

Investigating critical indicators of climate variability and change to tourism event

N Mohd Shariff¹, A Zainol Abidin² and A E Mohamed¹

¹School of Tourism, Hospitality & Event Management, College of Law, Government & International Studies, Universiti Utara Malaysia, 06010, Sintok, Kedah, Malaysia

²School of Languages, Civilization & Philosophy, College of Arts & Sciences, Universiti Utara Malaysia, 06010, Sintok, Kedah, Malaysia

Corresponding author: hazani@uum.edu.my

Abstract. The main purpose of the study was to investigate the critical indicators of conducting successful tourism event due to the climate variability and change namely; awareness and information sharing, policy and regulatory framework, added economic value, organizational setups, technical factors and effective communication. A number of 57 respondents from the Event Program at the Universiti Utara Malaysia had participated in the study and the findings indicated that majority of them had conducted less than three event programs in a year. Additionally, most of them also had experienced of less than a year in managing an event. Overall, the findings of the study highlighted that majority of the respondents considered all the six indicators as the critical indicators which must be given serious attention when conducting tourism event due to the climate variability and change particularly the effective communication and the policy and regulatory framework. The outcome of the study would significantly contribute to better understanding regarding the critical indicators. Hence, it is important for the event organizer to take into consideration these indicators during the climate variability and change based on the fact that these indicators would determine the success of the tourism event.

1. Introduction

Today, climate variability and change have become a central issue being researched in many important sectors including tourism event [1][2]. In fact, several researchers also agree that climate variability and change have a significant influence on the tourism sector[3][4]. According to Aguiar-Quintana (2015) [5], tourism event refers to the market for meetings, incentives, conferences and events (MICE). Jones (2012) [6] eventually added that events have increased significantly in scale in recent decades and have become one of the popular attractions in tourism. Several researchers agree that a successful event is not possible without local residents' support; therefore, understanding of host residents' perception of impacts has been considered the core precedent to a successful event [7].

1.1 Problem statement

The importance of the tourism event has led to a number of researches which eventually have investigated different events with a primary focus on the impact of events on a city, particularly on issues that deal with tourism and recreation [8]. Moreover, the capacity to adapt to climate variability and change is thought to vary substantially between sub-sectors, destinations, and individual businesses within the tourism industry [2][4][9]. As for Malaysia, the seasonality variations in climate are more



evidently marked by rainfall patterns. Malaysia has relatively uniform temperatures throughout the year ranging between 26°C to 28°C.

However, according to a research by Tiong (2009)[10], the climate variability and change in Malaysia would raise the temperature up to 2°C and with more extreme hydrological conditions such as higher maximum rainfall, lower minimum rainfall, higher high river flow and lower low river flow. The contribution of tourism event nowadays has played an important aspect to further development of the destinations itself. Hence, the issue of critical indicators due to climate variability and change may affect the planning process of conducting such event programs.

1.2 Research objective

The main purpose of the study is to investigate the critical indicators of climate variability and change to tourism event namely awareness and information sharing, policy and regulatory framework, added economic value, organizational setups, technical factor and effective communication.

2. Literature review

2.1 Climate variability and change in a tourism event

The Inter-governmental Panel on Climate Change (IPCC) declared that ‘warming of the climate system is unequivocal’ [11]. The global mean temperature has increased by 0.76°C between 1850–1899 and 2001–2005 and the IPCC concluded that most of the observed increase in global average temperatures since the mid-20th century is ‘very likely’ (> 90% probability) the result of human activities that are increasing greenhouse gas (GHG) concentrations in the atmosphere. The IPCC (2007) predicts that the pace of climate change is ‘very likely’ (> 90% probability) to accelerate with continued GHG emissions at or above current rates, with globally averaged surface temperatures estimated to rise by 1.8°C to 4.0°C by the end of the 21st century[11].

Few studies on tourism have identified climate as a facilitator that makes tourism activities possible and enjoyable and also as a key driver for tourism and an important destination attribute [12]. Meanwhile, Hamilton and Tol (2007)[13] have examined the impact of climate change on international tourist arrivals and departures, as well as domestic tourist flows into three regions, the UK, Germany, and Ireland. Additionally, Lise and Tol (2002)[14] have conducted a study on a large number of tourism activities and for the majority of international tourists, express that warm temperatures are the ideal independent of the tourist’s origin. According to Hamilton and Tol (2007)[13], the majority of the previous studies analyzed the consequences of climate change on a number of future scenarios and further, they normally adopt the scenarios suggested by the Intergovernmental Panel on Climate Change (IPCC) 2007.

2.2 Critical indicators in a tourism event

Cserhádi and Polák-Weldon (2010)[15] in their study have presented the results of a quantitative research, where organizers of World and European Championships – organised between 2000 and 2008 in different European indicated that essential technical and task-oriented areas, the human aspects of organisation, the partnerships, coordination, and communication are all important factors in successful event. Additionally, a study conducted by Schütter (2010)[16] on the success factors of a leading meeting industry destination identified several general success factors which include easy accessibility; good infrastructure in terms of meetings facilities, public transportation and accommodation; branding and right image building of a destination; and several other factors.

In a previous study conducted by Burger and Saayman (2009)[17] in South Africa on the key success factors in managing conference centre, they noted that one of the reasons for the increase of travellers in South Africa is because of business travel of which the so-called MICE (meetings, incentives, conferences, and exhibitions) sector is an important component. They suggested that identifying key success factors would assist conference managers to focus on the most important aspects of managing a

conference centre. Additionally, they found that trained human resources and the layout and accessibility of facilities are two main factors which are found similar to their studies.

Glover (2010)[18] have studied the factors that strongly related to Kaizen event sustainability and found that Kaizen Event, Work Area, and Post-Event Characteristics are the indicators for Sustainability Outcomes of Kaizen event. The study additionally indicated that the Work Area Characteristics such as learning and stewardship, experimentation and continuous improvement, as well as Post-Event Characteristics (performance review and accepting changes) are significant direct or indirect predictors of multiple Sustainability Outcomes.

3. Methodology

Questionnaires were distributed to a total of 57 final year students from the Event Management Program, School of Tourism, Hospitality and Event Management at Universiti Utara Malaysia since they had conducted at least an event as their projects. The questionnaire instrument utilized in this study included two sections which were adapted from previous literature related, for instance Cserháti and Polák-Weldon (2010) [15], Burger and Saayman (2009)[17] and Glover (2010)[18]. Data gained from the survey were analysed using a Statistical Package for Social Sciences, version 19.0 created by SPSS. Descriptive statistics were used to identify and investigate the background profiles of the respondents.

4. Findings of the study

4.1 Respondents' background profile

Table 1 depicts the findings of survey regarding the respondents' background profile. It can be seen that majority of the respondents had conducted less than 3 event programs in a year (49.1%) and had organized an educational event program (42.1%). The findings also noted that most of the respondents had involved more than 10 people in their team (70.2%) and had planned and managed the event programs for less than one year (78.9%).

Table 1. Respondents' background profile (n= 57)

No.	Items	Frequency	Percentage
1	Number of event programs conducted in a year:		
	- Less than 3 events	28	49.1
	- More than 5 events	16	28.1
	- 3 – 5 events	13	22.8
2	Event programs organized recently:		
	- Education	24	42.1
	- Concert	13	22.8
	- Corporate	9	15.8
	- Other	9	15.8
	- Training	2	3.5
3	Number of members on the team involved in the event programs:		
	- More than 10 people	40	70.2
	- 5 – 10 people	15	26.3
	- Less than 5 people	2	3.5
4	Number of years involved in planning and managing the event programs:		
	- Less than 1 year	45	78.9
	- 1 – 5 years	12	21.1

Source: Findings from the study

4.2 Respondents' perceptions on the critical indicators

All the six items in the awareness and information sharing derived with a high mean value above 3.00 (Table 2). The respondents highly believe that the tourism event organizer should inform participants regarding the potential benefits that can be achieved ($m = 4.2632$). The majority of respondents also agree that an efficient information exchange system by the tourism event organizer is vital (59.6%).

Table 2. Awareness and information sharing

No.	Items	% of agree	Mean	Standard deviation
1	Tourism event organizer should inform participants about the potential benefits that can be achieved.	45.6	4.2632	.69504
2	Tourism event organizer should educate participants of the potential benefits that can be achieved.	56.1	4.1930	.63916
3	It is vital for tourism event organizer to have an efficient information exchange system.	59.6	4.0175	.64063
4	It is important for tourism event organizer to focus on the high benefit utility sharing.	50.9	3.9123	.73874
5	It is vital for tourism event organizer to implement a transparent information exchange system.	50.9	3.7544	.66227
6	It is important for tourism event organizer to focus on the establishment of low cost.	40.4	3.6316	.79354

Source: Findings from the study

Additionally, all the four items in the policy and regulatory framework resulted a high mean value above 3.00 (Table 3). The respondents believe that the policies and rules of the organization should be implemented while making arrangements for tourism event ($m = 4.1930$). In fact, most of the respondents agree that the policy intervention plays an enabling role in helping create appropriate conditions for tourism event (66.7%).

Table 3. Policy and regulatory framework

No.	Items	% of agree	Mean	Standard deviation
1	Policies and rules of the organization should be implemented while making arrangements for tourism event.	43.9	4.1930	.76622
2	Government agencies should effectively enforce environmental laws in managing tourism event.	43.9	4.0877	.87179
3	Policy intervention plays an enabling role in helping to identify opportunities for tourism event.	63.2	4.0351	.65370
4	Policy intervention plays an enabling role in helping to create appropriate conditions for tourism event.	66.7	3.9123	.66227

Source: Findings from the study

The findings further showed that the added economic value yielded a high mean value for all the four items in the domain (Table 4). The respondents perceive the involvement of other parties in the tourism event would gain an added economic value to the organizer as a vital item in the domain ($m = 4.0702$) whilst most of them agree that the organizer willingness to invest time would add economic value to the tourism event (45.6%).

Table 4. Added economic value

No.	Items	% of Agree	Mean	Standard deviation
1	Involvement of other parties in the tourism event would gain an added economic value to the organizer.	43.9	4.0702	.82071
2	Organizer willingness to invest time would add economic value to the tourism event.	45.6	4.0175	.81265
3	Organizer willingness to invest in other resources would add economic value to the tourism event.	38.6	3.9825	.85547
4	Organizer willingness to invest money would add economic value to the tourism event.	35.1	3.7719	.90667

Source: Findings from the study

As for the organizational setups, only four items in the domain derived with high mean value above 3.00 whilst one item indicated a mean value below 3.00 (Table 5). The findings showed that the respondents significantly believe that it is important for tourism event organizer to have a fit corporate organizational structure ($m = 4.2105$). Additionally, most of the respondents agree that tourism event organizer should have a highly cooperative organizational culture (54.4%).

Table 5. Organizational setups

No.	Items	% of agree	Mean	Standard deviation
1	It is important for tourism event organizer to have a fit corporate organizational structure.	50.9	4.2105	.74969
2	It is important for tourism event organizer to have a fit overall management system.	49.1	4.1930	.69278
3	Tourism event organizer should have a highly cooperative organizational culture.	54.4	4.1754	.65799
4	Tourism event organizer should establish a well Corporate Social Responsibility (CSR).	40.4	4.0526	.81111
5	Only one person should be involved in making arrangements and decisions regarding the tourism event.	19.3	2.8421	1.32003

Source: Findings from the study

Table 6 depicts the findings of the two items in technical factor. The respondents believe that it is vital for tourism event organizer to have effective structures for continuous technical assistance ($m = 4.0351$) and further, the majority of them agree that it is vital for tourism event organizer to utilize the local technical-know-how in conducting the event (64.9%).

Table 6. Technical factors

No.	Items	% of agree	Mean	Standard deviation
1	It is vital for tourism event organizer to have effective structures for continuous technical assistance.	63.2	4.0351	.65370
2	It is vital for tourism event organizer to utilise the local technical-know-how.	64.9	3.9474	.63867

Source: Findings from the study

Further, table 7 presents the findings of the two items in effective communication which are significantly believed by the respondents as vital aspects in the domain names, tourism event organizer should provide clear communication objectives and tourism event organizer is required to have constant communication ($m = 4.3509$). The findings also indicated that the majority of them agree that the tourism event organizer should provide clear communication objectives (40.4%).

Table 7. Effective communication

No.	Items	% of agree	Mean	Standard deviation
1	Tourism event organizer should provide clear communication objectives.	40.4	4.3509	.76745
2	Tourism event organizer is required to have constant communication.	36.8	4.3509	.71941
3	Tourism event organizer should use formal and frequent communication tools.	38.6	3.9825	.93525

Source: Findings from the study

5. Conclusion

It can be concluded that six major aspects are significantly considered by the respondents as critical indicators of climate variability and change to tourism event. During an event, it is important to consider the effective communication among all the stakeholders involved in the event program. Further, the policy and regulatory framework should be designed and implemented to play an enabling role in determining the success of an event. The technical factor is the most challenging issue to evaluate the performance for tourism event. Additionally, the awareness and information sharing is found to play an important role not just among the participants but also to the audience so that any impacts which may occur during the climate variability and change would be alert and further problems could be avoided.

The added economic value is also considered as a vital factor which can be gained through the fund sponsored by the university since most of event programs were related to the student's activities in the campus. On the other hands, the study also noted that the organizational setups are also considered as a central mean of achieving cooperation among the stakeholders involved in the planning of an event or program. The identification of six major critical would significantly guide the event organizers to plan and manage better tourism event particularly in preparing for the event participants and audiences.

Acknowledgments

The authors would like to thank the Research & Innovation Management Centre, Universiti Utara Malaysia (UUM) for sponsoring the research under the Centre of Excellence – Research Unit (CoE-RU) Grant Scheme.

References

- [1] Arnell N W and Delaney E K 2006 Adapting to climate change: public water supply in England

- and Wales *Climatic Change* **78** 227-55
- [2] Becken S and Hay J 2007 *Tourism and Climate Change* (Clevedon: Channel View Publications) pp 3-28
- [3] De Freitas C R and Higham J 2005 The climate-tourism relationship and its relevance to climate change impact assessment *Tourism, Recreation and Climate Change: International Perspectives* ed C M Hall and J Higham (Clevedon: Channel View Publications) chapter 2 pp 29-43.
- [4] Gössling S and Hall M C 2006 *Tourism and global environmental change: ecological, social, economic and political interrelationships* (New York: Routledge) 229-50
- [5] Aguiar-Quintana T 2015 Under-researched Areas of Event Management in the Past 15 Years *J. Tourism Hosp.* **4** 1-8
- [6] Jones C 2012 Events and festivals: fit for the future? *Event Mgmt.* **16** 107-18
- [7] Perdue R R, Long P T and Allen L 1990 Resident support for tourism development *An. Tourism Res.* **17** 585-99
- [8] Fourie J and Santana-Gallego M 2011 The impact of mega-sport events on tourist arrivals *Tourism Mgmt.* **32** 1364-70
- [9] Elsasser H and Bürki R 2002 Climate change as a threat to tourism in the Alps *Climate Res.* **20** 253-7
- [10] Tiong T C 2009 *LESTARI-UKM. Collaborative research on climate change* The Workshop Environmental Science Research Field Study Royal University of Phnom Penh, Cambodia
- [11] IPCC 2007 *Impacts, Adaptation and Vulnerability –Summary for Policymakers IPCC (2007)* (Geneva: Climate Change 2007 Intergovernmental Panel on Climate Change)
- [12] Martin A J, Jones E S and Callan V J 2005 The role of psychological climate in facilitating employee adjustment during organizational change *European J. of Work & Org. Psych.* **14** 263–89
- [13] Hamilton J M and Tol R S J 2007 The impact of climate change on tourism in Germany, the UK and Ireland: A simulation study *Regional Env. Change* **7** 161-72
- [14] Lise W and Tol R S J 2002 Impact of climate on tourist demand *Climate Change* **55** 429-49
- [15] Cserháti G and Polák-Weldon R 2010 *Success factors of international sporting events in different regions of Europe* (Budapest: Applied Studies in Agribusiness and Commerce Agroinform Publishing House)
- [16] Schütter N 2010 *Success factors of a leading meeting industry destination* Thesis (Austria: IMC University of Applied Sciences Krems).
- [17] Burger E and Saayman M 2009 Key success factors in managing a conference centre in South Africa *South African J. for Res. in Sport, Phy. Edu. & Recre.* **31** 15-28.
- [18] Glover W J 2010 *Critical Success Factors for Sustaining Kaizen Event Outcomes* PhD dissertation (Blacksburg, Virginia: the Faculty of the Virginia Polytechnic Institute and State University)