



Sustainable Development Strategy for Disaster Tourism: Lesson from North Sumatra, Indonesia

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Abstract

The development of disaster tourism is a good idea but is risky because it must prioritize the safety of visitors who come and the comfort of disaster-affected communities who must be part of the implementation of disaster tourism itself. Therefore, this study aims to contribute to the development of disaster tourism by considering the two aspects above plus the sustainability aspect. This research method is qualitative with an interactive model, where data collection is done by interview and FGD with informants who represent hexahelix stakeholders in tourism management in Karo Regency. The unit of analysis is carried out using PEST Analysis, Porter's Diamond Model, SWOT Analysis, and Strategic Architecture. The results obtained mapped alternative strategies based on the formulation of preparation, acceleration, and expansion. In addition, the involvement of hexahelix stakeholders in disaster tourism management is considered part of a strategy that must be carried out continuously.

Keywords: *Development Strategy, Disaster Tourism, Integrative Method, Sustainable.*

INTRODUCTION

Tourism is one of the mainstay activities for Karo Regency, which is an important part of North Sumatra's mainstay area known as 'Mebidangro' and located on the edge of the Lake Toba Super Priority Destination (Sibarani et al., 2021). At the same time, Karo Regency is also known as one of the areas prone to landslides and eruptions. The Sinabung eruption disaster is one of the natural events that has not ended more than a decade ago (Liyushiana et al., 2022). Almost every year, Sinabung removes material from its magma chamber. The existence of the Sinabung eruption is allegedly detrimental to the hotel and tourism industry in this area (Febriaty, 2015). The World Economic Forum in 2013 also stated that natural disasters (such as eruptions) are a major threat to tourism development (Breiling, 2016).

On the other hand, the existence of villages left by refugees due to the Sinabung eruption is one of the attractions for some people. In addition, visits to the Sinabung volcano observation posts are also increasing. This then confirms that disasters can be a tourist attraction (Mariano, 2018; Suhartini & Arifiyanti, 2018). This is what gave birth to the concept of disaster tourism (Millán et al., 2019).

As mentioned earlier, the Sinabung disaster is still happening, so the implementation of the concept of disaster tourism needs to be considered carefully, especially for the safety of tourists and the comfort of disaster survivors. Therefore, it is necessary to group strategies in the development of comprehensive disaster tourism and pay attention to many aspects. This study seeks to present a scientific study as a proposed strategy for developing disaster tourism in Karo Regency.

Initially, the concept of disaster tourism was considered as an unethical fun activity in disaster-affected locations, even hampering the disaster evacuation process itself (Rucinska & Lechowicz, 2014; Van Hoving et al., 2010). But over time, disaster tourism itself is considered part of recovery and education related to disasters that occur (Wang, 2019). The purpose of disaster tourism is not only to observe the damage caused by disasters or to observe the suffering of disaster victims (Tuccio, 2017), but can be directed to learn how the surrounding community has risen, adapted, and learned from the disasters that have occurred (Mason et al, 2022). Therefore, one of the main characteristics of disaster tourism is interaction with disaster-affected communities (Khan, 2017). In general, the character of disaster tourism is summarized as follows:



Table 1. Disaster Tourism Component

Disaster Tourism Component	Explanation
Destination location	Destinations affected by disaster
Characteristic of Destination	Usually complimentary, with associations with visits to other attractions in the vicinity of the disaster destination
Products Offered	Observation of disaster locations, disaster monuments, interaction with disaster survivors, education related to disaster literacy, information related to local culture, and local wisdom related to disaster perception and disaster management
Number of visitors	Usually individual, even in a group must be limited in the number
Visitor's physical requirements	Must be healthy and fit, and adapted to physical needs in the field (whether climbing activities are needed, etc.)
<i>Tour guide</i>	It is better to be accompanied by a local guide who comes from elements of the community affected by the surrounding disaster
Length of visit	Varies, can be short-term or long-term. However, the main principle in disaster tourism is that the duration of the visit is dynamic and flexible because it adapts to the policies that apply at the disaster site.
Visit period	Dynamic, depending on the development of disaster tourism in the affected destinations
Repeat visit	Possibility
Accommodation	Depends on conditions and options around the destination (no specific criteria)
Modes of transportation	Depends on conditions and options around the destination (no specific criteria)
Financial mode	<i>Private trips/commercial trips</i>
Travel planning	Recommended accompanied by a tour guide (organized trip)
Visitor behavior	Can be divided into two, namely: rational, irrational (unethical behavior, too curious, etc.)
Emotional aspects of the visit	Visitors can be aware/mindful (caring) when visiting, or vice versa (indifference)

Source: Rindrasi, 2018; Rucinska & Lechowicz, 2014; Wang, 2019

METHODS

The research method used is qualitative research with an interactive approach consisting of data collection, data condensation, data display, and conclusion drawing/verification (Miles et al., 2014). This approach is considered to produce a more comprehensive analysis even though the data collection and analysis process must be carried out repeatedly (Sibarani, 2018). Data was collected by means of interviews and focus group discussions. The target informants represent the hexahelix group of tourism development in Karo Regency, namely: (1) government: representatives of the tourism and culture department of Karo Regency, (2) community:

representatives of tourism awareness groups (pokdarwis) from the Siosar area and Lingga Village, (3) academics: lecturer from the Medan Tourism Polytechnic and Quality University, (4) Media: representatives from Karo tourism social media activists, (5) Industry: representatives from the Kab. Karo, (6) Tourists: representatives of tourists who come to visit Karo and around Sinabung. For the unit of analysis, PEST Analysis, Porter's Diamond Model, and SWOT Analysis are used which are then visualized in the form of a strategic architecture for the development of disaster tourism. These four units of analysis were chosen taking into account that tourism development should consider aspects of competitive



carrying capacity, maximizing existing conditions and being aware of future changes, and determining the design of a sustainable development strategy (Budi et al., 2015).

RESULTS AND DISCUSSION

PEST Analysis PEST analysis is a framework for assessing several conditions and situations and identifying several strategies and positions, planning directions, market strategies, or development ideas (Herjito & Setiawan, 2021). The function of PEST analysis in this research is to provide macro information related to the condition of Karo Regency and its potential to develop disaster tourism. From the political aspect, Karo Regency is a mainstay area in the center of tourism activities (Medan Urban Spatial Plan, Binjai, Deli Serdang and Karo, 2011) and is part of the Lake Toba Super Priority Destination with a focus on increasing the tourism economy.

From the economic aspect, Karo Regency is still in the relatively lagging category compared to other regions in North Sumatra, and the tourism sector is one of the leading sectors (Herawaty & Bangun, 2018; Sembiring et al., 2021). However, the economic level of the population in Karo Regency shows that the Karo

people in general live above the average number of necessities of life in Indonesia (BPS Kabupaten Toba, 2021).

From the social aspect, Karo Regency is predominantly inhabited by the Karo tribe with a variety of cultures and local wisdom that are interesting to learn (Halim, 2020; Muhammad Abduh Lubis, 2017; Tanjung et al., 2020), and from the technological aspect, Karo Regency continues to encourage the younger generation to create local applications such as Goseh and Kadem. In addition, Karo Regency has declared itself as a smart city.

Porter's Diamond Model

Porter's diamond model is used to describe the determinant factors that affect the superiority of a region or industry, as well as opportunity factors and the role of government that influence them. In this study, the modified Diamond Porter model from Eickel Pasch was used which was developed in 2011 because it was considered to provide an adjustment to the somewhat ambiguous relationship of the original Diamond Porter model (Rustian & Widiastuti, 2020). The results of the Porter's Diamond Model analysis are described as follows:

Table 2. Porter's Diamond Model Analysis Results

Determinant	Component	Conditions on the Field
Factor	Human	Local people maintain the local culture
Condition	Resources	Good social acceptability toward tourism Pengetahuan kebencanaan masyarakat local masih perlu ditingkatkan
	Physical resources	The attraction of the disaster wizard is very interesting to visit and has potential but lacks activity and requires development of attractions and site planning The exoticism of Sinabung as the main attraction for disaster tourism in Karo Cool conditions typical of the mountains The location of the main attraction for disaster tourism is in the disaster-prone zone (KRB). Factors of cleanliness and hygiene still need to be considered in the development of tourism in general in Karo Regency The threat of a Sinabung eruption that can occur at any time
	Capital resources	Commitment to the synergy of relevant stakeholders in the development of tourism in Karo There are illegal levies in some tourist locations There is still no destination governance and zoning management in disaster



		DTW
	Infrastructure	There is an alternative route to the Karo disaster tourism attraction
	Business	Images of several disaster tourism attractions are being discussed
	Environment	Virtual tours are one of the trends in tourism programs
		The existence of Sinabung vomit material can be used for creative industries
Market/ Demand Conditions	Composition of tourist demand	The lack of data to support market demand for specific products such as disaster tourism
		The positive trend of tourism related to nature and interaction with humans after the COVID-19 pandemic
		There are groups of tourists who are not responsible and sometimes harm the image of disaster tourism in Karo District (too desperate to enter the disaster area, pollute the disaster area)
	Size and growth pattern	Information about disaster tourism is still limited to attract foreign markets
Supporting industries and related industries	Presence of supporting industry	The existence of supporting creative industries, for example, the karo oil industry, picking oranges, and others
		IT innovation is an opportunity for tourism promotion
		The existence of volcanic material can be used as raw material for other industries (construction industry, agricultural fertilizers, souvenirs, etc.)
	Relevant industry presence	The plantation industry that dominates Karo Regency makes the natural scenery in Karo beautiful and attractive
Local strategy and competition	Competition in the domestic market	There are already other areas that are developing disaster tourism
	Local/specific contexts that encourage investment in innovation- related activities	There is an integrated tourism area plan in North Sumatra

SWOT Analysis

In the implementation of the SWOT analysis, first the identification of the SWOT elements has been carried out with the help of PEST Analysis and the

Porter Diamond Model above. Furthermore, the measurement of the EFE and IFE values is carried out as follows:

Table 3. Table of IFE

Element	Value	Weight	Ranking	Score
Strengths				
Karo Regency is one of the mainstay areas of the RTRWN, where the tourism sector is one of the leading sectors in Karo Regency.	21	0.05	3.00	0.15
The tourism sector is one sector with a positive growth rate and is the leading sector in Karo Regency	27	0.07	3.33	0.22



The economic life of the local community is above the average of the national economy	18	0.04	2.50	0.11
Karo Regency is located at an altitude of 200-1500 m above sea level so the temperature and air are cooler	28	0.07	3.67	0.25
The population in Karo is in the top-10 category, compared to 33 other regencies/cities in North Sumatra, resulting in a larger workforce	22	0.05	2.17	0.12
The Karo people have several local applications to promote the economy and ease of life (eg Goseh, Ertutur, Kadem, etc.)	27	0.07	3.00	0.20
The unique and interesting tourist attraction of the Sinabung disaster as one of the volcanoes	27	0.07	3.67	0.24
Unique and different cultures and local wisdom from other tribes	29	0.07	3.83	0.27
Easy accessibility with several alternative roads to the location	27	0.07	2.67	0.17
The plantations that dominate the business of the Karo people become a supporting industry as well as create a beautiful and attractive green landscape	27	0.07	3.50	0.23
Weakness				
Karo Regency is categorized as relatively underdeveloped compared to other cities/regencies in North Sumatra (based on the Typology Classification	24	0.06	3.33	0.19
There is still no destination governance and zoning management in disaster DTW	28	0.07	3.83	0.26
Some locations of the DTW Disaster (eg Lau Kawar Lake and Ghost Village) are still in the KRB zone so they are difficult to visit	28	0.07	3.33	0.23
The implementation of CHSE, especially related to the cleanliness of tourist attractions, especially in public areas and toilets is still very lacking. In addition, safety aspects in the operation of disaster tourism need to be considered	26	0.06	3.33	0.21
There is still a lack of statistical supporting data as an initial identification of interest in the disaster tourism market in Karo Regency	27	0.07	3.33	0.22
There is still limited information about disaster tourism in Karo to attract a wider tourist market	26	0.06	3.50	0.22
TOTAL	412	1.00		3.29

The table above shows the total IFE matrix of 3.29. This shows that the development of disaster tourism in Karo Regency has a strong internal position because the score obtained is above 2.5. The main strength comes from elements of culture and local

wisdom that are unique and different from other ethnic groups (points: 0.27). The main weakness of the development of disaster tourism in Karo Regency is the absence of destination governance and zoning management in the disaster area (point 0.26).



Table 4. Table of EFE

Elements	Value	Weight	Ranking	Score
Opportunity				
The central, provincial, and district governments of Karo are committed to developing the Karo RTRW in tourism activities	23	0.06	3.17	0.19
Karo Regency is one part of the National Tourism Destinations and part of the Lake Toba Super Priority Destinations so there is an opportunity for tourism integrity and is close to several leading tourist attractions.	26	0.07	2.83	0.19
There is a local government plan to establish Karo as a smart city	28	0.07	3.50	0.26
The existence of volcanic material can be used as raw material for other industries (construction industry, agricultural fertilizers, souvenirs, etc.)	25	0.07	3.00	0.20
Increased awareness for collaboration and hexahelix synergy in tourism development (government, community, industry/business, media, academia, and tourist market)	28	0.07	3.17	0.23
Images of several locations related to disaster tourism are being discussed by millennial tourists, for example: Lau Kawar Lake, Kacinambun Highland, and the Siosar Area in general.	25	0.07	2.83	0.18
Virtual tours for locations that are difficult to visit are increasingly in demand	24	0.06	2.67	0.17
There is a trend of traveling, especially those that are oriented towards nature and interaction with humans (where these two components are part of disaster tourism) after the implementation of PPKM and after the Covid-19 Pandemic	23	0.06	3.17	0.19
Technological developments have made travel easier and have become an opportunity to promote Karo disaster tourism	28	0.07	3.83	0.28
There is a supporting creative industry, for example, the Karo oil industry which can increase the value of disaster tourism in Karo Regency	26	0.07	3.33	0.23
Threat				
There are groups of tourists who are not responsible and sometimes harm the image of disaster tourism in Karo District (too desperate to enter the disaster area, pollute the disaster area)	29	0.08	3.83	0.29
There is still community sentiment (skepticism and feeling disapproved) of the presence of tourists at disaster-affected locations	25	0.07	3.67	0.24
The existence of illegal levies in several tourist attraction locations in Karo Regency can threaten the comfort of traveling	27	0.07	3.83	0.27
Development of tsunami disaster tourism in Banda Aceh and Merapi which has already started	20	0.05	2.50	0.13
The threat of a Sinabung eruption that can occur at any time	26	0.07	3.83	0.26
TOTAL	383	1.00		3.31



The results of the assessment from the EFE table above show a total number of 3.31 for the assessment of external factors for the development of disaster tourism in Karo Regency. It can be seen that the highest chance of developing disaster tourism in Karo Regency is the development of technology that makes travel easier and facilitates opportunities for the promotion and implementation of disaster tourism in Karo Regency (point 0.28). Meanwhile, the biggest threat with a score of 0.29 is to anticipate groups of tourists who are not responsible and harm the image of disaster tourism in Karo Regency (for example, being

too reckless to endanger their own lives and vandalism perpetrators).

The results of the calculation of the IFE and EFE matrices are then presented in the form of an internal-external analysis which is based on the total weighted score of the two matrices. An overview of the analysis is then presented in Figure 25. The results of the analysis on the internal-external SWOT matrix show that the development of disaster tourism in Karo Regency is in the first column, second row. This explains that the development of disaster tourism in Karo Regency is at the Grow and Maintain stage.

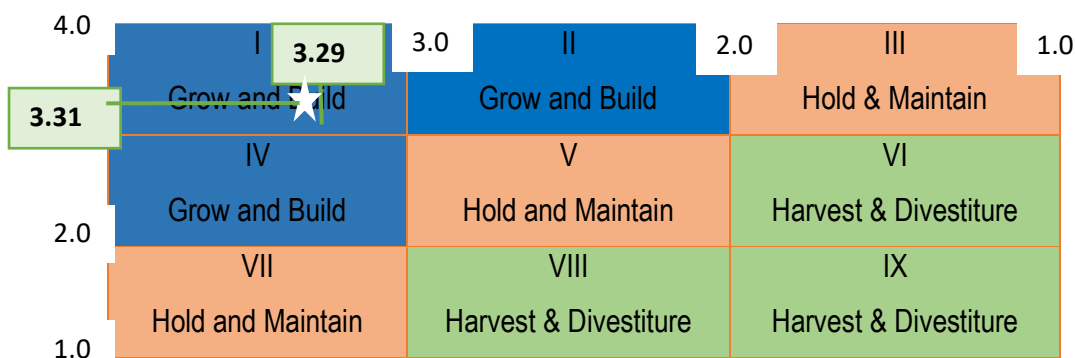


Figure1. SWOT Internal-External Matrix

The Internal-External Matrix above shows that the development of disaster tourism in Karo Regency is in box 1, namely in the grow& build category. The next step is to find alternative strategies to match internal factors (strengths – weaknesses) and external factors (opportunities – threats) using the SWOT interaction table as follows:



Table 5. SWOT Interaction

<p>Internal factors</p> <p>External Factors</p>	<p>Strength (S)</p> <ol style="list-style-type: none"> 1. Karo Regency is one of the mainstay areas of the RTRWN, where the tourism sector is one of the leading sectors in Karo Regency 2. The tourism sector is one of the sectors with a positive growth rate and is the leading sector in Karo Regency 3. The economic life of the local community is above the average of the national economy 4. Karo Regency is located at an altitude of 200-1500 m above sea level so the temperature and air are cooler 5. Karo Regency produces a large workforce 6. The Karo people have several local applications to promote the economy and ease of life (eg Goseh, Ertutur, Kadem, etc.) 7. The unique and interesting tourist attraction of Sinabung disaster as one of the volcanoes 8. Culture and local wisdom that is unique and different from other tribes 9. Easy accessibility with several alternative roads to the location 10. The plantations that dominate the business of the Karo people become a supporting industry while creating beautiful and attractive green landscapes 	<p>Weakness (W)</p> <ol style="list-style-type: none"> 1. Karo Regency is categorized as relatively underdeveloped compared to other cities/regencies in North Sumatra 2. There is still no destination governance and zoning management in disaster DTW 3. Some locations of the DTW Disaster are still in the KRB zone so they are difficult to visit 4. Implementation of CHSE, especially related to the cleanliness of tourist attractions, especially in public areas and toilets is still very lacking. In addition, safety aspects in the operation of disaster tourism need to be considered 5. There is still a lack of statistical supporting data as an initial identification of interest in the disaster tourism market in Karo Regency 6. There is still limited information about disaster tourism in Karo to attract a wider tourist market
<p>Opportunity:</p> <ol style="list-style-type: none"> 1. The central, provincial, and district governments of Karo are committed to developing the Karo RTRW in tourism activities 2. Karo Regency is a part of National Tourism Destinations and part of Lake Toba Super Priority 	<p>SO Strategy</p> <ol style="list-style-type: none"> a. Utilizing the attraction of Sinabung and other disaster tourism destinations to increase disaster tourism visits through the design of disaster tourism packages, of course with the principle of quality tourism so that aspects of tourism activities need to be considered (S1, S3, S5, S7, 	<p>WO Strategy</p> <ol style="list-style-type: none"> a. Implementation of disaster tourism market research with the support of hexahelix synergy, especially the academic team (W5, W6, O1, O2, O3) b. Acceleration and support of CHSE



<p>Destinations so there is an opportunity for tourism integrity and is close to several leading tourist attractions.</p> <ol style="list-style-type: none"> 3. There is a local government plan to establish Karo as a smart city 4. The existence of volcanic materials can be used as raw materials for other industries (construction industry, agricultural fertilizers, souvenirs, etc.) 5. Increased awareness to collaborate and hexahelix synergy in tourism development (government, community, industry/business, media, academics, and tourist market) 6. Images of several locations related to disaster tourism are being discussed by millennial tourists, for example: Lau Kawar Lake, Kacinambun Highland, and the Siosar Area in general. 7. Virtual tours for locations that are difficult to visit are increasingly in demand 8. There is a trend of traveling, especially those that are oriented towards nature and interaction with humans (where these two components are part of disaster tourism) after the implementation of PPKM and after the Covid-19 Pandemic 9. Technological developments have made travel easier and have become an opportunity to promote and organize Karo disaster tourism 10. There is a supporting creative industry, for example, the Karo oil industry which can increase the value of disaster tourism in Karo Regency 	<p>O1, O2)</p> <ol style="list-style-type: none"> b. Creating a virtual disaster tourism tour based on local wisdom, especially to explore disaster DTW located in KRB (S1, S2, O3, O4, O5) c. Packing alternative tour packages that are integrated with other DTW in Lake Toba and its surroundings (S1, S5, O1, O2) d. Prepare disaster tourism promotion branding: e.g. VolcaTour (S7, O6) e. Encouraging creative efforts in marketing products made from processed volcanic materials (S1, S2, O6) f. Develop a disaster tourism system based on local wisdom that becomes a model for the development of disaster tourism in other potential places (S7, S8, O1, O5, O8) g. Implement Cooperation with disaster tourism managers in other places to explore the implementation of special thematic tourism for disasters nationally by targeting special target markets (S7, S8, O1) 	<p>certification for disaster DTW and other tourism and creative economy industries in Karo (W2, O1, O6)</p> <ol style="list-style-type: none"> c. Utilizing digital technology in integrated information distribution and marketing for Karo disaster tourism in the process of providing information needed by tourists, promotions and even after-service programs, including efforts to increase traffic through SEO optimization (S1, S2, O5, O9)
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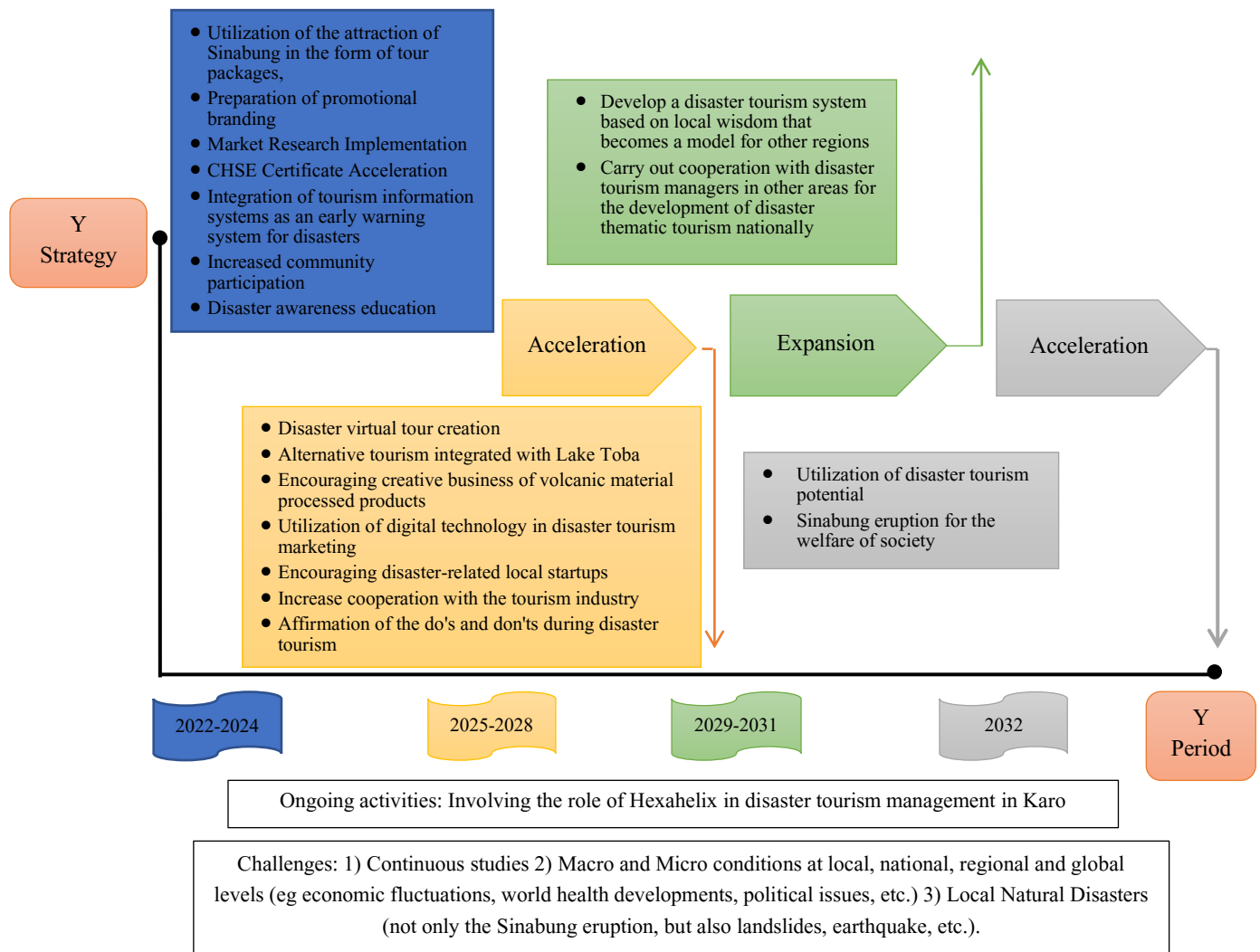


<p>Threat (T)</p> <ol style="list-style-type: none"> 1. There are groups of tourists who are not responsible and sometimes harm the image of disaster tourism in Karo District (too desperate to enter the disaster area, pollute the disaster area) 2. There is still public sentiment (skepticism and disapproval) about the presence of tourists in disaster-affected locations 3. The existence of illegal levies in several tourist attraction locations in Karo Regency can threaten the comfort of traveling 4. Development of tsunami tourism in Banda Aceh and Merapi which has already started 5. The threat of a Sinabung eruption that can occur at any time 	<p>Strategy ST</p> <ol style="list-style-type: none"> a. To integrate tourism information systems so that early warning information on the state of disaster DTW can be known by tourism actors in real-time (S1, S2, T1, T5) b. Encourage the development of local startups related to tourism, such as Goseh and Kadem, and encourage the birth of other tourism-supporting startups (S6, T1, T5) c. Increase community participation in interacting with visiting tourists (S3, S4, T2, T3) 	<p>Strategy WT</p> <ol style="list-style-type: none"> a. Involving the community to maintain the cleanliness of tourist attractions in Karo (W2, W4, T1, T2, T3) b. Involving the hexa-helix role in disaster tourism management (W1, W2, W4, T2, T3) c. Disaster awareness education and improvement of tourism service competence for the community and disaster tourism actors (W2, W3, W4, T1, T2, T5) d. Increasing cooperation with industry (especially BPW/APW) to offer competitive disaster tourism travel packages with the aim of increasing the spatial economic growth of Karo Regency (W1, T4) e. There needs to be an affirmation of rules in organizing disaster tourism: Do's and Don'ts which are understood by tourism actors before carrying out disaster tourism (W6, T1, T5)
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Strategic Architecture

The results of determining alternative strategies from the SWOT table above are then translated into a strategic architecture as follows to produce a mapping of sustainable disaster tourism development strategies in Karo Regency.



From the results of the PEST analysis, it is known that Karo Regency has several selling points in its tourism development, mainly due to the attention of the central government which established this district as part of the super-priority destinations of Lake Toba. However, this program from the central government covers the Brand area which is very close to Lake Toba, so the development of disaster tourism related to the Sinabung eruption itself has not been a concern of the government. The results of the analysis using the Porter's Diamond Model with different dimensions explore further the potential for disaster tourism in Karo Regency related to Sinabung disaster tourism. It

can be seen that physically, Karo Regency, which has cool mountain air, has advantages in attracting tourists. However, the cleanliness factor still needs to be improved. In addition, the existence of illegal levies in several locations, especially the tourist attraction of Lake Lau Kawar which is next to Mount Sinabung, is quite disturbing for tourists who visit. Zoning management and alternative evacuation routes in the event of an emergency are also not well organized. The knowledge of the local community regarding disaster management should also be increased.

From the market point of view, it is known that the supporting data regarding the disaster tourism



market is still very minimal. In terms of industries supporting disaster tourism activities, in Karo Regency, there are several interesting cottage industries, such as the Karo oil industry. From a more macro perspective, there are already several other locations that have already developed disaster tourism.

From the results of the SWOT analysis, it is known that the strategy for developing disaster tourism in Karo Regency can use the 'Grow and Maintain' approach because internally and externally, Karo Regency is considered to have sufficient strength to develop disaster tourism and can deal with bad possibilities in the future. So the strategies that can be developed are market penetration strategies, market development, and product development.

From the results of the analysis using a strategic architecture, it is known that several things need to be prepared before the acceleration and expansion process to achieve the intended target. The target is set as the utilization of the tourism potential of the Sinabung eruption disaster for the welfare of the community in 2032. To achieve this target, preparations are carried out in 2022-2024 in the form of utilizing the Sinabung Attraction in the form of disaster tourism packages; preparing disaster tourism promotion branding, for example, VolcaTour; carrying out market research specifically for disaster tourism; Encouraging the acceleration of CHSE certification for industries related to disaster tourism; integrate technology, especially in relation to the disaster early warning system; increase community participation in disaster tourism management because interaction with the community is one of the main categories of disaster tourism; and carry out disaster awareness education for all disaster tourism actors.

In the next stage, namely acceleration by creating a virtual disaster tourism tour based on local wisdom, especially to explore disaster DTW located in Disaster-Prone Areas; package alternative tour packages that are integrated with other DTW in Lake Toba and its surroundings; encourage creative businesses in marketing products made from processed volcanic materials; utilizing digital technology in the distribution of information and integrated marketing for Karo disaster tourism in the process of providing information needed by tourists, promotions and even after service programs, including efforts to increase traffic through SEO optimization; increase cooperation

with industry (especially BPW/APW) to offer competitive disaster tourism travel packages with the aim of increasing the spatial economic growth of Karo Regency; and there needs to be an affirmation of the rules in the implementation of disaster tourism: Do's and Don'ts which are understood by tourism actors before carrying out disaster tourism.

Meanwhile, in the expansion stage, the development of a disaster tourism system based on local wisdom is carried out which is a model for the development of disaster tourism in other potential places and the implementation of cooperation with disaster tourism managers in other places to explore the implementation of special thematic tourism for disasters nationally by targeting a special target market.

CONCLUSION

The development of disaster tourism is a challenging thing because it has to turn a situation that is considered 'sad' due to a disaster into an attraction that then benefits visitors and the community affected by the disaster. The thing that needs to be watched out for is creating a sense of comfort and security during disaster tourism, therefore a disaster tourism development strategy with a sustainable concept is needed. Another factor that becomes a challenge in developing disaster tourism, especially in Karo Regency, is the lack of market data or tourists who are interested in disaster tourism. Studies related to tourism and disaster tourism are also still minimal to provide policy references in the development of disaster tourism. In addition, community involvement in the development of disaster tourism must also be increased, in line with the integration of local wisdom in the implementation of tourism activities so that disaster tourism can be used as an educational tool for disaster awareness and cultural awareness.

The author admits that this research is still limited to informants who come from the environment around Karo Regency and North Sumatra. Therefore, the results of this study cannot be generalized to other locations. For future research, it is recommended that informants from other regions related to the development of disaster tourism can also be involved in benchmarking and provide a broader picture of disaster tourism management in their area.



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