

# **Disaster Mitigation in the South Coastal Tourism Area, Tasikmalaya Regency, West Java Province, Indonesia: An analytical model approach MSPDM (marketability, sustainability, participatory, and disaster Mitigation)**

Edwin Rizal<sup>1</sup>, Yunus Winoto<sup>2</sup>, Ute Lies Siti Khadijah<sup>3</sup>  
{edwin.rizal@unpad.ac.id<sup>1</sup>, yunus.winoto@unpad.ac.id<sup>2</sup>, ute.lies@unpad.ac.id<sup>3</sup>}

Universitas Padjadjaran<sup>1,2,3</sup>

**Abstract.** The tourism industry is one sector that is the mainstay of some countries, because the tourism sector is able to generate foreign exchange and can improve the economy and welfare of the surrounding community. In addition, the tourism sector is a sector that is able to move other productive sectors. However, the tourism sector is also a sector that is very vulnerable to disasters and crises, both natural disasters, non-natural disasters and social disasters. This study aims to examine disaster mitigation in the southern coastal tourism area in Tasikmalaya Regency, West Java Province, Indonesia. The method used in this research is descriptive quantitative method. The technique of collecting is through observation, interviews and through literature study. For data analysis using the MSPDM analysis method (marketability, sustainability, participatory, disaster mitigation). Based on the results of the study, it is known that tourism managers and the community of tourist sites have sufficient knowledge and understanding of disaster mitigation. But the focus of tourism managers and the community on disaster mitigation is only on the types of natural disasters such as earthquakes, tsunamis, floods, landslides and non-natural disasters such as efforts to prevent the spread of the corona-19 virus which is currently an epidemic. However, for social disaster mitigation, tourism managers and the community around tourism do not seem to have sufficient references, because so far the conditions in the area are very conducive and the surrounding community is very harmonious and they have not seen any bad influences or harmful threats from outside.

**Keywords:** Disaster Mitigation; Coastal Tourism; Tourism Planning; Tourism Ongoing; MSPDM Analysis

## **1 Introduction**

The southern coastal area of Tasikmalaya Regency is one of the potential tourist areas. There are several beach locations in the southern region of Tasikmalaya such as Bubujung Beach, Cipatujah Beach, Sindangkerta Beach, Karangtowelan Beach and several other coastal areas bordering the Pangandaran Regency. As a coastal tourism area, its location is very

strategic in addition to being one of the leading tourist areas that has been determined by the West Java provincial government. According to Regional Regulation No. 15 of 2015 concerning the West Java Tourism Development Master Plan, there are three leading tourist areas, namely the leading tourist area of the northern route, the leading tourist area of the middle route and the leading tourist area of the southern route. The coastal tourist areas of West Java, starting from the Sukabumi Regency Beach area, the Cianjur Regency coastal area, the Garut Regency Coastal Area and the southern coastal area of the Tasikmalaya Regency are included in the leading tourist area of the southern route. As is often stated in various articles, it is stated that the tourism industry is a leading sector in various countries, including Indonesia. This is because tourism is a sector that can increase the country's economy and foreign exchange, also tourism can be a sector that can move other productive sectors. However, it is also recognized that tourism is an industry that is quite vulnerable to various disaster events and crises such as floods, landslides, tsunamis to disasters in the form of a virus outbreak that is hitting almost all regions in the world, namely the COVID-19 pandemic.

Regarding the disaster in the tourism area, especially in the southern coastal area of Tasikmalaya, there have been various catastrophic events that have hit the southern coastal area of Tasikmalaya, such as the earthquake that hit Pangandaran, Tasikmalaya and surrounding districts which resulted in a tsunami that hit the coastal area, especially in the Cipatujah District in 2006. This tragedy has killed around 56 people living in the coastal area of Cipatujah and damaged buildings and various other facilities. Floods and landslides also occurred in 2018 in the villages of Ciheras and Ciandum by destroying several houses and washing away the bridge connecting Pamengpeuk district, Garut Regency with the Cipatujah Subdistrict, Tasikmalaya Regency. In addition, almost every year there are high waves around the south coast area and are followed by tidal flooding which inundates residential areas around the coast and roads, (source: Regional Disaster Management Agency of Tasikmalaya Regency, 2020).

The occurrence of threats of disasters and crises in tourism destinations is often not realized by tourism actors and other stakeholders. They are more focused on how to increase tourism attractiveness, improve special and public facilities and promote tourism. Another factor is the difference in understanding of disaster risk between managers and the surrounding community with tourists, where something that is considered dangerous by tourists is not necessarily considered dangerous by the manager or the local community and vice versa. Departing from this, researchers are interested in studying the mitigation aspect in the southern coastal tourism area of Tasikmalaya Regency. The research location is limited to the coastal area in Cipatujah District which includes Bubujung beach area, Cipatujah Beach area, Sindangkerta Beach area and Pamayang beach area.

Then for the analysis in this study using the MSPDM analysis model. As for this analysis model, quantification and determination of various variables and indicators include marketability, sustainability, participation and disaster mitigation. However, because this research focuses more on the aspect of disaster mitigation in the southern coastal area of Tasikmalaya Regency, the analysis focuses more on the disaster management aspect, namely the measurement of natural disaster management and non-natural disasters, especially for handling risks that may arise from the product. - tourism products and social disaster risk (Priatmoko, 2019).

## 2 Literature Review

This study examines disaster mitigation in the southern coastal tourism area in Tasikmalaya Regency, West Java Province, Indonesia. In discussing the topic, there are several previous literatures that have been studied by researchers, including research conducted by Priatmoko, et. al (2019). The title is "Disaster Mitigation in Tourist Destinations: Case Studies in Petingsari, Nglanggeran and Penglipuran Yogyakarta". The method used in this study uses quantitative methods with analysis using the MSPDM analysis model. From the research results, it is known that the Petingsari, Nganggeran and Penglipuran Yogyakarta tourism areas have implemented several things that support disaster mitigation in tourist areas. The aim is to reduce the risk of disasters that occur to tourists and local communities. Meanwhile, the mitigation measures are adjusted to the characteristics of the local environmental and cultural areas. Further research was put forward by Ni Ketut Sutrisnawati (2018) with the title, "The Impact of Natural Disasters for the Bali Tourism Sector". The method used in this study is a qualitative descriptive method. Based on the results of the study, it is known that to reduce the impact of disaster, cooperation with all stakeholders is needed. Solutions that can be taken are in the form of prevention, preparedness and disaster recovery efforts.

Then another research was conducted by Wulan, et.al (2016) with the title, "Tourism Potential-Based Disaster Mitigation: Study on Pandawa Beach, Badung Regency, Bali". The method used in this research is descriptive exploratory method. Based on the results of the study, it is known that mechanical structural mitigation and non-structural mitigation are the choices of residents as disaster mitigation efforts and at the same time as a tourist attraction. Based on the research above, if it is associated with the research that the author did, there are several differences and similarities, one of which is the difference in the research conducted in the southern coastal tourist area of Tasikmalaya Regency. In addition, the disaster that became the object of his research included natural disasters such as earthquakes, tsunamis, landslides and floods and non-natural disasters, namely the outbreak of the corona virus-19 which is currently spread all regions in the world, including in Indonesia. To explain about disaster mitigation, first it is better to explain the definition of disaster. If referring to Law Number 24 of 2007 concerning Disaster Management, it is stated that a disaster is an event or series of events that threatens and disrupts people's lives and livelihoods caused, both by natural factors and/or non-natural factors as well as human factors, resulting in the emergence of human casualties, environmental damage, property losses, and psychological impacts. Meanwhile, according to the General Indonesian Dictionary, the definition of disaster is defined as something that causes or causes distress, loss or suffering.

According to Law Number 24 Year 2007 concerning disaster management, it is stated that there are three (3) disaster groups, namely: (1) natural disaster, which is a disaster caused by an event or series of events caused by nature. among others in the form of earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides: (2) non-natural disasters, namely disasters caused by non-natural events or series of events which include technological failures, failed modernization , epidemics, and disease outbreaks as well as; (3) social disasters, namely disasters caused by events or a series of events caused by humans which include social conflicts between groups or between communities, and terror. The definition of mitigation according to Article 1 paragraph 6 of Government Regulation Number 21 of 2008 concerning the Implementation of Disaster Management, is a series of efforts made to reduce disaster risk, either through physical development or awareness and capacity building in dealing with disaster threats. Theoretically, mitigation is divided into two, namely

structural and non-structural mitigation. The definition of structural mitigation is an action to reduce the impact caused by a physical disaster, such as the use of a technological approach and infrastructure development in order to minimize the impact. Meanwhile, non-structural mitigation is an action related to policy, scientific development, and community capacity building through emergency planning.

Talking about disaster mitigation, Sutrisnawati (2016) mentions that there are three (3) phases of mitigation, namely:

- a) Before the Disaster. The pre-disaster phase is an effort to reduce property losses and loss of life when a disaster occurs. Preparedness in the form of preparation of development plans, creation of an early warning system and monitoring of threats, maintenance of supplies, and training, rehearsals and simulations of disaster management; training in search and rescue, evacuation and installing evacuation and warning signs in disaster-prone areas. Preparedness measures aim to minimize casualties, service disruptions and damage when a disaster occurs. Mitigation includes all steps to reduce the scale of future disasters, both effects and conditions vulnerable to the hazard itself. Mitigation efforts include building earthquake-resistant houses, making water irrigation, reforestation;
- b) During Disaster (emergency response). Emergency response is an effort taken immediately when a disaster occurs to reduce the impact of a disaster, such as saving lives and property. As for the efforts made at the time of a disaster, namely the rescue and evacuation of victims and property, fulfillment of basic needs, protection, management of refugees, rescue and restoration of basic facilities such as transportation, electricity, water supply;
- c) Post Disaster (Recovery). Post-disaster management consists of 2 main actions, namely: a) Rehabilitation in the form of repairing and restoring aspects of public services, education, health, psychological, economic, social, cultural, security, environmental, transportation infrastructure, in post-disaster areas with the main target for normalization or progress. reasonably all aspects of government and community life in post-disaster areas b) Reconstruction, namely the rebuilding of all facilities and infrastructure, in post-disaster areas, both at the government and community levels with the main target of growing economic, social and cultural activities, upholding law and order, and the rise of community participation in all aspects of social life in post-disaster areas.

### 3 Methodology

The research method uses a qualitative descriptive method using disaster mitigation indicators in the MSPDM analysis table. The indicators used in the MSPDM analysis model include the variables of marketability, sustainability, participation, and disaster mitigation. However, because the research examines tourism mitigation in the southern coastal area of Tasikmalaya Regency, the variables in the MSPDM analysis are focused on disaster mitigation variables. As for the parameters, details and indicators that can be described as follows:

**Table 1.** Assessment of Disaster Mitigation Aspects

<b>Parameter</b>	<b>Element Details</b>	<b>Values and Indicators</b>
(A) Natural Disaster	Anticipation of Risks and recovery planning (recovery)	<ol style="list-style-type: none"> <li>1. If there is no anticipation and plan to save the earthquake/landslide/flood disaster</li> <li>2. If there is an anticipation and rescue plan for the earthquake/slide/flood disaster, it has not been socialize.</li> <li>3. If there has been socialization and rescue training.</li> </ol>

Parameter	Element Details	Values and Indicators
A) Non-Natural Disasters	Anticipating human error and implementing procedures and minimal standardization of health inspection and handling	<ol style="list-style-type: none"> <li>4. If there is already a rescue line and a special team that handles it by local residents</li> <li>5. If there are plans and concepts for post-disaster recovery areas.</li> <li>1. If there is no anticipation and standard/procedure for inspection and handling of the surrounding community or tourists.</li> <li>2. If there are already anticipations and standards/procedures for inspection and handling of the surrounding community or tourists but have not been carried out strictly</li> <li>3. If there are already anticipations and standards/procedures in the inspection and handling of the surrounding community or tourists and it has been carried out strictly and with prokes standards.</li> <li>4. There is already national and international standardization in the examination and handling of tourists and the public in accordance with health protocols.</li> <li>5. There has been national and international standardization in the examination and handling of tourists and the public in accordance with health protocols and strict disciplinary and regulatory enforcement in accordance with applicable regulations.</li> </ol>

Source: Research Data, 2020

Furthermore, data on disaster mitigation management is processed using a conceptual structure based on table 1 above. As for the data collection techniques, it is done through field observations, interviews and through literature studies by reviewing various literatures, both printed, recorded and in electronic form. There are four tourist areas in Cipatujah District which are the locations of this research, namely Bubujung Beach, Cipatujah Beach, Pamayang Beach and Sindangkerta Beach.

#### 4 Result and Discussion

Cipatujah Subdistrict has an area of about 23,265.82 Km<sup>2</sup> which consists of 15 villages namely Ciheras Village, Cipanas Village, Ciandum, Cipatujah, Sindangkerta, Cikawungading, Kertasari, Padawaras, Bantarkalong, Tobongjaya, Nangelasari, Nagrog, Pameutingan and Sukahurip. According to the 2019 census data, the total population of Cipatujah District is around 70,192 people, consisting of 34,747 males and 33,7211 females (Source: Tasikmalaya Regency in Figures, 2020). As is known, Cipatujah District is one of the sub-districts in the southern region of Tasikmalaya Regency, where most of the villages are located in the southern coastal area.



Source: Cipatujah District In 2020

**Fig. 1.** Map of Cipatujah District

In the context of tourism, Cipatujah District has a variety of natural wealth and interesting cultural richness. One of them is the beach tourism area. There are four beach locations in Cipatujah District, namely Sindangkerta Beach, Pamayangsari Beach, Cipatujah Beach and Bubujung Beach. In this research on disaster mitigation, there are two types of disasters that the authors study, namely 1). natural disasters such as earthquakes, tsunamis, landslides, and floods. Regarding these natural disasters, everything has happened in coastal tourism areas in Cipatujah District; 2). non-natural disasters, regarding non-natural disasters that are currently hitting all regions of the world is the corona virus outbreak or known as the covid-19 pandemic. In connection with natural disasters, in 2006 an earthquake occurred in the Pangandaran Regency area, followed by a Tsunami disaster. Cipatujah Subdistrict, especially the coastal area, one of which was most affected by the Tsunami, namely Cipatujah Beach, there were around 56 people died and dozens of houses and other facilities were damaged. Other disasters were landslides and floods that hit the villages of Ciandum and Ciheras, dozens of houses were damaged, 2 people died and the bridge that connected Pameungpeuk District, Garut Regency and Cipatujah District, Tasikmalaya Regency was washed away.

In addition to the natural disasters above, the Cipatujah coastal tourism area also experiences high tidal waves almost every year followed by tidal flooding that enters residential areas and roads around the coast. Another factor that needs to be handled and paid attention by tourism managers and tourists is that most of the beach conditions in the tourist area in Cipatujah have conditions that are not safe for swimming. Therefore it is necessary to have mitigation related to the safety of the tourists. For non-natural disasters that are currently the concern of all parties, including tourism managers, namely preventing the spread of the corona virus. Especially if you look at the data, Cipatujah Sub-district was once an area where a lot of people were exposed to the corona virus. As a mitigation effort in dealing with non-natural disasters, several tourist areas have strictly implemented health protocols. Even for

some coastal tourist areas in West Java, there are provisions regarding mandatory vaccination for all tourism managers. In addition, there are inspection procedures for tourists who come to tourism destinations by showing the results of vaccinations or personal protective applications. This step is actually a form of mitigation so that the spread of the corona virus outbreak can be monitored and does not enter tourist areas, including in this case the existing coastal tourism areas in the southern region of Tasikmalaya Regency. For four beach tourism locations in Cipatujah District, namely Bubujung Beach, Cipatujah Beach, Pamayang Beach and Sindangkerta Beach. There are several mitigation activities that have been carried out, namely disaster evacuation training for tourism activist groups, installation of signs and directions for disaster evacuation routes at certain points, installation of signs prohibited from swimming in dangerous areas. Based on the results of data processing on the four coastal areas in the Cipatujah area, mitigation measures can be described as follows:

**Table 2.** Disaster Mitigation in Four Coastal Tourism Areas in Cipatujah District

	<b>Pantai Bubujung</b>	<b>Pantai Cipatujah</b>	<b>Pantai Pamayang</b>
Disaster Mitigation	<ol style="list-style-type: none"> <li>1. Making signs in dangerous locations for swimming;</li> <li>2. Creation of evacuation route signs</li> <li>3. Implementation of health protocols for visitors.</li> <li>4. Handling procedures for the public or tourists identified as being exposed to the virus.</li> <li>5. Enforcement of regulations for</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair of safety dikes on the coast;</li> <li>2. Preparation of evacuation route instructions;</li> <li>3. Implementation of health protocols for visitors.</li> <li>4. Handling procedures for the public or tourists identified as being exposed to the virus.</li> <li>5. Enforcement of rules for protocol violators</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair and construction of breakwater embankments;</li> <li>2. Making signs for no swimming;</li> <li>3. Implementation of health protocols for visitors.</li> <li>4. Handling procedures for the public or tourists identified as being exposed to the virus.</li> <li>5. Enforcement of rules for protocol violators</li> </ol>

Source: Research data. 2020.

For the disaster mitigation aspect, tourism managers and the community are still focusing on natural disasters in the form of earthquakes, tsunamis, floods and landslides as well as the occurrence of high waves that cause tidal flooding, as well as on non-natural disasters in the form of the spread of the corona virus-19 outbreak that is currently happening at the time. this. As for disasters that are social in nature, it appears that almost all tourist areas in Cipatujah District have not made any procedures and steps to deal with them, because so far they think that the community really maintains harmony and influences from outside do not seem to be visible. In addition, they also argue that handling conflicts, criminal acts, etc. has been done

Regarding knowledge about disaster mitigation, it is generally known by community leaders, village officials and tourism activist groups. Meanwhile, information regarding risk mitigation is only known by area managers. Tourists get disaster mitigation information when they are notified by the manager. Information in the form of signs and instructions for comprehensive evacuation routes is still not widely found, only at certain points and in limited quantities. The lack of making evacuation route signs is possible because of the understanding of some tourism managers and local communities who think that visitors already have the same understanding as local residents. However, the understanding of disaster mitigation owned by residents around the coastal tourism area in Cipatujah District has brought a

significant improvement in the quality of the area. Standards for inspection and handling for tourists based on health protocols have begun even though they have not been carried out strictly. For the handling and follow-up of the exposed community and tourists, there is coordination between tourism managers, village and sub-district officials and the Cipatujah District Health Center.

## 5 Conclusion

The application of the marketability, sustainability, participatory, and disaster mitigation (MSPDM) analysis model is very helpful in increasing the understanding of the public and tourists about the mitigation aspects, especially in coastal tourism areas in the southern region of Tasikmalaya Regency. Aspects of disaster mitigation assessment that appear in the form of quantitative assessments can assist in evaluating and determining further improvement targets. The southern coastal tourism area in Cipatujah District, Tasikmalaya Regency needs to pay attention to disaster mitigation aspects according to the characteristics of each coastal area. With the understanding and utilization of disaster mitigation, it is hoped that it can help in improving the quality of the natural environment and local communities. The cultural barriers in the form of taboos to talk about disasters that may occur can be minimized by conducting an MSPDM analysis by providing a self-assessment system that has set parameters. However, there are things that need to be watched out for, namely related to social disasters, where this is always a threat along with the development of tourist areas and the entry of various outside influences.

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