STANLEY KAGISHO[a], ERICA SAO JOAO[b]

Sustainability-Oriented Resilience and Regenerative Adaptations in the Hospitality Industry: Lessons from Gauteng

Abstract. The South African hospitality sector faces significant challenges, including economic instability, climate change, and evolving consumer preferences. To effectively address these issues, hotels must adopt innovative resilience and regenerative strategies. This study is based on insights from resilience theory, service-dominant logic (SDL), and ecological modernisation theory. To find out how these challenges are addressed in practice, the authors conducted semi-structured interviews with hotel managers in the province of Gauteng to collect data for an in-depth thematic analysis. Examples of resilience strategies mentioned by the interviewees include effective crisis management, income diversification, and building robust community partnerships. Asked about regenerative practices, the respondents listed waste reduction, enhancing biodiversity conservation, and investing in sustainable infrastructure. These practices correspond to Sustainable Development Goals (SDGs) 9 and 1, which target the development of resilient infrastructure and poverty eradication. The authors advocate for a holistic approach to hospitality management, which integrates innovation, active community engagement, and environmental stewardship, fostering meaningful and enduring advancements within the industry.

Keywords: hospitality, resilience, regenerative adaptations, sustainable development goals

1. Introduction

The hospitality industry in South Africa plays a critical role in the nation's economy by driving tourism, creating employment, and fostering cultural exchange. However, this sector is also vulnerable, facing considerable challenges. Rapidly evolving

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[a] School of Tourism and Hospitality, College of Business and Economics, University of Johannesburg, stanleykagisho@gmail.com, https://orcid.org/0000-0002-0623-6458

[b] Corresponding author, School of Tourism and Hospitality, College of Business and Economics, University of Johannesburg, ericasj@uj.ac.za, https://orcid.org/0000-0002-6603-4030

consumer preferences, economic pressures, and environmental concerns such as water shortages, climate change, and frequent power outages necessitate an adaptive and forward-thinking approach (Erol et al., 2024). In response to these pressures, hotels are increasingly adopting innovative sustainability strategies that not only mitigate their immediate risks but also contribute to their long-term viability. Recognising the need for resilience and sustainability, more and more hotels implement practices that promote environmental stewardship, social responsibility, and operational adaptability (Moneva, Bonilla-Priego & Ortas, 2020).

The vulnerability of the South African hospitality industry to external shocks, especially the recent COVID-19 pandemic and ongoing load shedding[1], highlights the urgency of building resilience (Booyens et al., 2024). These disruptions not only impact guest satisfaction but also affect the financial stability of hotels and their ability to sustain operations (Sobaih et al., 2021). To address these challenges, hotels adopt resilience and regenerative practices that not only safeguard their business operations but also contribute to broader sustainability goals (Achmad & Yulianah, 2022). The goal of resilience practices is to strengthen a business's ability to recover from and adapt to these disturbances or disruptions, while regenerative practices aim to restore and enhance the social and ecological systems within which they operate (Bellato, Frantzeskaki & Nygaard, 2023). This dual focus allows hotels to transform challenges into opportunities, fostering innovation and collaboration across the industry.

Therefore, the following article investigates how hotels' resilience and regenerative adaptations enhance sustainability in the hospitality industry. The article also features a comprehensive overview of specific resilience and regenerative strategies within the hospitality industry, together with an empirical study into the effectiveness of these strategies, the spread of regenerative tourism and the promotion of sustainability in the hospitality sector. By analysing these strategies, the study provides actionable insights for stakeholders seeking to balance operational efficiency with environmental and social imperatives.

By fostering environmental stewardship, encouraging community involvement, and educating guests on sustainable practices, hotels can drive long-term, regenerative change. This approach aligns with global sustainability objectives, including the United Nations Sustainable Development Goals (SDGs) 9 and 12, which focus on fostering resilient infrastructure, responsible consumption, and production patterns (United Nations, 2015).

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[1] The term used to describe South Africa's energy crisis, which is manifested by nation-wide scheduled blackouts of electricity supply.

2. Literature Review

This literature review focuses on the theoretical foundations and empirical studies that underpin the resilience strategies adopted by hotels. It examines how hotels can use these strategies to address environmental, social, and economic challenges while enhancing their sustainability. The hospitality industry in South Africa is a major economic contributor, attracting global tourists and providing significant employment. However, it faces challenges like economic fluctuations, resource shortages, and climate impacts, which threaten its sustainability (Rogerson & Rogerson, 2020). Given South Africa's susceptibility to drought and reliance on coal energy, resilient and sustainable practices are increasingly critical. Hotels are now focusing on community involvement and eco-friendly approaches to create lasting value for both local communities and the environment (Legrand, Chen & Laeis, 2022).

The hospitality industry's pursuit of sustainability and resilience requires a comprehensive understanding of the theoretical foundations that inform adaptive strategies. This is why the following study relies on three complementary frameworks — resilience theory, service-dominant logic (SDL), and ecological modernisation theory (EMT) — to analyse how hotels in South Africa can adapt to sustainability challenges while fostering regenerative tourism practices.

2.1. Theoretical Foundations of Resilience

The concept of resilience has attracted increasing attention in the hospitality sector, especially given the growing unpredictability of the economic and environmental landscape. Each of the three main theories covered in this review offers significant insights into sustainable hotel practices. Resilience is the ability of a system to withstand shocks, bounce back from setbacks, and adjust to change (Zhang, Xie & Huang, 2024a). In the hospitality industry, resilience allows hotels to continue operating in the face of calamities, such as pandemics, natural disasters, and economic downturns. This flexibility is particularly important for hotels in high-risk areas like South Africa, where recurring environmental issues necessitate proactive measures to guarantee sustainability and business continuity (Carty, 2021).

There are a number of ways in which hotels can incorporate resilience into their strategic framework. For instance, they can develop contingency plans and implement risk management strategies in order to be better prepared to respond to crises swiftly. By conducting regular vulnerability assessments and scenario planning, hotel management can identify potential threats and create effective responses. Such preparations not only safeguard operational stability but also enhance stakeholder

confidence, ensuring that guests and employees feel secure even in uncertain times (McCarroll, LaVanchy & Kerwin, 2024).

The focus of service-dominant logic (SDL) is on how organisations and their stakeholders, such as visitors, staff, and communities interact to co-create value (Gallarza, Gil-Saura & Arteaga-Moreno, 2023). SDL offers a useful framework for understanding how stakeholder collaboration can improve hotel resilience. By actively engaging with stakeholders, hotels can foster a culture of sustainability that permeates their operations, enabling them to respond effectively to challenges. This involvement may take various forms, including joint sustainability initiatives, feedback mechanisms, and community partnerships. In addition to fortifying internal procedures, hotels also co-create resilience with their broader network of stakeholders by educating employees and involving patrons in sustainable practices. This collaborative approach enhances operational efficiency and promotes a shared responsibility towards environmental stewardship among all parties involved (Roxas, Rivera & Gutierrez, 2020). Moreover, SDL highlights the importance of experiential value, suggesting that guests are more likely to return to hotels that demonstrate a commitment to sustainability. This insight implies that marketing sustainable practices can enhance brand loyalty and create a competitive advantage. By showcasing their commitment to environmental stewardship, hotels can attract eco-conscious consumers, thus turning sustainability into a market differentiator (Bernard & Nicolau, 2022).

According to Choudhary and Sharma (2024), ecological modernisation theory (EMT) explains how technical innovation can be used to resolve environmental challenges. By utilising eco-friendly technologies, such as waste reduction strategies, renewable energy systems, and effective water management techniques, hotels can strike a balance between environmental responsibility and financial sustainability. In the light of EMT, hotels can enhance their sustainability without compromising profitability, particularly through the adoption of technological innovations that reduce resource consumption and operational costs. For instance, implementing smart building technologies can lead to substantial energy savings, thereby lowering operational expenses and reducing the hotel's carbon footprint.

The integration of SDL and EMT provides a comprehensive framework for understanding resilience tactics in the hospitality sector. While EMT emphasises the value of innovation in addressing environmental concerns (Ali et al., 2022), SDL stresses the critical role of stakeholder engagement in fostering a resilient business model (Satar et al., 2024). Resilience theory adds another layer by highlighting the need for adaptability in the face of ever-changing market conditions and environmental challenges (Alonso et al., 2022). Collectively, these theories provide convincing arguments that pursuing sustainability and resilience is not merely a business necessity; it is essential for the long-term viability of the hospitality industry.

By prioritising collaboration, innovation, and adaptability, hotels can build a more robust framework to navigate the complexities of the modern hospitality landscape, ensuring that they remain competitive while contributing positively to their communities and the environment (Kuo, Fang, & LePage, 2022). Additionally, all of these theories support the idea that sustainability should be embedded in the corporate culture of hotels and should guide decision-making processes and operational strategies. The convergence of resilience theory, SDL, and EMT creates a theoretical framework that can help to understand the sustainable practices of hotels. By taking into account insights provided by these theories, the hospitality sector can proactively address the challenges posed by an unpredictable environment, ensuring both short-term resilience and long-term sustainability. The following sections cover six key domains of resilience: infrastructure, energy, water, social, economic, and environmental, each associated with specific strategies to strengthen the industry's adaptability and sustainability.

2.2. Energy Resilience and Technological Innovation

In the South African hospitality industry, energy resilience has gained importance, particularly in areas with unstable electricity supplies. Hotels are using alternative energy sources, like solar power, to maintain continuous service and lower their carbon footprints in response to frequent power outages and load shedding (Cheng et al., 2023). In many areas solar energy is a viable option, thanks to many days of sunshine. Hotels can lessen their dependency on traditional power networks and continue to operate during blackouts by making solar power investments (Salehi et al., 2021). According to EMT, which advocates technological innovation to achieve both economic and environmental resilience, solar energy offers not only long-term cost savings but also supports environmental sustainability (Choudhary & Sharma, 2024). Given that the province of Gauteng receives over 70% of the maximum possible sunshine annually, equating to more than 8 hours per day on average, the region is well-suited for solar energy investment, particularly compared to regions like the east coast, which typically receives less than 55% (South African Weather Services, 2021).

In addition to renewable energy, many hotels are using energy-efficient technologies like LED lighting and smart energy management systems (Dhirasasna, Becken & Sahin, 2020). Optimising resource utilisation and lowering energy consumption enhances operational efficiency (Filimonau & Magklaropoulou, 2020). By adopting these technologies hotels not only reduce their environmental impact but also contribute to their long-term sustainability (Chan, 2021). However, the high upfront cost of renewable energy systems can be a deterrent for many hotels,

despite their many advantages. The wider use of these technologies may be aided by government incentives like tax breaks and subsidies for investments in renewable energy. According to a study by Gamage, Pyke and De Lacy (2024), a supporting policy framework is necessary in order to encourage more hotels to invest in energy resilience measures.

2.3. Water Management Strategies

Water scarcity is a major problem for hotels, especially for those located in areas with a pre-existing water scarcity. Hotels require a lot of water for landscaping, housekeeping, and guest services, therefore water management is an essential component of their sustainability plans. To solve these issues, creative solutions are being used, such as rainwater collecting, greywater recycling, and water-efficient fixtures (Seow et al., 2024). Hotels can repurpose water from sinks, showers, and laundry for non-potable uses like toilet flushing and irrigation by recycling greywater. With this technique, water consumption is drastically decreased without sacrificing visitor comfort (Jones & Comfort, 2020). Another good tactic, especially in drought-prone areas, is rainwater harvesting. Hotels can augment their water sources during times of scarcity by collecting and storing rainwater. Resilience theory supports these water conservation efforts, as it stresses the importance of adaptability in response to environmental challenges (Traskevich & Fontanari, 2023). Water management practices not only enhance hotels' resilience to water shortages but also contribute to broader sustainability goals by reducing dependency on municipal water supplies (Sandang & Cole, 2023).

2.4. Social Resilience and Human Resource Development

Development of human resources and the level of community involvement are directly related to social resilience of hotels. A study by Sambyal, Rishi, Mavi and Marwaha (2024) found that having qualified and flexible employees is essential to ensuring that hotel operations continue in the event of an emergency. According to Service-Dominant Logic, interactions with staff, visitors, and other stakeholders co-create resilience (Shulga, Busser & Chang, 2022). This means that training employees is essential to enhancing organisational resilience. Employee skills and hotel resilience are improved by training programs that emphasise sustainable practices including waste minimisation, energy saving, and environmentally friendly operations. Contributions to sustainable projects are more likely to come from engaged staff; in addition, they enhance customer satisfaction and organisational performance. Apart from staff training, hotels that actively engage with their local

communities build stronger networks of support. By fostering local partnerships and contributing to community welfare, hotels enhance their social capital. Studies indicate that hotels that are well-integrated into their communities can rely on local support during crises, further strengthening their resilience (Sofyan et al., 2022).

2.5. Financial Planning for Economic Resilience

Economic resilience is a key aspect of hotel sustainability. Effective financial planning allows hotels to maintain stability during times of economic uncertainty. In their 2022 study Acampora, Preziosi, Lucchetti and Merli found that hotels with well-structured budgets and financial strategies are better equipped to invest in long-term sustainability projects. Many hotels are turning to sustainability-linked financing options, such as green bonds or sustainability-linked loans. These financing mechanisms incentivise hotels to meet specific sustainability targets while providing access to capital at favourable rates. By linking financial goals with environmental objectives, hotels can improve their economic resilience while advancing their sustainability agendas (Spencer et al., 2023).

Internal financial strategies, such as allocating budgetary resources for sustainability initiatives, also contribute to a hotel's economic resilience. By investing in energy-efficient infrastructure, waste reduction programs, and other sustainable practices, hotels can reduce operational costs while building long-term resilience (Melián-Alzola, Fernández-Monroy & Hidalgo-Peñate, 2020). EMT underscores the importance of such investments, arguing that sustainable business practices create a competitive advantage and contribute to economic growth (Wang, 2022). Hotels that prioritize sustainability in their financial planning are better positioned to weather economic challenges and maintain profitability in the long run.

2.6. Environmental Practices and Sustainability

Environmental sustainability has become a central focus for hotels, as consumers increasingly demand eco-friendly practices and regulatory bodies impose stricter environmental standards. Khater, Ibrahim, Sayed and Faik (2024) report that hotels are implementing various environmental strategies, such as waste reduction, recycling programs, and the use of biodegradable materials, to minimise their environmental footprint. Waste reduction programs, including recycling initiatives, are integral to hotels' environmental strategies. These efforts not only reduce waste sent to landfills but also contribute to broader sustainability goals. In addition to waste reduction, hotels are also incorporating biodegradable materials, such as eco-friendly packaging and toiletries, into their operations. This reduces environ-

mental harm and appeals to environmentally conscious guests, enhancing brand reputation and customer loyalty (Salem et al., 2023). These environmental practices are consistent with the principles of EMT, which suggests that environmental sustainability can be achieved through innovation and modernization without sacrificing economic performance. Hotels that adopt eco-friendly practices often find themselves more competitive in the market, attracting guests who prioritize sustainability (Chung, 2020).

2.7. Infrastructure and Climate Resilience

Hotels are increasingly investing in climate-resilient infrastructure to protect against the growing frequency of extreme weather events. Hotels located in regions prone to hurricanes, floods, or heatwaves are adopting innovative building designs and materials that are resistant to such conditions (Wong et al., 2023). Climate-resilient infrastructure, such as energy-efficient building materials, flood-resistant designs, and enhanced ventilation systems, enables hotels to withstand natural disasters while minimizing recovery times. By investing in infrastructure that can endure environmental stressors, hotels ensure their operational continuity and enhance their overall resilience (Shrestha & L'Espoir Decosta, 2023).

2.8. Regenerative Practices

Regeneration goes beyond traditional sustainability, focusing on restoring and improving environmental, social, and economic systems (Bellato & Cheer, 2021). While sustainability minimises harm, regenerative practices aim for net-positive outcomes, fostering thriving environments. In the hospitality industry, these strategies are implemented to revitalise ecosystems, strengthen community well-being, and drive innovative economic growth (Hajarrahmah, McGehee, & Soulard, 2024). Rooted in systems thinking, they recognise the interconnectedness of ecological, social, and economic systems (Kreb & Zwaal, 2024), emphasising resource reuse, biodiversity restoration, and local reinvestment. Regenerative tourism, for instance, promotes positive contributions to ecosystems and cultural heritage, addressing resource depletion caused by conventional tourism models (Paddison & Hall, 2024). Hotels can adopt regenerative practices, such as ecosystem restoration through reforestation, sustainable landscaping, and biodiversity support (Legrand et al., 2024). In order to succeed, regenerative practices require community engagement, with programmes involving local stakeholders in decision-making, training, and sharing economic benefits (Dangi & Petrick, 2021). Circular economy principles, including closed-loop systems for waste and water management, enhance sus-

tainability by reducing resource extraction and encouraging reuse (Rodríguez, Florido, & Jacob, 2020). Examples include Six Senses Resorts, which implement regenerative agriculture to supply organic produce and restore soil health (Six Senses, 2021), and Japan's Hoshinoya Fuji Hotel, which involves guests in forest restoration (Becken & Coghlan, 2024). These initiatives showcase how regenerative adaptations can redefine sustainability in hospitality. However, scholarly focus remains limited, often highlighting isolated cases rather than cohesive frameworks for broader adoption. This study addresses this gap by exploring resilience and regenerative adaptations to enhance hotel sustainability and economic stability.

2.9. Emerging Technologies for Resilience and Sustainability

Emerging technologies like AI and blockchain hold great promise for enhancing resilience and sustainability in the hospitality sector. AI optimises energy usage through predictive analytics, reducing waste and costs with smart systems for thermostats and lighting (Qi, 2024). It also personalises guest experiences by promoting eco-friendly activities and meals (Milton, 2024). Blockchain ensures transparency in supply chains, tracks sustainable sourcing, and records carbon offset programmes, fostering trust and accountability (Erol et al., 2022; Gössling et al., 2023). These technologies streamline resource allocation and secure communication during crises like natural disasters (Rashideh, 2020). Despite their potential, adoption remains limited, which calls for further exploration within resilience and regenerative frameworks (Prayag et al., 2024).

3. Data and Methods

3.1. Data Collection

The empirical part of this study is based on data collected during 15 semi-structured interviews conducted in May and June 2024. In order to facilitate the identification of important themes pertaining to the research topics, every interview was recorded, transcribed and analysed.

3.2. Target Population and Sampling

The interviews were conducted with hotel managers of three- to five-star hotel in South Africa's Gauteng province, the wealthiest one in the country, containing the country's largest city, Johannesburg, considered its financial hub. The interviewees were selected by convenience purposive sampling to ensure that they possessed the necessary knowledge and experience to contribute to the study's objectives. They were managers of various departments, such as finance, marketing, and maintenance.

Table 1. Interviewee profiles

Id	Sex	Position	Age	Education	Years of experience
1	Male	General manager	52	Higher (Bachelor of Business Management)	20
2	Female	Operations manager	41	Higher (Honours in Tourism and Hospitality Management)	12
3	Male	Front office manager	36	Higher (Diploma in Tourism Management)	9
4	Female	Food & beverage manager	45	×	15
5	Male	Sales and marketing manager	38	×	10
6	Female	Human resources manager	48	Higher (Bachelor of Human Resources)	11
7	Male	Security manager	50	×	18
8	Female	Executive housekeeper	42	Higher (Diploma in Hospitality management)	13
9	Male	Maintenance manager	37	Higher (Bachelor of Engineering)	11
10	Male	General manager	43	×	16
11	Female	Operations manager	×	Higher (Master of Tourism and Hospitality Management)	7
12	Female	Rooms division manager	39	Higher (Master of Business Administration)	12
13	Male	Executive chef	46	Higher (Culinary Arts Diploma)	19
14	Female	Housekeeping manager	34	Secondary (Matric Equivalent to Secondary Education)	8
15	Male	IT manager	40	Higher (Bachelor of Information Technology)	14

Source: Authors' compilation

3.3. Data Analysis

Qualitative data from the interviews were subjected to thematic analysis. After coding key pieces of information, broader themes such as 'water-saving technologies,' 'staff training,' and 'economic resilience' were identified. After reviewing and refining, the themes were clearly defined and linked back to the research questions and the relevant literature.

3.4. Ethical Considerations

Ethical approval for the study was obtained from the University of Johannesburg's Ethics Committee, within the School of Tourism and Hospitality. Informed consent was obtained from all Interviewees, ensuring they understood the nature of the study and their rights, including Interviewee anonymity and the right to withdraw from the study at any stage.

4. Results and Discussion

The findings of this study reveal that hotels in South Africa are adopting various resilience and sustainability strategies to address challenges like energy shortages, water scarcity, and economic instability. These strategies are interpreted in the light of resilience theory, service-dominant logic (SDL), and ecological modernisation theory, highlighting their broader implications for the hospitality industry.

4.1. Energy Resilience

In order to boost their energy resilience hotels are investing in renewable energy, particularly solar, to counter frequent power outages, as evidenced by the following comments:

- *Our solar energy investment ensures that we can continue operations during load shedding.* (Interviewee 1)
- *Solar power has reduced our dependency on the grid, especially during peak demand.* (Interviewee 2)
- *With solar, we not only maintain service quality during outages but also save on energy costs.* (Interviewee 5).

These practices are consistent with resilience theory, which emphasises adaptability in resource management during crises (Zhang, Xie & Huang, 2024b), and EMT, which promotes technological innovation to address environmental issues (Choudhary & Sharma, 2024). Furthermore, by integrating solar energy with regenerative practices, such as energy sharing within local communities, hotels can foster mutual resilience and strengthen community bonds. Exploring hybrid energy solutions, such as combining solar with wind or battery systems, could further enhance energy security (Abdelhady, 2023).

4.2. Water Resilience

Water-saving measures have become essential in addressing water scarcity, as indicated by the following comments:

- *We've installed water-efficient systems and regularly monitor consumption.* (Interviewee 3)
- *Our greywater recycling systems have significantly reduced our water usage.* (Interviewee 4)
- *We rely heavily on rainwater harvesting during dry spells to ensure our water needs are met.* (Interviewee 15)

These strategies are consistent with resilience theory, which emphasises adaptability amid environmental challenges (Seow et al., 2024), and with EMT, which supports technological innovations that reduce environmental impact while maintaining efficiency (Cheng et al., 2023). Hotels are also adopting regenerative water practices, such as contributing to local watershed restoration initiatives, which not only enhance water availability but also benefit surrounding ecosystems. Implementing additional measures, like expanded rainwater harvesting systems, would further enhance water resilience, especially during drought periods (Taghipour et al., 2024).

4.3. Social Resilience

Social resilience strategies, including staff training and community engagement, was found to be essential for maintaining operational flexibility, as can be seen in the following comments:

- *Ongoing staff development ensures employees are equipped to handle crises.* (Interviewee 5)
- *Engaging with local communities strengthens relationships, helping us navigate crises collaboratively.* (Interviewee 12)
- *Community involvement is essential because locals support us in times of need.* (Interviewee 6)

This is consistent with SDL, as value co-creation between the hotel and employees fosters resilience (Sambyal et al., 2024), while according to resilience theory, social adaptability is crucial in overcoming disruptions (Zhang, Xie & Huang, 2024a). Incorporating regenerative practices, such as empowering local commu-

nities through skills development and co-creating tourism experiences, enhances social resilience while fostering inclusive economic opportunities. By investing in staff development and community ties, hotels create a resilient workforce capable of adapting to unexpected situations.

4.4. Economic Resilience

As part of financial planning hotels were found to allocate resources to sustainability projects to secure long-term economic stability. Here are a couple of comments that illustrate this aspect:

- *We dedicate part of our budget specifically for sustainability projects to maintain economic stability.* (Interviewee 7)
- *Our sustainability initiatives go hand in hand with careful cost management to ensure we remain profitable.* (Interviewee 11)

They are consistent with resilience theory, which emphasises proactive financial planning to withstand economic shocks (Gamage et al., 2024). Additionally, according to EMT, economic investments are essential for achieving both sustainability and resilience (Spencer et al., 2023). Adopting regenerative economic practices, such as reinvesting a portion of profits into local communities or environmental conservation efforts, can create a positive cycle of mutual benefit between the hotel and its surroundings. Diversifying revenue streams through eco-tourism initiatives would further enhance economic resilience by catering to a growing market of sustainability-minded guests.

4.5. Environmental Resilience

The interviews revealed that hotels were increasingly adopting practices like waste reduction and the use of biodegradable products to enhance environmental resilience.

- *We focus on reducing waste through recycling initiatives and using biodegradable products wherever possible.* (Interviewee 8)
- *Achieving our zero-waste-to-landfill goal has driven us to innovate in waste management.* (Interviewee 3)
- *We collaborate with suppliers to minimise packaging waste.* (Interviewee 6)

These practices align with EMT, which emphasises innovation to reduce environmental harm (Khater et al., 2024), and resilience theory, highlighting environ-

mental strategies that mitigate risks (Salem et al., 2023). Regenerative practices, such as converting organic waste into compost for local farms or integrating circular economy principles, further enhance environmental resilience by turning waste into valuable resources. Waste reduction initiatives not only contribute to environmental preservation but also provide financial savings by reducing disposal costs.

4.6. Infrastructure Resilience

In an effort to improve their infrastructure resilience, hotels are investing in energy-efficient buildings and water-saving systems to mitigate the impacts of extreme weather events, as indicated by the following comments:

- *Our infrastructure upgrades ensure continued operations even during adverse weather conditions.* (Interviewee 9)
- *Building resilience into our physical infrastructure protects us against future climate uncertainties.* (Interviewee 2)
- *Investing in strong building materials and energy-efficient designs was necessary to handle unexpected weather challenges.* (Interviewee 5)

These practices are also consistent with resilience theory, which stresses the importance of physical robustness in responding to environmental challenges (Wong et al., 2023). According to EMT, resilience can also be promoted by integrating sustainable infrastructure practices into business models (Shrestha & L'Espoir Decosta, 2023). Additionally, implementing regenerative design principles, such as incorporating green roofs or constructing using locally sourced materials, creates dual benefits of reducing environmental impact while enhancing infrastructure sustainability.

In summary, hotels in Gauteng are adopting various strategies in order to enhance their energy, water, social, economic, environmental, and infrastructure resilience. By taking proactive measures in these areas, they not only manage immediate challenges but also lay the foundation for long-term sustainability and growth, aligning with global standards and responding to both environmental and societal expectations.

As can be seen in Figure 1, hotels are adopting a range of resilience strategies to enhance various dimensions of sustainability. Environmental resilience is promoted through waste reduction and sustainable procurement, as highlighted by participants who emphasized efforts in recycling and sourcing eco-friendly products. Energy resilience is strengthened by improving efficiency and integrating renewable energy, with interviewees mentioning investments in solar energy

Figure 1: Key resilience strategies undertaken by Gauteng hotels
Source: Authors' compilation

systems to manage load-shedding challenges. Infrastructure resilience involves proactive maintenance and adaptability, ensuring facilities are well-prepared for future challenges. Social resilience is achieved by fostering inclusive work environments, prioritising corporate social responsibility, and enhancing employee satisfaction, as noted by participants who highlighted initiatives to support staff retention and development. Economic resilience is driven by strategic financial management and operational flexibility, with interviewees mentioning adaptive measures like cost-saving initiatives during periods of financial uncertainty. Water

resilience focuses on conservation practices and the use of efficient water manage-
ment systems, such as the installation of water-saving technologies mentioned
by participants. Together, these strategies illustrate a comprehensive approach to
building resilience in hotels, positioning them to operate sustainably and adapt to
an evolving hospitality landscape.

5. Conclusion

5.1. Practical Implications

This study explores the importance of resilience and regenerative strategies in en-
hancing sustainability within the South African hospitality industry, addressing
the sector's critical need for adaptability amid economic, environmental, and social
challenges. The qualitative data from the interviews provide key insights into how
hotels try to improve operational resilience, environmental stewardship, and com-
munity relations, highlighting the sector's role in advancing sustainable tourism.

Therefore, hotels' resilience requires effective crisis management, energy re-
silience, and innovative adaptation strategies. As already noted, hotels in South
Africa face unique operational pressures from frequent power outages and water
scarcity, making energy resilience a priority. Renewable energy initiatives, such as
solar power and energy-efficient technologies, are proving instrumental in reduc-
ing reliance on traditional energy sources and mitigating disruptions. In addition
to fostering environmental responsibility, these investments promote financial sta-
bility over the long term by reducing energy costs and minimising environmental
impact.

This study emphasises the importance of diversifying income sources and build-
ing strong community relationships, which, according to SDL, are essential to both
resilience and regeneration. By partnering with local businesses, hotels can boost
local economic resilience while fostering a sense of community engagement. The
collaborative creation of value, positioning stakeholders, employees, and guests
are key contributors to hotels' sustainability goals. Another effective approach con-
sists in engaging guests and educating them about sustainability practices because
informed guests are more likely to adopt environmentally friendly behaviours,
contributing to the hotel's regenerative impact.

Regenerative practices within the hospitality sector emphasise not only envi-
ronmental considerations but also social and economic well-being. The interviews

demonstrate that waste reduction, resource efficiency, and support for biodiversity are fundamental to fostering a regenerative approach to hospitality management. By investing in sustainable infrastructure and waste reduction strategies, hotels do their part in contributing towards Sustainable Development Goals (SDGs) 9 and 12, which prioritise resilient infrastructure and responsible consumption. The adoption of these practices represents a shift from traditional sustainability efforts toward regeneration, where hotels not only reduce harm but actively work to restore and enrich the environments they operate in.

Based on the literature review and the empirical findings, the authors advocate for an integrated approach to hospitality management that incorporates resilience, regeneration, and community involvement as core strategies. By adopting regenerative tourism principles, hotels can transcend traditional boundaries, becoming catalysts for environmental restoration and socio-economic development. This approach not only enhances adaptability but also fosters environmental and social well-being while securing long-term profitability. This study contributes to the growing body of literature on sustainable tourism, providing valuable insights for stakeholders in the hospitality industry seeking to navigate complex challenges while fostering a regenerative, community-centred business model. In the future, policy support, stakeholder collaboration, and continuous innovation will be essential in furthering these efforts, ensuring that the South African hospitality sector remains resilient, sustainable, and beneficial to both people and the planet.

6. Limitations

Although this study offers valuable insights, it only reports experiences of selected Gauteng hotels. While it can be argued that strategies employed by hotels in other provinces are similar, the limited amount of qualitative data used in the study may not have revealed other factors affecting resilience and sustainability, such as economic disparities, local regulatory frameworks, and varying community engagement levels. Future research should therefore include representative quantitative data from different regions or case studies for a better understanding of these dynamics. These collective projects will contribute to a more holistic view of the resilience disruptions and adaptations of South African hotels.

CRediT Authorship Contribution Statement

Stanley Kagisho, Erica Sao Joao: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing — original draft, writing — review & editing.

Declaration of Competing Interest

None.

References

Abdelhady, S. (2023). Techno-economic study and the optimal hybrid renewable energy system design for a hotel building with net zero energy and net zero carbon emissions. *Energy Conversion and Management*, 289, 117195. https://doi.org/10.1016/j.enconman.2023.117195

Acampora, A., Preziosi, M., Lucchetti, M.C., & Merli, R. (2022). The role of hotel environmental communication and guests' environmental concern in determining guests' behavioral intentions. *Sustainability*, *14*(18), 11638. http://dx.doi.org/10.3390/su141811638

Achmad, W., & Yulianah, Y. (2022). Corporate social responsibility of the hospitality industry in realizing sustainable tourism development. *Enrichment: Journal of Management*, *12*(2), 1610–1616. https://doi.org/10.35335/enrichment.v12i2.447

Ali, M.B., Quaddus, M., Rabbanee, F.K., & Shanka, T. (2022). Community participation and quality of life in nature-based tourism: Exploring the antecedents and moderators. *Journal of Hospitality & Tourism Research*, *46*(3), 630–661. https://doi.org/10.1177/1096348020980094

Alonso, A.D., Bressan, A., Kok, S.K., Sakellarios, N., Vu, O.T.K., O'Shea, M., Koresis, A., Solis, M.A.B., & Santoni, L.J. (2022). Overcoming the unprecedented: Micro, small and medium hospitality enterprises under COVID-19. *International Journal of Hospitality Management*, 103, 103201. https://doi.org/10.1016/j.ijhm.2022.103201

Becken, S., & Coghlan, A. (2024). Knowledge alone won't "fix it": Building regenerative literacy. *Journal of Sustainable Tourism*, *32*(2), 385–401. https://doi.org/10.1080/09669582.2022.2150860

Bellato, L., & Cheer, J.M. (2021). Inclusive and regenerative urban tourism: Capacity development perspectives. *International Journal of Tourism Cities*, *7*(4), 943–961. https://doi.org/10.1108/IJTC-08-2020-0167

Bellato, L., Frantzeskaki, N., & Nygaard, C.A. (2023). Regenerative tourism: a conceptual framework leveraging theory and practice. *Tourism Geographies*, *25*(4), 1026–1046. https://doi.org/10.1080/14616688.2022.2044376

Bernard, S., & Nicolau, J.L. (2022). Environmental certification and hotel market value. *International Journal of Hospitality Management*, *101*, 103129. https://doi.org/10.1016/j.ijhm.2021.103129

Booyens, I., Hoogendoorn, G., Langerman, K., & Rivett-Carnac, K. (2024). Path creation for an electricity transition in South African tourism. *Tourism Geographies*, *26*(2), 194–213. https://doi.org/10.1080/14616688.2023.2274836

Carty, K.S. (2021). Towards a proactive, capabilities-based continuity framework for the hospitality and tourism industry. *Worldwide Hospitality and Tourism Themes*, *13*(3), 418–430. http://dx.doi.org/10.1108/WHATT-01-2021-0020

Chan, E.S. (2021). Why do hotels find reducing their carbon footprint difficult? *International Journal of Contemporary Hospitality Management*, *33*(5), 1646–1667. https://doi.org/10.1108/IJCHM-10-2020-1151

Cheng, Y., Zhu, K., Zhou, Q., El Archi, Y., Kabil, M., Remenyik, B., & Dávid, L.D. (2023). Tourism ecological efficiency and sustainable development in the Hanjiang River Basin: A super-efficiency slacks-based measure model study. *Sustainability*, *15*(7), 6159. https://doi.org/10.3390/su15076159

Choudhary, A., & Sharma, A. (2024). Exploring the Role of Environmental Ethical Consideration in Advancing Green Growth: Perspectives from India. *Asian Journal of Agricultural Extension, Economics* & S*ociology*, *42*(10), 116–129. https://doi.org/10.9734/ajaees/2024/v42i102567

Chung, K.C. (2020). Green marketing orientation: Achieving sustainable development in green hotel management. *Journal of Hospitality Marketing* & M*anagement*, *29*(6), 722–738. https://doi.org/10.1080/19368623.2020.1693471

Dangi, T.B., & Petrick, J.F. (2021). Enhancing the role of tourism governance to improve collaborative participation, responsiveness, representation and inclusion for sustainable community-based tourism: A case study. *International Journal of Tourism Cities*, *7*(4), 1029–1048. http://dx.doi.org/10.1108/IJTC-10-2020-0223

Dhirasasna, N., Becken, S,. & Sahin, O. (2020). A systems approach to examining the drivers and barriers of renewable energy technology adoption in the hotel sector in Queensland, Australia. *Journal of Hospitality and Tourism Management*, 42, 153–172. https://doi.org/10.1016/j.jhtm.2020.01.001

Erol, I., Neuhofer, I.O., Dogru, T., Oztel, A., Searcy, C., & Yorulmaz, A.C. (2022). Improving sustainability in the tourism industry through blockchain technology: Challenges and opportunities. *Tourism Management*, *93*, 104628. https://doi.org/10.1016/j.tourman.2022.104628

Erol, I., Oztel, A., Dogru, T., Peker, I., Neuhofer, I.O., & Benli, T. (2024). Supply chain resilience in the tourism and hospitality industry: A comprehensive examination of driving and restraining forces. *International Journal of Hospitality Management*, *122*, 103851. https://doi.org/10.1016/j.ijhm.2024.103851

Filimonau, V., & Magklaropoulou, A. (2020). Exploring the viability of a new 'pay-as-you-use' energy management model in budget hotels. *International Journal of Hospitality Management*, *89*, 102538. https://doi.org/10.1016/j.ijhm.2020.102538

Gallarza, M., Gil-Saura, I., & Arteaga-Moreno, F. (2023). Bridging service dominant logic and the concept of customer value through higher order indexes: Insights from hospitality experiences. *European Journal of Tourism Research*, *35*, 3510–3510. https://doi.org/10.54055/ejtr.v35i.3104

Gamage, A., Pyke, J., & De Lacy, T. (2024). Building resilience and sustainable HRM in the visitor economy: An uneasy relationship. *Journal of Hospitality and Tourism Management*, *58*, 497–505. https://doi.org/10.1016/j.jhtm.2023.05.006

Gössling, S., Balas, M., Mayer, M. & Sun, Y.Y. (2023). A review of tourism and climate change mitigation: The scales, scopes, stakeholders and strategies of carbon management. *Tourism Management*, *95*, 104681. https://doi.org/10.1016/j.tourman.2022.104681

Hajarrahmah, D., McGehee, N.G., & Soulard, J. (2024). The road to success: Tourism social entrepreneurs' quest for regenerative tourism. *Annals of Tourism Research*, *108*, 103818. https://doi.org/10.1016/j.annals.2024.103818

Jones, P., & Comfort, D. (2020). The COVID-19 crisis and sustainability in the hospitality industry. *International Journal of Contemporary Hospitality Management*, *32*(10), 3037–3050. https://doi.org/10.1108/IJCHM-04-2020-0357

Khater, M., Ibrahim, O., Sayed, M.N.E., & Faik, M. (2024). Legal frameworks for sustainable tourism: balancing environmental conservation and economic development. *Current Issues in Tourism*, *27*(21), 1–22. http://dx.doi.org/10.1080/13683500.2024.2404181

Kreb, J., & Zwaal, W. (2024). Assessment of regenerative hospitality. *Research in Hospitality Management*, *14*(2), 209–218. https://doi.org/10.1080/22243534.2024.2411978

Kuo, F.I., Fang, W.T., & LePage, B.A. (2022). Proactive environmental strategies in the hotel industry: Eco-innovation, green competitive advantage, and green core competence. *Journal of Sustainable Tourism*, *30*(6), 1240–1261. http://dx.doi.org/10.1080/09669582.2021.1931254

Legrand, W., Chen, J.S., & Laeis, G.C. (2022). *Sustainability in the hospitality industry: Principles of Sustainable Operations*. Routledge.

Legrand, W., Kuokkanen, H., Marucco, F., Hazenberg, S., & Fischer, F. (2024). Survival of the Fittest? A Call for Hospitality to Incorporate Ecology Into Business Practice and Education. *Cornell Hospitality Quarterly*, *65*(1), 68–87. https://doi.org/10.1177/19389655231182083

McCarroll, M.J., LaVanchy, G.T., & Kerwin, M.W. (2024). Tourism resilience to drought and climate shocks: The role of tourist water literacy in hotel management. *Annals of Tourism Research Empirical Insights*, *5*(2), 100147. https://doi.org/10.1016/j.annale.2024.100147

Melián-Alzola, L., Fernández-Monroy, M., & Hidalgo-Peñate, M. (2020). Hotels in contexts of uncertainty: Measuring organisational resilience. *Tourism Management Perspectives*, *36*, 100747. http://dx.doi.org/10.1016/j.tmp.2020.100747

Milton, T. (2024). Artificial Intelligence Transforming Hotel Gastronomy: An In-depth Review of AI-driven Innovations in Menu Design, Food Preparation, and Customer Interaction, with a Focus on Sustainability and Future Trends in the Hospitality Industry. *International Journal for Multi-dimensional Research Perspectives*, *2*(3), 47–61. https://doi.org/10.61877/ijmrp.v2i3.126

Moneva, J.M., Bonilla-Priego, M.J., & Ortas, E. (2020). Corporate social responsibility and organisational performance in the tourism sector. *Journal of Sustainable Tourism*, *28*(6), 853–872. https://doi.org/10.1080/09669582.2019.1707838

Paddison, B., & Hall, J. (2024). Regenerative tourism development as a response to crisis: harnessing practise-led approaches. *Tourism Geographies*, 1–18. https://doi.org/10.1080/14616688.2024.2381071

Prayag, G., Jiang, Y., Chowdhury, M., Hossain, M.I., & Akter, N. (2024). Building dynamic capabilities and organizational resilience in tourism firms during COVID-19: A staged approach. *Journal of Travel Research*, *63*(3), 713–740. https://doi.org/10.1177/00472875231164976

Qi, Y. (2024). Incorporation of artificial intelligence toward carbon footprint management in hotels to create sustainable, green hotel: Mini review. *Tourism Management and Technology Economy*, *7*(1), 51–55. https://dx.doi.org/10.23977/tmte.2024.070107

Rashideh, W. (2020). Blockchain technology framework: Current and future perspectives for the tourism industry. *Tourism Management*, *80*, 104125. https://doi.org/10.1016/j.tourman.2020.104125

Rodríguez, C., Florido, C., & Jacob, M. (2020). Circular economy contributions to the tourism sector: A critical literature review. *Sustainability*, *12*(11), 4338. https://doi.org/10.3390/su12114338

Rogerson, C.M., & Rogerson, J.M. (2020). COVID-19 tourism impacts in South Africa: Government and industry responses. *Geo Journal of Tourism and Geosites*, *31*(3), 1083–1091. http://dx.doi.org/10.30892/gtg.31321-544

Roxas, F.M.Y., Rivera, J.P.R., & Gutierrez, E.L.M. (2020). Mapping stakeholders' roles in governing sustainable tourism destinations. *Journal of Hospitality and Tourism Management*, *459*, 387–398. https://doi.org/10.1016/j.jhtm.2020.09.005

Salehi, M., Filimonau, V., Ghaderi, Z., & Hamzehzadeh, J. (2021). Energy conservation in large-sized hotels: Insights from a developing country. *International journal of hospitality management*, *99*, 103061. https://doi.org/10.1016/j.ijhm.2021.103061

Salem, I.E., Elbaz, A.M., Al-Alawi, A., Alkathiri, N.A., & Elkhwesky, Z. (2023). Is eco-label hotel engagement the pathway to sustainability practices via entrepreneurial resilience and orientation in Oman? Findings from PLS-SEM and fsQCA. *International Journal of Contemporary Hospitality Management*, *35*(2), 717–742. https://doi.org/10.1108/IJCHM-02-2022-0229

Sambyal, R., Rishi, B., Mavi, A.K., & Marwaha, A.S. (2024). Value network partners' perception of co-creation and its impact on their satisfaction. *Journal of Hospitality and Tourism Insights*, *7*(4), 2216–2236. https://doi.org/10.1108/JHTI-10-2022-0500

Sandang, Y., & Cole, S. (2023). Using a human rights approach to improve hotels' water use and sustainability. *Journal of Sustainable Tourism*, *31*(10), 2337–2355. https://doi.org/10.1080/0966 9582.2022.2108041

Satar, M.S., Rather, R.A., Cheema, S., Parrey, S.H., Ghaderi, Z., & Cain, L. (2024). Transforming destination-based customer engagement to revisit intention through co-creation: findings from sem and fsqca. *Tourism Review*, *79*(3), 601–621. https://doi.org/10.1108/tr-10-2022-0489

Seow, A.N., Choong, Y.O., Low, M.P., Ismail, N.H., & Choong, C.K., 2024. Building tourism smes' business resilience through adaptive capability, supply chain collaboration and strategic human resource. *Journal of Contingencies and Crisis Management*, *32*(2), 12564. http://dx.doi.org/10.1111/1468-5973.12564

Shrestha, R.K., & L'Espoir Decosta, P. (2023). Developing dynamic capabilities for community collaboration and tourism product innovation in response to crisis: Nepal and covid-19. *Journal of Sustainable Tourism*, *31*(1), 168–186. https://doi.org/10.1080/09669582.2021.2023164

Shulga, L.V., Busser, J.A., & Chang, W. (2022). Relational energy and co-creation: effects on hospitality stakeholders' wellbeing. *Journal of Hospitality Marketing* & *Management*, *31*(8), 1026–1047. https://doi.org/10.1080/19368623.2022.2091706

Six Senses. (2021). *Sustainability initiatives at Six Senses Resorts*. www.sixsenses.com

Sobaih, A.E.E., Elshaer, I., Hasanein, A.M., & Abdelaziz, A.S. (2021). Responses to covid-19: The role of performance in the relationship between small hospitality enterprises' resilience and sustainable tourism development. *International Journal of Hospitality Management*, *94*, 102824. https://doi.org/10.1016/j.ijhm.2020.102824

Sofyan, A.S., Abror, A., Putra, T.W., Muslihati, M., Sofyan, S., Sirajuddin, S., Katman, M.N., & Darussalam, A.Z. (2022). Crisis and disaster management for halal tourism: a systematic review. *Tourism Review*, *77*(1), 129–145. https://doi.org/10.1108/TR-08-2020-0390

South African Weather Services. (2021). 4. Sunshine and Cloudiness. *Regional Weather and Climate of South Africa*, 1, 31–38.

Spencer, A.J., Lewis-Cameron, A., Roberts, S., Walker, T.B., Watson, B., & McBean, L.M. (2023). Post-independence challenges for Caribbean tourism development: a solution-driven approach through Agenda 2030. *Tourism Review*, *78*(2), 580–613. https://doi.org/10.1108/TR-01-2022-0049

Taghipour, A., Padash, A., Etemadi, V., Khazaei, M., & Ebrahimi, S. (2024). Sustainable and Circular Hotels and the Water–Food–Energy Nexus: Integration of Agrivoltaics, Hydropower, Solar Cells, Water Reservoirs, and Green Roofs. *Sustainability*, *16*(5), 1985. https://doi.org/10.3390/su16051985

Traskevich, A., & Fontanari, M. (2023). Tourism potentials in post-covid19: The concept of destination resilience for advanced sustainable management in tourism. *Tourism Planning* & *Development*, *20*(1), 12–36. https://doi.org/10.1080/21568316.2021.1894599

United Nations (UN). (2015). Transforming our World: The 2030 Agenda for Sustainable Development. https://sdgs.un.org/2030agenda

Wang, J. (2022). Building competitive advantage for hospitality companies: The roles of green innovation strategic orientation and green intellectual capital. *International Journal of Hospitality Management*, *102*, 103161. https://doi.org/10.1016/j.ijhm.2022.103161

Wong, I.A., Lin, X., Lin, Z., & Lin, Y. (2023). Gaining resilience through transformative services in cause-related events: an interaction ritual chain perspective. *International Journal of Contemporary Hospitality Management*, *35*(9), 3235–3262. http://dx.doi.org/10.1108/IJCHM-05-2022-0657

Zhang, J., Xie, C., & Huang, S. (2024a). Resilient leadership in hospitality and tourism enterprises: Conceptualization and scale development. *International Journal of Contemporary Hospitality Management*, *36*(4), 1299–1326. https://doi.org/10.1108/IJCHM-10-2022-1274

Zhang, J., Xie, C., & Huang, S.S. (2024b). The effect of resilient leadership on employee resilience during a crisis in tourism & hospitality firms: A self-determination perspective. *International Journal of Hospitality Management*, *122*, 103886. https://doi.org/10.1016/j.ijhm.2024.103886

Zrównoważona odporność i adaptacje proekologiczne branży hotelarskiej na przykładzie prowincji Gauteng w RPA

Streszczenie. Sektor hotelarski w RPA stoi przed poważnymi wyzwaniami, w tym niestabilnością gospodarczą, zmianami klimatu i zmieniającymi się preferencjami konsumentów. Aby skutecznie rozwiązać te problemy, hotele muszą wdrażać innowacyjne strategie zwiększające ich odporność na sytuacje kryzysowe i przyczyniające się do ochrony zasobów. Badanie opisane w artykule jest oparte na wnioskach z teorii odporności, logiki usługowej i teorii modernizacji ekologicznej. Chcąc dowiedzieć się, w jaki sposób obecne wyzwania są rozwiązywane w praktyce, autorzy przeprowadzili pogłębione wywiady z kierownikami hoteli w prowincji Gauteng, aby zebrać dane do analizy tematycznej. Przykłady strategii odporności wymienione przez respondentów obejmują skuteczne zarządzanie kryzysowe, dywersyfikację dochodów i budowanie solidnych partnerstw społecznościowych. Zapytani o praktyki proekologiczne, respondenci wymienili redukcję odpadów, zwiększenie ochrony różnorodności biologicznej i inwestowanie w zrównoważoną infrastrukturę. Praktyki są zbieżne z celami 9. i 1. zrównoważonego rozwoju, które mają na celu rozwój odpornej infrastruktury i eliminację ubóstwa. Autorzy opowiadają się za holistycznym podejściem do zarządzania usługami hotelarskimi, które łączą w sobie innowacyjność, aktywne zaangażowanie społeczności i ochronę środowiska, aby w ten sposób przyczyniać się do trwałego rozwoju branży.

Słowa kluczowe: branża hotelarsko-gastronomiczna, odporność, adaptacje proekologiczne, cele zrównoważonego rozwoju