

ICT usage for the post-disaster recovery in Tourism: The 2015 Nepal Earthquake

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ABSTRACT

Nepal is a popular travel destination because of its natural beauty and the Himalayas. The tourism industry contributes significantly to the nation's GDP. However, the 2015 earthquake created havoc by causing the loss of more than 9,000 lives, damaging many buildings, World heritage sites and trekking trails. Despite a substantial amount of foreign aid, overall recovery programs have not been effective. This empirical study focuses on the use of ICT tools for recovery in the tourism industry and uses mixed methods engaging tourism associations and organisations. Four 'areas of concern' regarding ICT use, are identified by using qualitative analysis and are validated through a survey of 198 tourism organisations. The findings show that the earthquake has significantly impacted the industry and the government has not adequately used ICTs in recovery activities. This study strongly advocates using ICT tools for post-disaster tourism resilience.

Keywords

Earthquake, Nepal, disaster recovery, tourism, ICT tools,

INTRODUCTION

Nepal is known for its majestic natural beauty, and tourists primarily visit Nepal for its natural, cultural, religious, and social resources. Tourism is a major sector employing a significant number of people (487,500 people) and contributing almost 9 percent of total Gross Development Product (GDP) in 2014 (World Travel and Tourism Council 2015). Tourism is one of the primary sources of foreign income, employment, and tax revenues for the government. In 2014, the total contribution of tourism to the country's Gross Domestic Product (GDP) was US\$ 1.68 billion (NPR 171.6 billion).

A major earthquake struck Nepal on 25th April 2015, and this has adversely affected the influx of international tourists and the tourism industry. Nepal is in an earthquake belt and has experienced several earthquakes in the last 100 years; the most notable was 8.4 on the Richter scale in 1934 and 7.8 on the Richter scale on 25th April 2015 (Earthquake Track n.d). Scientists predict the tectonic and geological pressure escalating under the surface will result in further earthquakes in this region (Mukerjee 2015). In the 2015 earthquake, about 9,000 people lost their lives and many buildings were damaged including UNESCO World Heritage sites. Several tourism activities ceased, for example, the Mt Everest expeditions were officially abandoned for a period and tourists' arrivals in 2015 slumped to 538,970, which was a 32 percent decline from the previous year (MoCTA 2016). Approximately, US\$ 5 billion is estimated to be the economic loss for the country (Sharma 2015). Major countries and donor agencies started to pledge and give foreign aid (approximately US \$4.2 Billion) to the government for the recovery work (Associated Press 2017). Since then, many volunteers from different countries as well as international organisations such as United Nations (UN), Pacific Asia Travel Association (PATA) and Red Cross initiated their rescue and relief activities (Beirman 2016), and some of them are still working in the affected zone. Furthermore, international celebrities such as Jackie Chan, Susan Sarandon, Prince Harry, David Beckham and others visited to support the earthquake victims (Panthi 2016).

The government of Nepal commenced earthquake recovery activities but focussed more on the reconstruction of buildings and infrastructure (NRA 2017). The government has been criticised by the public, donors, and tourism stakeholders, for not being able to complete their recovery initiatives effectively. Only 3.5 percent of a total number of damaged buildings (500,000) have been repaired or rebuilt two years after the catastrophic disaster occurred (Associated Press 2017). The government's reconstruction initiatives have been distracted

from time to time for various reasons, and no priority has been given to recovery of the tourism industry. Some internal political instability has also delayed the reconstruction process. Political parties and minority groups were demanding more representation in the new constitution, and these protests caused the blockade of foods and shipments at Nepal's border for around six months in 2015 (Acharya et al. 2015).

Many researchers state that ICT tools can be helpful to manage post-disaster activities for developing countries (Zulu 2008; Ajami 2013; Kutty 2015). Other studies corroborate that a tourism industry can significantly benefit from using ICT tools, due to the intangible nature of the services (Buhalis & Law 2008; Karanasios & Burgess 2008). However, the use of ICT has not been well institutionalised in Nepal in various sectors including tourism.

In this context, we have formulated the following research objectives: (1) To examine the impacts of the 2015 earthquake on the tourism industry and the use of ICT tools (2) To assess the usefulness of ICT tools in the post-disaster tourism recovery activities.

This paper is organised as follows. A brief context of tourism in Nepal is introduced by highlighting the impacts of the 2015 earthquake on the tourism industry. The following section discusses earthquake recovery efforts and the use of ICT tools during the recovery process. Studies on the usage of ICT in disaster management specific to the 2015 Nepal Earthquake, are reviewed. The next section details the research methods. Results and implications of the empirical study are discussed in the following section. Finally, conclusions are drawn from the findings.

2015 NEPAL EARTHQUAKE: IMPACTS ON TOURISM

The recent earthquake created great havoc in Nepal causing loss of life and property damage. The tourism sector was also significantly affected, and tourism activities were ceased for some months. Although all the travel and trekking sites were not affected, the earthquake affected the economic operations of the country, and the government had to focus on resilience and the reconstruction process (NRA 2017). In addition to the loss of lives, around 22,000 people were injured, 500,000 buildings were destroyed and 280,000 buildings damaged in this national disaster (United Nations OCHA 2015). Around 2.8 million people needed humanitarian assistance after the earthquake. Economic losses from the earthquake are estimated at around US\$5 billion which is almost twenty-five percent of GDP of Nepal (Cheong 2015; Sharma 2015). According to a report by the National planning commission (2015), tourism is one of the top sectors that suffered income loss and that loss amounted to US\$ 613 million (Nepalese Rs (NPR) 62.38 billion), and damage of around US\$ 186 million (NPR 18.86 billion).

The tourism ministry of Nepal published details summarising the damage caused to the tourism industry by the 2015 earthquake (see Table 1).

Table 1: Estimation of damage/losses in the tourism sector due to the 2015 Nepal earthquake (Source: MoCTCA 2015)

Subsector	Disaster Effects (NPR Million)			Share of Disaster effect	
	Damage	Loss	Total	Private/Community	Public
Hotels and Others	16,295	0	16,295	16,295	0
Home Stays	1,720	495	2215	1720	0
Eco-lodges	415	0	415	415	0
Trekking Trails	426	5,711	6137	0	6,137
Tour Operators	7	4,924	4,931	4,931	0
Tourism revenues	0	47,013	47,013	47,013	0
Air Transport revenues	0	4,720	4,720	4,720	0
Restaurant revenues	0	11	11	11	0
Total	18,863	62,874	81,737	75,105	6,137

The destruction caused by the earthquake had a significant adverse impact on various sectors of the country. The impact on the tourism industry resulted in a low number of tourists arriving in Nepal (MoCTCA 2016). In addition to the direct impacts, there were indirect social and economic consequences. The negative impact and

lack of concrete programs for recovery have left many unemployed which has triggered a new wave of Nepalese migrant workers leaving the country to work in Gulf countries for low salaries in the hope of gaining opportunities (Bellman 2015). After the 2015 earthquake, the government of Nepal estimated that it would cost around \$9.4 billion for the overall recovery process, and foreign governments and agencies have pledged around \$4.2 billion only (Associated Press 2017).

Tourism Stakeholders in Nepal

There are 4,819 organisations registered with the Tourism Department of Nepal. A number of operating businesses (956 hotels, 1,636 trekking agencies, 2,112 travel agencies) (MoCTCA 2014) are primarily represented by associations such as Nepal Association of Tour and Travel Agents (NATTA), Hotel Association of Nepal (HAN) and Trekking Agents Association of Nepal (TAAN). Figure 1 below shows major stakeholders of the tourism industry and an overall structure of how tourism organisations fall under these associations and are running their operations with guidance from those associations and policymakers.

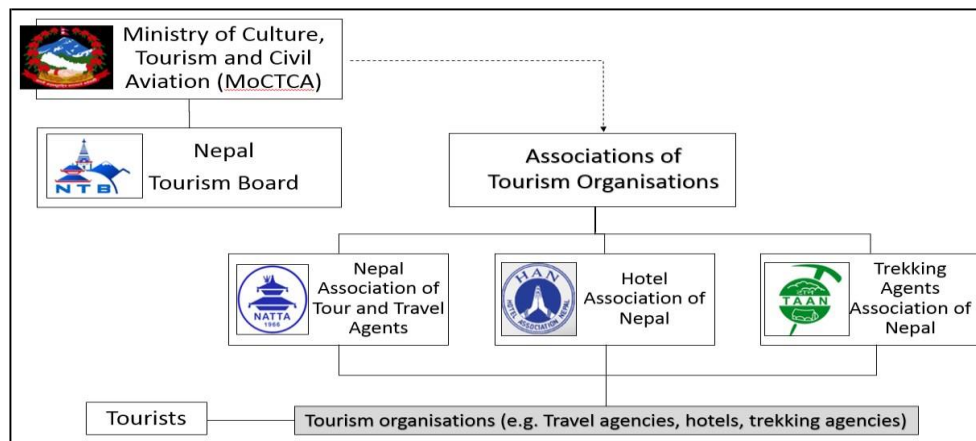


Figure 1. Structure of Tourism Organisations

USE OF ICT IN DISASTER MANAGEMENT

The term ‘disaster management’ refers to mitigation, preparedness, response, and recovery from the destruction caused by disaster events such as flood, fire, earthquake, and typhoon. The recovery efforts are the activities that bring communities back to normal states and meet mitigation and preparedness needs after a disaster (Mansourian et al. 2006).

Several researchers have studied and explored the use of ICTs for various aspects of disaster management. Zulu (2008) explained how ICT could be used in Africa not only during a disaster but also for post-disaster management and recovery through the creation of management information systems (MIS). Kutty (2015) argues that IT tools such as Geographic Information System (GIS), computer simulations and remote sensing can prove to be invaluable tools not only for disaster management but also for emergency planning and preparedness. Ajami (2013) investigated the need for and effectiveness of Earthquake Information Management Systems (EIMS) to collect, record, store, retrieve and analyse information related to a disaster event to help in the recovery process. The comparative study was conducted through a survey in India, Afghanistan, Japan, Turkey and Iran, and re-iterated that EIMS is reliable and desperately needed, and the up-to-date information can have an impact on risk mitigation.

Li and Rao (2010) studied Twitter posts related to the 2008 China M8 earthquake to investigate how microblogging sites such as Twitter can be used to disseminate integrated and timely information during the earthquake. They found that Twitter was a faster and more effective tool than traditional media in the critical hours immediately after the earthquake. The research found that tools such as Twitter can be an excellent supplement to traditional media.

MoCTCA has prepared a Tourism Recovery Action Plan for the recovery of the tourism industry (TAAN 2017), and started some awareness programs to inform tourists from all around the world that Nepal is safe to travel in. The Nepal Tourism Board (NTB) also started using a Facebook page (social media) to disseminate information (Ketter 2016; Beirman 2016).

The government introduced ICT tools in the resilience process for some of the affected sectors after the 2015

Nepal earthquake. The website of the Ministry of Home Affairs (<http://www.moha.gov.np>) established a section to provide information about fatalities, people injured and buildings and sites damaged which were categorised up to local administration units such as municipality and village development committees. The government also started publishing data about the number of relief materials distributed by the government in various parts of the earthquake-affected regions in their reports. In addition, the government created an online portal called Nepal Disaster Risk Reduction Portal (<http://www.drrportal.gov.np>) with the aim of systematically tracking and disseminating information about disasters in Nepal. The system includes information such as location, loss of life and property, missing people, description and analysis of the data related to major disasters.

Table 2: Donations raised through online platforms (Source: Panthi 2016; DirectRelief 2015)

Website-platform	Amount(USD)
Crowdrise (150 campaigns)	\$2,983,178
GoFundMe (1,717 campaigns)	\$7,445,288
Indiegogo	\$3 million
GlobalGiving	\$5,141,813
Using Paypal (422,000 persons)	\$19 million
Direct Relief	\$2 million

The biggest relief fund in Nepal, the Prime Minister's Disaster Relief Fund, published names of contributors online after the earthquake in 2015. The relief fund collects donations from all around the world and uses the proceeds for rescue, treatment, relief, rehabilitation of victims and restoration of physical infrastructure damaged by natural disaster and calamities (PMDRF 2017). A new provision was also made to assist Nepalese diaspora to transfer funds electronically to Nepal after the disaster. As of 1st October 2015, 423 Nepalese and foreigners residing outside Nepal donated around \$38.55 million out of \$67.07 million total collected in the fund (PMDRF 2017).

Additionally, various online platforms and ICT tools were used to collect donations for Nepal. Table 2 above shows a summary of some of the platforms/organisations and the amounts raised.

There have been a few studies conducted to analyse the use of social media as ICT tools during the post-disaster recovery activities from the Nepal earthquake. Ketter (2016) analysed the information posted on the NTB Facebook page to disseminate information and facilitate formal and informal interactions with users. Radianti et al. (2016) investigated Twitter posts to detect and determine public concerns during the disaster recovery. Radianti et al. also asserted that Twitter was extensively used with 882,563 unique hashtags during the first week after the quake. Similarly, Subba and Bui (2017) analysed Twitter data and found that ICT plays an important role during the crisis response time. Additionally, PATA (2015) claimed that social media played a strong role in the tourism recovery strategy. However, the focus of these studies was limited based on scope (specific ICT tool such as social media Facebook or Twitter; and specific organisations), time (short period), and objectives (examining specific phenomenon, rather than the potential use of ICT tools during the post-disaster period).

After the 2015 Nepal earthquake, several other studies analysed the issues related to health, geology, or economy of the country, but, they did not investigate the ICT usage. Some studies investigated the geological analysis (Collins & Jibson 2015; Fan & Shearer 2015; Lindsey et al. 2015; Wang & Fialko 2015; Yagi & Okuwaki 2015) whereas others focused on the impacts on health and sanitary (Merin et al. 2015; Nelson et al. 2015) and economic aspects after the earthquake (Hemant et al. 2017; Itzhaky et al. 2016)

Considering the limitations of the above studies based on scope, time, field and research objectives, there is a dearth of research investigating the potential use of ICT tools in a post-disaster scenario from the earthquake in Nepal. This study aims to address those gaps and investigate whether the use of ICT tools can help in post-earthquake tourism recovery activities. It examines the possible roles ICT tools can play to assist current recovery activities and to formulate government policies and procedures in the future.

RESEARCH METHODS

This research aims to investigate the potential use of ICT tools by stakeholders for post-disaster tourism resilience activities. Both qualitative and quantitative methods have been used for this research. The plurality of the investigation methodology was adopted following a mixed method in this research as such an approach can provide richer information and is more reliable. The 'triangulation' which combines various methodologies increases the validity and reliability of the study (Mingers 2001). It also helps in broadening the research and

providing better results (Creswell, 2013). Since there is a lack of information on the use of ICT in post-disaster work in tourism recovery, initially, semi-structured interviews were conducted to explore research questions posed after the literature review. The questions for interviews were formulated, and pilot tested with local researchers and doctorate candidates. Experts in tourism and ICT were selected for the interviews by using expert sampling techniques. Interview data were then validated with a survey of tourism organisations.

One representative from each of the three major tourism associations NATTA, HAN and TAAN (shown in Figure 1) with a large membership of tourism organisations, was selected for the interview. The associations were contacted from their respective websites via email. After the initial consent, the researcher travelled to Nepal from Australia and conducted the interviews. Two participants who represent government bodies were chosen. Additionally, three participants from different tourism organisations were selected based on their experience of the tourism recovery activities. Finally, one independent Nepalese tour and travel expert was interviewed to examine the research objectives. Approximately, 10 to 15 questions were asked of each participant during the semi-structured interviews on the topic of 'their knowledge and experience of ICT for disaster management', 'impacts from the 2015 earthquake', 'their use of ICT for recovery', 'government's use of ICT in recovery activities' and 'potential use of ICT tools for tourism recovery'. A summary of the participants is shown in Table 3 below.

Table 3: Summary of participants

	Qualitative	Quantitative
Number of Participants	9 (3 - representatives of Associations; 2 - government representatives; 3 - tourism organisations and one tourism expert)	198 tourism organisations
Technique	Expert sampling	Random sampling

Most of the interviews were conducted in English language and transcribed. For the anonymity purpose, interview participants were coded as P1 to P9. Four major areas linked with research objectives were identified through the content analysis of interview transcripts.

Subsequently, to validate the findings from the interviews, a survey was conducted. The survey questionnaires were prepared and pilot tested for this purpose, then the survey was finalised based on the feedback from the pilot test. The Likert scale (1= strongly disagree to 5 = strongly agree) was used for each question in the survey. The participants for the survey were chosen randomly from the members of NATTA, HAN and TAAN. The survey was sent to 250 randomly selected tourism organisations. The researcher and delegates contacted the 250 organisations and asked whether they wanted to participate in the survey. After verbal consent was given over the phone, the researcher or delegate visited the offices of the selected tourism organisations and completed the surveys. 206 organisations (approximately 82%) completed the questionnaire. However, some of them left the major portions blank, so only the remaining 198 usable responses were analysed. The data collected through the survey were processed using statistical software: SPSS. Based on qualitative interview data and validation through quantitative surveys, final results are presented in the later section.

RESULTS AND DISCUSSION

The results are presented in two phases. Results from the qualitative interviews are presented below:

1st Phase: Semi-structured interviews - Through the content analysis of the interviews based on the research objectives, four Areas of Concerns (AoCs) emerged. These AoCs are directly linked with research objectives, and further analysis was conducted based on those concerns. The AoCs are summarised below:

- **AoC1** *Negative impact of the 2015 Nepal earthquake on tourism organisations.* Based on the interview results, all the participants indicated that the 2015 earthquake has adversely impacted the tourism industry. The participants asserted that recovery activities have been slow and the industry has been suffering from the disaster. As one participant (P7) quoted, "We have no tourists (as customers), and we are seriously considering to close our business, if no tourists are coming, we are not able to pay rent." Another participant P3 corroborated and reiterated "Unfortunately, many employees at hotels have to leave their jobs... have heard similar situation in trekking and other travel businesses." Similarly, P1 stated that the effect from the earthquake resulted in the lower number of tourist arrivals. They also wished and were hopeful that the tourism recovery process should be prioritised.
- **AoC2** *The government has not used ICT tools in the tourism recovery process.* Seven out of nine

participants were sceptical and mentioned that the government had not used ICT tools effectively to help in the recovery process of the tourism industry. P6 claimed, “Government only cares about from where they can get more donations, and least worried about other impacts it has... I have not heard any work regarding ICT tools”. P1 inserted, “They (government) are least bothered about using ICT in the recovery activities... but more focus on collecting tax from tourism business”. However, P4 (semi-government representative) argue that some use of ICT tools had been started specifically for promoting tourism after the earthquake, but agree that the effort has not been enough. P9 states that the government can use ICT tools for several activities, “They should disseminate information (regarding recovery activities) using online tools... they also can provide information through multimedia about the destruction of tourism sites, which have not been fully reconstructed.” Some of them mentioned that the government agencies primarily used traditional methods of communication such as leaflets and presentations at international exhibitions to inform that ‘Nepal is safe’.

- **AoC3** *Social media should be used by government and tourism organisations during the tourism recovery process.* Six out of nine interviewees asserted that social media should be used during the tourism recovery activities. They argued that use of social media has been limited to some promotional or entertainment purposes. P8 is hopeful about the use of social media by the government in recovery activities and claims, “Social media is very helpful to bring more tourists to my business...how come government and other bigger organisations cannot work it out for them?” P7 claims the use of social media has provided a new avenue and it can be definitely used in recovery activities “the social media can be used to attract tourists to Nepal informing that all tourism sites are not affected...It can help to increase internal tourists after the earthquake ” but P2 asserts “It (social media) has been used for entertainment purpose by young people and businesses have not used for commercial purpose” In contrast, P4, representative from a semi-government organisation (promotion body of the government), stated that they have started sharing information about the various tourism development in Nepal through its official page, and argue that they are actively using social media to promote the tourism industry especially through Facebook “...We have started updating our Facebook pages regularly, and we are promoting and informing tourists about the tourism activities... The results have been inspiring... people are more aware of Nepal now”.
- **AoC4** *The role of ICT in the recovery of the tourism industry.* All the participants unanimously supported that ICT tools have a significant role in the process of tourism recovery after the earthquake. P5 (government representative) asserts “ICT has a great role to play in the recovery activities...in the 21st century, ICT is very useful everywhere... I can see how it can help in the tourism recovery.” P9 adds “I do not understand why everyone (stakeholders) do not emphasise on emerging technologies such as ICT for the recovery work... I clearly see many benefits... how they can be used for the purpose...” Similarly, P6 states “There is a great potential for the use of ICT in the recovery process but...most of the stakeholders have not been able to utilise it to that extent...” However, P8 is optimistic that the use and impacts of ICT tools will increase and says “... the whole world is connecting through the ICT tools, and the recovery activities cannot be isolated...”

The overall analysis is summarised in Table 4 below:

Table 4. Summary of the responses from interview participants

	P1	P2	P3	P4	P5	P6	P7	P8	P9	
AoC1	√	√	√	√	√	√	√	√	√	The 2015 earthquake has impacted the tourism industry adversely.
AoC2	√	√	√	×	×	√	√	√	√	The government has not been able to use ICT tools effectively for tourism recovery activities.
AoC3	×	×	×	√	√	√	√	√	√	Social media are used by some organisations but can be done more in the recovery process.
AoC4	√	√	√	√	√	√	√	√	√	ICT has a powerful role in the tourism recovery activities from 2015 Nepal earthquake.

[√ - agreed on the concern, × - disagreed with the concern]

2nd Phase: Validation of the results through a Survey - the interview results provided findings mentioned above of the impacts on the industry and the potential use of ICT in recovery activities. The results of the interviews were further examined using the survey tool which helped to validate and enhance the quality of the results.

Results from the Survey.

Out of 198 tourism organisations that participated in the survey, 53 percent of them were owners; 26 percent of the participants were managers, and the rest of the survey questionnaires were completed by responsible employees. The majority of the survey participants reported that they have good knowledge of information technology and have had experience using some ICT tools in their business on a regular basis. 50 percent of the organisations surveyed were from the travel industry (members of NATTA), 36 percent were from trekking businesses (members of TAAN) and the remaining 14 percent were from the hotel industry (members of HAN).

Table 5. Summary of the responses on the areas of concerns

	AoC1	AoC2	AoC3	AoC4
Mean	4.08	4.30	3.95	4.39
Standard deviation	0.953	0.642	0.853	0.689
Agreed Percentage	81%	86%	80%	96%

The percentages in Table 5 include both strongly agree (scale 5) and agree (scale 4) from the Likert scale of 1 to 5. The results are discussed and shown in Figure 2 below.

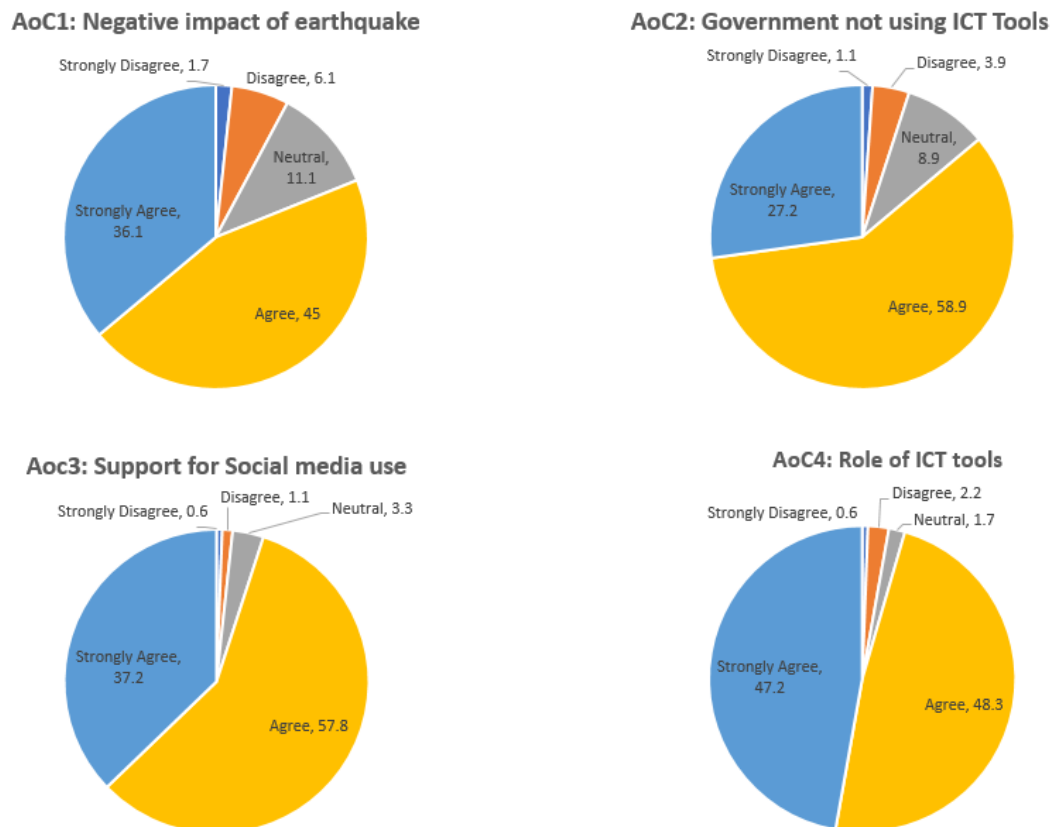


Figure 2: Summary of results in areas of concern

AoC1 – Negative impact from the Earthquake. 81 percent of the survey participants (with a mean score of 4.08 out of 5) agreed with the findings that the 2015 earthquake has negatively impacted tourism businesses. Even almost three years after the disaster, the tourism organisations have not been able to recover well. The findings contradict the Nepal government’s claim about the recovery of the tourism industry as they only accounted for the number of buildings reconstructed, sites resumed and the districts affected (NRA 2017). A significant number of organisations agreed with the negative impact on their businesses which also confirms the need for more immediate programs by the government for earthquake recovery.

AoC2 - The government has not used ICT tools. 86 percent of the participants agreed that the government has not been able to use ICT tools in the recovery process. It indicates that the ICT has not been a part of current tourism recovery programs in Nepal. Tourism organisations felt that the government has not been able to utilize the full potential of ICT tools in post-disaster tourism recover processes.

AoC3 - Social media should be used. 80 percent of the participants from tourism organisations in the survey agreed that the social should be utilized during the tourism recovery process by major stakeholders. The organisations such as NTB and some private organisations were found to be operating Facebook pages to promote and interact on tourism issues after the quake.

AoC4 - Role of ICT. Most importantly, around 96 percent of the survey participants agreed with the statement that the ICT tools have a significant role in the earthquake recovery process. ICT can help to connect tourism organisations, charity organisations and other players with existing government agencies to cooperate in the recovery process.

The results of the survey corroborated findings from the interviews regarding the use of ICT tools in tourism recovery activities.

IMPLICATIONS

The study investigated and analysed the potential use of ICT and social media tools during post-disaster recovery management, and provided useful findings. Firstly, this study shows that the 2015 earthquake has negatively impacted the tourism industry of Nepal. It also shows that the majority of tourism organisations are still sceptical about the progress of the tourism recovery processes and programs.

The recovery of the various industries including tourism is continuing through the responsible government agency Nepal Reconstruction Authority (NRA). The findings from this research encourage the use of ICT tools in the recovery activities of tourism sectors.

The findings also suggest that the various stakeholders should effectively use social media widely for tourism recovery activities. The findings suggest that stakeholders such as government agencies and tourism organisations should update their plans and policies to integrate ICT tools and enhance their programs related to tourism recovery activities.

Similarly, the findings from this study can be used to manage a post-disaster situations for those countries where tourism is one of the major industries, and countries which are also vulnerable to natural disasters like earthquakes. The findings and observations from this research can help to prepare, plan and manage the post-disaster situation effectively with the help of ICT tools.

Around 96 percent tourism organisations who participated in the survey assert that the use of ICT tools can play a powerful role in the tourism recovery process. This finding endorses the use of ICT tools and advocates the need for the broader use of them in Nepal. It also indicates that further research is needed on the use of ICT tools to prepare a tourism recovery framework to assist in post-disaster recovery.

CONCLUSION

The tourism industry is one of the major contributors to GDP in Nepal, and the 2015 earthquake has adversely affected various aspects of the tourism sector. The earthquake damaged several tourist attractions such as heritage sites, trekking routes, and a trail to Everest Base Camp. Consequently, the total number of tourists has declined affecting the operation of tourism organisations. A substantial amount of foreign aid was donated to the government for the recovery process, but the overall progress of the recovery has been slow.

This research highlights the potential use of ICT tools by various stakeholders such as tourism organisations and government agencies during post-earthquake recovery activities for the tourism industry. The findings provided useful insights into the use of ICT tools in disaster management. However, government use of ICT in recovery activities was found to be deficient and tourism organisations voiced that government should embrace ICT tools more. The research also found that social media is effective during the post-disaster recovery activities of Nepal but such initiatives are still under-utilized.

In the future, these findings can be used for further studies to create a disaster management framework integrated with ICT tools so that the government of Nepal can better manage the situation after a disaster through effective programs. Such programs should integrate related stakeholders and their concerns to work towards a disaster resilience scenario. It is also anticipated that the framework can give guidance to other countries with similar geological and tourism focused economies.

ACKNOWLEDGMENTS

This paper is a part of research on e-commerce adoption in the tourism industry, which is sponsored by Endeavour Australia.

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