

Climate Change Mitigation Practices of Selected Resort Destination in Sagay City Negros Occidental

Elyn Mae P. Alcantara, Idcel D. Saban, Julie Ann E. Dolloso, Carla W. Flores, Kate Nicole V. Labrador, John Paul M. Clamor, Mark Steffen A. Parreñas, Avie V. Genoguin

State University Of Northern Negros

Abstract

Climate change has become a major challenge for world leaders seeking to establish policies to manage and minimize the impacts on the ecosystem, the tourism industry, a crucial economic sector, is increasingly acknowledging its significant impact to climate change and the requirement to adopt sustainable practices. The Negros Occidental Provincial Government has made great strides in incorporating climate change mitigation into its tourist plans. This study aimed to assess the extent of climate change mitigation practices in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by the selected resort destinations in Sagay City. The study utilized a descriptive-quantitative design which aimed to assess the extent of climate change mitigation practices in terms of Occidental in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by the selected tourism destinations in Sagay City. The respondents for this study were the 30 employees of the resort destinations. The results suggest that resort destinations are making a meaningful effort on climate change mitigation, especially in terms of energy efficiency and emission reduction. Resort destinations are performing extremely well with respect to climate change mitigation practices related to reuse and recycling. The consistent scores found across each of the indicators is a clear demonstration of deep and clear commitment to sustainability and have engaged in climate change mitigation practices oriented to product and process changes especially, as practiced to a very high extent with new industrial changes, radical product innovations. It is recommended that resort destinations can continue to expand their best practices by promoting education and awareness amongst staff and guests to strengthen their involvement in waste minimization practices. Resort destinations should continue to further develop their climate change mitigation plans by pursuing more innovative technologies and renewable energy sources and pay more critical attention to refining, products and services that are energy-efficient.

Keywords: Climate Change, Mitigation Practices, Resort Destination, Negros Occidental

Introduction

Climate change has become a major challenge for world leaders seeking to establish policies to manage and minimize the impacts on the ecosystem, which are represented by numerous risks to human health, Rifkin (2018) agricultural production, food security, and the economy and development of countries, Chen et.al. (2019). According to the 2018 Intergovernmental Panel on Climate Change (IPCC) report, if temperatures rise at the current rate, global warming is expected to increase by 1.5 °C between 2030 and 2052 and bring catastrophic effects to the ecosystem and society. The report estimated that human activities have caused approximately 1.0 °C of global warming in the pre-industrial period, with a likely range of 0.8 to 1.2 °C. Given the above, the tourism industry, a crucial economic sector, is increasingly acknowledging its significant impact to climate change and the requirement to adopt sustainable practices. Global tourism locations are experiencing unprecedented problems as temperatures rise and extreme weather events become more prevalent. On the other hand, there is a growing push for climate-friendly tourism, and various programs and tactics are being put in place to lessen the industry's environmental impact, Gössling & Schumacher (2023). Streimikiene et. al., (2024), on their study about climate change mitigation performance

in the EU tourism destination sector emphasizes that the best-performing country in terms of climate change mitigation in tourism destinations is Finland. Hotels in Central Europe are distinguished in the extensive use of energy and water resources and high carbon footprint per occupied room. Also, Central European countries have a high energy intensity and GHG intensity per GDP in the tourism sector. The World Tourism Organization claims. (2019), tourism sites in Asia are increasingly acknowledging the urgent need to reduce climate change. The increasing number of programs and procedures being used throughout the area is proof of this. Through these initiatives, the tourism industry hopes to lessen its carbon footprint and become more resilient to the effects of climate change. Promoting eco-friendly travel practices, making investments in renewable energy sources, and equipping lodging facilities with energy-saving equipment are a few typical tactics. Furthermore, initiatives are underway to increase visitor and community understanding regarding climate change and its effects on the travel and tourism sector. In the study, Climate Mitigation and Waste Management in the Tourism Industry for A Sustainable Ecosystem by Wiratama et.al, (2024), emphasizes that climate change influences the viability of areas to sustain tourist activities, tourism various demand, and affects operating expenses such as heating and cooling, artificial snow prices, food production, transportation and water and irrigation availability. Poli et.al, (2024) acknowledge the result of his study that, energy-efficient technologies, sustainable resource management practices, and renewable energy integration, the hospitality industry can reduce its carbon footprint and enhance its resilience to climate-related hazard.

Implementing numerous strategies to minimize climate change within the tourism sector has been a major accomplishment for the Department of Tourism (2019). One of these projects is the creation of the National Ecotourism Strategy and Action Plan (NESAP), which aims to encourage environmentally friendly travel methods in particular locations. The DOT has also held seminars and workshops to inform stakeholders in the tourism industry about strategies for mitigating and adapting to climate change. In addition, the Department of Transportation (DOT) has acknowledged green hotels and zero-carbon resorts, promoting the tourism industry's adoption of eco-friendly practices. The objective of these endeavors is to mitigate the carbon footprint associated with tourism and foster sustainable tourist growth in the Philippines.

The Negros Occidental Provincial Government (2019) has made great strides in incorporating climate change mitigation into its tourist plans. The Provincial tourist Office encourages enterprises to adopt eco-friendly activities and lower their carbon footprint by developing guidelines for sustainable tourist practices. Furthermore, the province has collaborated with nearby communities to establish community-based ecotourism initiatives, enabling locals to take part in conservation efforts and profit from ecotourism pursuits. Negros Occidental has also adopted renewable energy sources to power tourism facilities, decreasing their reliance on fossil fuels and lowering greenhouse gas emissions, according to the Department of Tourism (2023). To protect its tourism assets and guarantee the long-term viability of the sector, the province has also made investments in climate change adaption strategies, such as programs for disaster risk reduction and coastal erosion control. These actions support Negros Occidental's efforts to fight climate change and are in line with the worldwide commitment to sustainable tourism. By promoting environmental responsibility and community engagement, the province wants to establish a tourism business that is both robust and sustainable, assuring the preservation of its natural and cultural riches for future generations.

However, while there have been growing efforts to address climate change in the tourism sector, studies specifically focused on Sagay City, Negros Occidental, and its unique tourism destinations are limited. Limited research exists on the specific climate change mitigation strategies employed by tourism businesses and communities in Sagay City. Understanding these practices can provide valuable insights into their effectiveness and potential for replication. In the study of Naqvi et. al., (2023), highlighted the climate change mitigation strategies employed by tourism resorts worldwide, focusing on energy efficiency, waste management, and sustainable practices. Island economies revealed that lodging establishments are increasingly adopting energy-efficient technologies and sustainable resource management practices to mitigate climate change impacts, thus revealing possible divergences and synergies between the sectors, that is why this study focuses on tourism sector in Sagay City.

This study's main goal is to look into how mitigation strategies for climate change are currently being implemented in Sagay City, Negros Occidental in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by the selected resort destinations in Sagay City.

Objectives of the Study

This study aimed to assess the extent of climate change mitigation practices in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by the selected resort destinations in Sagay City.

Conceptual Framework

The conceptual framework for the climate change mitigation practices of selected resorts is anchored on the Input-Process-Output-Outcome (IPOO) model, which provides a structured way of understanding how sustainable interventions are implemented and what impacts they generate. In this framework, inputs such as climate change mitigation practices in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process. The process is through survey. The outputs of these efforts are tangible results such as the transition to eco-friendly cleaning products and sustainable sourcing, reflecting the resort's commitment to low-impact operations. Ultimately, these outputs lead to broader outcomes, specifically, improved environmental health and enhanced guest satisfaction.

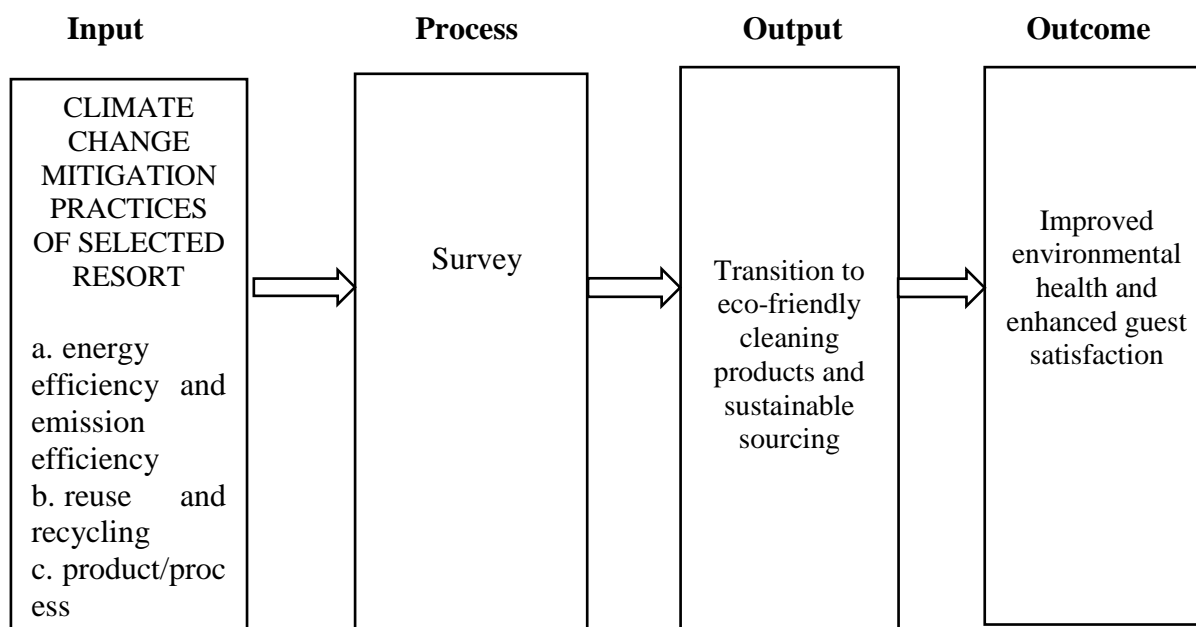


Figure 1. Conceptual Framework

METHODOLOGY

This part of the paper's research design presents respondents and sampling technique, data gathering instrument, data collection procedure, and data analysis.

Research Design

The study utilized a descriptive-quantitative design. This design statistically measures the variables to answer the theory guided problems and hypotheses. Specifically, the descriptive approach shall assess the extent of climate change mitigation practices of tourism destination of Tourism Destination in Sagay City Negros Occidental.

Respondents of the Study

The respondents for this study were the 30 employees of the Resort A (4), Resort B (11), Resort C (7) and Resort D (9). The four resorts were selected for inclusion in the study. The researchers employed a complete enumeration because the population of the workers in the mentioned resorts is relatively small. Complete enumeration is a type of purposive sampling technique wherein the entire population of interest with a particular characteristic is studied, (Lærd Dissertation, 2017).

Distribution of Respondents

	N
Resort A	4
Resort B	11
Resort C	7
Resort D	9
Total	30

Data Gathering Instrument

The instrument that was used is an adapted-modified survey questionnaire by Perlin et al., (2022), entitled “Climate Change Mitigation, Adaptation Practices, and Business Performance in Brazilian Industrial Companies”, to gather appropriate data to evaluate the extent of climate change mitigation practices of tourism destination of Tourism Destination in Sagay City.

Validity

The adapted-modified questionnaire BY Perlin et. al., (2022) was subjected to a content validation ratio. Measuring the content validity of an instrument is a vital procedure in developing a research instrument. An instrument that has content validity is said to measure what it purports to measure. For the instrument to achieve content validity, eight experts in the field of research, education, and tourism management will be requested to rate the instrument. The researcher will send a letter request to the distinguished validators with a copy of the instrument, a statement of the problem, and the validation checklist set forth by Good and Scates.

Regarding the consistency of the items, the validity coefficient of 4.51 was considered excellent.

Reliability

To determine the reliability of the instrument, a pilot test involving 30 respondents in Resort A (9), Resort B (11) and Resort C (10) were administered. The respondents were the employees of the resort destination in Sagay City.

Respondents were given ample time to accomplish the survey. The responses were then collected and prepared for reliability analysis.

The instrument was deemed reliable based on the reliability result of 0.769 obtained through the Cronbach's Alpha Method application.

Data Gathering Procedure

First and foremost, consent or permits on the conduct of the study, specifically in data collection, must be obtain from those involves and concern. A letter of consent stating the title and purpose of the study and requesting permission to conduct the study must be sent to the managers or owners of the resort. Following approval, respondents for the study was identify based on the study's purpose. Following the determination of the sample size, informed consent must be distributed to the study's target participants, emphasizing their voluntary participation in the data collection process, the contribution they can make to the study's completion, and other ethical considerations. Face-to-face engagement has been conducted; the research instrument must administer with personal interaction with the respondents. Following the completion of the survey, the responses were consolidated and organized in MS Excel. The raw data will be sent to the statistician of the researcher for statistical analysis.

Statistical Treatment

For problem 1, on assessing the extent climate change mitigation practices in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by resort destinations in Sagay City, weighted mean & standard deviation has been used.

Score	Mean Range	Interpretation
4	3.25-4.00	Very High Extent
3	2.50-3.24	High Extent
2	1.75-2.49	Moderate Extent
1	1.00-1.40	Least Extent

Ethical Considerations

The researchers address the general principles of respect for persons, beneficence, and justice to ensure the study's ethical soundness.

The individual results of this study remained confidential and anonymous to all parties involved in this study. It has been guaranteed that their responses were free of force, influence, or probability of being wrong. Furthermore, the risks in this study were highly controlled, and the gain was reasonably higher than the risks.

All parties involved in this study were expected to benefit since it has been resulted in possible recommendations based on the findings.

The researchers assured utmost confidentiality to the data collected from the respondents. Unless necessary to state, no information was opened, and no identity was revealed without their consent. All information access by experts and researchers will be kept confidential and use solely for this study. The data gather from respondents will be maintained for the study and then discarded. The right to privacy will be greatly respected by the researchers in the conduct of this study.

The researchers ensured that all information and inquiries were stated and answered throughout the study, which is why the respondents did not feel uncomfortable. The participants in this study had the right to know all pertinent information, including the study's purpose, benefit, and nature. The researchers observed the ethical consideration herein stated. The researchers were deemed accountable for the results of this study, being objective, unbiased, and free of any attempt to influence the findings in any way.

The researcher ensured that all borrowed ideas from other authors or researchers were adequately attributed and referenced using the 7th edition of the American Psychological Association (APA) referencing style.

Result And Discussion

The overarching goal of this study is to assessed the extent of climate change mitigation practices in terms of energy efficiency and emission efficiency; reuse and recycling; and product/process implemented by the selected resort destinations in Sagay City.

Table 1. *The Extent of Climate Change Mitigation Practices in Terms of Energy and Emission Efficiency*

Energy Efficiency and Emission Efficiency	Mean	SD	Interpretation
1. The resort destination has practices to improve equipment.	3.60	.498	Very High Extent
2. The resort destination has practices to products efficiency.	3.33	.55	Very High Extent
3. The resort destination has practices to technology efficiency.	3.20	.55	Very High Extent
4. The resort destination has cleaner, low-carbon energy generation practices (e.g., fossil fuel switching).	3.30	.53	Very High Extent
5. The resort destination has practices establishing an energy efficiency policy, such as combined heat	3.43	.63	Very High Extent

and power and process changes and optimization.

6. The resort destination has practices of collaborative activities between companies in its sector and others.	3.30	.7	Very High Extent
-----------------------------------------------------------------------------------------------------------------	------	----	------------------

As a whole	3.36	.306	Very High Extent
-------------------	-------------	-------------	------------------

The research findings in Table 1 indicated the level of implementation of climate change mitigation practices about energy efficiency and emission efficiency at resort destinations. The data shown to have been implemented at a very high level, given the means and the corresponding descriptions. The resort destination has a very high level of practices that relate to improving equipment (M=3.60, SD=0.498). Similarly, attempts to enhance product efficiency (M=3.33, SD=0.55) and technology efficiency (M=3.20, SD=0.55) are also found to a very high extent. Other practices include cleaner, low-carbon energy generation, such as switching from fossil fuels (M=3.30, SD=0.53), and the development of energy efficiency policies, including combined heat and power systems (M=3.43, SD=0.63). Also, companies within the sector are engaging in collaboration with other industries in joint activities that contribute to the sustainability efforts (M=3.30, SD=0.7). Overall, a mean score of 3.36 (SD=0.306) across all practices indicates a very high extent of climate change mitigation in the context of energy and emission efficiency.

These implies that resort destinations are doing extremely well in their efforts to employ climate change mitigation practices aimed at energy and emission efficiency. Highly intensive practices such as equipment improvement, product and technology efficiency, low-carbon energy generation, the establishment of energy policy, and inter-company collaboration suggest that resort destinations are engaging in active effort towards sustainability, (Youssef & Zeqiri, 2022).

The result shows a high mean score (3.60) on practices to enhance equipment in resort destinations, meaning there is a high commitment toward enhancing infrastructure and operational efficiency. This aligns with the concept of regenerative tourism, where improvement of equipment and infrastructure would support sustainable practices and enhance visitor experience. According to Mize (2023), regenerative tourism practices mean more than the conservation practice since it should influence destinations in positive ways such as improving equipment and facilities. Also, the presence of efficient DMOs is instrumental in coordinating and improving equipment and infrastructure. Solimar International (2021) remarks that DMOs facilitate a gathering of various stakeholders with a view to bettering visitor experience through enhanced management of resources such as equipment. However, implementing responsible tourism often involves equipping better facilities that ensure compliance with the environmental requirements as well as maximization of effectiveness. The GSTC argues that sustainable tourism includes awareness and mitigating impacts created by tourism through better equipment and infrastructural investments. The high mean score reflects the collective effort by the tourism destinations in improving equipment and infrastructure. The efforts thus fit into the ideals of regenerative tourism, efficient destination management, and responsible tourism.

The mean score of 3.20 with a standard deviation of 0.55 for the practices to improve the efficiency of technology in resort destinations indicates somewhat high implementation. Such destinations are actively integrating advanced technologies to ensure operational efficiency and sustainability (Mylonakis & Tsoutsou, 2021). Digital technologies have the potential to support sustainable tourism practices by improving operational efficiency, resulting in waste and emissions reduction (Alsaad & Asmar,2020). It has a significant improvement for the tourist experience and also makes destination management efficiency. Yet, there is always a way it can become impeded because of very high costs, technical problems, privacy concerns, and also due to people's resistance to the change brought by Iot technology. More advanced Information and Communication Technologies allow both providers and destinations to optimize efficiency and strategize on means of improving communication and service delivery according to (Perković & Novak,2020). Smart resort destinations, triggered by technological innovations, seek to improve the tourist experience and, at the same time, to enhance the quality of life of its residents in the study of (Li & Zhao,2023).

The overall mean score for climate change mitigation practices in resort destinations (3.36) shows a very high extent of implementation. This implies that tourism operators are actively adopting strategies to reduce greenhouse gas emissions and enhance sustainability. For example, Seagoing Green (2023) states that

tourism businesses are increasingly using renewable energy sources, promoting sustainable transportation options, and reducing single-use plastics to mitigate climate change impacts. The European Travel Commission also points out that tourism operators must be ready for carbon pricing and become more sustainable in practice to meet global climate goals (2019). In addition, Solimar International (2021) states that tourism enterprises are reacting to climate and biodiversity crises by investing in nature and regenerating destinations, thus supporting both climate change mitigation and adaptation. These findings underscore the tourism industry's commitment to sustainability and its proactive role in addressing climate change.

Table 2. *The Extent of Climate Change Mitigation Practices in Terms of Reuse and Recycling*

Reuse and Recycling	Mea n	SD	Interpretation
1. The resort destination has practices for reusing materials.	3.73	.52	Very High Extent
2. The resort destination has practices for recycling products.	3.5	.57	Very High Extent
3. The resort destination has practices for recycled materials.	3.57	.68	Very High Extent
4. The resort destination has waste reduction practices.	3.63	.56	Very High Extent
5. The resort destination has reuse, recycling, and energy recovery practices, such as material substitution.	3.77	.5	Very High Extent
As a whole	3.64	.483	Very High Extent

The results of the research in Table 2 indicate a very high level of climate change mitigation practices in resort destinations regarding reuse and recycling. All the mean scores for individual practices are in the "Very High Extent" category, reflecting a strong commitment to sustainability. Specifically, material reuse practices have (M=3.73, SD=0.52), indicating that resort destinations are highly focused on reusing resources rather than disposing of them. Similarly, product and material recycling practices score (M= 3.50, SD=0.57) and (M=3.57, SD=0.68), respectively, showing a significant effort to reduce waste and promote environmental responsibility. Waste reduction practices also have a very high implementation extent, scoring (M=3.63, SD=0.56), meaning that resort destinations are actively doing their part in minimizing waste generation. Reuse, recycling, and energy recovery practices, like material substitution, are the highest, scoring (M=3.77, SD=0.50), which represents an advanced approach to sustainable practices. The overall mean score was (M=3.64, SD=0.483), which clearly shows that resort destinations are adopting state-of-the-art reuse and recycling strategies to mitigate the impact of climate change. These results do show the commitment of the tourism sector in implementing practices that contribute positively to environmental sustainability and waste reduction.

The results indicate that resort destinations are highly committed to adopting climate change mitigation practices related to reuse and recycling, showing a high tendency toward sustainability. The very high mean scores across all practices indicate that these destinations recognize the importance of waste reduction, reusing materials, and recycling as integral parts of their environmental responsibility.

The high mean score (3.77) for the practices of reusing, recycling, and recovering energy in material substitution shows that there is a good commitment among tourism destinations to use sustainable waste management strategies. It is in line with the circular economy principles of closing the life cycle of products and materials in order to avoid waste and increase resource efficiency. As revealed by Geng et al. (2020), circular economy strategies in the tourism sector can considerably reduce environmental impacts by promoting material and energy recovery through reuse and recycling. In addition, the U.S. Environmental Protection Agency (EPA) reveals that the preferred method for waste management is through source reduction and reuse, since it prevents waste generation and saves resources (EPA, 2015). Moreover, application of the "reduce, reuse, and recycle" principle in the hospitality industry enhances environmental

performance and sustainability (Huang et al., 2019). Such findings highlight the significance of the incorporation of sustainable waste management practices, such as material substitution, in achieving a high level of environmental responsibility in resort destinations.

The mean score (3.5) of practices related to recycling products in resort destinations indicates that tourism operators are actively adopting recycling initiatives to reduce waste and promote environmental sustainability. For example, the World Travel & Tourism Council (2021) points out the need to rethink single-use plastic products in the travel and tourism industry, promoting recycling and sustainable alternatives to minimize environmental impact. Furthermore, the European Commission (2020) indicates that tourism industries are increasingly taking up practices that are circular economy in nature, such as recycling, to boost their sustainability and lower the levels of waste that are produced. In addition, according to research by the United Nations Environment Programme (2018), the tourism enterprises embrace practices of waste minimization, including recycling, to improve environmental performance and save costs. These findings reflect the tourism industry's commitment to sustainability and its proactive role in addressing environmental challenges through effective recycling practices.

The overall mean score of 3.64 (SD = 0.483) for climate change mitigation practices in resort destinations indicates a very high level of implementation. This implies that tourism operators are actively adopting strategies to reduce greenhouse gas emissions and enhance sustainability. World Travel & Tourism Council (2021) highlights the need to rethink single-use plastic products in the travel and tourism industry, promoting recycling and sustainable alternatives to minimize environmental impact.

Similarly, the European Commission (2020) identifies that the tourism sector is progressively adopting circular economy practices, which include recycling to improve sustainability and reduce waste. In addition, the United Nations Environment Programme (2018) study indicates that tourism businesses have adopted waste minimization practices such as recycling, which improves environmental performance and also saves costs.

Table 3. *The Extent of Climate Change Mitigation Practices in Terms of Product/Process Improvements*

Product/Process Improvements	Mean	SD	Interpretation
1. The resort destination has practices of new industrial processes, radical product innovations, and designs, including product changes, aimed at process efficiency and lower input usage.	3.27	.64	<i>Very High Extent</i>
2. The resort destination has product/service efficiency practices (e.g., overall end-use energy efficiency).	3.2	.71	<i>High Extent</i>
3. The resort destination has practices of releasing reports related to climate change (emission data and practices).	3.31	.68	<i>Very High Extent</i>
As a whole	3.20	.522	<i>High Extent</i>

Table 3 presents findings in terms of product and process improvements undertaken to mitigate climate change practices in resort destinations. Results show that the practice of new industrial processes, radical product innovations, and designs with targets on process efficiency and reducing input usage have a mean score of 3.27 (SD=0.64), meaning that it is a "Very High Extent" in practice. In addition, practices for the release of reports on climate change, which include emission data and mitigation practices, scored an average of 3.31 (SD=0.68), with a "Very High Extent." Such high scores indicate proactive efforts by resort destinations in terms of adopting innovative and transparent practices to mitigate the impacts of climate change. On the other hand, adoption of energy efficiency practice through product and service efficiencies, for example overall end-use energy efficiency, possesses a lower mean score of 3.20 with SD=0.71 compared to the general estimate of "High Extent." This score is still flattering but shows that there is still space to develop further in optimizing end-use energy efficiency in resort destinations. This will place a mean score of 3.20, with a SD=0.522; as a whole, this reveals that the improvements for product and processes are indeed highly practiced by the tourism operators, mainly on innovation, energy efficiency, and

transparent reporting regarding climatic data. These points aside, still score lower, revealing a trend in constant energy efficient practice that must further enhance and assist the overall mitigate activities concerning climate change.

The results therefore, implies to the resort destinations' very strong efforts in terms of climate change mitigation through the improvement of the product and the process, primarily by embracing industrial innovative processes and product designs along with transparent reporting. The "Very High Extent" reflects the commitment toward sustainability and realizing the importance of integrating climate-resilient strategies into operations. On the other hand, the "High Extent" rating for product and service efficiency practices indicates that although efforts are laudable, more concentration is required in improving energy efficiency.

With an average score of 3.31 (SD = 0.68), practices concerning public reports on the emission data related to climate change and mitigation undertaken, it portrays that resort destinations have a tremendous commitment towards reporting transparency and responsibility towards environmental performances. This stands in line with the European Travel Commission's guidelines in 2019, which recommended tourism operators take proactive steps on carbon pricing along with sustainable practices to stay in line with the global agenda for climate issues. Similarly, the United Nations Environment Programme (2018) states that tourism businesses are adopting waste minimization practices, such as recycling, to improve environmental performance and achieve cost savings.

However, the mean 3.20 on average (with a standard deviation of 0.71). These are actually the practices around product and service efficiency, particularly about overall end-use energy efficiency, which corresponds to a "High Extent." Again, impressive but slightly down on other parts like innovative designs of products as well as clearly disclosed climate action reports. The installation of the energy-efficient technology is usually a bit expensive and does not easily cover the tourism firm, especially among the SME's. According to the European investment bank, for 50 % of the firms, financing hinders the inclusion of energy efficient measures. Integration of energy efficiencies into the activities of the undertaking is usually rather complicated and incorporates changes in its infrastructure, staffing, and routine maintenance, noted (Frolova & Bolshakova,2020). The Journal of Sustainable Tourism observes that, although tourists show interest in sustainable options, operational constraints may prevent businesses from adopting them. In some regions, there may be a lack of policies or incentives to encourage energy efficiency in the tourism sector (Goosling 2024).

The overall mean score of 3.20 (SD=0.522) for product and process improvements in climate change mitigation practices within resort destinations indicates a "High Extent" of implementation. This indicates that tourism operators are more likely to use strategies that can help reduce the production of greenhouse gases and improve sustainability. As such, the European Travel Commission report stresses the need for tourism operators to be better prepared for carbon pricing and sustainable practices to fulfill global climate goals (2019). Conversely, the United Nations Environment Programme observes that tourism companies are embracing practices of waste reduction, like recycling, in their efforts to boost environmental performance while saving costs (2018). These results depict the tourism sector's commitment towards sustainability and playing an active role in overcoming the environmental challenges while reporting effectively as well as having transparency.

Conclusion

The results suggest that resort destinations are making a meaningful effort on climate change mitigation, especially in terms of energy efficiency and emission reduction. Overall, the very high level of implementation of the various practices identified - from gear upgrades to cleaner energy and even energy efficiency policies - is a strong indicator of how aware and responsive resorts are to environmental awareness. The collaborative nature of the initiatives between companies also exemplifies the industry's proactive approach to sustainability. These actions are making progress toward a reduction in environmental impact and catalyzing the resorts' operational sustainability and reputational sustainability.

Resort destinations are performing extremely well with respect to climate change mitigation practices related to reuse and recycling. The consistent scores found across each of the indicators is a clear demonstration of deep and clear commitment to sustainability. Resort destinations are meeting and really exceeding expectations when it comes to minimising their environmental impacts through reuse and recycling practices, from material reuse and recycling to waste minimisation, and up to newer practices such as material substitution outlining the desire for impact reduction and conscious sustainability.

The resort destinations have engaged in climate change mitigation practices oriented to product and process changes especially, as practiced to a very high extent with new industrial changes, radical product innovations and designs that aim to increase overall efficiencies while minimizing input use, demonstrates a true level of thoughtful innovation thinking with a sustainability lens. Furthermore, the high result for releasing climate-related reports is also an exemplary demonstration of a transparent and accountable commitment from resort operators.

Recommendation

Although there is a high level of product and service efficiency practices, resort destinations should continue to further develop their climate change mitigation plans by pursuing more innovative technologies and renewable energy sources. Policymakers and stakeholders should support this development through incentives, training, and developing sustainability standards across the sector. It is recommended that efforts should be made to further optimize energy use and incorporate more sustainable technologies in tourism operations.

It is recommended that resort destinations can continue to expand their best practices by promoting education and awareness amongst staff and guests to strengthen their involvement in waste minimization practices. Allocating more financial commitment and rigor into waste minimization practices to include advanced recycling technologies, improved infrastructure and operational systems will assist in sustaining and achieving new advances into this important area.

Consequently, it is advisable that resort destinations pay more critical attention to refining, products and services that are energy-efficient. More research and development, and work with energy technology providers, could lead to greater improvement in these practices. In addition, sharing of best practices with all stakeholders would also ensure continuous improvement can be applied. Finally, public awareness campaigns can be launched to encourage tourists themselves to adopt sustainable behaviors such as reducing waste and supporting eco-friendly businesses thus contributing to the overall sustainability efforts of the destination. These multi-faceted recommendations can be adopted by resort destinations to improve their resilience to climate change while enhancing sustainable tourism practices on a larger scale.

References

1. Alsaad, M. A., & Asmar, H. (2020). The adoption of Internet of Things (IoT) in tourism: Benefits, challenges, and implementation. *MyJournal*. Retrieved from <https://myjournal.or.id/index.php/JOM/article/download/214/209/1391>
2. Chen, Y.; Liu, A.; Cheng, X. (2019). Quantifying Economic Impacts of Climate Change Under Nine Future Emission Scenarios Within CMIP6. *Sci. Total Environ*, 703, 134950.
3. Department of Tourism. (2019). National Ecotourism Strategy and Action Plan (NESAP). Retrieved from <https://faolex.fao.org/docs/pdf/phi179040.pdf>
4. Eekhout, J.P.C.; de Vente, J. (2018). Assessing the Effectiveness of Sustainable Land Management for Large-Scale Climate Change Adaptation. *Sci. Total Environ*, 654, 85–93.
5. European Travel Commission. (2019). Climate change and the European tourism industry: An overview of mitigation and adaptation strategies. *European Travel Commission*. Retrieved from https://etc-corporate.org/uploads/2019/03/ETC-Climate-Change-Report_FINAL.
6. European Commission. (2020). Tourism and the circular economy: Current practices and trends in the tourism sector. MDPI. <https://doi.org/10.3390/su1307166>
7. Frolova, E., & Bolshakova, L. (2020). Barriers to implementing sustainable tourism practices: A case study of Russian tourism enterprises. *Sustainability*, 12(23), 6741. <https://doi.org/10.3390/su12236741>
8. Geng, Y., Sarkis, J., Ulgiati, S., & Zhang, P. (2020). Circular economy strategies and their implementation in the tourism sector. *Sustainability*, 12(11), 4338. <https://doi.org/10.3390/su12114338>

9. Gössling, S., & Schumacher, B. (2023). *Tourism and Climate Change: Impacts, Mitigation, and Adaptation*. Routledge.
10. Huang, Y., Li, X., & Zhang, L. (2019). Applying the reduce, reuse, and recycle principle in the hospitality industry: A study of large organizations. *Business Strategy and the Environment*, 28(5), 741-751. <https://doi.org/10.1002/bse.2809>
11. Li, H., & Zhao, X. (2023). Smart tourism destinations and technological advancements: Enhancing experiences through innovation. *Taylor & Francis*. Retrieved from <https://www.tandfonline.com/doi/full/10.1080/13683500.2023.2296587>
12. Mylonakis, J., & Tsoutsou, A. (2021). Sustainable tourism and digital technology: Advances in operational efficiency and reduction of waste and emissions. *MDPI*. Retrieved from <https://www.mdpi.com/2076-3387/13/8/184>
13. Perlin, A. P., Gomes, C. M., Motke, F. D., Kruglianskas, I., & Zaluski, F. C. (2022). Climate Change Mitigation Adaptation Practices, and Business Performance in Brazilian Industrial Companies. *Sustainability*, 14(18), 11506. <https://doi.org/10.3390/su141811506>
14. Perković, L., & Novak, A. (2020). ICT in tourism: Enabling efficiency in destination management and service delivery. PubMed Central. Retrieved from <https://pmc.ncbi.nlm.nih.gov/articles/PMC8562381>
15. Poli, T. A. (2024). Tourism and Climate Change: Mitigation and Adaptation Strategies in A Hospitality Industry in Bangladesh. <https://Kuey.net/>; Educational Administration: *Theory and Practice*, 30(5), 7316-7330 ISSN: 2148-2403.
16. Prasad, R. (2022). Mitigating Climate Change: A Study of the University of the South Pacific and the State University of Malang. *Journal of Turkish Science Education*, 19(1), 111-128. DOI no: 10.36681/tused.2022.113
17. Rifkin, D.I.; Long, M.W.; Perry, M.J. (2019). Climate Change and Sleep: A Systematic Review of The Literature and Conceptual Framework. *Sleep Med. Rev.*, 42, 3–9.
18. Solimar International. (2021). What is a destination management organization (DMO) and why should destinations care? *Solimar International*. Retrieved from <https://www.solimarinternational.com/what-is-a-destination-management-organization-dmo-and-why-should-destinations-care>
19. Streimikiene, D., & Kyriakopoulos, G. (2024). Climate Change Mitigation Performance in the EU Tourism Destination Sector. *Journal of Tourism and Services*, 15(28). <https://doi.org/10.29036/jots.v15i28.758>
20. Tourism Destination Sector. *Journal of Tourism and Services*, 15(28). <https://doi.org/10.29036/jots.v15i28.758>
21. United Nations Environment Programme. (2018). Waste minimization practices among tourism businesses: A multi-year comparison. **ResearchGate**. Retrieved from https://www.researchgate.net/publication/303052975_Waste_minimization_practices_among_tourism_businesses_A_multi-year_comparison
22. Wiratama, G. N. M., Wijaya, M. W., & Kenedy, F. V. (2024). Climate Mitigation and Waste Management in The Tourism Industry for A Sustainable Ecosystem. *International Journal of Applied Science and Sustainable Development (IJASSD)*.
23. World Tourism Organization. (2023). Climate Change and Tourism: A Framework for Action. Retrieved from <https://www.unwto.org/sustainable-development/climate-action>
24. World Travel & Tourism Council. (2021). Rethinking single-use plastic products in travel and tourism. *World Travel & Tourism Council*. Retrieved from <https://wtcc.org/Portals/0/Documents/Reports/2021/Rethinking%20SingleUse%20Plastic%20Products%20in%20Travel%20and%20Tourism>.