



Case Study

Reconstruction strategies after the Wenchuan Earthquake in Sichuan, China

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ABSTRACT

An intensive earthquake, the Wenchuan Earthquake of 8.0 on the Richter scale, struck western Sichuan, China on May 12, 2008. The earthquake significantly affected all industries in the quake-hit areas including local tourism. This paper provides suggestions for reconstruction after outlining findings on the various ways by which the earthquake affected the operations and viability of tourism in the quake-hit areas. This paper is divided into 3 main parts. The first discusses the importance of tourism in the quake-hit areas. The second analyses the impact of the earthquake on tourism in Sichuan from different perspectives. The third is to propose strategies for tourism reconstruction.

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1. Introduction

An intensive earthquake, the Wenchuan Earthquake measured at 8.0 on the Richter scale, struck Western Sichuan, China, on May 12, 2008. Official figures confirmed 69,185 dead, including 68,636 in Sichuan province, 374,171 injured and 184,671 listed as missing.¹ Millions of people became homeless, large numbers of buildings were completely ruined, highways, water supply, sewage, gas and power systems were completely destroyed. The total economic loss was estimated at over ¥1000 billion.²

The Wenchuan Earthquake impacted an area of some 100,000 square kilometers and a population of 27,920,000 in 1204 towns of 71 counties in 11 prefectures. The quake zone involved a population of 7,000,000 in an area of 30,000 square kilometers covering 254 towns of 21 counties (cities), such as Beichuan, Wenchuan, Mianzhu, Qingchuan, Shifang, Dujiangyan, Pingwu, Anxian, Jianguyou, Pengzhou, Maoxian, Lixian, Chongzhou, Baoxing, Xiaojin, Heishui, Songpan, Dayi, Pixian, Wenjiang and Lushan as shown in Fig. 1.³

The earthquake significantly affected all industries in the quake-hit areas, including local tourism. There is comparatively little

literature dealing with the impacts of earthquake upon tourism. Mazzocchi and Montini (2001) and Huang and Min (2002) based their analyses on post-quake restoration statistics. The objective of this paper is to suggest policies for reconstruction after outlining findings about the various ways in which the earthquake affected the operations and viability of tourism in the quake-hit areas.

2. Methodology and data

2.1. Methodology

Linear regression and empirical forecasting are jointly adopted in this paper to predict the economic loss caused by the earthquake. The initial linear regression prediction is based on the assumption that the tourism economy develops in a linear manner. Forecasting is employed to predict future tourism by means of a summary of experiences, and the average growth of the past few years is regarded as the normal rate. Though these methods have obvious flaws, the results possess importance as being indicative of the potential of tourism as a means of economic recovery for the region.

This paper mainly uses the data issued by the government and publications supplemented by information derived from the Internet.

3. The importance of tourism in the quake-hit areas

In 2007 Sichuan's tourism revenue reached 121.73 billion RMB while that in 2000 was only 25.8 billion RMB. Annual revenues have increased by 24.3 percent and tourism revenue accounted for 6.4 percent of the total GDP in Sichuan in 2000 and 11.6 percent in

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¹ Casualties of the Wenchuan Earthquake, Sina.com, 2008-06-08. Retrieved on 2008-06-23. (<http://news.sina.com.cn/pc/2008-05-13/326/651.html>).

² The Direct Economic Loss Caused by Wenchuan is over ¥ 1000 billion, 2008-7-02. (http://news.xinhuanet.com/local/2008-07/02/content_8471901.htm).

³ Earthquake Bureau of Sichuan Province, Report about quake-hit cities and counties of Wenchuan Earthquake on May 12, 8.0 on the Richter scale, affected by tectonic activity, No. [2008]29, 2008-5-24.



Fig. 1. Quake-hit areas in Sichuan.

2007. Sichuan, therefore, has become the first province in China where tourism revenue accounted for over 8 percent of regional GDP.⁴ The Wenchuan Earthquake on May 12, with its seismic intensity and many aftershocks over a long duration, caused huge economic loss to the tourism industry in the quake-hit areas and the whole province.

3.1. Tourism resources

Sichuan is abundant in tourism resources, with 5 sites on the World Heritage List, 4 nature reserves in the Man and Biosphere Reserve Network of UNESCO (world nature reserve), 2 world geoparks, 4 world scenic spots, 15 national scenic spots, 22 national nature reserves, 31 national forest parks, 8 national geoparks, 128 national key units of cultural relics conservation, 7 cities of historical and cultural relics in China, 8 types (27 subtypes) of intangible cultural heritages and 18 excellent cities for tourism in China.^{5–7}

There are 3 sites of world heritage, 2 world nature reserves, 2 world scenic spots, 6 national scenic spots, 8 national nature reserves, 8 national forest parks and 3 national geoparks in the quake-hit areas as shown in Table 1 (Fig. 2).

3.2. Number of tourists

Data held by the Tourism Bureau of Sichuan Province show that in 2007, the number of tourists in the quake-hit areas accounted for 38 percent of all provincial tourist arrivals (see Tables 2 and 3⁸).

⁴ Tourism Revenue Reaches 100 Billion in 2007, singtaonet.com, 2008-1-23.

⁵ Tourism resource, sc.gov.cn, 2006-12-18. (http://www.sc.gov.cn/scgk1/sq/zr/zy/200612/t20061218_65690.shtml).

⁶ Sichuan, gigy.com. (<http://www.gigy.com/provCNSC.html>).

⁷ Statistical Bureau of Sichuan and NBS Survey Office in Sichuan, List of main Scenic Spots, Sichuan Statistical Yearbook 2007, China Statistical Press, 2008:495.

⁸ Tourism statistics in December 2007, scta.gov.cn, 2008-1-24. (<http://www.scta.gov.cn/web/main.jsp?go=newsDetail&pid=7&cid=101&id=31068>).

3.3. Tourism revenue

Aggregate tourist expenditure data has to be used because of the lack of county (city) statistics. An analysis reveals that the quake-hit zone accounted for about 30–40 percent of visitor expenditure (see Table 4).

4. Factors influencing tourism

The tourism system comprises an aggregation of things related to tourism, thereby creating an 'organism through tourism' (Liu, 1999). The tourism system consists of four components: tourist destination, tourist origin, a communication component and finally a support component (Wu, 1998).

The first impact of the earthquake on tourism is the destruction of tourist destinations, the base for tourism (Wang, 2003). The Wenchuan Earthquake on May 12, 2008, was a shallow earthquake, causing disastrous damage to mountain massifs, rivers and surface buildings. An array of cultural relics and scenic spots has been destroyed, and even a few totally ruined – the Yingchang Valley in Pengzhou is an example. It is difficult to estimate the true economic loss, some areas may be beyond reconstruction.

What is worth mentioning is that the earthquake has both destroyed old scenery and simultaneously created new tourist locations. If new geomorphologic formations are properly employed, new landscapes can come into being. For example, taking the 32 resultant quake lakes, China plans to form a huge lake formed from the Sichuan earthquake disaster into a tourist destination.⁹ In another example, the construction of the Wenchuan Earthquake Memorial or Commemorative Museum will be a new tourism resource, and will bring new tourism revenues. The Tourism Bureau of Sichuan Province has planned to gradually make tourism the foremost industry in the quake-hit areas after 2010, partly by providing new tourism resources and new tourist routes.

Tourists themselves are subject to their psychological and physical competences, economic income and their intentions, and the Wenchuan Earthquake has greatly influenced the three factors. In terms of the extent of these impacts, the three factors can be listed in an order of priority – psychological first, economic second and behavioral intent the third.

The psychological impact upon residents in the quake-hit and non-quake-hit areas is different. Those living in the quake-hit areas have lost relatives and their homes, while others are less inclined to travel because of the mass media coverage of the quake and its aftermath. The earthquake has caused significant economic loss for those in the quake-hit areas, and reconstruction needs a large amount of money and property. Whether considering quake-hit or non-quake-hit areas, it is evident that intra-regional tourism will be adversely affected in the immediate short-term. Tourism, as a pastime, happens on the premise that a destination is safe (Liu, 1999) and a lack of security therefore has a direct and obvious impact upon tourism. The Wenchuan Earthquake threatened the lives of tourists in the quake-hit areas, and all tourism came to a sudden halt. The immediate security problem caused by the earthquake could not be resolved within a short period of time and its influence will at least last for some time unless reassurance is offered to the marketplace.

After the earthquake shook Sichuan, the Chinese governments at different levels issued special administrative orders to protect people's lives and property. These orders, of course, affected tourism. For instance, the National Tourism Administration of China

⁹ China 'quake lake' to be tourist spot, [Yahoo.com](http://news.yahoo.com), 2008-6-24. (http://news.yahoo.com/s/ap/20080624/ap_on_re_as/china_quake_lake_1).

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