DOCTORAL DISSERTATION

Author

Vasanthan Saman Kumara Wickramasinghe

Affiliation of the author

Graduate School of Engineering, Hokkaido University

Contact details of the author

Division of Engineering and Policy for Cold Regional Environment

Graduate School of Engineering, Hokkaido University

Kita-13, Nishi-8, Kita-ku, Sapporo 060-8628, Japan

Phone: +81-11-706-6822

Fax: +81-11-706-6205

E-mail: vasantha@eng.hokudai.ac.jp; vasanthawic@yahoo.com

Title of the dissertation

Analytical Tourism Disaster Management Framework for sustainable tourism following a sudden calamity

Supervisor

Associate Professor Shin-ei Takano

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Background of the dissertation

Tourism is one of the world's largest economic generating sectors; however, it is highly susceptible to disasters whether natural or manmade. The consequences of disasters on tourism are inescapable and profound. Catastrophic events have been known to transform the reputation, desirability, and marketability of popular tourist destinations. Thus, the imminent hurdle following a tourism disaster is to boost the tourist arrivals shortly. However, tourism is diverse; (i) multiple participants working towards a single goal; i.e., the satisfaction of tourists, (ii) product or service is not transported to the consumer; rather, the traveller visits to the destination where the product or service is experienced. Importantly travel decisions are initiated by human-motives and therefore, vulnerable to risk perceptions and environment fluctuations. In addition, tourists are heterogeneous and disasters which are unpredictable and

unavoidable events appear in different forms and intensities. Hence, tourism revival is characterized by complexity, uncertainty, as well as multiple and conflicting criteria. Nevertheless, the field of tourism revival following a disaster is yet underresearched. The available disaster management frameworks in the literature are merely prescriptive list of functions independent from destination or disaster characteristics. To date, none have considered theoretical concepts or used analytical techniques to address feasible solutions systematically. There are specific problems affecting tourism revival that are not yet addressed in the literature. Among those, psychological behaviour assessment of tourists to choose a destination in a disaster stricken region and mechanism to develop tourism marketing strategies tallying with internal and external environment in the aftermath a sudden calamity were not addressed. Hence, current research emphasizes on those two issues and proposed two analytical models.

Goal and objectives of the dissertation

The overall goal is sustaining the tourist industry under disaster threats. A balance between expectations of potential travellers and compatible destination performances are inevitable for sustainable tourism. ‘Expectation’ initiates as a result of psychological thoughts based on available information, diverse travel motivations, and with risk absorption capacity of individuals. On the other hand, ‘destination performance’ is a measure of tourists’ satisfaction on destination settings, available marketing mix, and notably the safety of the destination. In that context, the research has the following specific objectives;

- ✓ To introduce an innovative approach with Conjoint Analysis to evaluate travel motivations and state of disaster risk acceptance in visiting tourist destinations.
- ✓ To develop a hybrid multi-criteria decision making model to create marketing strategies tallying with internal and external environmental factors.

Methodology

Travel motivators and state of risk acceptance when selecting a tourist destination in a disastrous region was evaluated using Conjoint Analysis (CA) in a sample of Japanese overseas travellers. Selection of the most appropriate attributes and then defining the mutually independent levels for those attributes is the cornerstone for the CA. Destination Attraction (DEA), Geographical Proximity (GEP), Activities and Events (ACE), and Disaster Risk and Threats (DRT) were selected as the most pertinent destination-choice factors. With mutually independent attribute factor levels and orthogonal fractional factorial design, nine conjoint profiles were developed to evaluate travellers’ preference. Furthermore, ‘push’ and ‘pull’ travel motivators, foreign travel experience and ‘Willingness-To-Travel’ to specific tourist destinations were assessed. Following the validation of the model, the results were extended to define the Tourist Destination Branding Index to visualize the impact of disasters on

International tourism. In addition, a simulation was performed to exemplify the logic of trading-off attribute levels to select a destination and to obtain traveler preference fluctuation with destination and/or trip attribute variations.

The second part of the research explains a systematic approach and analytical means for tourism revival strategic marketing planning with the combination of Strengths-Weaknesses-Opportunities-Threats (SWOT) matrix with Analytic Hierarchy Process (AHP). The SWOT technique examines both internal and external factors of tourism; however, it does not evaluate the importance of each SWOT factor. The combination yields analytically determined priorities for the factors with pair-wise comparisons and make them commensurable. The prioritized SWOT factors were used to formulate alternative recovery strategies using TOWS matrix. Ultimately a comprehensive priority for each alternative was evaluated using strategic evaluation matrix and desirability index. This method was applied to the revival process in Sri Lanka Tourism (SLT) following the 2004 Indian Ocean Tsunami.

Results

The conjoint model outcome indicates that 'Destination Attraction' was the most influential in selecting a disaster stricken region as a destination, followed by 'Disaster Risk and Threats'. Segmentation was performed to extract homogenous clusters with similar individual utility values. Two clusters were distinguished: one emphasized 'destination attraction' while the other emphasized 'disaster risk and threats'. Chi-square statistic analysis results showed that two identified clusters were significantly different in age, civil status, and number of foreign excursions during last five years. Simulation results exemplify how traveller preference varies with fluctuating destination and/or trip characteristics. Results from the hybrid model application to SLT recovery process indicated that a proactive communication strategy and isolation strategy with an effective marketing promotional strategy should have been implemented with appropriate tactical plans in the revival process of SLT. The accuracy of the proposed hybrid method was established comparing the implemented strategies with the research outcome.

Practical application of the dissertation

The overall contribution of the thesis is the analytical framework for tourism disaster management to attain sustainability following a sudden calamity. The conjoint model, which uses the stated-preference survey technique, can be used successfully to evaluate the psychological traveller behaviour analysis for a hypothetical disaster event. The clustering technique is more reliable than existing techniques since the utility values used for the process are derived from stated-preference data. The trade-off mechanism exemplifies traveller preference fluctuation with uncertain events for

any given destination which is described by a combination of attribute levels; thus, effective in tourism revival planning. The developed TDBI extending conjoint model results can be used to estimate the brand image fluctuation following a future sudden calamity. Simple and user-friendly nature of TDBI represents a good information source with qualitative judgments of experienced travellers. The hybrid model introduced in the dissertation presents a simplified, transparent and fast decision-making process; thus, it is ideal to be used in situations with limited data availability, and limited time frames like post-disaster situations. The final outcome from the hybrid model is ordered, henceforth, it helps in reducing risk, time wastage and poor-resource management by eliminating ad-hoc recovery processes.

Content of the dissertation

Abstract of chapter one

Chapter 1 comprises the introductory part of the dissertation. It starts with the research motivation and describes the statement of the problem. Further, it includes the scope of the study and its limitations. Based on the problem statement, this section formulates the general and specific objectives of the research. An overview of the methodological framework is also included.

Abstract of chapter two

In chapter 2, an overview of global perceptions on tourism, and disasters and their trends are presented. Next, a working definition of ‘tourism disaster’ is given and a few case studies of tourism disasters are presented. Challenges and special features of tourism, tourism disasters, and tourism disaster revival processes are presented next. The empirical and theoretical backgrounds of tourism disaster management methodologies implemented in recent tourism disasters are also assessed.

Abstract of chapter three

Chapter 3 describes a situational assessment of a destination that has successfully overcome a tourism disaster (i.e., SLT following the 2004 IOT devastation). Sri Lanka and its tourism value, history and development of the tourism sector and tourism disasters experienced are highlighted. A detailed situational assessment starts after visualizing the pre-tsunami situation of SLT focusing on tourism indicators. Damage assessment to tourism is mentioned. This includes both tangible and intangible tourism elements, and the post-disaster situation and strategies used focusing mainly the immediate relief and rapid recovery phases. Revival challenges are presented followed by a summary of the strategies presented in a framework and compared with existing tourism disaster management frameworks discussed in the literature. The basic aim is to reinforce the problem statement and identify the deficits in available frameworks by comparing them with a successful case study.

Abstract of chapter four

Chapter 4 discusses an innovative technique (i.e., CA) that is new to travel motivation studies. It discusses the tourists' travel behaviours in respect to an uncertain destination setting, paying special attention to disaster risk. The most pertinent destination and/trip attributes, disaster-risk acceptance capacity of a typical tourist, and trading-off destination and/or trip attributes to attain the destination choice decision are assessed with the aid of the Conjoint technique.

Abstract of chapter five

Chapter 5 extends the conjoint technique results to develop the Tourist Destination Branding Index (TDBI) that visualizes the impact of disasters on International tourism. Total Utility Value (TUV) defined for a destination is used to assess the traveller preference for a certain destination that ultimately relates with the TDBI.

Abstract of chapter six

Chapter 6 explains a hybrid model developed with AHP integrated into SWOT matrix to create tourism disaster revival marketing strategies and prioritize them fitting with internal and external environment factors. A stepwise procedure of the proposed hybrid model is explained with the tourism revival process in SLT following the 2004 IOT.

Abstract of chapter seven

Chapter 7 concludes this dissertation by highlighting the overall conclusions, main contributions of the research along with recommendations for future research directions.

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