

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Management**



**Bachelor Thesis**

**Effects of natural disaster on tourism**

**Nurgul Zhanadilova**

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# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

## BACHELOR THESIS ASSIGNMENT

Nurgul Zhanadilova

Economics Policy and Administration  
Business Administration

Thesis title

Effects of natural disaster on tourism

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### Objectives of thesis

The aim of this thesis is to identify the impact of a natural disaster on tourism, primarily from an economic point of view. A model will then be proposed to rebuild the number of tourists.

### Methodology

This thesis contains two main parts:

The first part is the informative section, based on a wide-ranging review of current literature. It explains the terminologies, examples and the background processes of analysis based on literature, statistical data and recent events.

In the second "Practical part", data on key indicators of tourism, the economy, and various natural disasters will be gathered, and used to create a successful model to rebuild the number of tourists.

**The proposed extent of the thesis**

Approx 40-50 pages

**Keywords**

tourism, economy, natural disaster, earthquake

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**Recommended information sources**

- Everett H., Simpson D., Wayne S. (2018), 'Tourism as a driver of growth in the Pacific', Asian Development Bank (ADB) 'Issues in Pacific Development' Issue 2, June 2018, available at <https://www.adb.org/sites/default/files/publication/430171/tourism-growth-pacific.pdf>
- Lickorish, L.J., Jenkins C.L., (1997). An introduction to tourism. Abingdon UK., Routledge, 260pp. ISBN-13: 978-0750619561
- Marshall, A. (2009), Principles of Economics., New York USA, Cosimo classics, 740pp., ISBN-13: 978-1605208015
- Walton J.K. (2018), 'Tourism' [online], in Encyclopædia Britannica, Publ.: Encyclopædia Britannica Inc., available at <https://www.britannica.com/topic/tourism>
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### **Declaration**

I declare that I have worked on my bachelor thesis titled "Effects of natural disaster on tourism" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 23.03.2020

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## **Acknowledgement**

I would like to thank the people who were as important to this work getting done as the thesis itself. First of all, I would like to thank my supervisor and guide, Ing. Richard Selby, Ph.D. for consultations, instructions and advices, which has been a major motivation for me. Special thanks to my dear friend Sugandha Chaudhary for proofreading my early drafts. Besides, I would like to pay my gratitude to my family and mine for their constant support.

# Effects of natural disaster on tourism

## Abstract

The main abstract of this thesis is to Study the effects of Natural Disaster on Tourism and to come up with a wholesome solution that can be implemented to regain the lost number of visitors to the affected area.

The study is carried out in two parts.

The first part is the literary section. As the topic touches various aspects of Natural disaster, economy, tourism etc, a literature detail is carried out to understand the various topics (and sub topic) along with their relationship with each other. The study also becomes the framework to understand and analyze part two, which is the Practical section.

The second part is the Practical section. It is initiated by picking two case studies (as inferred from Section one). Case Study 1 is the Japan of the Great East Japan Earthquake, which handle the crisis quite well, and regained tourism in a short period of time. Case Study 2 is Sumatra Island of the Indian Ocean Earthquake, which struggled with huge losses of Life, property and economy. It took them considerable amount of time to come back to normal life.

The two case studies are followed by a comparative analysis and a SWOT analysis of the same, in order to understand the various aspects playing important role in the regeneration of tourism.

The study terminated with a conclusive section that lists out the key points that determine solving tourism problem post a catastrophe. These would be political, infrastructural and economic in nature.

## Keywords:

Natural Disaster, Earthquake, Tourism, Economy, Earthquake

# Účinky přírodní katastrofy na cestovní ruch

## Abstrakt

Hlavním abstraktem této diplomové práce je studium účinků přírodních katastrof na cestovní ruch a nalezení prospěšného řešení, které bude možné realizovat tak, aby se znovu získal ztracený počet návštěvníků postižené oblasti.

Studie se provádí ve dvou částech.

První část je teoretická část. Z toho důvodu že se téma dotýká různých aspektů přírodních katastrof, ekonomiky, cestovního ruchu atd., provádí se podrobný rozbor literatury, aby bylo možné porozumět různým tématům (a dílčím tématům) spolu s jejich vzájemnými vztahy. Studie se také stává rámcem pro porozumění a analýzu druhé části, která je část Praktická.

Druhá část je část Praktická. Začne se výběrem dvou případových studií (jak vyplývá z první části). Případová studie 1 je zemětřesení ve východním Japonsku, které krizi zvládne docela dobře a v krátké době znovu získalo cestovní ruch. Případová studie 2 je zemětřesení na Sumatra Island v Indickém oceánu, Sumatra Island bojoval s obrovskými ztrátami na životě, majetku a ekonomice. Trvalo jim značné množství času, než se vrátili do normálního života.

Po dvou případových studiích následuje srovnávací analýza a SWOT analýza, aby bylo možné pochopit různé aspekty, které hrají při regeneraci cestovního ruchu důležitou roli.

Studie byla ukončena průkaznou částí, která uvádí klíčové body, které určují řešení turistického problému po katastrofě. Měly by to být politické, infrastrukturní a hospodářské aspekty.

## Klíčová slova:

Přírodní katastrofa, zemětřesení, cestovní ruch, ekonomika, zemětřesení



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## 2 Introduction

The planet Earth has been constantly changing. New faces have formed, reliefs spread, rivers dried up, the climate has changed. Such transformations contribute to the emergence of new geographies. Nature has created all this amazing beauty and as humans, we cannot stop admiring it. This is where traveling comes in.

Tourism is one of the largest industries, growing rapidly around the world. Nowadays the number of people traveling around the world has become much larger than before. The tourism industry brings great economic development.

But one hurdle that often occurs is that nature is changing and these changes might bring disastrous consequences for mankind. These devastating consequences can be called natural disasters. Since all these changes are quite unpredictable and vary in scale, mankind is not prepared for large-scale destructions. People die, entire cities, landscapes and histories are destroyed. These consequences cause great damage to the tourism business. After such events, it is very difficult to return the trust of tourists, since many of them are afraid of a repetition.

While there are umpteen negative effects of these calamities, purely from a tourism point of view, there is barely any positive impact. Humans, however, have still found out concepts like Dark Tourism, to somehow benefit the industry. There are so many layers, intertwined, that a detailed analysis on this subject will be useful to balance this business (post a disaster) in the longer run.

This study focuses on the concept of loss that is brought by natural disasters, it will be primarily stressing on the field of tourism viz how is it impacted and what regenerative measures can be taken for the same.

## **3 Objectives and Methodology**

### **3.1 Objectives**

The aim of this thesis is to try and understand the impact of natural disaster on tourism, primarily from an economic point of view. The research is carried out by studying the same through recent examples, aided by some statistical data. The idea is to try and develop a model for replenishing the number of tourists, using successful and failed examples.

### **3.2 Methodology**

To make the study easy and understandable to read, it is divided into three segments.

The Thesis will start with a small introduction about the subject, to familiarize the readers with the keywords and overall understanding.

The second part is the informative section. It explains the terminologies, examples and the background processes of analysis based on literature, theories from various textbooks, articles, statistical data and recent events. Primary detailing is done on

- Tourism
- Economy
- Natural disaster, earthquakes in particular

Last but not the least, is the “Practical part”, which aims at building / developing a system to regenerate the number of tourists, post disaster. This section will be based on data and stats extracted from failed and successful examples.

## **4 Theoretical part**

### **General Understanding**

In this section, we are going to discuss general definitions of the many keywords, that q will be using to further to analyze this thesis.

### **4.1 Tourism**

Tourism still doesn't have an exact definition. In different books and science schools that focus on the field of tourism, it is defined differently [Kruzhalin V.I., Moshniaga E.V., Novikov V.S., Rassokhina T.V., 2014, p.7]. In the 1960s, the IUOTO organized a meeting where the United Nations Conference on Tourism and International Travel met in Rome. In the conference they discussed about definition of "visitor". Since that time Organizations have been working on a more technical acceptable and technical definition. As the trends of the industry was transitioning, the definitions changed as well. In 2001, the United Nations World Tourism Organization (UNWTO) redefines tourism as social, cultural and economic phenomenon which entails a process of spending time in another environment, unusual for humans. It could be a trip to another country or to another city for a vacation or business or professional trip, despite the goal. However, continuous work is being done on the topic. In 2005, organized a conference about "Tourism Satellite Account (TSA): Understanding Tourism and Designing Strategies" in Iguazu.

In my opinion, tourism is more than an ordinary vacation. Usually people travel to another environment to visit new places, study the culture of other countries, to get away from routine, and also to expand their horizons. People travel for recreation, but there are also business trips and medical trips. Besides, pilgrimage cover another huge chunk of travelers, who could be in search of a meaning, spirituality etc.

We can basically categorize this into "business tourism", "sports tourism" and "medical tourism" and so and so forth. From locative point of view, it can be domestic or international. As the term suggests, domestic is within the state of the respective individual/s, whereas an international travel is a trip aboard. Every

international trip takes the involvement of economy (in this industry) to a completely different dimension. Globalization, access to information, social media, education have made tremendous effect on the said and made it possible for many. The number of international tourists has tripled in the last 20 years (from ~30 million to ~90 million).

\*\*Let's take a minute here to note in last 20 years, there has been a 200% increase in international travels, the world population however grew by 16%, which clearly shows, it's not a result of population explosion.

Most of the studies and statistics that are computed, focus on movements across international borders. Domestic travel seems less visible, but its important to note that it works as a very strong framework to maintain economy of a country and includes engagement of "regional, local, and small family-run enterprises". While data are being processed to understand foreign travel, for an individual, exploring the homeland remains much more important, especially from a domestic to international trip ratio point of view. This holds true for very big and diverse countries like USA, India, China, Brazil to beautiful hamlets like Maldives, Iceland and the Caribbean's.

Hospitality industry is one of the fastest growing industry and important source of income for many countries. Travel & Tourism industry is an extensive industry, which includes other different types of industries like Transportation service, entertainment, lodging, food and even medicine.

Tourism can also be called as 'business of attracting people'. Professor of Contemporary History in University of the Basque Country, John K. Walton, in his work defined modern tourism as "an increasingly intensive, commercially organized, business-oriented set of activities" (2018). Therefore, it should be accepted that, if the country has unique places, viz. nature, architecture or history which can attract people, it can be highly commercialized in order to generate business.

## **4.2 Economy**

Economy is the science of the consumption and replenishment of resources carried out by exchange of goods between people and places. Economics, the study of economy is the strategy of the pursuit of welfare, or the strategy which helps to handle with scarcity of limited resources. The aspiration of this science is to make life easier for humanity and its evolution. From buying a piece of bread to a billion-dollar business, economy is almost all our decisions, which we face on a daily basis (PROCHÁZKA, Petr, 2015).

Alfred Marshall in his work argued that the emergence of new technologies, goals and needs of people leads to changes of strategy and concept of the economy (2009). Each generation has its own approach to solving the problem. In former times, the concept and ideas of innovators that seemed insane and impractical during that economy, found their appropriate place in time. Time puts everything in its own place.

## **4.3 Economy by Tourism**

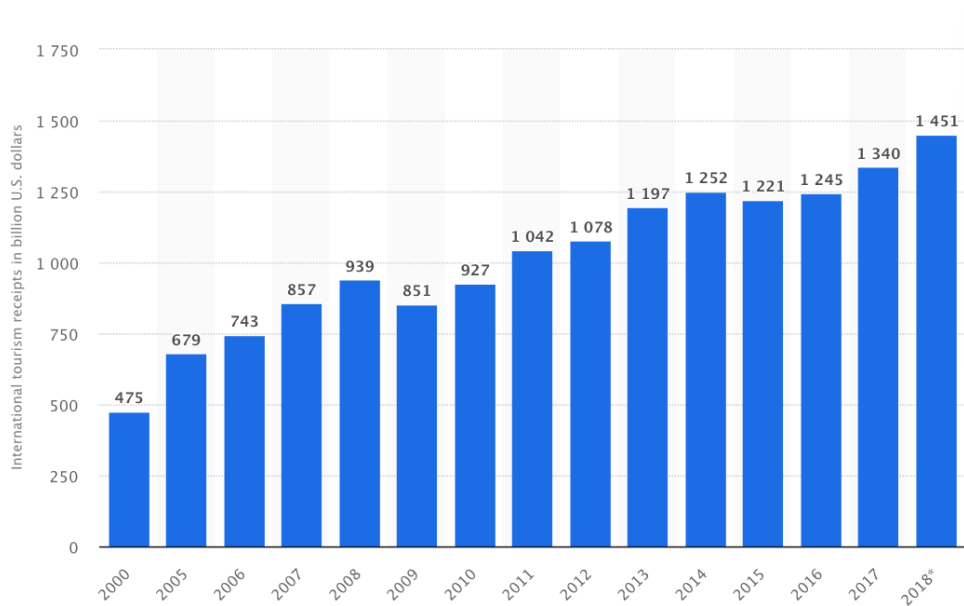
Travel industry is one of the most profitable and fastest growing industry in terms of economy. It focuses on varied industries as mentioned earlier.

Let's look at a small example. When someone plans a short trip, they begin with booking a ticket, hence nudging the transportation industry. This can be followed by booking a hotel (hospitality sector), internal transport (start ups like uber, bolt etc.) and visiting museums and other places of interests (art & culture). Besides, they will spend on food (may be from restaurants, cafes) , essentials (supermarkets) and other retails viz. medicines , souvenirs etc. These series of activities, begun by one single individual starts a chain reaction. The moment they buy lunch at a restaurant, it impacts not only the restaurant staff and it's owner, but the vendor they buy raw materials from, the farmer who grows them on his field and the factory producing fertilizers for the farmer's field (Maureen A. Beattie, 1992, p.3).

Tourism creates a lot of jobs around the world (Maureen A. Beattie, 1992, p.3).

According to the World Travel & Tourism Council (WTTC) research Tourism industry has created 318,811,000 jobs around the world in 2018, which is 10,0% of total employment (2019, p.4). Every tenth employee works in the field of tourism. Therefore, tourism helps to solve the unemployment problem at many levels, and should not be considered mere vacation that impacts just the privileged.

**Figure 1 : Global International Tourism Revenue from 2000 to 2018 ( in billion U.S. dollars)**

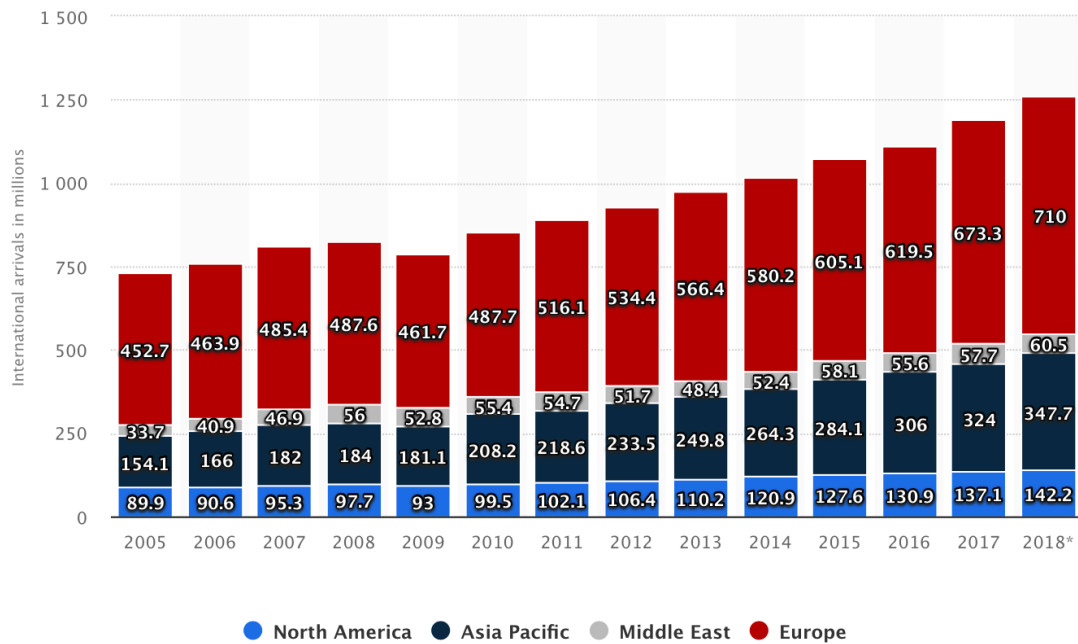


*Source: LOCK, 2019*

The graph shows global international tourism revenue from the years 2000 to 2018, in billion U.S. Dollars. The statistic displays a big change in the data in 18 years. In 2000 Tourism was given 475 billion U.S. dollars and in 2018 its almost 3 times more amounting to 1451 billions U.S. dollars. Here, we see a change in the trend during 2009. It is a possibility that it happened because of the Great Recession. It has been growing before that, and continued to grow after as well, as travel has become available to everyone. It made global economy grow, that's why a lot of world leaders work on developing tourism in their countries.



**Figure 2 : Number of international tourist arrivals worldwide from 2005 to 2018, by region**



Source: LOCK, 2019

Here you can see numbers of international tourists who have visited visiting different continents of the world, respectively, from 2005 to 2018 in millions. The most visited region is Europe, with 457.7 million visitors in 2005 and 710 million visitors in 2018. The next region is Asia Pacific, namely China, Thailand, Japan, Hong Kong. With 154.1 million visitors in 2005 and 347.7 million visitors in 2018. The third region is North America with 89.9 million international arrivals in 2005 and 142.2 million in 2018. The fourth most visited region is Middle East. Middle East got 33.7 million international arrivals in 2005 and 60.5 million international arrivals in 2018.

In 13 Years there is growth in:

- Europe by 55 %
- Asia Pacific by 125 %
- North America by 58 %
- Middle East by 79 %

Although Europe continues to be the most visited region for many, many years, the footfall rise of Asia Pacific is overwhelming. There is a massive increase of 125 % and we can observe that “trends” are not permanent. The footfall shift depends on several factors. Let’s take a look, what might have happened to cause this particular case.

In their work Everett H., Simpson D. and Wayne S. have shed some light on the growing popularity of this very region. Besides an attraction, traveler looks for security, affordability, facility and activity (2018, p.5).

**Table 1 : Key Drivers of Tourism in the Pacific**

<b>DEMAND</b>	<b>SUPPLY</b>
Economic growth in Australia and New Zealand fueling increased Pacific tourism.	New air carriers, hotel brands, and cruise lines responding to demand.
Improved air access, product offers, and marketing.	A greater number of special experiences being developed to meet customer demand.
Increased demand for Pacific cruises.	Pacific governments taking proactive strategic approaches to tourism.

*Source : Everett H., Simpson D., Wayne S., 2018, p. 5.*

The Asia Pacific viz. Indonesia, Malaysia, Vietnam, Thailand etc. have been naturally blessed with exotic landscapes and ancient culture for centuries, but have been an “uncomfortable” zone for the west, for a long time. However, in last few decades, with the advent of media and advertising, this zone ensured to make people aware of the safe environment it offers. The world got to know the special attention put in the culture and heritage of nature (unlike Europe, which stresses a quite lot on the reminiscence of mankind), which provided the world a fresh new perspective of being lost in the countryside. As the paradigm of traveling was shifting from “vacation with family and friends” to “discover it yourself”, young travelers found it extremely fascinating to visit these exotic lands, meeting new people and enjoying life beyond their comfort zone. This was made even easier with the rising number of cruises and airlines improved throughout the Pacific. Hotels, recreation centers and facilities became more extensive, which

consecutively helps to attract more visitors. Today, people from big countries like China, Canada, USA and India to several parts of Europe have made South East Asia a mega attraction.

As was mentioned earlier, for many of the countries hospitality industry is one of the main sources of income. Romanova, Marianna outlines in her analysis that : “ The prospects for the development of this industry are great. Nowadays people started traveling a lot and often, People who are wishing to visit new regions and places has become more. That’s why many leaders of countries are interested in developing Tourism Industry” (2014, p.1).

As a quick assessment, a lot is to be learnt from the way Asia Pacific has been retaining its visitors. A peaceful political condition is imperative but necessary is projecting the right information. Stability of the local currency, provision of affordable as well as extravagant facilities, free movement across borders, visa on arrival and a sorted transportation system are some of the very important factors. Besides, it’s not necessary for every place to be blessed with great climatic conditions, however, offering the right facilities so as to maximize the fun is the key. Great advertising can add a cherry on top.

#### **4.4 Natural disaster**

Tourism industry is closely related to nature. Even small change in the world can affect movement of tourists.

Unfortunately, nature tends to change from time to time and these change may cause serious problems like a crisis or a natural disaster. According to the Cambridge University Press natural disaster is defined as “a natural event such as a flood, earthquake, or tsunami that kills or injures a lot of people” (2020).

Despite the fact that technology has now reached near perfection, humans still cannot determine the precise dates and strengths of forthcoming natural disasters. Although the world is making new progress on a daily base, and humans have

come a long way in having control of the planet, we still have to surrender to the mighty nature. No matter, how well we prepare for the known calamities, nature always find a way to balance the overload (Maureen A. Beattie, 1992, p.1).

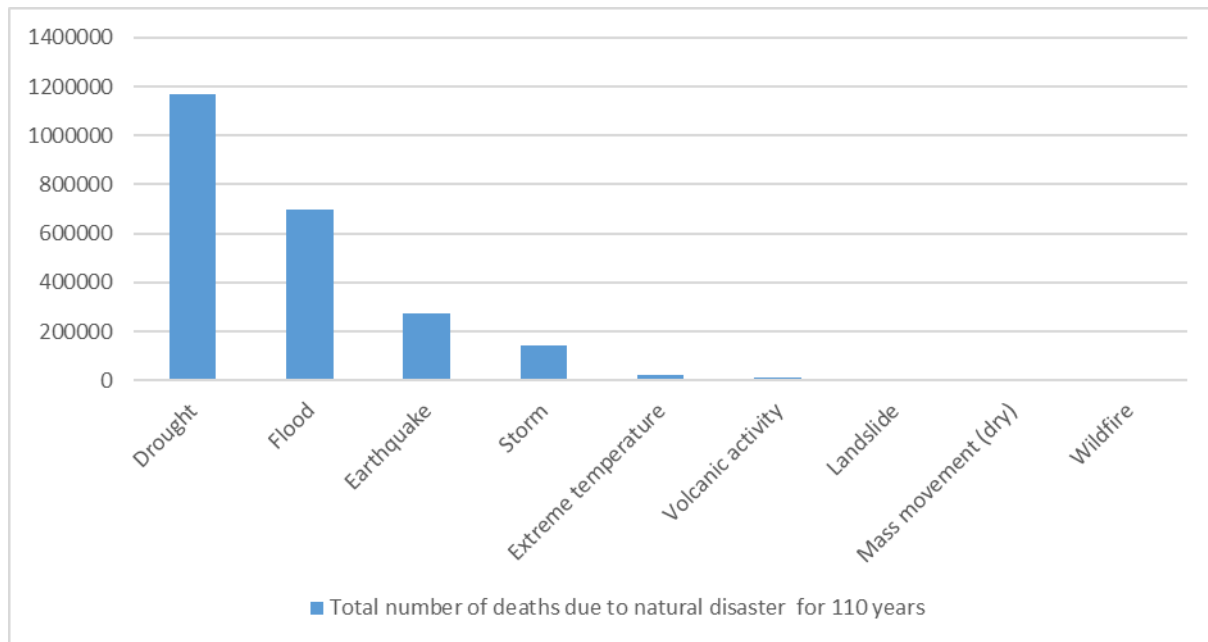
#### **4.4.1 Impact of disaster**

Any natural disaster is measured on a scale from 1 to 10. The scale is usually in order to assess how much is insured or destructive the disaster is. There can be different scale natural disaster, like low in scale that do not cause remarkable influence or destruction. The impact may be different in different cities or regions. Mostly it depends on how that region is ready for it. Furthermore, some of the areas are susceptible to disasters more than other areas. The reason for that is geographical location. There is no doubt that any place on our beloved planet is at the mercy of nature, and prone to a lot of losses, countries with a lower economy however, often suffer the most. The state is not strong enough to invest in state of the art infrastructure for protection and revival. Poor planning of the city, unprotected coastal plains and slopes, non-provision of safety measures for river catchments are some of the many factors that increases the scale of losses (Ritchie,H., Roser, M., 2020).

#### **4.4.2 Relationship between Natural disaster and Tourism**

The influence from natural catastrophes on tourism based enterprises is very high. There is a significant decrease in numbers of tourists due to the fear of it happening again, also given the fact that the attractions are usually destroyed after such event.

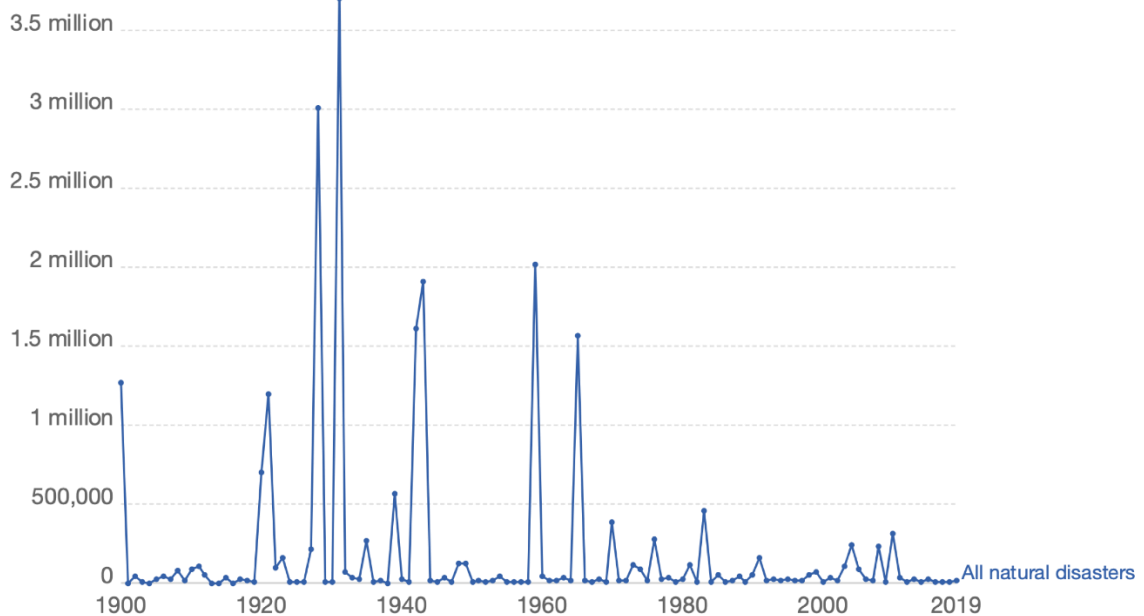
**Figure 3 : Total number of deaths due to natural disaster for 110 years (1900-2010).**



*Source:* RITCHIE Hannah and Max ROSER, 2014.

Figure ? demonstrates various types of natural disasters that lead to deaths in the world in years 1900 to 2010. From this data we can conclude that drought is the major destructor. Approximately 1,170,000 people died, followed by flood and earthquake.

**Figure 4 : Global death from natural disaster**



*Source:* RITCHIE Hannah and Max ROSER, 2014.

Figure ? shows the global death from all natural disaster from 1900 to 2019. From the graph, we can understand that in the beginning of the 20<sup>th</sup> century there was a large number of deaths, and by the end of the 20th century mortality from natural disaster has significantly decreased (Ritchie H., Roser M., 2020).

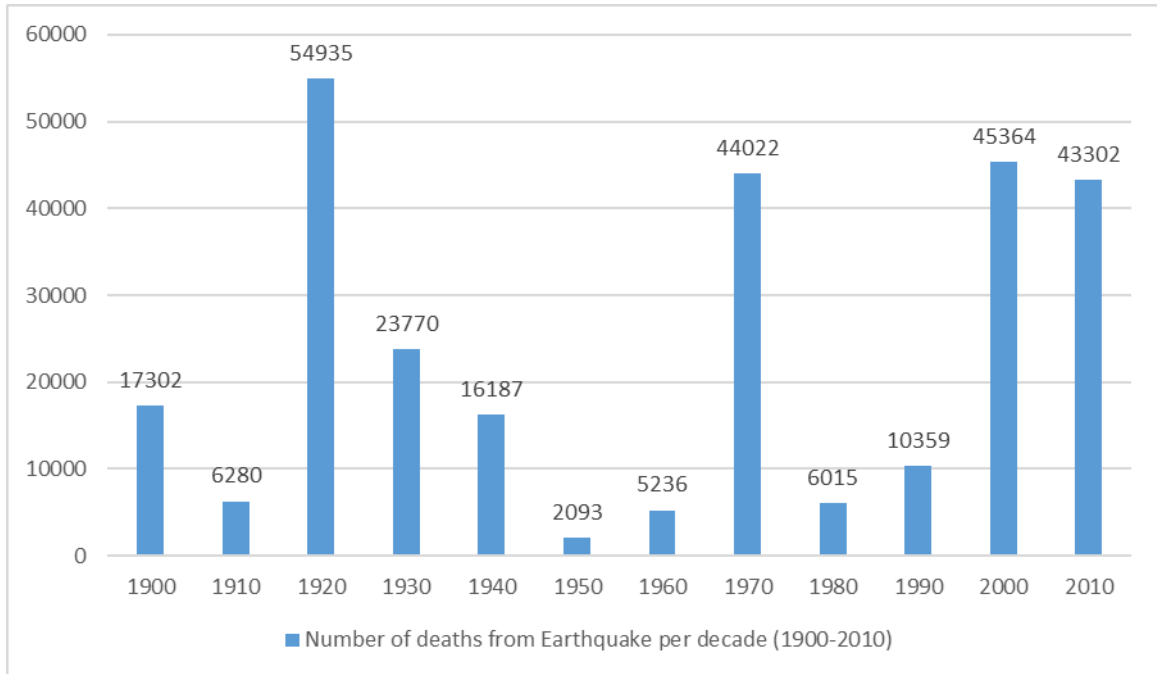
## 4.5 Earthquake

An earthquake is movement of two blocks of the earth, when they suddenly slip past one another (Lisa W.). In another words, earthquake is “a sudden violent movement of the earth’s surface, sometimes causing great damage” (Cambridge University Press 2020)

### 4.5.1 Impacts of Earthquake

In recent years, from all types of natural disasters, Earthquake has become more frequent and sometimes with a large number of casualties. Strong earthquakes in some countries which are close to the sea, cause large tsunami waves. Such events give rise to massive losses. “The deadly nature earthquakes has been a persistent threat throughout our history” stated by (Ritchie H., Roser M., 2020).

**Figure 5 : Annual global number of deaths from Earthquake, per decade.**



*Source: OFDA/CRED International Disaster Database*

The above graph demonstrates global number of mortality from Earthquake. In the early 1900s, the number of deaths from the earthquake was 17 302 and in 1920 it rose to 54,935. The increase was by ~ 217.5%. In the following decades there was a decrease and only by the beginning of the 2000s it rose again. The rise in number of death was not as large as 1920. There is difference of approximately 20%.

**Table 2 : Earthquake destruction from 1900 to 2010**

Continent	Number of Occurrence	Total damage ('000 USD)	Total death
Asia	708	322 855 974	1 571 647
Americas	265	100 814 406	445 123
Europe	167	61 905 286	465 021
Africa	63	12 324 949	21 492
Oceania	45	8 012 959	6 204

*Source: EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium*

Table ? shows the number of earthquakes from 1900 to 2010 in five continents of the world. In addition, the total cost of damage to each continent for all earthquakes that happened over 110 years and the total number of victims is indicated. Based on the data, we can see that Asia has the highest number of earthquakes. The most likely cause was the geological location of the continent. Most of Asia is occupied by mountains and plateaus. Here are located, the high mountain ranges of the Himalayas, Pamir, Hindu Kush, Tien Shan, Tibet Highlands. Moreover the Table demonstrates high casualties in Asia. The reasons for which, during this period of time, were events such as:

- An earthquake in Tangshan, China with a scale of 7.5 and where approximately 242,000 people died.
- An earthquake in Sumatra, Indonesia with a scale of 9.1, the death toll is more than 167, 708 people.
- An earthquake in Gansu, China with a scale of 8.3, the death toll is ~180,000.
- An earthquake in Japan with 9.1 magnitude, the number of death is ~ 15, 467.

From the above content it is evident that Asia has been through huge losses of life and property, which needs to and has dealt with it, at different points of time. For the precise reasons, Asia-Pacific will be taken as the base of case studies, for the further analysis of the topic.



## 5 Practical Part

The practical part of the study focuses on two natural disasters that occurred recently. Events happened on two different countries in Asia continent, which are approximately the same in size. The time difference between disasters is not large. The first event took place in Japan in 2011, the second in Indonesia in 2004. In both countries, the earthquake and tsunami caused disaster. Both these disasters have led to a lot of people's death and the destruction after was significantly huge. Immense economic damages were inflicted.

The first part of the practical part includes the situations in Japan and Indonesia during the incidents separately.

Such issues will be considered as:

- How did these countries react to the crisis that suddenly came to the country?
- What were the consequences of the earthquake for the tourism industries in the countries after?
- What measures have been taken by the country to return tourists?

In the second part, a comparative analysis will be made between the data from countries. Based on a comparative analysis and the data studied in the theoretical part of this work followed by a SWOT analysis, to extract a model that will help countries to restore tourism in the country.

## 5.1 Case Study 1: Japan

Japan is an island country located on west of the Pacific Ocean in the Northern Hemisphere and neighbors with the Republic of Korea, China and Russia. Its land area is 145,936 square kilometers while it has about 126,700,000 populations which make it to stand as the world's eleventh crowded country. The country contains 6852 islands including the five main islands Hokkaido, Honshu, Kyushu, Shikoku, and Okinawa (Japangov, 2018).

Since the country has 23 world heritage sites (that is consist of 19 cultural sites and 4 natural sites) with many other pristine landscapes and a unique culture that goes back thousands of years, it attracts people from all over the world. (World Heritage Centre, 2018).

By the virtue of Japan's topography and climate, the country experienced different types of natural disasters, while earthquakes and typhoons are on the top of the list of these natural disasters. Having drastic climate differences that leads to seasonal rain forests, typhoons and heavy snowfall and the rugged topography that is formed with faults and steep inclines and lastly being located on the Pacific earthquake belt makes it inevitable to resist natural disasters' occurrence. Furthermore, as the result of being located in the circum-pacific zone where almost all the volcanoes of the world are concentrated, Japan has 83 active volcanoes which is about one tenth of the all volcanoes in the world. (Ministry of Foreign Affairs of Japan).

Commonly known as the worst natural disaster that happened in Japan's modern history, was the earthquake and the tsunami, on March 11, 2011 in which 20,000 people were dead or listed as missing. Wherefore Japan is one of the most urbanized countries with huge concentrations of population that is leading to violence of nature itself, future natural hazards that will effect these huge population concentrations are unavoidable. Moreover, material loss that could be calculated also as a result of the effect of the natural disaster on tourism and many more ensue in consequence of this unfortunate process together with the incalculable loss of life (Japan International Cooperation Agency, 2012.).

### **5.1.1 Great East Japan Earthquake**

On March 11 in 2011 an appalling disaster struck Japan. It is one of the most powerful earthquake in the history of the, country with a magnitude of 9.0. How it was mentioned in Article by John P. Rafferty, Kenneth Pletcher, “The earthquake was caused by the rupture of a stretch of the subduction zone associated with the Japan Trench, which separates the Eurasian Plate from the sub ducting Pacific Plate”. Due to the large and sudden shocks of the earth, large waves were generated near the coast. These waves turned into an underwater earthquake aka tsunami. Tsunami waves flooded a lot of regions that were close to the coast. Some of the cities that suffered the most are Miyagi, Iwate and Fukushima. The waves were so intense that they even reached the coasts of California and Oregon, the those of Kauai and Hawaii, Antarctica (2011).

Based on information from Article, one of the most significant consequences of the tsunami was the damage to the nuclear power plant in Japan, Fukushima Daiichi. This caused serious problems. Since the level of radiation in the nearby regions was high. The severity level of the nuclear accident was increased to 7, seawater near the plant was contaminated with radioactive iodine. All this led to the fact that the state authorities took measures to evacuate everyone who was within 18 miles of the plant, in order to settle everything (John P. Rafferty, Kenneth Pletcher, 2011)

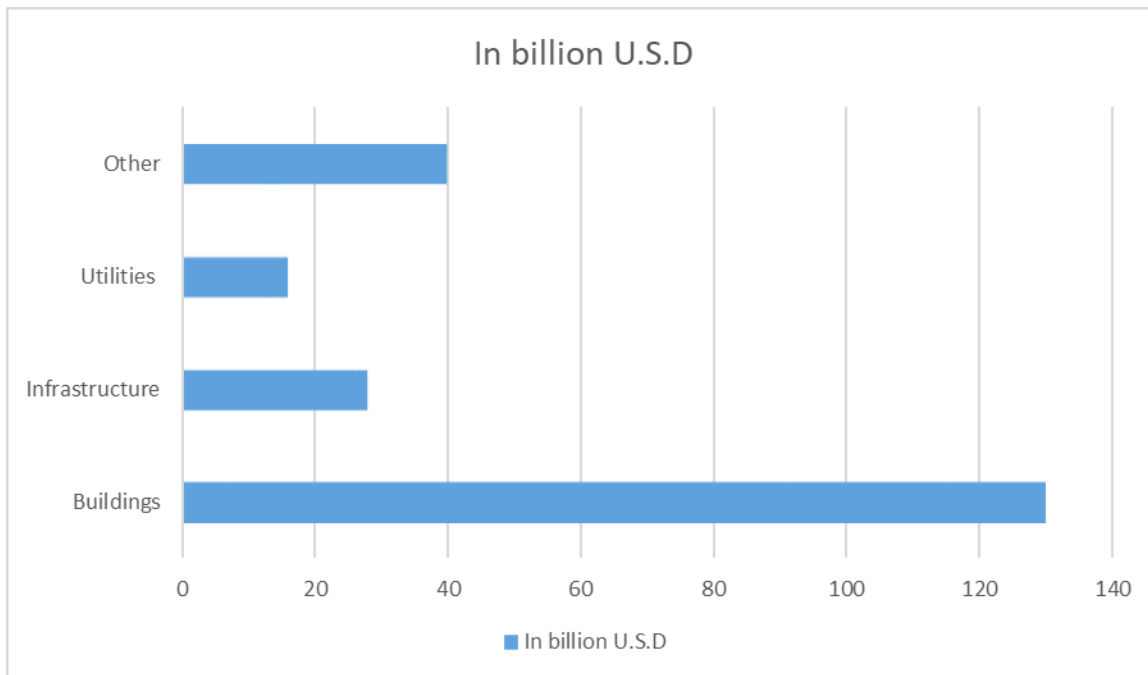
In several month they were able to solve this issue, the city was cleaned up to be fit for habitation and in December it was officially announced by government that radiation levels had declined.

According to the National Police Agency of Japan the number of dead people is 15.467 and number that of the injured is 6.157 people (from the entire disaster, including tsunami and earthquake) (June 20, 2011, p. ).

The extent of the destruction was significant. The framework of the cities was ruined the most. Based on National Policy Agency of Japan data, approximately, 1.206.346 properties, 4.198 roads and 29 railways were damaged. Factories, airports, electricity, water supply systems, everything suffered. After the destruction, a lot of debris appeared throughout the affected part of the country,

around 25 million tons. The country is still engaged in the process of recycling (Rodgers L., 2012).

**Figure 6 : The financial cost of damage in Japan.**



*Source: BBC, 2012*

*Note : The estimate is as / value of USD in 2011.*

The graph above shows the financial cost of damage according to the BBC News Asia. This graph was provided in order to understand and assess the expense to cover the loss. To fix all destruction, Japan needed 214 billions of U.S. Dollar (Rodgers L., 2012) .

Based on all of this information, we can see that Japan needed a serious restoration, since almost half of the country was affected. The country was about to start all over again

### **5.1.2 Impact of Earthquake on Tourism**

Over and above everything, many of the important sites of the country viz. beautiful landscapes, buildings, temples, collapsed. Owing to the cultural peculiarity of Japan, people were coming to experience it, from all over the world. Post March 2011, Tourism in the country fell into disrepair. It had affected not only on international but also domestic tourism. A sharp decline in the population and the appreciation of the yen became one of the reasons for the decline in domestic tourism. It has become expensive for Japanese citizens to travel around their country. A trip to other countries cost them less

### **5.1.3 Crises response**

After the earthquake, the state began to take quick measures to restore the destroyed regions.

Many of the leading countries of the world that border Japan, as well as international organizations such as the Red Cross and Red Crescent, volunteered to help the country recover financially and financially. They took measures to send search and rescue teams that helped find survivors, doctors, in order to provide medical care, they also sent food, medicine and all other necessary materials (John P. Rafferty, Kenneth Pletcher, 2011).

Most organizations are large in Japan and foundations around the world soon created to help people in the affected regions recover. Many of them had their houses destroyed and they were left without a residence. In 2011, at the proposal of the Kan and Noda administration, the state decided to organize three additional budgets that will be needed in connection with the natural disaster. One of the budgets was provided to restore the devastated areas and the areas of Thoku (John P. Rafferty, Kenneth Pletcher, 2011) .

During the incident, industries and manufacturers of high-tech products were hit hardest. Industries were one of the country's main revenues. "However, by the end of summer, the economy began to grow rapidly again, as many of the affected enterprises were able to resume at least limited production. In the first months of

2012, industrial production almost reached the level that was before the disaster” as stated by John P. Rafferty, Kenneth Pletcher. A couple of weeks after the incident, a partial part of the transport, railway and service system was restored (2011)

## **5.2 Case Study 2: Republic Indonesia**

Indonesia is the largest island nation in the world, which is located in Southeast Asia. The country occupies 14th place in the world in terms of area and 4th place in terms of population. The territory contains more than 17 thousand islands and the largest islands of the country are: Sumatra, Java, Borneo, Sulawesi etc. (Embassy of Indonesia Washington, DC., 2017).

Tourism Industry is one of the major source of income for the country. The country is famous among tourists for its rich and exotic nature. A variety of biodiversity, rich forests, the presence of beaches, mountains, and also volcanoes make Indonesia an attractive tourist destination.

Unfortunately, the predominance of mountains and active volcanoes contribute to a high degree of tectonic activities in the country. Earthquakes periodically occur in the country, and the largest earthquake with the maximum losses in Indonesian history has happened quite recently and is called the Indian Ocean Earthquake ( Adam, A.W., Legge, J.D., Leinbach, T.R., McDivitt, J.F., Mohamad, G.S., Wolters, O.W., (2020)

### **5.2.1 Indian Ocean Earthquake**

December 26, 2004 was the most tragic year not only for Indonesia itself, but also for neighboring countries and islands. The epicenter was the islands of Sumatra, which belongs to Indonesia. The magnitude of the earthquake was 9.1 . On this day, an underwater earthquake occurred, which erupted in large tsunami waves. The waves topped 100 feet (The Editors of Encyclopedia Britannica, 2020). As reported by Kathryn Reid in the Article ‘2004 Indian Ocean Earthquake: facts, FAQs, and how to help’, the reason for the earthquake was the Indian plate which slipped under the lighter coastal plate, rupturing a 900-mile length of the fault (2020) .

The event was so massive that it is among ten most deadly earthquakes in the world by visualization of Ritchie H. and Roser M. ( 2020).

**Table 3 : Affected Countries from Indian Ocean Earthquake and their loss.**

<b>Countries</b>	<b>Total death</b>	<b>Total damage (‘000 USD)</b>
Indonesia	165 708	4 451 600
Sri Lanka	35 399	1 316 500
India	16 389	1 022 800
Thailand	8 345	1 000 000
Somalia	298	100 000
Maldives	102	470 100
Myanmar	71	500 000
Tanzania	10	–
Seychelles	3	30 000
Kenya	1	100 000

*Source: EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium*

The above Table represents list of the countries that suffered the most after the earthquake and tsunami. This list includes 10 countries that were around the epicenter. Following the fact that Indonesia was the epicenter, it suffered the most. The loss of life and economic property was enormous. The following countries, which also have a high percentage of loss, are Sri Lanka and India. In Sri Lanka ~ 36 000 people died and total damage cost is roughly 1,4 billion U.S. Dollars. In India there were about 17 000 casualties and total damage cost is ~ 1,02 billion



U.S. Dollars. If we summarize the total number of victims of all countries, then 226 326 people died in this incident and total value of damage is 9 billion U.S. Dollars.

The reason for so many victims was that after an earthquake occurred under water, people did not have time to respond to the tsunami waves off the coast. After the earthquake happened, only some coastal residents reacted to this as a warning that tsunami waves were approaching. They began to run to the city center, to more inflated places. Many were not trained to immediate evacuation. Furthermore these places where tsunami waves hit were densely populated (Boen, T., 2014, p. 2 ).

According to the above data, it can be realized, how immense economic damage the natural disaster of 2004 caused. Only a few buildings were affected by earthquake, the main cause of the destruction of many buildings was the tsunami ( Boen, T., 2014, p. 8 ).

All kinds of the infrastructure of cities were affected viz. roads, bridges, ports, power supplies, telecommunications, water supply, several industrial factory ( Boen, T., 2014, p. 24).

As stated by the Editors of Encyclopedia Britannica the main cause of the destruction was the tsunami. Many cities, roads, and even well-constructed buildings were washed away. Villages, tourist resorts, farmland, and fishing spots were torn down or flooded with garbage and bodies. Sumatra Island was almost completely destroyed. (2020).

**Table 4 : occurrence of natural disaster in Indonesia**

<b>Type</b>	<b>Date</b>	<b>Totals deaths</b>
Earthquake	2004	165 708
Earthquake	1917	15 000
Drought	1966	8 000
Earthquake	2006	5 778
Volcanic activity	1909	5 500

Volcanic activity	1919	5 000
Earthquake	1992	2 500
Storm	1973	1 650
Volcanic activity	1963	1 584
Volcanic activity	1930	1 369

*Source: EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium*

The above table demonstrates occurrence of natural disaster in Indonesia from 1900 to 2010. The data show that the 2004 earthquake had the highest number of deaths in all 110 years. The most recent natural disaster before 2004 was the earthquake in 1992. Where the number of dead people is 2,500, which is 98.5% less compared to 2004.

The state was not prepared for such a scale of disaster. People were dying because the victims did not receive medical care on time. This was facilitated by the fact that telecommunications and electricity suffered after the tsunami, which hindered and slowed down communication and coordination between the victims and the state. All the necessary medicines, medical care and food arrived very late ( Boen, T., 2014, p. 24).

The government decided to bury the dead in mass graves, as there were too many bodies, and also in order to avoid possible further environmental pollution, which could lead to outbreaks of disease (Center of Excellence in Disaster Management & Humanitarian Assistance, 2004 )

During the incident, 10% of the country's agricultural industry was affected. The tsunami washed away the harvest of farmers, and domestic animals were affected. The tsunami also swept many roads, bridges, road systems, water pipes, electric lines and telecommunication towers In accordance with Teddy Boen : "Repair and

restoration of all these facilities and the resettlement of displaced persons will take many, many years and require significant funds, possibly a significant part of the country's gross domestic product" ( 2014, p. 25-27).

### **5.2.2 Impact of Earthquake on Tourism**

According to the data from work by Blažin N., Gavrilov M.B., Hrnjak I. and etc. participation of tourism in Gross National Product (GNP) of Indonesia in 2004 before the tsunami , is equal to 10,3% and number of inhabitants employed in tourism (NIET) is equal to 8.5 %. It dropped significantly after disaster and only after 3 years it became normal. Number of tourist went down by 300,000. Although the touristic areas were not impacted as much, the fear of the disaster caused almost 30% tourists to reconsider their visit. (2014, p. 182)

### **5.2.3 Crises response**

During the disaster, the state took several measures to save the survivors. The state sent about 100 doctors to Banda Aceh province. Tents for emergency shelters and portable kitchens were built. In addition, a week later, volunteers from different provinces and different countries began to come to the scene to provide assistance to the victims. Thanks to their efforts, it was possible to stop the outbreak of various infectious diseases. Many countries helped countries affected by earthquake and tsunami. ( Boen, T., 2014, p. 26 ).

The destruction was so great that the country managed to complete the restoration only by the end of 2007, after 3 years.

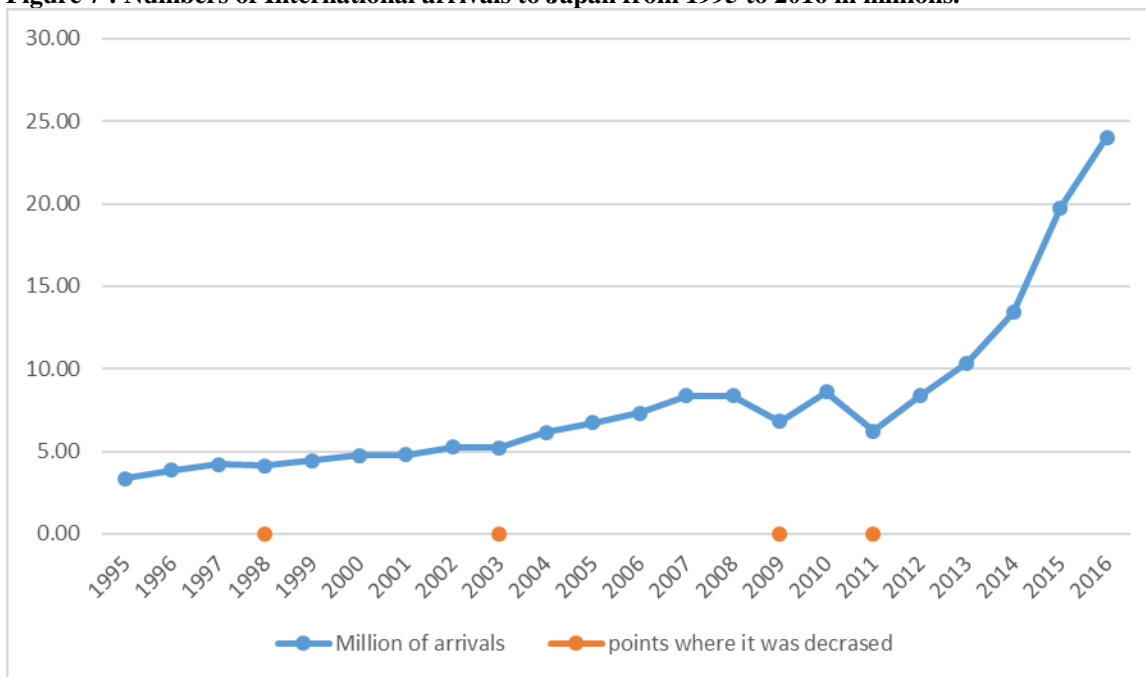
As reported by Kathryn Reid: “Since the 2004 tsunami, governments and aid groups have prioritized disaster risk reduction and preparedness. Only three weeks after the tsunami, representatives of 168 nations agreed to the Hyogo Framework for Action, which paved the way for global cooperation for disaster risk reduction. Since then, ocean floor earthquake sensors have been installed to trigger early

warnings, and many local communities have been trained in evacuation and disaster response” (2020).

### 5.3 Comparative Analysis

In this section the two case studies will be compared that are described above and detailed analysis based on statistics and figures will be done thereafter.

**Figure 7 : Numbers of International arrivals to Japan from 1995 to 2016 in millions.**



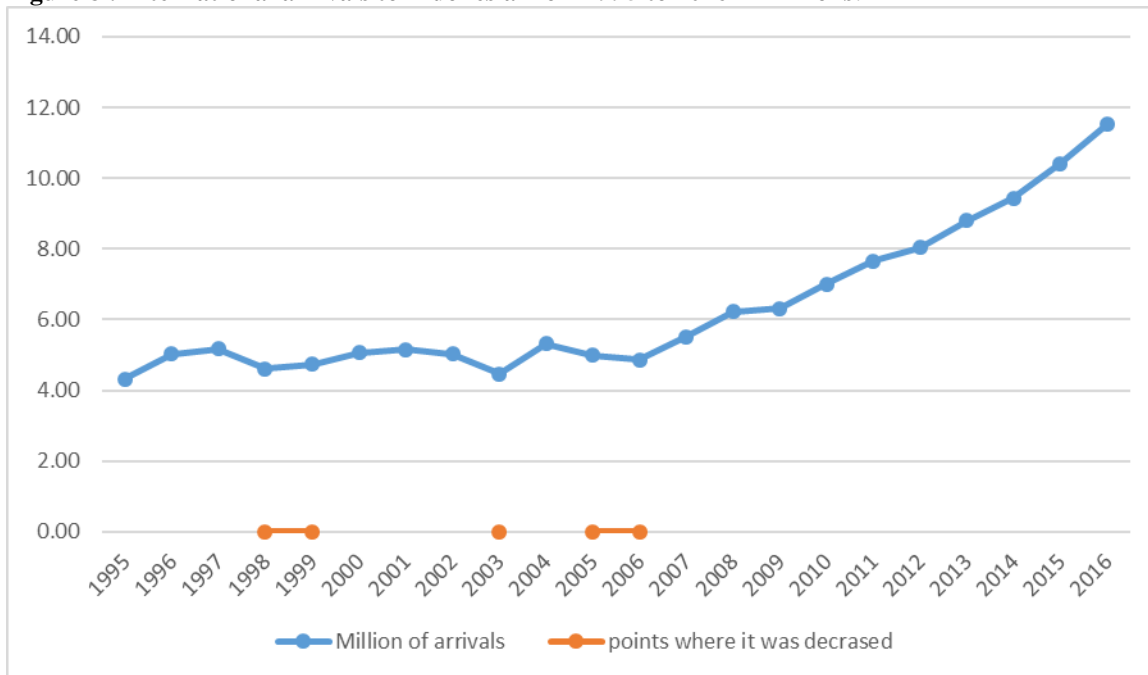
Source: ROSER, 2020

The above graph demonstrates how the number of international tourists has changed over a 21-year period from 1995 to 2016 in Japan. The orange color dots display the time where numbers of tourist were decreased. As it was demonstrated, decline was in 1998, 2003, 2009 and in 2011. In 2010 number of tourist was 8.611000, it dropped down to 6.219000 in 2011, a serious ~28%. The reasons for the decline in international tourists were several factors. It was 2011, social media was a boom, and everyone was aware of the earthquake, the tsunami and the nuclear disaster. People were dropping the idea of visiting Japan for a long – long time.

During the period of 1995 to 2011 arrivals remained stable. Nevertheless, after 2011, we can see huge surge in the number of visitors. The percentage of growth is

286.5%. The modification is significant. This is an indication that Japan put a lot of effort to increase the number of arrivals.

**Figure 8 : International arrivals to Indonesia from 1995 to 2016 in millions.**



*Source : ROSER, 2020*

These Line Graph illustrates how the number of international tourists in Indonesia has changed. From 1995 to 2016, we see that the number of tourists is slowly rising, with moments of decline, which you can see in the diagram as orange dots. At the beginning of 1996, the number of international arrivals was 4 324 000 people, in 2016 it became 11 519 000. The increase was by 166.40%. For all this period, the biggest decline was after 2004 to 2007. The reason for this was the earthquake, which then caused tsunami waves. Indonesia managed to restore the number of tourists only in 2007.

The table below compares basic statistics data of the two events.

**Table 5 : Comparative analysis**

<b>Factors</b>	<b>Japan</b>	<b>Indonesia</b>
<b>Time of Disaster</b>	March 11, 2011	December 26, 2004
<b>Type</b>	Earthquake ( followed by tsunami)	Earthquake ( followed by tsunami)
<b>Magnitude</b>	9.0	9.1
<b>Casualties</b>	15 467	165 708
<b>Total damage ('000 USD)</b>	210 000 000	4 451 600
<b>Tourist before disaster</b>	8 611 000	5 321 000
<b>Tourist after disaster</b>	6 219 000	5 002 000
<b>Time to bring the number of tourist</b>	1,2 years	3 years

*Source :1) EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium*

*2) ROSER, 2020*

## 5.4 SWOT Analysis

In this paragraph a SWOT analysis will be made on the regions that have been through a natural disaster, their looking to regenerate the number of tourist in the area.

**Table 6 : SWOT Analysis.**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Service</li> <li>• Lower travel cost</li> <li>• Increased security</li> <li>• Visa relaxation</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Crash of economy</li> <li>• Long construction period</li> <li>• Reluctance of tourists</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Popularity - when a natural disaster occurs in certain places, the whole world will know about it (e.g. Haiti)</li> <li>• Dark tourism – Can be used the scene of natural disasters as a historical place about the event and attraction for tourists (e.g. Hiroshima piece memorial)</li> <li>• Stable infrastructure for future</li> <li>• Possibility of rebuilding high tech facilities</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Destruction of historic sites</li> <li>• Event recurrence</li> <li>• Politic conflict</li> <li>• Competitors</li> </ul>

Source: Author



## 6 Conclusion.

Based on everything studied from above, I can see that Japan was able in a short period of time not only to restore, but also to increase the number of tourists, compared with Indonesia. The Japanese government was able to quickly take action.

Based on above case studies and analysis, following steps can be taken to normalize tourism after a natural disaster :

1. To make visa requirements relaxed for tourists (eg. Visa on arrival, work & Travel), which will allow easy influx of resources in the rebuilding phases.
2. Expedite rebuilding of cultural and historical buildings. These can double up as shelter homes, in the beginning phases.
3. Invest in biodiversity which not only rebuilds the natural landscape but also create a balanced habitat for the residents.
4. Encourage Exchange Student Education programs.
5. Tax relaxation on Local art and ethnic products.
6. Invest in Advertising ( using celebrities)
7. Improve the services and safety.
8. To reduce price on state operated transport.
9. Dark tourism : Some of the ruins can be turned into exhibits / memorials, eq. Hiroshima Peace Memorial.

## 7 References

1. "Earthquake" Cambridge University Press 2020. Available at <https://dictionary.cambridge.org/dictionary/english/earthquake>
2. "Natural disaster" Cambridge University Press 2020. Available at : <https://dictionary.cambridge.org/dictionary/english/natural-disaster?q=Natural+disaster>
3. ADAM, A.W., Legge, J.D., LEINBACH, T.R., McDivitt, J.F., MOHAMAD, G.S., Wolters, O.W., 2020. Indonesia [online]. in Encyclopædia Britannica, Publ.: Encyclopædia Britannica Inc., available at <https://www.britannica.com/place/Indonesia> .
4. Asian Development Bank (ADB). – URL.: [www.adb.org](http://www.adb.org)
5. BBC, 2012. Japan quake: Loss and recovery in numbers [online] [18.3.2020] Available at: <https://www.bbc.com/news/world-asia-17219008>
6. BEATTIE, Maureen A.. 'The effect of natural disasters on tourism a study of Mount Saint Helens and Yellowstone National Park' (Master's thesis).(April, 1992), Rochester Institute of Technology : Faculty of the School of Food, Hotel and Tourism Management.
7. BLAŽIN N., M.B. Gavrilov, I. HRNJAK, S. Janicevic, T. LUKIC, S.B. Markovic, Z.S. MILOŠEVIC, 2014. The tsunami of 26th December 2004: the impact on tourism trends in Southeast Asia. WIT Press (181). ISSN 1743-3541 doi:10.2495/EID140151
8. BOEN, Teddy, 2014. Sumatra Earthquake 26 Dec 2014. [online] [21.3.2020] available at [http://www.un-spider.org/sites/default/files/2-Earthquake\\_Impacts\\_Aceh\\_Earthquake%20Engineering%20Research%20Institute.pdf](http://www.un-spider.org/sites/default/files/2-Earthquake_Impacts_Aceh_Earthquake%20Engineering%20Research%20Institute.pdf)
9. CENTER OF EXCELLENCE IN DISASTER MANAGEMENT & HUMANITARIAN ASSISTANCE, 2004. Asia-Pacific Daily Report [online] [21.3.2020], available at <https://www.who.int/hac/crises/idn/sitreps/APDR122904.pdf>
10. Countermeasures for the Great East Japan Earthquake (December 10, 2019). Available online at:

11. Embassy of Indonesia Washington, DC. (2017), 'Facts & Figures' [online]. Available at: <https://www.embassyofindonesia.org/index.php/basic-facts/> .
12. EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium
13. Euromonitor International (2012) "Japanese Tourism Flows One Year On from the Disaster". Available online at : <https://blog.euromonitor.com/japanese-tourism-flows-one-year-on-from-the-disaster/>
14. EVERETT, H., Simpson, D., WAYNE, S. (2018), 'Tourism as a driver of growth in the Pacific', Asian Development Bank (ADB) 'Issues in Pacific Development' Issue 2, June 2018, available at <https://www.adb.org/sites/default/files/publication/430171/tourism-growth-pacific.pdf>
15. Glossary of Tourism Terms, United Nations World Tourism Organization (UNWTO). - URL.: <http://www2.unwto.org/>
16. Hannah Ritchie " OFDA/CRED International Disaster Data", Global Change Data Lab. Available online at: [ourworldindata.org](http://ourworldindata.org)
17. <https://datacenterfrontier.com/in-travel-data-centers-make-the-world-go-around/>  
 a. [https://www.npa.go.jp/news/other/earthquake2011/pdf/higaijokyo\\_e.pdf](https://www.npa.go.jp/news/other/earthquake2011/pdf/higaijokyo_e.pdf)
18. JAPAN INTERNATIONAL COOPERATION AGENCY, 2012. It Was the Worst Natural Disaster in Japan's Modern History [online] [20.3.2020] Available at: [https://www.jica.go.jp/english/news/field/2011/20120305\\_01.html](https://www.jica.go.jp/english/news/field/2011/20120305_01.html)
19. JAPANGOV, 2018. About Japan [online] [20.3.2020], available at: <https://www.japan.go.jp/japan/>
20. Kenneth Pletcher ,John P. Rafferty. Japan earthquake and tsunami of 2011[online]. in Encyclopædia Britannica, Publ.: Encyclopædia Britannica Inc., available at: <https://www.britannica.com/event/Japan-earthquake-and-tsunami-of-2011>
21. KRUZHALIN V.I., Moshniaga E.V., NOVIKOV V.S., Rassokhina T.V., SESELKIN A.I., Sarancha M.A., TROFIMOV E.N., SHABLINA N.V. A and etc, 2014. Basics of tourism: Under the scientific editorship of juridical science Pisarevsky E.L. Moscow: Tourism Federal Agency. 384 p. ISBN 978-5-4365-0134-5. (КРУЖАЛИН В.И., Мошняга Е.В., НОВИКОВ В.С., Рассохина Т.В., СЕСЕЛКИН А.И., Саранча М.А., ТРОФИМОВ Е.Н., Шаблина Н.В., и др., 2014. Основы туризма : под научной редакцией юридических наук Е.Л.

- Писаревского. Москва: Федеральное агентство по туризму. 384 с. ISBN 978-5-4365-0134-5.)
22. LICKORISH, L.J., Jenkins C.L., (1997). An introduction to tourism. Abingdon UK., Roulledge, 260pp. ISBN-13: 978-0750619561
  23. LOCK, S., 2019. Global international tourism revenue 2000-2018 [online] [20.3.2020] Available at: <https://www.statista.com/statistics/273123/total-international-tourism-receipts/#statisticContainer>
  24. LOCK, S., 2019. Global international tourism revenue 2000-2018 [online] [20.3.2020] Available at: <https://www.statista.com/statistics/186743/international-tourist-arrivals-worldwide-by-region-since-2005/>
  25. MARSHALL, A. (2009), Principles of Economics., New York USA, Cosimo classics, 740pp., ISBN-13: 978-1605208015
  26. Max Roser (2020) "Tourism". Available online at: [ourworldindata.org](http://ourworldindata.org)
  27. MINISTRY OF FOREIGN AFFAIRS OF JAPAN, undated. Disasters and Disaster Prevention in Japan [online] [20.3.2020], available at: <https://www.mofa.go.jp/policy/disaster/21st/2.html>
  28. National Police Agency (NPA) (2011)
  29. OFDA/CRED International Disaster Database, undated. Annual global number of deaths from natural catastrophes per decade, 1900-20151 [online] [12.3.2020] Available at: <https://www.emdat.be/>
  30. PROCHÁZKA, Petr. (2015), Microeconomics. Prague: Czech University of Life Sciences Prague Faculty of Economics and Management. ISBN 978-80-213-2543-2.
  31. REID, K., 2020. 2004 Indian Ocean Earthquake: facts, FAQs, and how to help [online]. in World Vision, World Vision, Inc., available at <https://www.worldvision.org/disaster-relief-news-stories/2004-indian-ocean-earthquake-tsunami-facts>
  32. RITCHIE H., Roser M. (2020), `Natural Disasters` [online]. Publ. : OurWorldInData.org, date of Publ. : 2014 , date of revision: November 2019. Available at <https://ourworldindata.org/natural-disasters>
  33. RITCHIE Hannah and Max ROSER, 2014 Natural Disasters [online] [20.3.2020] Available at: <https://ourworldindata.org/natural-disasters>

34. RODGERS, L., 2011. Japan quake: Loss and Recovery in Numbers [online]. BBC News Asia, available online at: <https://www.bbc.com/news/world-asia-17219008>
35. ROMANOVA, M. (2014), Factors are affecting the development of the tourism industry [online]. Scientific and methodological electronic journal "Concept". No. 2, pp. 56-60. Available at : <http://e-koncept.ru/2014/14036.htm>. (РОМАНОВА, Марианна. 'Факторы, влияющие на развитие индустрии туризма'. Научно-методический электронный журнал «Концепт», 2014. No. 2 (февраль). – С. 56–60. – URL: <http://e-koncept.ru/2014/14036.htm>.)
36. ROSER, Mark, 2020. Tourism [online] [17.3.2020] Available at: <https://ourworldindata.org/tourism>
37. THE EDITORS OF ENCYCLOPAEDIA BRITANNICA (2020), `Indian Ocean tsunami of 2004` [online], in Encyclopædia Britannica, Publ.: Encyclopædia Britannica Inc., available at <https://www.britannica.com/event/Indian-Ocean-tsunami-of-2004> .
38. Thomas J. Songer ( Aug 1, 2016) : "Disaster Epidemiology", Britannica Academic, Available online at: <https://academic-eb-com.ezproxy.techlib.cz/levels/collegiate/article/disaster-epidemiology/627656>
39. WALD, L. 'The Science of Earthquakes'. USGS (U.S. Geological Survey) for "The Green Frog News", available at [https://www.usgs.gov/natural-hazards/earthquake-hazards/science/science-earthquakes?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/natural-hazards/earthquake-hazards/science/science-earthquakes?qt-science_center_objects=0#qt-science_center_objects) .
40. WALTON, J.K. (2018), 'Tourism' [online], in Encyclopædia Britannica, Publ.: Encyclopædia Britannica Inc., available at <https://www.britannica.com/topic/tourism>
41. WORLD HERITAGE CENTRE, 2018. Japan [online] [20.3.2020], available at: <https://whc.unesco.org/en/statesparties/jp>
42. World Travel and Tourism Council (WTTC). – URL.: <https://www.wttc.org>
43. WTTC (World Travel Tourism Council), 2019, 'Travel & Tourism Economic Impact 2019' [online]. Available at <https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2019/world2019.pdf> .