Approaching SWOT Analysis to Develop Strategies of Marine-Ecotourism in Bedono Village, Sayung, Demak

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Abstract. Climate change and abrasion have had a wide impact in various regions of the world. In the area of Central Java Province, such as the coast of Semarang-Demak, there has been a significant change from being an agrarian society to become a coastal area. This raises the potential for coastal disaster-based ecotourism. However, there are many challenges that need to be assessed first to provide a basis for the development direction. Ecotourism provides direct benefits for nature and community conservation in the context of revitalizing resources to rebuild socio-economic conditions that have not been properly managed. The purpose of this study is to examine the development of Disaster-Marine-Ecotourism using a SWOT analysis. The application of SWOT analysis in maritime tourism planning in Bedono village found some specific and unique points. The biggest challenge are developing the competence of local leaders in the tourism sector and improving tourism support infrastructure. Meanwhile, the biggest threat from outside is environmental conditions which are getting worse every year. So synergy from various parties, especially the government, is needed in providing disaster response programs in the area.

1. Introduction
The impacts of climate change in various parts of the world widely happen. One of the impacts that can occur due to changes in temperature on the earth is the increase of sea level that will impact the coast [1]. Coastal areas can be said to be transitional areas of sea and land. These conditions will cause coastal areas to get pressure from various activities and phenomena that occur on land and at sea one of the phenomena is abrasion [2]. As we know, Indonesia is the largest archipelago in the world, consisting of about 17,508 islands with a coastline of about 95,181 km. With a total area of 9 million
km$^2$ consisting of 2 million km$^2$ of land and 7 million km$^2$ of ocean stretching from west to east along 5,110 km and from north to south as far as 1.888 km [3].

One of the coastal areas in Indonesia is Bedono Village, the village is one of the areas in Sayung Subdistrict, Demak Regency, Central Java whose beaches are affected by severe abrasion [4]. Because Bedono Village has an entrance located around coordinates 110.507 ° BT 6.911 ° LS from the gate of lowland or coastal Java Island, so vulnerable to flooding [5]. As a result of this process, Demak Beach has changed from 17.4 kilometers to 30.4 kilometers. Worse, in addition to changing the map of Demak Regency, 640 hectares of farmland that became life support for residents, lost without a scar [6]. The area of abrasion that has reached 5,500 hectares on the north coast of Central Java is spread in 10 regencies/cities. One of the areas that suffered severe abrasion was the beach in Sayung Subdistrict, Demakdistrict [2].

The abrasion that damaged Bedono Village brought many serious problems, including the loss of housing and jobs that had a direct impact on the decrease in quality of life. Villagers living on the coast, such as fishermen, farmers, and fishing depend on natural resources. Changes in environmental conditions and natural resources shift the lifestyle of village communities from socio-economic and socio-cultural aspects[2].

This condition encourages the government to seek alternatives that can be implemented. One of them is by developing Bedono Village as a marine-based ecotourism village has many business development opportunities, such as blood shell cultivation business, oysters, and mangrove crab fattening. The nature of Bedono Village, which has many mangrove forest areas, can be used as a fattening place for mangrove crabs [4]. However, the potential potential of such a large mangrove conservation area has not been able to be managed to the maximum by the Marine Mangrove Group [7].

SWOT analysis is a strategic planning method used to evaluate strengths, weaknesses, opportunities, and threats. It can be applied by analyzing and sorting out various things that affect its factors. SWOT analysis has been widely used in the field of tourism business development. However, there is still little application in Marine-Ecotourism that accommodates disaster conditions. The aim of this research is to study the development of Disaster- Marine-Ecotourism using SWOT analysis. The results of this study provide insight into the preservation of nature and society in order to revitalize resources to rebuild socio-economic conditions in order to be managed properly.

2. Methodology

This research method uses qualitative-descriptive. Questionnaires have fifty-questions by observations directly to the field are carried out to collect data. The sampling of this research is using semi-purposive sampling, which is ranging from community leaders to village governments. The statistics portal (2014) defines purposive sampling as deliberate sampling, meaning that we determine the sample ourselves because there are certain considerations. In other words, samples are not selected randomly. Observation activities are carried out on the behavior of Bedono villagers and observe the norms and customs that they usually do for the purposes of social approaches to get better research insight [8]. The result can formulate Strengths and Opportunities, but can simultaneously minimize weaknesses and threats. The tool used to compile strategic factors of the company is the SWOT matrix or also called the TOWS matrix. This matrix can clearly describe how external opportunities and threats faced can be adjusted to their strengths and weaknesses.

3. Results and discussion

Bedono village is one of the small village located in the coast of Sayung, Demak. In detail, the administrative district of Sayung consists of 9 villages, one of which is Bedono Village. The area of Bedono Village is 551,673 ha. The boundaries of Bedono Village are north of Java sea; south of Purwosari village and Sidogemah village; east of Timbulsloko village and west of Sriwulan village. This village consists of 7 hamlets, namely: Bedono, Mondoliko, Senik or Rejosari, Pandansari, Tambaksari, Morosari, and Tonosari hamlets. Road access to Bedono Village can be reached by
approximately 5 km from the North Coast of Java (Pantura). The road condition to Bedono Village is good enough that it can be passed by large vehicles such as buses. Area condition consists of residential areas, ponds, and also mangrove-areas [9]. Any changes and threats can have an impact on society. One of them is the problem of daily livelihoods that formerly Bedono villagers worked as farmers and windu-shrimp seekers since the abrasion of the livelihoods of Bedono villagers turned into fishermen, laborers, or factory workers [10]. Based on previous research shows that various factors related to Bedono Village are also the solution to the problem.

Figure 1. Occupation of Bedono Villagers

Based on Figure 1, the main work of Bedono villagers currently are industrial workers, fishermen, laborers, and so on. The economic condition of Bedono village community before 2000 was dominated by agricultural lands, such as rice and corn and another seeding. After that, significant changes occurred that led to the occurrence of catastrophic abrasion, climate change. Abrasion that occurs every year results in damage to the coastal environment, and changes in the economy of the community. Their main work has changed into industrial workers and fishermen from the agricultural sector.

Figure 2. Bedono Villagers’ Income per-month

Based on figure 2, the average income of Bedono villagers is Rp. 2,500,000 where has exceeded the minimum wage of their district. Based on non-formal sector workers, fishermen’s income is still small, but it is sufficient to provide additional basic necessities. Higher education can bring more income for villagers. Based on the potential of ecotourism in Bedono Village, the mangrove ecosystem becomes one of the biggest attractions besides Syeh Mudzakir Cemetery.
Based on figure 3, the community has understood that mangrove is not only an attraction for tourism but also has many benefits for the environment because it can reduce the impact of abrasion. When the mangrove is damaged, rehabilitation must be done so that the damaged mangrove ecosystem can perform its function properly. That rehabilitation can be either restoration or re-creation of habitat. The success of rehabilitation is inseparable from the role of all parties, both government and non-government and the community [11].

The tourist area in Bedono Village can be used as a means for visitors to relax enjoying the beautiful scenery. Because there are mangrove forests, there must be animal associations that live in mangrove ecosystems. Animals that can be found in Bedono mangrove ecosystem include Haliastur Indus, Egretta alba, Varanus Salvato, Limulidae tribe, Periophthalmus sp, and Scylla Serrata. And there are still many fish families in the water around Bodono namely Ambassidae, Ariidae, Mugilidae, Tetraodontidae, Phallosteidae, Drepanidae, Gobiidae, Aplocheilidae, and Syngnathidae which can be a tourist attraction of Bedono village when managed properly [12].

Based on local infrastructure, ecotourism in Bedono Village is far from feasible. Community-based eco-tourism program in locations and tourist attractions not only involves managing resources and empower the community, but also prioritize environmental sustainability (tourism without damaging nature)[13]. The role of the government is urgently needed to build infrastructure. Access to Bedono Village cannot be said to be feasible, thus hindering access to reach the village. The damage to access roads is due to frequent flooding rob due to rising sea level [14]. In addition to road access, other access such as an internet network is also limited. In addition to the role of the government, another aspect that needs to be considered is the participation of the community or residents of Bedono to support any activities or programs that will be carried out in Bedono Village is very important for the process of its running [10].

Based on figure 4, when Bedone Village becomes a Tourism Village it will increase the income of local residents because there will be many job openings. Environmental conditions will be maintained and conservation maintained. In an effort to develop Bedono Village, SWOT analysis is required. Before analyzing with SWOT, development strategy analysis must first be known by

**Figure 3. Benefits of Mangrove Conservation**

- 65% beneficial to the environment because it can reduce the impact of abrasion
- 20% useful because processed mangrove products can improve the economy
- 11% conservation is needed to block the waves of sea water
- 4% mangrove conservation is not very important

**Figure 4. Hope to become a Tourism Village**

- 51% opening up new job opportunities
- 33% increasing local economy
- 11% development of a better infrastructure
- 5% improved environmental conditions
analyzing internal and external factors from the ecotourism development area of Bedono Village. Both factors are obtained from the results of the questionnaire from the community and also the manager [15]. The results of the analysis showed that it is necessary to develop the competence of local leaders in the field of tourism as well as the improvement of tourism supporting infrastructure. The biggest threat from the outside is the environmental conditions that get worse every year. Therefore, synergy is needed from various parties, especially the government in providing disaster response programs in the area. This tourism development is one of the alternatives in strengthening the existence of the community in the conservation of the region. Public awareness has grown to live to adapt to the nature that is formed, but strong institutional in the field of tourism is still very weak.

Table 1. SWOT Analysis of Bedono Village

| Internal | STRENGTH | WEAKNESS |
|----------|----------|----------|
|          | S-O      | W-O      |
|          | - The courage of the youngsters to develop the village that is open for innovation | - The size of the boat that is used is too small and slow, and there is no life jacket provided |
|          | - There is mangrove tracking located in Bedono | - Unattractive mangrove tracking |
|          | - The head of village resides in Bedono, thus understand Bedono’s condition in real | - Tourism potentials have yet to be explored |
|          | - Availability of sea transportation | - The expensive price of tourism when all trips are combined |
|          | - There are three mangrove species that can be processed into delicious food. | - Bad access to Bedono Village |
|          | - The abundance of sea products from Bedono Village | - Limited access to the internet connection |
|          |          | - Lack of signboards to indicate that Bedono is a tourism village |
|          |          | - Low quality of villagers’ economy condition |
|          |          | - Lack of skill to develop the village |
|          | S-T      | W-T      |
|          | - Tourism potentials can be developed. | - Sea Wave level increase every year |
|          | - Availability of stakeholder to help the financial aspects | - There is a project that affect the change of Bedono Village shoreline. |
|          | - The tourism object is quite famous | - BUMDES is yet to be supported to develop Bedono Village |
|          | - Technology development helps to ease the problem solving in Bedono Village | |

4. Conclusions
Changes in environmental quality that were originally agrarian to maritime on the coast of Demak Regency raise opportunities in the potential of marine tourism disasters. The application of SWOT analysis in maritime tourism planning in Bedono village found some specific and unique points. The community has realized that adaptation to environmental changes. However, this awareness is still not followed by competence and capable facilities. The biggest challenge is the development of competencies of local leaders in the field of tourism as well as the improvement of tourism supporting infrastructure. While the biggest threat from outside is environmental conditions that get worse every year. Therefore, synergy is needed from various parties, especially the government in providing disaster response programs in the area.
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References
[1] E. Maulana, T. R. Wulan, D. S. Wahyuningsih, W. W. Y. Mahendra, and E. Siswanti, “Strategi Pengurangan Risiko Abrasi Di Pesisir Kabupaten Rembang, Jawa Tengah,” Pros. Semin. Nas. Geogr. UMS, no. 2007, pp. 389–398, 2016.
[2] K. Damaywanti, “Dampak Abrasi Pantai terhadap Lingkungan Sosial (Studi Kasus di Desa Bedono, Sayung Demak),” Pros. Semin. Nas. Pengelolaan Sumberd. Alam dan Lingkung., pp. 363–367, 2013.
[3] D. S. Muhammad Syafi’i, “Perencanaan Desa Wisata Dengan Pendekatan Konsep Community Based Tourism (CBT) Di Desa Bedono, Kecamatan Sayung, Kabupaten Demak,” Ruang, vol. 1, no. 2, pp. 51–60, 2015.
[4] T. H. Wilis Ari Setyati1, Arya Rezagama, Sunaryo, Tri Winarni Agustini4, Arum Dian Safitri5 and Ardianto, “Penerapan Metode Penggeman Kejitan Bakau (Scylla sp.) pada Wilayah Dampak,” pp. 452–457, 2019.
[5] N. P. W. Wilis Ari Setyati, Arya Rezagama, Tri Winarni Agustini, Yusup Hidayat, Narendra Prasidya WisnuWilis Ari Setyati, Arya Rezagama, Tri Winarni Agustini, Yusup Hidayat and D. A. Wulandary, “SEMINAR NASIONAL KOLABORASI KECAMATAN SAYUNG DEMAK AKIBAT EFEK ABRASI Pendahuluan,” vol. 1, pp. 198–200, 2018.
[6] S. P. Tjaturahono Budi Sanjoto1, Sunarko2, “Jurnal Geografi,” vol. 13, no. 1, pp. 90–100, 2016.
[7] R. Abiyoga, S. Suryanti, and M. R. Muskananfola, “Strategi Pengembangan Kegiatan Konservasi Mangrove Di Desa Bedono Kabupaten Demak,” Manag. Aquat. Resour. J., vol. 6, no. 3, pp. 293–301, 2018.
[8] A. D. S. Wilis Ari Setyati, Arya Rezagama, Sunaryo, Tri Winarni Agustini, Taufiq Hidayat and R. Amelia, “Budidaya Kerang Darah (Anadara granosa) sebagai Bentuk Usaha Pemanfaatan,” pp. 458–461, 2019.
[9] C. A. Yuni Harvesty Sihombing, Max Rudolf Muskananfola*, “PENGARUH KERAPATAN MANGROVE TERHADAP LAJU SEDIMENTASI DI DESA BEDONO DEMAK,” vol. 6, 2017.
[10] I. Erawati and Mussadun, “Partisipasi masyarakat dalam pengelolaan sumber daya lingkungan mangrove di desa Bedono, kecamatan Sayung,” Ruang, vol. 1, no. 1, pp. 31–40, 2013.
[11] M. Fikriyani and Mussadun, “EVALUASI PROGRAM REHABILITASI MANGROVE DI PESISIR DESA BEDONO KECAMATAN SAYUNG PENDAHULUAN Salah satu sumberdaya yang ada di wilayah pesisir yaitu ekosistem hutan mangrove yang sangat potensial bagi kesejahteraan masyarakat baik dari segi ekonomi, sosial,” vol. 2, no. 1, 2014.
[12] S. Rejeki, Irwani, and F. M. Hisyam, “Struktur Komunitas Ikan pada Ekosistem Mangrove,” Bul. Oceanografi Mar., vol. 2, no. 4, pp. 78–86, 2013.
[13] D. Aswita, S. Samuda, and N. Andalia, “Strategi Pemanfaatan Komunitas Lokal Dalam Pantai Teupin Layeu Iboih,” J. Ilmu Sos. dan Hum., vol. 6, no. 2, pp. 159–167, 2017.
[14] A. K. Widodo, Wilis Ari Setyati, Sunaryo, Arya Rezagama and M. F. A. Yulianto, “PENERAPAN REGRESI LOGISTIK DALAM PENENTUAN FAKTOR YANG MEMPENGARUHI JUMLAH WISATAWAN ECOTOURISM DESA BEDONO,” vol. 5, no. 1, pp. 11–22, 2020.
[15] M. T. Abidin et al., “ANALISA PENGEMBANGAN EKOWISATA WILAYAH KONSERVASI MANGROVE, DESA BEDONO, KECAMATAN SAYUNG, KABUPATEN DEMAK,” vol. 4, pp. 80–89, 2015.