

Perceptions on Climate Change Challenge Among Hoteliers and Travel Agencies in Malaysia



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Abstract Tourism is a climate-dependent industry, and many tourism industry players owe their popularity destinations to their pleasant climates during holiday seasons. This study explores the knowledge of the Malaysian hoteliers and travel agencies on the impact of climate change risks. The purpose of the study is to gain an understanding of the perceptions and preparedness of hoteliers and travel agencies in resilience to climate change challenges. The study employs a mixed of close- and open-ended questionnaire survey directed to managers in the hotel industry and travel agencies in Malaysia. The findings show that the selected 100 hoteliers and travel agencies have high awareness of global warming and are willing to take climate actions. Majority of the respondents are willing to work together with local and international projects by offering eco-friendly activities to mitigate climate change. Nevertheless, the respondents are slightly optimistic of the tourism industry under the climate change risks and perceived that the hotels are somewhat ready for the climate crisis. The need of an immediate action to raise awareness of climate change risk and to implement climate change action are recommended to secure the future tourism industry.

Keywords Climate change · Tourism · Hotel · Travel agency

1 Introduction

Many sectors have recognized climate change as a major concern toward social and environmental issue. Tabari [1] found that climate change initiated extreme events,

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such as heat waves [2], the annual wildfire across Indonesia [3], and hurricanes in the USA and the Caribbean [4]. Similar to agriculture, transportation, energy, and insurance, tourism industry is highly sensitive to climate change. Especially, hotel and travel industry influence the natural environment and are susceptible to extreme weather events.

The Intergovernmental Panel on Climate Change [5] has reported that the world mean surface temperature rose at a rate of 1.7 °C per century since 1970. It is estimated that the temperature will increase by 1.1 °C to 3.6 °C in Peninsular Malaysia and 1.0 °C to 3.5 °C in East Malaysia in the next 100 years. Rainfall is also predicted to drop by 8.8% to 18.7% 30 years later [6].

Carey [7] studied the climate change impact on the tourism industry. Temperature rise might cause infrastructure damage, as well as food and water supply disruption in the hotels in the future. Researchers projected that more than 95% of the reef's coral will be dead by 2050 due to high temperatures in the oceans [8].

This paper focuses on the potential impacts of climate change risks on tourism industry. More specifically, it explores the knowledge and perceptions of hoteliers and travel agencies on the impact of climate change challenges on tourism industry. In addition to that, this paper also investigates the preparedness of hoteliers and travel agencies in facing climate change risks.

This study aligns with Malaysia's National Tourism Policy 2020–2030, which outlines six transformation strategies for Malaysian tourism sector, as follows:

- (1) Strengthen Governance Capacity
- (2) Create Special Tourism Investment Zones
- (3) Embrace Smart Tourism
- (4) Enhance Demand Sophistication
- (5) Practice Sustainable and Responsible Tourism
- (6) Upskill Human Capacity.

This research will contribute to advancing transformation strategy 2, 3, and especially 5. Furthermore, this study introduces future scenarios of climate change challenges to gauge preparedness of the hotels and travel industry in Malaysia.

In the following sections, the topics of the weather and climate as motivations for travel and climate change risks on tourism industry are reviewed. Methods, results, and discussion are then presented.

2 Literature Review

Climate change is anticipated as the possible risks toward resources of tourism. Loss of cultural heritage and physical infrastructure, natural habitat destruction and species extinction as well as pollution in air and water quality might occur with the climate change crisis. Study shows that tourism demand varies according with climate indicators, such as heat, precipitation, and storms. Meanwhile tourists possess weather consciousness, climate change sensitivity, and behavioral intention [9]. Other

than that, climate change such as temperature which is one factor that could affect food production, food quality, and availability in many parts of the world, particularly those that are prone to drought and famine. This may affect food ranger tourists on destination choice.

Hence, tourism industry is not immune to observed and possible impacts on future climate change. The link between climate change and tourism sector is expected to be negatively significant. Climate change has unlocked the discussion on whether the tourism industry can sustain and endure the climate challenges [10].

Tourism industries play a significant role in mitigating the climate change crisis. They can reduce the mission of greenhouse gas effects and also assist the locals where tourism businesses serve a main source of income for them. Some hotels are environmentally friendly and take initiatives and practice activities to reduce energy, water, and waste. They implement recycling programs, installing energy efficient lighting, participating linen changing programs, and informing their guests their role plays in protecting the world [11]. Further study is required to explore the link between the tourism and climate change to set a platform to inform the sector on preparation and adaptation to the climate change.

This paper answers to this call and describes on the exploratory research in the tourism industry in Malaysia toward advancing smart tourism and readiness development.

3 Methodology

To investigate the understanding and perceptions of climate change among hoteliers and travel agencies, an explanatory and critical world approach are employed. This research implements the study of Blennow et al. [12] that “knowledge of factors that trigger human response to climate change is crucial for effective climate change policy communication. We conclude that to explain and predict adaptation to climate change, the combination of personal experience and belief must be considered” [13].

In addition, to gauge the preparedness of the hoteliers and travel agencies in handling climate change, imaginary scenarios are created. Researchers have proposed that imagination as a useful method to explore sociocultural and technological characteristics of world challenges. Yeoman and Postma [14] discovered that creative thinking about the upcoming of tourism, such as forming futuristic scenarios, may assist practitioners and academicians in discovering the linkage between the past, existing, and future.

In order to stimulate the reflections about likely futures, the respondents are presented with two imaginary futures before they are requested to rate the probability of these scenarios happening.

3.1 *Climate Challenges in Malaysia*

There are various activities promoted for tourists traveling to Malaysia such as diving, golf gaming, world class F1 car racing track, cave exploring as well as turtle watching and bird viewing [15]. Besides that, there are many famous theme parks, highlands, beaches, sail and cruise, spas, and national parks available in Malaysia. However, the environmental hazards may pose potential threats to these tourism landscape in the highlands, beaches, flora and faunas, and also cultural infrastructures. In Malaysia, climate change is usually associated with extreme weather (temperature, rainfall, and wind) and seasonality (dry and wet/monsoon season). The tourism trend is affected by these two factors and to some extent influences the perception of tourists to visit Malaysia.

Geographically, Malaysia possesses a total land area of 329,733 km² and most coastal regions are low-lying areas less than 0.5 m above the highest tide or are within 100 m inland of the high-water mark which makes them vulnerable in the case of sea level rises. Moreover, most of the tourism destinations in Malaysia are located along coast lines, such as Port Dickson, Malacca, and Penang. Persistent increase of ocean temperatures and extreme weather will jeopardize the beach conditions and hotel infrastructure in the front of the beaches. The hotels will have to insure their premises with higher premiums due to more extreme weather. Other impacts include reduced water supply and food security.

As a consequence, environmental hazards and climate change provides a strong framework for understanding how hoteliers and tourism industries deal with the urgency of preparedness for climate change challenges. Thus, solutions for green business model is designed for the tourism and travel industry in Malaysia.

3.2 *Data*

Questionnaire survey is designed to measure the perceptions and knowledge on climate change from the targeted respondents. Researchers such as Blennow [12] as well as Kettle and Dow [13] support the survey instrument to quantify perceptions and knowledge on climate change and in order to implement climate action. Data is collected using a convenience sampling survey method. The targeted area includes Melaka (nearby beach), Port Dickson (nearby beach), and Seremban city. The population of the study are all managers or senior executives who work in the hotels and travel agencies. Contacts and addresses were first acquired through websites. Administered survey data was conducted in the organizations to maximize data responses and accuracy. Translation and explanation were given to the respondents who were not well versed with English language.

In the survey questionnaire, the items were retrieved from past studies [16, 17] which touched on perceptions and knowledge of global warming. The survey questions start with the respondents' demography followed by questions covering on the

knowledge and perceptions as well as actions taken on the climate change. Readiness evaluation of the organizations’ climate change resilience is gauged through their exposure of two scenarios. Detailed descriptions of the scenarios are designed to guard the respondents. Two open-ended questions were positioned after the closed-ended questions to allow the respondents to share their opinions and suggestions in detail on issues raised in the survey questionnaire.

4 Results

In total, 100 survey questionnaires were collected from hotels and travel agencies in Malacca, Port Dickson, and Seremban city. The demography of this study is presented in Table 1. 42% of the respondents are male, while 58% are female. About half (49%) of the respondents are 30 years old and below, approximate one-third (33%) are in the age group 31–40 years old and 18% of the respondents are more than 40 years old. 72% of the respondents work in the hotels that are located in the town area where as 19% of them work in the beach front hotels. There are 9 respondents who work in the travel agencies.

The descriptive findings are presented in Tables 2, 3, 4 and 5. Most of the data collected was in ordinal type as the questions are in 5-point Likert scales ranging from 1 strongly disagree to 5 strongly agree. As the sample size is 100, mean data is valid for exploring the descriptive analysis. Table 2 reports the mean as well as the mode of the responses. The findings reveal that respondents are aware of the climate change issues which have threatened the tourism and hospitality industries. They completely agree that the world temperature is increasing as compared to the past. They strongly believe that they should take actions to safeguard the quality life of future generations.

In Table 3, the results show that the respondents are willing to participate in any activities to reduce the impact of climate change. They perceive that the government should play a role in giving incentives to encourage green campaign initiatives. They are also aware that little is done within the tourism industry in mitigating

Table 1 Characteristics on respondents and organizations

Gender	Male	42 (42%)
	Female	58 (58%)
Age distribution	30 years old and below	49 (49%)
	31–40 years old	33 (33%)
	41–50 years old	10 (10%)
	Above 50 years old	8 (8%)
Organization type	Hotels on the beach front	19 (19%)
	Hotels not on the beach front	72 (72%)
	Travel agency	9 (9%)

Table 2 Summary of descriptive statistics on knowledge and perceptions on climate changes

Knowledge and perceptions on climate change	Mean	Mode	Max
Climate change creates a big threat to the sustainability of Malaysia	4.17	4	50
Climate change creates a serious threat to the tourism and hospitality industry in Malaysia	4.17	4	45
Climate change is caused by human activities	4.11	4	50
Climate change hazards and its potentially negative effects are misjudged in the local news	4.11	4	40
Climate change is impacting tourism and tourism infrastructure in my nation now	4.12	4	42
Malaysian tourism and hospitality firms are proactive and ready to reduce their energy and water usage to tackle climate change	3.66	4	30
Our key tourism and hospitality industry agencies completely understand what climate change means	3.72	4	46
The global temperatures have changed compared to the past decade	4.29	5	49
Regional tourism organizations in Malaysia support climate resilience in the industry	3.55	4	36
This current generation has a responsibility to address climate change so that the future generations can enjoy the same quality of life	4.28	5	44
The business models of companies in tourism industry have transformed to address climate change risks	3.73	4	34

Table 3 Summary of descriptive statistics on knowledge, perceptions and action on climate changes

Perceptions, knowledge, and action on climate change	Mean	Mode	Max
Each one of us can reduce the effects of climate change	4	4	50
It should be mandatory to reduce energy usage if it reduces climate change impacts	3.93	4	49
Climate change is bound to happen because of the current modern society	3.91	4	43
Climate change is a natural phenomenon; we cannot do anything about it	2.91	2.3	25
The government should increase the incentives for people who try to reduce climate change	3.91	4	49
I will promote a greener environment and participate in initiatives to reduce climate change	4.06	4	40
Climate change is only because of the pollution from industries	3.38	4	30
Recent global disasters are because of climate change	3.61	4	38
The climate change topic is exaggerated by the media; in fact, it is not that big of a deal	2.45	1	33
There are more important matters than climate change	2.62	1	26
Cutting down trees to build infrastructure is not a bad thing	1.85	1	60

Table 4 Perceptions on the responsibility party to mitigate climate change

Perceptions on the responsibility party to mitigate climate change (rank 1 highest to 8 lowest)	Mean
International Organizations such as the United Nation	3.1
The Country's Government	2.54
Businesses and Industries	3.04
Local Government	2.86
Environmental Organizations such as Worldwide Fund for Nature	3.02
Individuals	2.67
Current Generation	3.19
Future Generations	3.85

Table 5 Preparedness of the hotel sector and the respondents' institution under climate change

	Mean	Mode	Max
<i>Scenario 1: The future for the tourism sector is gloomy under the climate change risk and environmental hazard</i>			
Do you agree that scenario 1 might become reality?	3.86	4	41
Do you agree that the hotel sector is ready for scenario 1?	3.37	3	35
Do you agree that your institution is ready for scenario 1?	3.28	3	37
<i>Scenario 2: The major change in the attitude of individuals and institutions heading to a prosperous green tourism industry</i>			
Do you agree that scenario 2 might become reality?	3.81	4	41
Do you agree that the hotel sector is ready for scenario 2?	3.50	3	38
Do you agree that your institution is ready for scenario 2?	3.27	3	44

the global warming issue. These findings reveal that the respondents acknowledge the responsibility of tourism and travel industry toward global warming crisis. 67 hoteliers and travel agencies are willing to team up with local or international projects to offer of eco-friendly activities to combat climate change.

Table 4 shows that the respondents consider that the responsibility to mitigate climate change should fall on the governments and individuals' shoulder. Environmental organizations should also share the responsibility in tackling the global warming crisis, followed by the businesses and industries. They agree that future generation should not be responsible to handle the climate change problem.

Table 5 reports the result of two scenarios presented to the respondents. Scenario 1 describes a very bleak future with no effective local or global approach to adapt to the global warming crisis and environmental hazard. The hospitality and tourism sector are facing a negative future. Scenario 2 delineates a change in the attitudes of individuals and institutions heading to a green environment future. Respondents perceived scenario 1 as a possible outcome and evaluated this future slightly higher than scenario 2. Respondents are rather optimistic that there will be a change in the

attitude for positive climate action. Regarding of the preparedness of the hotel and travel sector and the respondents' company, the score was 3.0–3.5. This suggests the respondents slightly positive in the preparedness for future climate change and environmental hazard.

In the open-ended questions section, this study found that 36% of the respondents state the reasons for the insufficient climate change action are lack of environmental education and awareness of climate change risk. 28% of the respondents perceive that the lackadaisical attitude of the individuals as well as selfishness and greed of the industry players causes the global warming problem. Nevertheless, 17% of the hoteliers and travel agencies are concerned about high-cost expenditure on new businesses operation with eco-technological equipment. Other respondents blame it on deforestation and increase in transportation volume which cause green-house gas emission due to rapid development.

About 35% of the respondents recommend to employ 3R (Reduce, Reuse, and Recycle) to protect and conserve the environment. Besides that, they propose effort to inculcate more awareness, such as programs, campaigns, and seminars on social media. They highlight the importance of public education involving global warming issues and its sustainability. The respondents even recommend the hotels and travel industries to invest in eco-technology to save energy and reduce harmful waste to the environment. In addition, some would like to see stricter law penalty to be enforced to violators.

5 Conclusions

This study seeks to understand how the tourism and travel industry players perceive their sector under climate change risk. Their views and perceptions are crucial to develop sustainable business models in the tourism industry in Malaysia. Respondents are aware and concerned to take actions in tackling climate change. Nevertheless, only few of the hoteliers and travel agencies are perceived to adjust their current operations toward climate change challenge. In addition, all respondents come to agree that global warming was resulted by human activities and can be overcome by changing in their attitude. Public awareness and education about climate change crisis are recommended for effective programs and policies for climate action in Malaysia.

This study reflects a further comprehension and implications of the perceived demand of the tourism and hospitality sector. Policymakers can assist tourism sectors to adapt to climate change risk by creating programs and seminars. They can also collaborate with universities to establish awareness campaigns and education. Tourism industry players can build relationships with tourists or clients to find out the appreciated climate action-related activities. Hospitality industry can implement 4.0 technologies in its business to reduce its effect on climate change by increased energy efficiency, recycling and re-use of water, and reduced food waste. The use of

virtual reality can decrease transport and travel and hence reduce the greenhouse gas effect to the environment.

However, there are some limitations in this study. The samples are taken from a specific part of the country. Samples from east coast of Malaysia and East Malaysia are recommended to be included to compare as well as provide comprehensive views and possible ideas. This exploratory study reports tendencies and trends. An in-depth research is suggested to reach a conclusive evidence and confirm the tendencies. Nevertheless, future research could investigate the type of climate action-related activity the tourists would value.

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