅.

Table 4. Direct effects and hypothesis testing results

Hypothesis	Path	Standardized Path Coefficient	t-value	p-value	Result
H ₁	CHI → EP	0.27	4.83	<.001	Supported
H ₂	CRP → EP	0.38	6.42	<.001	Supported
H ₃	SCL → EP	0.24	4.15	<.001	Supported
H ₄	EP → BP	0.45	7.68	<.001	Supported
H ₅	EP → CI	0.49	8.21	<.001	Supported

CHI exhibited a significant positive effect on EP ($\beta = 0.27$, $p < .001$), supporting H₁. CRP had the strongest positive effect on EP ($\beta = 0.38$, $p < .001$), supporting H₂. SCL was also positively associated with EP ($\beta = 0.24$, $p < .001$), supporting H₃. In turn, EP significantly enhanced BP ($\beta = 0.45$, $p < .001$) and CI ($\beta = 0.49$, $p < .001$), supporting H₄ and H₅. These findings indicate that CHI, CRPs and SCL each contribute to EP, which subsequently yield business and community benefits.

Mediation analysis results for H₆–H₈ are presented in Table 5. Using bootstrapping with 5000 samples, all three mediation hypotheses were supported. ESE significantly mediated the relationship between CHI and EP (indirect effect = 0.18, 95% CI [0.11, 0.26], $p < .001$), supporting H₆. GAP significantly mediated the link between CRP and EP (indirect effect = 0.16, 95% CI [0.09, 0.24], $p < .001$), supporting H₇. ESE also mediated the relationship between SCL and EP (indirect effect = 0.15, 95% CI [0.08, 0.23], $p < .001$), supporting H₈. These results highlight the critical roles of employees and guests in translating sustainability initiatives into improved environmental outcomes.

Table 5. Mediation effects and hypothesis testing results

Hypothesis	Indirect Path	Standardized Indirect Effect	95% CI	p-value	Result
H ₆	CHI → ESE → EP	0.18	[0.11, 0.26]	<.001	Supported
H ₇	CRP → GAP → EP	0.16	[0.09, 0.24]	<.001	Supported
H ₈	SCL → ESE → EP	0.15	[0.08, 0.23]	<.001	Supported

Note: CI = Confidence Interval based on 5000 bootstrap samples

Moderation analyses for H₉ and H₁₀ are reported in Table 6. For H₉, multi-group SEM revealed significant differences in the CRP → EP path across Hotel Location Types (HLT) ($\Delta\chi^2 = 8.76$, $p < .01$). The effect was most substantial in coastal hotels ($\beta = 0.47$), followed by cultural/historical hotels ($\beta = 0.36$) and urban hotels ($\beta = 0.29$), indicating that the impact of CRPs is amplified in environmentally sensitive locations.

**Table 6.** Moderation effects and hypothesis testing results

Hypothesis	Moderation	Condition	Path Coefficient	$\Delta\chi^2$	p-value	Result
H ₉	HLT moderates CRP → EP	Urban	0.29	8.76	<.01	Supported
		Coastal	0.47			
		Cultural/Historical	0.36			
H ₁₀	RS moderates SCL → EP	Low RS	0.18	6.42	<.05	Supported
		High RS	0.31			

Note: For H₁₀, a median split was used to create low and high RS groups

For H₁₀, a median split was applied to classify Regulatory Support (RS) as low or high. Multi-group SEM indicated a significant difference in the SCL → EP path between these groups ($\Delta\chi^2 = 6.42$, $p < .05$). The effect was more substantial in the high RS group ($\beta = 0.31$) compared to the low RS group ($\beta = 0.18$). This result suggests that the benefits of sustainability certification on EP are greater when regulatory frameworks provide more substantial support.

In summary, bootstrapping with 5000 samples confirmed that all three mediation hypotheses were supported. ESE significantly mediated the relationship between CHI and EP (indirect effect = 0.18, 95% CI [0.11, 0.26], $p < .001$), supporting H₆. In practical terms, a one-unit increase in CHI indirectly leads to a 0.18-unit improvement in EP through higher employee engagement, suggesting that when hotels integrate cultural heritage more deeply into their operations, employees become more invested in sustainability, which in turn enhances environmental performance. Similarly, GAP significantly mediated the link between CRP and EP (indirect effect = 0.16, 95% CI [0.09, 0.24], $p < .001$), supporting H₇. This means that a one-unit rise in climate resilience practices indirectly improves EP by 0.16 units through greater guest participation, indicating that environmentally aware guests amplify the positive effects of hotel resilience measures. Finally, ESE mediated the relationship between SCL and EP (indirect effect = 0.15, 95% CI [0.08, 0.23], $p < .001$), supporting H₈. A one-unit increase in sustainability certification level indirectly contributes 0.15 units to EP through employee engagement, reflecting that certified hotels tend to foster stronger environmental responsibility among staff. Overall, these findings show that both employees and guests act as vital bridges linking sustainability strategies with tangible improvements in environmental outcomes.

5. DISCUSSION and CONCLUSION

The purpose of this study was to develop and test an integrative model of sustainable hospitality in the Turkish hotel sector by combining environmental management with cultural heritage preservation, climate resilience and certification practices. The mediating roles of employee engagement and guest participation, as well as the moderating influence of location type and regulatory support, were inspected. To empirically test the model, survey data were gathered from 58 hotels, including the perspectives of managers, employees and guests. The dataset was analyzed using structural equation modeling to capture the direct, indirect and mediating effects among the studied variables.

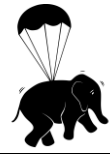


The results provided strong evidence that all three core sustainability approaches, Cultural Heritage Integration (CHI), Climate Resilience Practices (CRP), and Sustainability Certification Level (SCL), significantly contribute to improved Environmental Performance (EP). Among these drivers, Climate Resilience Practices (CRP) demonstrated the most substantial positive effect on EP. This finding highlights the crucial importance of CRP in regions that are highly vulnerable to climate hazards such as water scarcity and heatwaves (Scott et al., 2012; Kilinc et al., 2023). In turn, it was found that enhanced EP serves as a central organizational asset since it is significantly boosting both Business Performance (BP) and Community Impact. This finding confirms that environmental stewardship is not merely a legal compliance. In fact, it is a strategic pathway that provides two-fold benefits for the firm and its host community. As a result, it reinforces the Triple Bottom Line perspective (Font et al., 2021).

The second strong effect was found in the relationship between CHI and EP. This shows that connecting local identity and authenticity with hotel operations can create both environmental and social value. This result is highly consistent with the tenets of Cultural Sustainability Theory (CST), which views cultural preservation and heritage-based identity as strategic resources for long-term viability (Axelsson et al., 2013; Soini and Dessein, 2016). The significant positive influence of CHI on EP confirms that embedding cultural identity within hotel operations strategically supports both ecological and social outcomes. By leveraging local authenticity, traditional architecture and localized supply chains (Sims, 2009; Timothy and Boyd, 2006), Turkish hotels effectively improved its EP (Sims, 2009). However, the finding contrasts with observations from some Western contexts (Budeanu et al., 2016), where culture often plays a secondary role, by positioning CHI as a structural enabler of environmental performance in the Turkish hospitality sector.

The strong effect of CRP on EP on the other hand confirms that climate adaptation is a key part of sustainability. This is consistent with Hussain et al. (2021), who found that energy-saving technologies, water conservation, and waste reduction improve hotel environmental outcomes. Finding related to the moderating role of Hotel Location Type (HLT) added a new insight to Hussain et al.'s (2021) findings. Indeed, the moderation analysis demonstrated that the positive effect of CRP is amplified by Hotel Location Type (HLT). The impact of resilience practices was most substantial in coastal hotels. This finding aligns strongly with Contingency Theory (Aragón-Correa and Sharma, 2003), confirming that external environmental pressures condition the strength of sustainability-performance relationships. As coastal regions face heightened vulnerability to climate risks such as drought and heatwaves (Scott et al., 2012; Jury, 2024; Kilinc et al., 2023), the necessity and payoff of resilience investments such as water conservation and energy-efficient systems are significantly magnified in these sensitive locations.

The positive relation that is found between SCL and EP confirmed the role of formal certification in enhancing credibility, standardization, and monitoring of sustainability practices (Ayuso, 2007; Luo et al., 2025). This study, however, provided an important nuance by



demonstrating that the effect of certification depends significantly on the level of Regulatory Support (RS). The moderating role of RS supports Institutional Theory (Henriques and Sadorsky, 1996; Murillo-Luna et al., 2011). The results clearly indicated that the benefits of SCL on EP are greater under conditions of high regulatory support compared to low support. This synergy is particularly relevant in the Turkish context, where the mandatory national sustainable tourism program (GSTC, 2022) combines certification standards with governmental backing, leading to more substantial environmental improvements than voluntary and isolated efforts (Chen et al., 2025).

The robust support for the mediation hypotheses confirms that Employee Sustainability Engagement (ESE) and Guest Awareness and Participation (GAP) are vital behavioral mechanisms that translate strategic initiatives into tangible environmental outcomes. This pattern strongly supports Stakeholder Theory, which asserts that active participation of internal and external stakeholders is essential for achieving comprehensive sustainability (Freeman, 1984; Roberts, 1992).

In fact, in this study it was found that ESE significantly mediated the effects of both CHI and SCL on EP. This expands previous research by showing that employees internalize sustainability values more effectively when these values are grounded in cultural identity and when they are reinforced by structured training and communication processes inherent in certification (Patwary et al., 2024; Pinzone et al., 2016). Therefore, it can be said that when sustainability is “humanized” and embedded in daily choices environmental gains are sustained (Jones, 2010; Kim et al., 2019).

Findings related to GAP which indicated the significant mediation between CRP and EP on the other hand, aligns with studies noting that guests’ willingness to cooperate amplifies the impact of operational green initiatives (Khalil et al., 2024). Technical investments in resilience (e.g., smart water systems) are only fully effective when guests are aware, motivated, and participate in practices like towel reuse and energy saving (Barber et al., 2014; Gössling et al., 2019).

This study offers important insights into sustainable hospitality in Türkiye by presenting an integrated framework grounded in multiple theoretical perspectives (Resource-Based View, Stakeholder Theory, and Cultural Sustainability Theory). By unifying Cultural Heritage Integration, Climate Resilience Practices, and Sustainability Certification Level into a single system, the research advances the global discourse on sustainable hospitality toward a more systemic and culturally contextualized understanding, addressing gaps left by studies that examined these factors in isolation (Bohdanowicz and Zientara, 2008; Kasim, 2006). The findings validate that both internal (employees) and external (guests) stakeholders are indispensable co-creators of sustainability outcomes. Moreover, the evidence demonstrates that environmental performance leads to tangible business success (BP) and positive community outcomes (CI), strengthening the strategic justification for sustainability investments (Orlitzky et al., 2003). The developed framework provides an actionable and replicable model for hotel



managers and policymakers in Türkiye and other emerging economies facing similar structural constraints, such as water scarcity and fragmented governance (Hart, 1995; Tepelus, 2008).

This study offered important insights into sustainable hospitality in Türkiye, yet several limitations warrant acknowledgment and provide avenues for future research. First, although the sample was diverse, it was somewhat skewed toward larger, higher-category hotels that may possess greater resources for sustainability initiatives. Future research should incorporate a wider variety of hotel types, particularly smaller and budget-oriented establishments, to present a more representative view of sustainability across the sector. Second, the study primarily employed perceptual measures of environmental and business performance which are supported by limited objective data. Subsequent studies could integrate more comprehensive objective indicators, such as actual energy and water usage, waste generation metrics, financial performance data and quantifiable measures of community impact to strengthen the robustness of the evidence. Future studies could extend this research by applying comparative studies across different countries or regions. Comparative studies in different countries or in other segments of the tourism industry would be valuable to test whether the relationships observed here hold true across varying cultural and regulatory contexts. Additionally, exploring other moderating and mediating variables could provide deeper insight, for example, assessing whether different types of guest segments or employee training programs strengthen the link between sustainability practices and performance or how technology-driven innovations such as smart energy management or green building design interact with the identified sustainability approaches. By addressing these questions, scholars can extend the integrated framework proposed in this study and continue to close knowledge gaps on achieving effective and context-sensitive sustainability in the hotel industry.

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