

PAPER • OPEN ACCESS

Building Resilience from Double Disasters: The Direct Impact of The Pandeglang Tsunami 2018 And COVID-19 Outbreak on Tourism and Supporting Industry

To cite this article: S Sagala *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **704** 012006

View the [article online](#) for updates and enhancements.

You may also like

- [Measuring Community Resilience to the Tsunami Disaster \(Study of Sukarame Village, Carita District, Pandeglang Regency\)](#)
D A P Sari and T E B Soesilo
- [Social vulnerability of Pandeglang Regency, Banten](#)
D A Lestari, N S Fitriasari, D R Azhari et al.
- [Distribution of peak ground acceleration in Pandeglang Regency, Banten](#)
D A Lestari, N S Fitriasari, T E Ahmad et al.



244th ECS Meeting

Gothenburg, Sweden • Oct 8 – 12, 2023

Early registration pricing ends
September 11

Register and join us in advancing science!

Learn More & Register Now!



Building Resilience from Double Disasters: The Direct Impact of The Pandeglang Tsunami 2018 And COVID-19 Outbreak on Tourism and Supporting Industry

S Sagala^{1*}, A Rosyidie¹, D Azhari², A Ramadhani², T K Rinaldy², S I Racharjo³

¹School of Architecture, Planning and Policy Development, Bandung Institute of Technology (ITB), 40132, Bandung, Indonesia

²Resilience Development Initiative, 40135, Bandung, Indonesia

³Syarif Hidayatullah State Islamic University (UIN) Jakarta, 15412, South Tangerang Indonesia

E-mail: saut.sagala@sappk.itb.ac.id*

Abstract. Tanjung Lesung, Pandeglang was designated as the first Tourism Special Economic Zones since 2015. However, the coastal area in Pandeglang is prone to disasters. Recently, a tsunami upended the hospitality industry in Pandeglang. Compounded with the occurrence of COVID-19 outbreak, recovery measures prove to be more difficult. The tourism sector has broader economic implications due to its ties with other supporting sectors. The purpose of this study is to understand the direct impacts on tourism and its supporting industry after the tsunami and COVID-19 outbreak in Pandeglang. Therefore, the research question is: “What are the direct impacts of the 2018 tsunami and COVID-19 outbreak to Pandeglang tourism?”. This research uses a qualitative method, particularly content analysis of news, articles, journals, and the result of interviews. The results show that the direct impacts of both disasters to the Pandeglang tourism sector comprise of three aspects, namely the damage in physical assets, the decrease in value property, and the loss of lives. As a regency that relies heavily on tourism as one of its mainstay economic sectors, the tsunami and COVID-19 pandemic are big blows to Pandeglang tourism.

1. Introduction

The tourism industry offers amenities and safety to tourism. When such situation changes, the impacts can be huge to the industry. Number of tourists can decrease and as a result impacts to the economy are high. Therefore, tourism industry relies heavily on the safety and security of the locations. The Indian Ocean Tsunami 2004 was one of examples where tourism was really affected a lot by the tsunami in terms of tourism decrease. Blažin et al [1] stated that in 2005 the region of South East Asia was affected by about 40% decrease compared to the situation in 2004. Bali, one of the most popular destination for tourists in South East Asia experienced a decrease of 20% after the Bali bombing in the tourism areas of Kuta in 2002 [2].

Coastal tourism had always been the main attraction of the Pandeglang regency [3]. However, like most coastal areas in Indonesia, the coastal area in Pandeglang is prone to disasters. Several hazards poses harm to coastal communities namely, tsunami, coastal flooding, landslide, spill and chronic pollution, shoreline erosion, sea level rise, earthquake, climate variability and change, and coastal resource degradation [4]. Based on Indonesian Disaster Risk Index (*Indeks Risiko Bencana Indonesia/IRBI*) [5], Pandeglang Regency is classified as highly prone to tsunami, earthquake and flood. Since most accommodation facilities that sustain tourism activities are placed along or near terrestrial coastal zones, the coastal tourism sector in Pandeglang becomes highly susceptible to potential



disasters. The economic development of the Pandeglang regency was re-directed to centralize more around coastal tourism. The Tanjung Lesung area has been designated and operated as the first Tourism Special Economic Zones since 2015 through Government Regulation No.22/2012 concerning the Tanjung Lesung Special Economic Zone, which resulted in the provision of world-class support infrastructure. This is expected to increase the global competitiveness of Pandeglang tourism so that it can increase tourist visits, length of stay and tourist expenditure [6].

The Pandeglang Regency land area is 25,664.65 hectares and it is made up of sixteen sub-districts located near the coastal area, all of which are susceptible to tsunamis. The Sunda Strait Tsunami occurrence has caused damages to the hospitality industry in Pandeglang and reinforced the understanding that the region is constantly at risk of tsunamis. According to Regional Disaster Management Agency (*Badan Penanggulangan Bencana Daerah/BPBD*), there was a recorded total of 229 casualties, of whom 121 were local tourists. Several tourist attractions were also badly damaged by the tsunami. One year after the tsunami, the tourism sector has yet to recover. Moreover, the occurrence of COVID-19 outbreak in early 2020 makes the recovery measures of the tourism sector more difficult.

Since the emergence of the first positive case in Pandeglang on April 15, 2020, the number of positive cases of COVID-19 have continued to increase. The increase in cases cause panic and fear for the public and tourists to visit tourist destinations, thereby reducing demand for tourism sector [7]. As the tourism sector is interconnected with other sectors, such as food and beverage industry, local commerce such as souvenirs, travel agents, etc, the economic decline caused by the tsunami and COVID-19 outbreak has made a bigger impact. Apart from affecting the various sectors that are tied to tourism, this will potentially affect the regional economy, including its GDP and economic growth, because one of the biggest contributors to regional income in Pandeglang is the tourism sector.

There are several existing literatures that have talked about how the 2018 tsunami and COVID-19 pandemic affecting the tourism in Indonesia. However, the literatures mostly discussed about the impacts in a general way, without emphasizing the direct impacts on the supporting industries in tourism. Therefore, this paper fills that research gap.

The significant economic impact caused by the tsunami and COVID-19 requires the tourism sector to take steps to increase disaster preparedness. Since the vision of national tourism development mentions about the importance of sustainability in Indonesia Tourism, it is therefore crucial to understand the direct economic impacts of the tsunami and COVID-19 outbreak to the tourism in Pandeglang. Direct impact of disaster defined as the impact that are equivalent to physical damage caused by a disaster [8]. Understanding direct impact helps increases stakeholders' awareness and their ability to prepare for future events. Hence, the purpose of this study is to understand the direct impacts toward the tourism sector and its many components as a result of the 2018 Sunda Strait Tsunami in Pandeglang. To achieve this objective, several sub-objectives are considered, including: (i) Identifying tourism and its supporting industry in Pandeglang Regency; (ii) analyzing the direct impact of 2018 tsunami and 2020 COVID-19 outbreak to tourism sector and its supporting sectors. The following section discusses the theoretical background followed by the methodology of this study. Next, the result and discussion of the findings are presented. Finally, this study pinpoints the direct impact of 2018 tsunami and 2020 COVID-19 outbreak to tourism sector and its supporting sectors.

2. Literature Review

2.1. Tourism and Its Supporting Industry

The tourism sector is a very economically diverse, important, and disruptive (disruptive in a sense of disruptive innovation that can create new market and value network) sector, being one of the vital successes of many economies around the world. There are many benefits of tourism in a country: it boosts the economy; creates new jobs; supports infrastructure development; and creates a cultural exchange for many in the world [9]. It is well known throughout the world that some countries heavily rely on tourism and it is the 3rd highest contributing sectors in the economy of Indonesia, bringing in approximately 69.8 Billion USD in 2019 [10]. There are certainly many factors that contribute to the successes of the industry, and this literature review discusses the supporting industries of the tourism. There are 8 known supporting industries within tourism [11], each will be explained below.

- **Transportation**
Transportation is an important aspect of tourism and is a main part of the whole industry infrastructure. It is a fundamental part of the tourism industry, it is a precondition for travel since it facilitates mobility, accessibility and the movement of tourists in between their original place to their destination [12].
- **Accommodations**
The amount and the quality of the supply of accommodations have a direct impact on the overall success and development of tourist destinations, therefore in order to maximize the impact it has on a destination, it is logical to include accommodations as a fundamental element of the overall destination planning process [13].
- **Attractions**
Destinations and attractions are a core component of tourism, without them tourism would not exist. They are often called tourist attractions because they tend to attract travellers from domestic or international markets. These attractions are not only locations, but can be people, events and things that make up the objects of the tourist gaze and attract tourists to these destinations [14]. Destinations and attractions are widespread and include a variety of types.
- **Events and Conferences**
Events and conferences are an important and rapidly growing part of international tourism, because events create a new dynamic within the tourism and travel industry, people from all around the world arrive to cities and towns that hold these events and conferences to either celebrate holidays or discuss many topics [15].
- **Food and Beverage**
The food and beverage industry is one of the oldest and biggest players in the tourism industry. As the interest in this industry continue to grow, so does the services provided by them became more diverse [16] and it started to become a big factor for the tourism industry to provide tourists today an experience that can only be found in certain places. The food and beverage industry itself became a supplementary industry to the hospitality industry which works closely within the tourism industry [17].
- **Tourism Services**
The tourism services sector is a combination of multiple services that provides multiple resources to the guests and tourists of a certain location/event and anything else that is within the tourism industry, it is a complex web of services that contains different organizations such as suppliers, tour operators, travel agents and many more [18].
- **Adventure and Recreation**
This sector of tourism is unique, as it is a supporting sector to the attractions within tourism but identified as its own sector due to its scale and differing markets. Adventure has been identified as an important component of tourism and as such, it has a massive following and a market unique to its own [19]. This sector can be defined as leisurely activities that takes place in exotic, unusual, remote, and wild destinations. It tends to be associated with high amounts of activity by participants with most of them being outdoors.
- **Travel Trade**
Travel trade can be described as the buying and selling of travel products that are sold either to consumers or to other sectors in the tourism industry such as the tourism services sector. It is a distribution network basically, creating a network of products within the other sectors in the industry [20].

Based on the explanation above, it can be understood that together, these supporting industries makes up the tourism sector and so it can attract people to come. Therefore, it is really important to understand the supporting industries of the tourism and there are several journals and books that have already discussed about it. Camilleri wrote about the supporting industries in tourism and explained it one by one [21]. ILO has also explained about the hospitality and tourism industries, its components, also the challenges it faces [22]. In this paper, it is also discussed about the supporting industries of the

tourism, but specifically in the Pandeglang tourism and how those supporting industries got affected by the 2018 tsunami and the COVID-19 pandemic.

2.2. Impact of COVID-19 and Disaster to Tourism Sector

There are various disaster which threaten people around the world. Some countries even face thousands of disasters in a year. In 2019, Indonesia has recorded 3.814 disasters [23], where more than 204 million people are living with earthquakes threats and more than 4 million Indonesians are living with tsunamis threats [24]. Furthermore, COVID-19 infections have been spreading rapidly. At the time this article was written, there were 50,459,886 confirmed cases including 1,257,523 deaths due to COVID-19 [25]. McKibbin and Fernando [26] found that COVID-19 pandemic shocked the global labour supply, equity risk premium of economic sectors, cost of production in each sector, consumption demand, and shocks to government expenditure. Consequently, the UNWTO estimated the pandemic would cause a 1-3% decline of tourist arrivals compared to 2019 [27].

The impact of those disasters is devastating, it claimed lives and damaged infrastructures. On a wider scale, it also could affect various economic sectors and other long-term impact which could be defined as indirect impact [28]. To stabilize the tourism sector, recovering from direct loss impact would be necessary to maintain the sector as before the disaster occurred. According to the United Nations Office for Disaster Risk Reduction (UNDRR) [29] the definition of direct economic loss of disaster is “the monetary value of total or partial destruction of physical assets existing in the affected area”. There is also a definition which define direct loss on physical impacts such as the destruction of infrastructure due to earthquake [30]. While other definition recognized it as damage to fixed assets and mortality as the direct consequence of natural phenomenon [31]. The three definitions have the same main point, pointing out about the damages and change value of physical asset by various disaster, and loss of lives due to disasters. The direct impact knowledge can support in the recovery phase after the occurrence of disaster and can form the basis for preventive action for future risks. This can also be used as a basis for implementing a sustainable tourism concept, which have the ability to manage the current demand of resources without endangering it for future generations [32].

Several article journals have discussed about the COVID-19 pandemic and its implications to tourism in Indonesia. Gunagama et. al [33] wrote about the lessons learned and the development prospect in the post-pandemic tourism in Indonesia. Hakim [34] wrote about the impact of COVID-19 pandemic to the small islands tourism and communities. As for the Sunda Strait Tsunami, Sofyan et al [35] wrote about the post-tsunami tourism development strategy in South Lampung Regency while Luthfi et al [36] wrote about about the tsunami and damage characteristics that it caused in general. None of the available literatures talked about the direct impact of the COVID-19 pandemic and 2018 tsunami on the supporting industries of tourism, especially in the Pandeglang Regency. This paper will discuss about it in order to fill the research gap.

3. Methodology

This research uses a qualitative method to describe the direct impact of disaster in tourism focusing on the loss of lives, property damage, and property value changes. The data collection methods used for this research are done through secondary and primary methods. Secondary data collection is done through collection information or stories from popular media, journal articles, papers, as well as the authorities related to disasters and tourism in Pandeglang Regency. For the secondary data, we have found out about the impacts of the 2018 tsunami and the COVID-19 pandemic to Pandeglang tourism, such as damages in the tourism areas, economic loss faced by the supporting industries, loss of lives, and many more. The primary data collection was conducted by online in-depth interview with the stakeholder of tourism sector in Pandeglang. We conducted several interviews with the Association of Indonesian Hotel and Restaurant (PHRI), Pandeglang’s Regional Development Agency (Bappeda), Pandeglang’s Regional Disaster Agency (BPBD), various hospitality industry business owners in Pandeglang, and Generasi Pesona Indonesia (Genpi) which is Indonesia’s tourism public organization.

4. Result and Discussion

4.1. *Tourism and Supporting Industry in Pandeglang*

Before the pandemic, Pandeglang was struck by a tsunami which was induced by the flank collapse of the Anak Krakatau volcano in 2018 [38]. The tsunami damaged Pandeglang's infrastructure, tourism facilities, houses, and coastal ecosystem [39]. Its tourism sector has been trying to economically recover since the end of 2018. In 2019, they lost 3.4 million potential tourists that were unrecovered due to the tsunami impacts [40]. Therefore, the Pandeglang's tourism sector has yet to fully recover from the 2018 tsunami due to the COVID-19 outbreak which made tourists reluctant to take vacation at Pandeglang. The disaster has caused multiplier effect to other sectors in the area. It is a condition where one economic sector, in this case the tourism sector, is stimulating others sectors [41]. Instead of growth, the declining tourism sector means it is affecting other sectors as well, especially those in hospitality value chain industry [42]. The area is still struggling to back to business as usual in regard to its coastal tourism attraction.

The development of the special economic zone is hoped to stimulate other economic activities as well. A lot of workers would be needed in the development of the tourism area at Tanjung Lesung, both on the tourism sector and its supporting industries. One of the benefits of the special economic zone is community and economic development for the locals. The government planned to involve local communities in developing various education programs, local businesses, and other specialties in the economic zone [43]. It has also opened several opportunities for the locals to fill in, one of which is souvenir crafts. The locals are encouraged to fill the souvenirs market made from recycled waste or woodcrafts [44]. The government has also supported the locals in building homestays by issuing loan programs for locals' homestay development [45]. Based on an interview with Mutiara Carita hotel at Carita beach, the government has made various event to attract tourists. Moreover, to involve the local's economies, the food and beverages at the hotel were supplied by the locals.

The collaboration between government, investors, and locals has made Tanjung Lesung capable to support the tourism sector developed in the area. The economic zone has lots of potential, based on its accessibility, socio-economic, management and service, accommodation, infrastructure, security, and clean water [46]. However, it is found that the government still needs to work on their collaboration with the private sector since the development involves many stakeholders which cause potential conflict of interests [47]. The government should improve their coordination with stakeholders to develop the area in the midst of the COVID-19 [48][49].

4.2. *The Direct Impact of The Pandeglang Tsunami 2018 And COVID-19 Outbreak to Tourism Sectors*

As an area which relies heavily on the tourism sector as an economic mainstay, the Sunda Strait Tsunami landed a big blow to Pandeglang Regency. While still recovering from the tsunami's impacts, the Pandeglang Regency tourism was hit again by the COVID-19 pandemic. The social restrictions imposed to contain the spreading of the pandemic have paralyzed the tourism and have impacted the people whose livelihoods are dependent on the tourism sector. This part will discuss the direct impacts of the Pandeglang tsunami 2018 and COVID-19 outbreak to the tourism sector in three aspects: damages to the physical assets, decrease in property value, and lives impacted.

Data and Information Center of Indonesian National Board of Disaster Management (*Badan Nasional Penanggulangan Bencana/BNPB*), stated that Pandeglang Regency was the area worst affected by the natural disaster, especially in its tourism and public residence areas along the coast from Tanjung Lesung, Sumur, Teluk Lada, Panimbang, and Carita [50]. Head of TCC Team stated that there were so many amenities in Pandeglang damaged by the tsunami. It was reported that 69 hotels and 60 stores and food stalls in Pandeglang were damaged after the tsunami. Moreover, the ones experiencing the most serious damage were the homestays along the Tanjung Lesung highway towards Sumur District [51]. The damages caused by the tsunami could be seen clearly along the coastlines in Pandeglang and Serang. The condition of the beaches and recreational areas that had been swept by the tsunami looked dirty and messy, making it uncomfortable and inconvenient conditions for potential tourists [52]. These are the damages to the physical assets of the Pandeglang tourism.

Head of Banten Tourism Agency stated that after the tsunami attack, the tourist spots in the region have been severely affected with no activities. With the tsunami happened just a few days before Christmas and New Year's holidays, the effect to the tourism was severe. The supposedly tourist "high season" had to experience extreme decline in the number of tourist visits. Head of Banten Tourism Agency also stated that the tourists would not be able to visit the beaches along the Sunda Strait for the next few weeks due to the condition around the beaches and hotels that were ravaged by debris pileup and waste as well as other materials from the houses. The tourism in Banten Province was paralyzed and all the events that had been programmed were cancelled because the government had no choice but to prioritize responding to the victims of the tsunami [53].

Based on the explanation above, it is clear that all the supporting industries of Pandeglang's tourism sector were hit by the tsunami. Some of the supporting industries that was worst hit were the accommodation (hotels and homestays), food and beverages (food stalls), attractions (the properties and facilities of the tourism areas), and transportation (decline in tourist visits means decline in demand of transportation services to the tourism areas in Pandeglang). All events and conferences were also put on hold because the government had to prioritize in saving the victims and rebuilding the infrastructure. This shows that the tourism sector indeed consists of many supporting industries and when the tourism is hit by a disaster, all of its supporting industries will also feel the impacts.

For the decrease in value property aspect, the estimated loss for the hotels in Tanjung Lesung was approximately 500 billion Rupiah (35 million USD) for the whole of Banten and 180 billion Rupiah (12,7 million USD) for Tanjung Lesung. The value of the loss was a calculation of the physical damage to the hotels and did not yet include the loss of hotel guests who cancel room rentals. The estimated total market loss was approximately 1 trillion Rupiah (70 million USD) [54]. For the lives aspect, the National Disaster Management Agency (BNPB) noted that until Monday (31/12/2018), the death toll from the Sunda Strait tsunami had increased to 437 people. The number included victims in five regencies, namely Serang, Pandeglang, South Lampung, Pesawaran, and Tanggamus. Out of the five regencies, Pandeglang Regency recorded the highest number of victims (296 people). Most of the victims are tourists who were visiting the tourist attractions [55].

After being hit by the tsunami, Pandeglang Regency's tourism is now faced with the COVID-19 pandemic. The pandemic hit not only the workers in the tourism sector, but also the coastal communities along the Carita Beach in Pandeglang Regency whose livelihoods are dependent on the tourism sector. The manager of Condo Lippo Carita stated in April 2020 that it has been two months since his hotel received any tourists because it was closed [56]. The official order to close all the tourism areas came out in May with a Circular Letter No. 556/136-Dispar/2020 regarding the cancellation of opening tourism destination from Head of Tourism Office of Banten Province. The letter stated that tourist destinations, spa, and salon are to be closed while hotels, cottages, and homestays to follow health protocols. The letter also stated that travel and travel agency are to temporarily suspended and restaurants to remain open but operating by delivery orders [57].

The decrease in value property because of the pandemic can be seen from the estimated total loss of the tourism industry. In March, Chairman of the Indonesian Hotel and Restaurant Association (*Perhimpunan Hotel dan Restoran Indonesia/PHRI*) of Pandeglang Regency stated that the total loss of the tourism industry in Pandeglang was estimated to be more than 200 billion Rupiah (14 million USD), higher than the total loss caused by the tsunami two years prior [58]. Fortunately, the spread of COVID-19 in the Banten region has begun to decline. Two regions, Pandeglang and Tangerang Regency, have switched from the status of the orange zone to the yellow zone, which indicated a smaller the spread of COVID-19. The Indonesian government has categorized the spread of COVID-19 in Indonesia into 5 categories; from the worst category is dark red, red, orange, yellow, and green. The orange zone indicates a plenty viral infections with a moderate risk, while the yellow zone indicates a low amount of infection in the area [59]. Based on data from the Banten Province COVID-19 Handling Task Force, the accumulative number of positive cases of COVID-19 as of Wednesday (11/11/2020) was 10,314. For the details, 1,356 people were being treated, 8,635 people recovered, and 323 people died [60].

For now, with the implementation of the new normal, the Pandeglang tourism sector is starting to grow again. Figure 1 and 2 shows the conditions of some of the Pandeglang tourism areas observed in

2019. Moreover, during the long weekend holiday in October, the occupancy rate of a number of hotel attractions in Pandeglang Regency has increased to 100%. The good news was confirmed by the representatives of Mutiara Carita Hotel and Tanjung Lesung Hotel. They are doing their best to tighten the health protocol in their operations because the pandemic is still far from over, despite the implementation of the new normal [61]. Representative of the Head of the Banten Province Tourism Office also stated that tourist attractions that have been opened in Banten Province are those that have passed the assessment test from the Banten Tourism Office [62].



Figure 1. Pandeglang Tourism Area in 2019



Figure 2. Pandeglang Tourism Area in 2019

With the implementation of health protocol and the assessment test from the Tourism Office, the Pandeglang tourism sector can still be running in the middle of the COVID-19 pandemic. Tourism is one of Pandeglang’s mainstay economic sector so there are many people whose daily livings are dependent towards the tourism sector. Therefore, the health protocol and assessment test are very important in order to save the economy of the tourism actors. The government, private sectors, and all actors involved in the Pandeglang tourism sector need to collaborate to guarantee the success of the implementation of health protocol and assessment test in the tourism sector. Figure 3 summarizes the flow of impact of the Sunda Strait Tsunami and COVID-19 on the tourism in Pandeglang Regency.

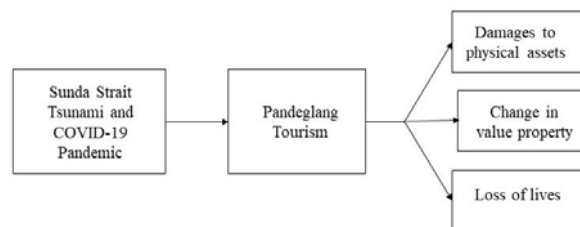


Figure 3. Direct Impact of the Sunda Strait Tsunami and COVID-19 Pandemic on the Pandeglang Tourism

5. Conclusion

The purpose of this study is to understand the direct impacts of the tourism and its supporting industry after the 2018 tsunami and COVID-19 outbreak in Pandeglang. In order to understand it, this paper outlines several sub-objectives, including: (i) Identifying tourism and its supporting industry in Pandeglang Regency; (ii) analyzing the direct impact of 2018 tsunami and 2020 COVID-19 outbreak to tourism sector and its supporting sectors.

There are several existing literatures that have talked about the tourism and its supporting industries, also about how the 2018 tsunami and COVID-19 pandemic affecting the tourism in Indonesia. The literatures mostly discussed about the impacts in a general way. Therefore, this paper fills the research gap by discussing the direct impacts of the 2018 tsunami and the COVID-19 pandemic to the tourism and its supporting industries specifically in the Pandeglang Regency

The results show that as a regency that relies heavily on tourism as one of its economic mainstay, the Sunda Strait Tsunami and COVID-19 pandemic are big blows to Pandeglang Regency. The damages

to the physical assets include the damages in tourism facilities and infrastructures along the coastal area. The tsunami also hit all the supporting industries, namely the accommodation, food and beverages, attractions, and transportation. All events and conferences were also put-on hold because the government had to prioritize responding and recovering from the disaster. The tsunami also caused a decrease in property value that can be seen from the estimated total market loss of approximately 1 trillion Rupiah. Loss of lives because of the tsunami were also inevitable and Pandeglang Regency recorded the highest number of victims killed in the disaster (296 people). Most of the victims are tourists who were visiting the tourist attractions.

Starting from March this year, the Pandeglang tourism was hit again by the COVID-19 pandemic. The government had to release a regulation which orders all the tourism areas to be closed or open but with tight health protocols. This hit so many people whose daily livings are dependent on the tourism sector. The decrease in value can be seen from the estimated total loss of the tourism industry which was more than 200 billion Rupiah. To slowly recover its tourism, Pandeglang Regency is doing measures such as the implementation of health protocol and the assessment test in the Pandeglang tourism. In order to prevent the spreading of the COVID-19 virus in the tourism areas, tourists are required to comply with health protocols in place and the tourism areas are being actively assessed and monitored by the government. With these measures, the tourism and its supporting industries can still be running in the middle of the pandemic.

By explaining the direct impacts of the 2018 tsunami and COVID-19 pandemic to the Pandeglang tourism and its supporting industries, this paper can help the stakeholders or decision makers in Pandeglang to formulate the post-disaster tourism recovery. This paper has pointed out how all of the supporting industries in tourism got affected when the disasters hit the regency and that so many people lost their income, jobs, and even lost their lives. Therefore, the tourism recovery measures have to put close and more attention to the supporting industries in order to help the people whose daily livings are dependent on those industries.

6. References

- [1] Blažin N, Gavrilov MB, Marković SB, Janičević S, Milošević ZS, Lukić T, et al. The tsunami of 26th December 2004: the impact on tourism trends in Southeast Asia, Ancona, Italy: 2014, p. 175–86. <https://doi.org/10.2495/EID140151>.
- [2] United Nations Development Programme Indonesia, US AID, World Bank. Bali beyond the tragedy: impact and challenges for tourism-led development in Indonesia. Jakarta: UNDP Indonesia; 2003.
- [3] Halim HS. Improving Coastal Tourism Business Competitiveness: Using Ecotourism's Concept to Explore to Potential of Coastal Tourism Business Pandeglang and Serang Districts. Banten. West-Java. Indonesia. *International Journal of Business and Social Science* 2011;2:4.
- [4] Catherine Courtney, Russel Jackson, Alan T. White, Adam Stein, Atiq Kainan Ahmed, Glen Ricci. How resilient is your coastal community? A guide for evaluating coastal community resilience to tsunamis and other hazards. Washington, D.C: U.S. Agency for International Development; 2007.
- [5] Bencana BNP. Indeks Risiko Bencana Indonesia (IRBI) 2018. Direktorat Pengurangan Risiko Bencana, Deputi Bidang Pencegahan Dan Kesiapsiagaan BNPB 2018.
- [6] Yuliana D, Subekti S. Strategi pengembangan Bandara Soekarno Hatta dalam mendukung destinasi pariwisata prioritas Tanjung Lesung-Pandeglang dan sekitarnya. *Jurnal Transportasi Multimoda* 2017;14:177–92.
- [7] BNPB. Dokumen Kajian Risiko Bencana Kabupaten Pandeglang 2014-2018. 2014.
- [8] Bakar NA, Rosbi S. Effect of Coronavirus disease (COVID-19) to tourism industry. *International Journal of Advanced Engineering Research and Science* 2020;7:6.
- [9] Pescaroli G, Alexander D. Cross-sectoral and multi-risk approach to cascading disasters, 2017, p. 25–31.
- [10] Ariansyah A. Infografis Data Bencana Periode 1 Januari 2019 Hingga 31 Desember 2019. BNPB 2020. <https://bnpb.go.id/berita/2020-01-20-infografis-update-bencana-31-des-2019-per20jan2020jpg> (accessed November 9, 2020).

- [11] Badan Nasional Penanggulangan Bencana. Rencana Nasional Penanggulangan Bencana 2015-2019. BNPB; 2014.
- [12] WHO Coronavirus Disease (COVID-19) Dashboard n.d. <https://covid19.who.int> (accessed November 10, 2020).
- [13] McKibbin W, Fernando R. The Global Macroeconomic Impacts of COVID-19: Seven Scenarios 2020:45.
- [14] COVID-19: UNWTO Calls on Tourism to be Part of Recovery Plans n.d. <https://www.unwto.org/news/covid-19-unwto-calls-on-tourism-to-be-part-of-recovery-plans> (accessed November 9, 2020).
- [15] Hallegatte S. The Indirect Cost of Natural Disasters and an Economic Definition of Macroeconomic Resilience. The World Bank; 2015. <https://doi.org/10.1596/1813-9450-7357>.
- [16] United Nations Office for Disaster Risk Reduction. Proposed Updated Terminology on Disaster Risk Reduction: A Technical Review 2015.
- [17] Gall M, Emrich CT, Cutter SL. Prepared for the 2015 Global Assessment Report on Disaster Risk Reduction 2015.
- [18] Cavallo E. Natural Disasters and the Economy — A Survey. *IRERE* 2011;5:63–102. <https://doi.org/10.1561/101.00000039>.
- [19] Swarbooke J. Sustainable Tourism Management. Oxon: CABI Publishing; 1998.
- [20] Johnson RB, Onwuegbuzie AJ, Turner LA. Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research* 2007;1:112–33. <https://doi.org/10.1177/1558689806298224>.
- [21] Ye L, Kanamori H, Rivera L, Lay T, Zhou Y, Sianipar D, et al. The 22 December 2018 tsunami from flank collapse of Anak Krakatau volcano during eruption. *Sci Adv* 2020;6:eaa1377. <https://doi.org/10.1126/sciadv.aaz1377>.
- [22] Cahyani DR. Sepertiga Bangunan Tanjung Lesung Resort Rusak Dihantam Tsunami. *Tempo* 2018. <https://bisnis.tempo.co/read/1158501/sepertiga-bangunan-tanjung-lesung-resort-rusak-dihantam-tsunami> (accessed November 9, 2020).
- [23] RRI 2020 L. Pasca Tsunami, Pandeglang Kehilangan 3,4 Juta Wisatawan. *RriCoId* n.d. <https://rri.co.id/humaniora/wisata/768321/pasca-tsunami-pandeglang-kehilangan-3-4-juta-wisatawan> (accessed November 9, 2020).
- [24] Glasson J, Marshall T. Regional planning. Abingdon; New York: Routledge; 2007.
- [25] Gössling S, Scott D, Hall CM. Pandemics, tourism and global change: a rapid assessment of COVID-19. *Journal of Sustainable Tourism* 2021;29:1–20. <https://doi.org/10.1080/09669582.2020.1758708>.
- [26] Sutjipto H. Analisis Pemberdayaan Perekonomian Masyarakat di Kawasan Ekonomi Khusus (KEK) Pariwisata Tanjung Lesung 2014;3:13.
- [27] Amran E. Souvenir to Increase Small Business Tourism Income in Pandeglang District [Cinderamata untuk Meningkatkan Pendapatan Bisnis Pariwisata Berskala Kecil di Kabupaten Pandeglang]. *comdev* 2019;2:640. <https://doi.org/10.30874/comdev.2018.354>.
- [28] Hidayah N. Smart Tourism: Aksentuasi Kesiapan Homestay Di Kawasan Ekonomi Khusus Tanjung Lesung, Pandeglang - BANTEN 2020;18:12.
- [29] Amanda R, Tambunan RP, Waryono T. Contribution of Tanjung Lesung Beach tourism destinations to communities in Panimbang District, Pandeglang Regency, Banten. *IOP Conf Ser: Earth Environ Sci* 2020;561:012004. <https://doi.org/10.1088/1755-1315/561/1/012004>.
- [30] Kismartini K, Pujiyono B. Collaborative Management Model Tanjung Lesung Tourism in Pandeglang District, Banten Province, Indonesia 2020:7.
- [31] RRI 2020 L. Pemkab Pandeglang Konfirmasi Kasus Pertama Positif Covid-19. *RriCoId* n.d. <https://rri.co.id/nasional/peristiwa/822123/pemkab-pandeglang-konfirmasi-kasus-pertama-positif-covid-19> (accessed November 9, 2020).
- [32] Gegara Covid-19, APBD Kabupaten Pandeglang Terancam Defisit - *rmolbanten.com* 2020. <https://www.rmolbanten.com/read/2020/04/03/16223/Gegara-Covid-19,-APBD-Kabupaten-Pandeglang-Terancam-Defisit-> (accessed November 9, 2020).

- [33] Asmara CG. Tsunami Selat Sunda, Pandeglang Terdampak Paling Parah. News n.d. <https://www.cnbcindonesia.com/news/20181223133711-4-47676/tsunami-selat-sunda-pandeglang-terdampak-paling-parah> (accessed November 9, 2020).
- [34] Okezone. Update Tim Tourism Crisis Center: 69 Hotel dan Villa Rusak di Pandeglang Pasca Tsunami Banten: Okezone Travel. <https://travel.okezone.com/> 2018. <https://travel.okezone.com/read/2018/12/25/406/1995873/update-tim-tourism-crisis-center-69-hotel-dan-villa-rusak-di-pandeglang-pasca-tsunami-banten> (accessed November 10, 2020).
- [35] Afifa L. Banten Tourism Partially Paralyzed by Saturday's Tsunami. Tempo 2018. <https://en.tempo.co/read/1159394/banten-tourism-partially-paralyzed-by-saturdays-tsunami> (accessed November 9, 2020).
- [36] antaranews.com. Pariwisata Banten terancam suram pasca-tsunami. Antara News 2018. <https://www.antaranews.com/berita/782718/pariwisata-banten-terancam-suram-pasca-tsunami> (accessed November 10, 2020).
- [37] Kerugian Hotel di Banten Akibat Tsunami Selat Sunda Ditaksir Capai Rp500 Miliar | Kabar24. BisnisCom 2018. <https://kabar24.bisnis.com/read/20181228/15/873702/kerugian-hotel-di-banten-akibat-tsunami-selat-sunda-ditaksir-capai-rp500-miliar> (accessed November 11, 2020).
- [38] Media KC. Korban Meninggal Tsunami Selat Sunda Capai 437 Orang. KOMPAS.com n.d. <https://nasional.kompas.com/read/2018/12/31/15561231/korban-meninggal-tsunami-selat-sunda-capai-437-orang> (accessed November 12, 2020).
- [39] Dihantam Corona, Carita Kini Sepi, Hotel hingga Warga Hilang Pendapatan. suara.com 2020. <https://banten.suara.com/read/2020/04/30/113836/dihantam-corona-carita-kini-sepi-hotel-hingga-warga-hilang-pendapatan> (accessed November 11, 2020).
- [40] Tempat Wisata di Banten Tutup Selama Pandemi Corona Covid-19 | Dinas Pariwisata Provinsi Banten n.d. <https://dispar.bantenprov.go.id/Berita/topic/395> (accessed November 11, 2020).
- [41] Kosasih E. PHRI Pandeglang Minta Insentif; Tempat Wisata Dulu Rugi Akibat Tsunami Rp 150 M Kini Harus Rugi Lagi Rp 200 M Gara-gara Corona. Bantenhits 2020. <https://bantenhits.com/2020/03/21/phri-pandeglang-minta-insentif-tempat-wisata-dulu-rugi-akibat-tsunami-rp-150-m-kini-harus-rugi-lagi-rp-200-m-gara-gara-corona/> (accessed November 12, 2020).
- [42] Alam SO. Arti Zona Hitam dan Berbagai Kode Warna dalam Pandemi COVID-19. detikHealth 2020. <https://health.detik.com/berita-detikhealth/d-5092291/arti-zona-hitam-dan-berbagai-kode-warna-dalam-pandemi-covid-19> (accessed November 14, 2020).
- [43] BeritaSatu.com. Pandeglang dan Kabupaten Tangerang Masuk Zona Kuning Covid-19. beritasatu.com n.d. <https://www.beritasatu.com/yudo-dahono/nasional/697873/pandeglang-dan-kabupaten-tangerang-masuk-zona-kuning-covid19> (accessed November 12, 2020).
- [44] Long Weekend, Tingkat Hunian Wisata Hotel di Pandeglang Capai 100 Persen. Redaksi24.com 2020. <https://www.redaksi24.com/long-weekend-tingkat-hunian-wisata-hotel-di-pandeglang-capai-100-persen/> (accessed November 11, 2020).
- [45] Media KC. Tempat Wisata di Pandeglang Harus Lolos Uji Asesmen untuk Buka Kembali Halaman all. KOMPAS.com n.d. <https://travel.kompas.com/read/2020/08/13/132623827/tempat-wisata-di-pandeglang-harus-lolos-uji-asesmen-untuk-buka-kembali> (accessed November 11, 2020).

Acknowledgments

This work was supported by Ministry of Research and Technology/National Research and Innovation Agency through BP-PTNBH Kemenristek / BRIN 2020 research funding, and as part of the output of the research entitled The Impact of the 2018 Tsunami on the Economy of the Hotel Industry in Pandeglang Regency.