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Research Article

SWOT Analysis for the Development Strategy of Mangrove Ecotourism in Wonorejo, Indonesia

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Abstract

Wonorejo mangrove area is one of the mangrove ecosystems in Surabaya initiated by public awareness which then developed into an area of conservation, education, rehabilitation, and ecotourism. Terbatasnya ekowisata menjadikan kawasan mangrove Wonorejo semakin ramai dikunjungi sehingga perlu strategi pengembangan yang tepat. Limited ecotourism in Surabaya makes this area to be increasingly crowded so that a proper development strategy is needed.Tujuan penelitian ini adalah untuk mengetahui: 1) potensi ekowisata mangrove Wonorejo, 2) strategi pengembangan ekowisata mangrove Wonorejo. The purpose of this research is to know: 1) The potential of Wonorejo mangrove ecotourism, and 2) The development strategy of Wonorejo mangrove ecotourism. Pendekatan dan jenis penelitian bersifat deskriptif dengan menggunakan metode survey.In this research, the approach and type are descriptive with survey method.Sumber data potensi diperoleh dari interview dengan wisatawan dan beberapa pihak yang memahami ekowisata mangrove Wonorejo. The potential data sources were obtained from visitors' interviews and other parties who acknowledge the ecotourism of Wonorejo mangrove.Indikator yang digunakan untuk mengukur potensi adalah kondisi biofisik, aksesibilitas, sarana prasarana dan aspek penunjang lain. Moreover, the indicators used to measure the potential are biophysical conditions, accessibility, infrastructure, and other supporting aspects. Strategi untuk mengembangkan mangrove Wonorejo menggunakan analisis SWOT.The strategy that is used to develop Wonorejo mangrove is the SWOT analysis.Hasil penelitian menunjukkan bahwa kawasan mangrove Wonorejo mempunyai potensi tinggi dengan total nilai 30. Analisis SWOT berada pada posisi kuadran I, artinya untuk pengembangan kawasan ekowisata mangrove Wonorejo adalah strategi agresif/pertumbuhan. The results showed that Wonorejo mangrove area has a high level of potential with a total value of 30. The SWOT analysis is in quadrant I meaning that for the development of ecotourism area, Wonorejo mangrove has an aggressive/growth strategy. Prioritas strategi dengan menggunakan analisis SWOT adalah peningkatan peran pemerintah terkait daya tarik, pengembangan paket wisata mangrove-non mangrove, peningkatan terkait identitas mangrove, penataan lokasi, peningkatan sumberdaya manusia, dan pengembangan promosi.By using SWOT analysis, the priority of this strategy is to increase the role of government related to tourism attraction, development of mangrove-non-mangrove tourism package, improvement related to mangrove identity, location arrangement, human resource improvement, and promotion development. Pemerintah diharapkan lebih bertanggung jawab dalam mengembangkan ekowisata mangrove Wonorejo dalam segala aspek sehingga dapat meminimalkan permasalahan .The government should be responsible for developing this Wonorejo mangrove ecotourism in all aspects so as to minimize the problem.

Keywords: *SWOT analysis, mangrove area, ecotourism*

1. Introduction

Ecotourism is an activity that utilizes natural resources in the form of tourism aiming for education, research, conservation, and society economic improvement. Mangrove ecosystem can be said to have an important role in terms of ecological and socioeconomic aspects. As Barkauskiene and Vytautas (2013) explained, ecotourism is a sustainable development tool that provides long term benefits in social, environmental, and economic aspects and is a priority in development.

In addition, ecotourism is an effort to promote responsible tourism objects, it contributes positively to the environment and improves the welfare of local communities (Almeyda, Broadbent, & Durham, 2010). Research showed that the existence of mangrove area provides benefits to the surrounding community such as goods obtained through the increased acquisition of mangrove woods with higher economic value. In addition, mangrove area will provide great environmental services in the form of coastal protection from storms and erosion as well as additional income to the community (Krauss et al, 2008, Martinuzzi et al, 2009)

The city of Surabaya, located on the east coast of Java Island, has several mangrove areas scattered in north and east. Wonorejo, Rungkut subdistrict is one of the most developed mangrove ecosystems in Surabaya. Wonorejo mangrove area is initially cultivated by the local community and is widespread increasingly today with an area of 64,83 hectares of the total Surabaya of 133,98 hectares (Department of Agriculture of Surabaya, 2016).

However, the condition of Wonorejo mangrove ecotourism as a conservation area in Rungkut sub-district is damaged. The condition of this Surabaya east coast mangrove area in 2015 indicated that 21,93 hectares or 30% of the area in Rungkut sub-district are damaged (Department of Agriculture of Surabaya, 2016). The damage in Rungkut sub-district is considered as the worst damage in the mangrove area because of the other three districts, located in East Coast of Surabaya, only experienced a damage ranging from 10% to 20% of the total area.

The cause of this damage is a waste that comes from various cities near to Surabaya. When the tide is coming, all the waste converges into the mangrove tree until it finally wrapped in the trunks. In addition, the damage of this area is also caused by the lack of environmental awareness of visitors, local communities, and the government. (Department of Agriculture of Surabaya, 2016).

Despite the damage, Wonorejo mangrove ecotourism also experiencing a development. The development of this mangrove ecotourism can be seen from the mangrove area, completeness of infrastructure, convenient access, and increasing number of visitors. The data on the number of visits shows that, in 2015, the mangrove ecotourism has 29,294 visitors while in 2016 there were 50,137 visitors (Department of Tourism of Surabaya, 2017). There was a tendency of increase in the number of visitors caused by the limited ecotourism and boredom of artificial tourism in Surabaya.

It seems that the increasing number of visitors in Wonorejo mangrove ecotourism is not anticipated by the government. This can be seen from the unready preparation of the government to provide another place to enjoy the scenery beside the jogging track. Some places have the potential to be developed with a jogging track to the gazebo made of bamboo whose condition is worsened and fragile. The gazebo has not functioned well because of the inadequate facilities, low human resources, excessive garbage at the site, less appropriate stalls arrangement and merchandises, and others.

Some of the mangrove ecotourism problems receive low attention from the government. The development of this area requires a proper strategy analysis so that the purpose of the development can be succeeded. The research of (Umam & Winarno, 2011) on the development strategy of Wonorejo mangrove ecotourism did not measure the potential of the area, whereas, in this study, the potential becomes part of the research objectives. On the other hand, the research conducted by (Idajati, Pamungkas, & Vely Kukinul, 2016), only identifies the level of community participation in the effort of ecotourism area development.

Another research related to mangrove ecotourism conducted in Kuala Selangor by (Adibah, Rahman, & Asmawi, 2016) is aimed to determine public attitudes and participations as a result of the declining mangrove ecosystem. Simanjuntak (2015) in his research, concerning the ecotourism development strategy in Kemujan, used the SWOT analysis with the Level of Benefits and Current

Conditions. Based on the ecotourism problems as stated above, it is necessary to do a research on the development strategy of Wonorejo mangrove ecotourism by using the SWOT analysis.

2. Research Methods

The approach used in this research was descriptive and survey as the type of research. The type of data came from primary data through the assessment of Wonorejo mangrove ecotourism potentials such as biophysical condition, infrastructure, accessibility, and other supporting aspects. After data collection, the next step was to weight the hierarchy in question. The diverse value of the interviews was then processed with Saaty (1993) geometric average in this following formula:

$$\sqrt[n]{a_1 \, x \, a_2 \, x \, a_3 \, x \, \ldots x \, a_n} = w$$

The average geometry value includes all levels in the hierarchy. As for the analysis of priority, the expert choice professional was used for the efforts of Wonorejo mangrove tourism development.

The strategy of mangrove ecotourism development was done by using SWOT analysis. SWOT analysis is an identification of several factors that can be used systematically to formulate an organization's strategy (Rangkuti, 2006). This analysis is based on our logical thinking that can optimize the strengths and opportunities while, at the same time, can also minimize the weaknesses and threats. In general, SWOT analysis is used to compare the external factors and internal factors; External factors consist of opportunities and threats while internal factors consist of strengths and weaknesses. SWOT analysis can also be used to determine the priority of a tourism development strategy.

3. Results and Discussion

Wonorejo mangrove ecotourism has been developed since 2010. This area is a kind of nature tourism that is popular among visitors because they are getting bored with the form of mass tourism that tends to damage. Lately, ecotourism is a type of tourism that attracts high interest, especially Surabaya which has a large population and limited nature tourism. By that, this allows Wonorejo mangrove ecotourism to be an alternative for visitors.

This mangrove area is located in Wonorejo village, Rungkut subdistrict, precisely located at Jalan Wonorejo Timur Number 1, Wonorejo, Rungkut, Surabaya. This ecotourism is one of the several types of nature tourism owned by the city of Surabaya. By the government, Wonorejo mangrove ecosystem will be developed continuously to meet the needs of green open space (*Ruang Terbuka Hijau* or RTH) by 35%. (Bappeko Surabaya, 2016).

Table 1. The Potential of Wonorejo Mangrove Ecotourism Based on Interviews

Results of Potential Assessment of Wonorejo Mangrove Ecotourism

No.	Indicators	Value
1.	The thickness of mangroves	2
2.	Time of tidal	2
3.	Biota objects	2
4.	Diversity of mangrove species	2
5.	Mangrove density	2
6.	Accessibility	2
7.	Infrastructure	2
8.	Jogging track	2
9.	Boat	2
10.	Hygiene	1
11.	Typical souvenirs	1
12.	Processed foods of mangroves	1
13.	Health facility	1
14.	Cafeteria in the gazebo	1

15.	Guide	1
16.	Promotion	1
17.	Security	1
18.	Quality of human resources	1
19.	Quantity of human resources	1
20.	Library	2
	Total value	30

Note:
High potential: if the total value ranges from 28 - 40
Medium potential: if the total value ranges from 14 - 27
Low potential: if the total value ranges from 0 - 13

Source: primary data, 2017

The results showed that Wonorejo mangrove ecotourism potential obtained a total value of 30 in the high category, meaning that Wonorejo mangrove ecotourism is eligible to serve as an ecotourism development area. The development of ecotourism will be easier with the existence of high potential capital. High potential is obtained from biophysical aspects, infrastructure, and accessibility.

Biophysical aspects, in this context, include mangrove thickness, mangrove density, mangrove species diversity, biota objects, and time of tidal. All aspects of biophysics are a good value. The diversity of mangrove species include *Aegiceros Corniculatum (L) Bianca, Avicennia Lanata Ridley, Avicennia Alba Blum, Acanthus ilicifolius L, Avicennia Marina (forsal) Vierh, Rhizophora Mucronata Lam, Cylindrica Blume, Ceriops Tagal CB Rob, Brugulera Gymnorrhiza (L) Lam, Nypa Fruticans Wurmb, Rhizophora Apiculata Blume, Sonneratia Caseolaris (L) Erg. Derris Trifoliate Lour, Rhizophora Stylisa Gryff, Cylocarpus Mollucencis (Lam) M Roem.*

Wonorejo mangrove area is also equipped with nurseries in which it is aimed to increase the extent of mangrove either in Wonorejo or elsewhere in Surabaya. In addition, there are biota objects of more than 120 species either permanent or living only as a place of transit. Walters *et al.,* (2008) stated that, in general, mangrove forests along the coast and rivers provide habitat for various types of fish.

Many visitors expressed interest in the Wonorejo mangrove area because of its wide range of beautiful natural scenery, unspoiled atmosphere, fresh air, and an opportunity to have a better understanding of the natural environment. Besides that, having a trip to mangrove area does not cost much money unlike if we visit the artificial entertainment park.

The accessibility to Wonorejo mangrove ecotourism is good. This means that the accessibility to this area is relatively easy with various modes of personal and public transportation such as motorcycles, cars, or buses. The distance also relatively close from downtown, it takes approximately 10 km with a travel time of 30 minutes in convenient traffic conditions. The condition of the road is paved and wide enough to allow two vehicles pass at the same time. However, the trip is quite disturbed when we come to pass the village or settlement area because the road is narrowed; nevertheless, it only lasts for a few meters.

The facilities or infrastructure are in a good category consisting of the presence of Mangrove Information Center (MIC), a pendopo, reading space, monitor posts, pier, gazebo, cafeteria, street vendors center, parking lots, restrooms, mosque, photo studio, and a playground. In addition, there are clean water, lighting/power generator, and garbage can. Those also increase the completeness of infrastructure in the mangrove ecotourism. Adyatma (2013) pointed out that the tourism infrastructure should be available before promoting the tourism destination. Infrastructure means all facilities that allow the economy to run smoothly so it can facilitate the people to meet their needs.

The biophysical aspects, infrastructure, and accessibility are the main attraction for Wonorejo mangrove ecotourism. Attraction is one of the important factors that support the existence of ecotourism because an attraction gives characteristic of other attractions. Spillane (2002) explained that attraction is the things owned by tourist destinations that attract visitors.

Other supporting aspects such as promotion, guide, security, human resources, health center, souvenir, mangrove products, canteen in the gazebo, and reading space need to be concerned by

the government. The attention is certainly as needed such as guide procurement, canteen in the gazebo, health center, and typical souvenirs like batik. The area also needs an increase in the promotion, security, quality and quantity of human resources, availability of more varied mangrove products such as jenang, dodol, candy, syrup, and others. Human resources are needed to manage the ecotourism area in various activities such as a field coordinator to help address problems at the site by adding mangrove expansion, weeding, removing and replanting mangrove, cleaning waste from plastics (food or beverage packaging), and much more.

Although many indicators are used to measure the potential of mangrove ecotourism, an attention to some aspects that have low value also needed such as cleanliness, the cafeteria in the gazebo, guide, promotion, health facilities, security, quality of human resources, a reading room, and a variety of mangrove food products. The role of government is needed in the effort to improve the deficiency for the successful development of Wonorejo mangrove ecotourism. This ecotourism development can succeed if the stakeholders realized their roles in ecotourism management and conservation of mangrove forests (Satyanarayana *et al*., 2012).

4. SWOT Analysis

Table 1. SWOT Matrix of Wonorejo Mangrove Ecotourism Development Strategy

Internal / External	**Strengths** Mangrove area (S1) The thickness of mangroves (S2) Diversification of mangrove (S3) Various biota (S4) Infrastructure (S5) High accessibility (S6) Jogging track (S7) Community support (S8) Government support (S9)	**Weaknesses** Low quality of human resources (W1) Unstable number of visitors (W2) Lots of garbage (W3) Less mangrove preparation (W4) Less coordinator (W5) Less promotion (W6) Some unavailable or poor infrastructure (W7)
Opportunities (O) Increasing interest in ecotourism (O1) Government policy related to ecotourism development (O2) Increased community knowledge (O3) Increased employment opportunities (O4) Increased community income (O5) The type of ecotourism in the city center is limited (O6) Large population (O7) The existence of other near attractions (O8) Availability of airport (O9)	**SO Strategy:** 1. Development of mangrove and non-mangrove tour packages 2. Development of tourism promotion 3. Development of typical souvenirs 4. Development of local culinary	**WO Strategy:** 1. Improve the quality of human resources to assist ecotourism development 2. Add human resources to keep up with the number of visitors 3. Increase budget to improve service
Threats (T) **S**pace conflict with some parties (T1) Environmental damage (T2) The emergence of ecotourism (T3) Weak inter-sector coordination (T4) Visitor behavior (T5)	**ST Strategy:** 1. Improve regional security stability 2. The role of government in increasing the attractiveness 3. The role of government in tackling and anticipating negative impacts	**WT Strategy:** 1. Increasing cooperation with related sectors to face competition 2. Infrastructure improvement

Source: Primary data, processed, 2017

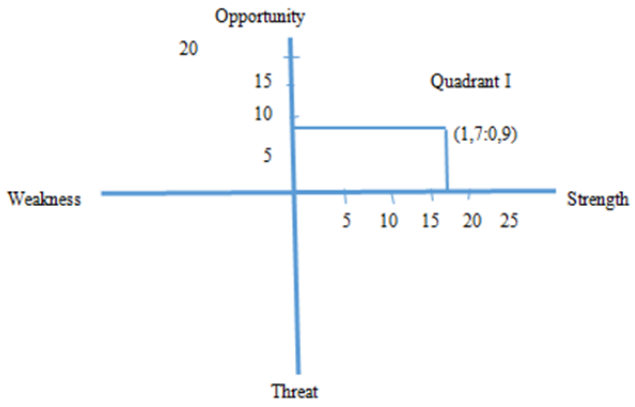

Figure 1. SWOT Quadrant of Wonorejo Mangrove Ecosystem

Based on the calculation of I-EFAS value, the location of P (1,72:0,91) is in quadrant I. The position of quadrant I shows that the development of Wonorejo mangrove ecotourism is in growth or strong where the right strategy for the development is an aggressive strategy. An aggressive strategy is a position where strengths can be used to take advantage of opportunities. The realization of aggressive (growth) strategy can be pursued by implementing several alternatives.

Some alternatives that can be done are combining mangrove and non-mangrove tours which could attract more visitors. Wisata mangrove dapat dilakukan di areal tracking mangrove, sedangkan wisata non-mangrove bisa berupa berperahu, hiking, outbond , fotografi, menanam dan menyemai mangrove, dan melihat pengolahan bijih mangrove.Mangrove tours can be conducted in the tracking area while the non-mangrove tour can be realized through boating, hiking, outbound, photography, mangrove planting and sowing, and see the mangrove seeds processing. Pengembangan suatu kawasan wisata tidak bisa dilepaskan dari keberadaan para pemandu wisata dan agen perjalanan.The development of a tourism area can not be separated from the existence of tour guides and travel agencies.Pemandu wisata dan agen perjalanan bisa dikontrol dengan konsep ecotourism untuk tawaran paket wisata tanpa menggangu upaya konservasi alam (Satria, 2009) Tour guides and travel agencies can be controlled with the concept of ecotourism to offer travel packages without disturbing the efforts of nature conservation (Satria, 2009)

Managers have a big responsibility to develop as well as to keep the environment sustainability.Dua hal yang bertentangan namun harus dilaksanakan dalam upaya mewujudkan visi dan misi pengelolaan ekowisata mangrove Wonorejo. Those two things are contradictory but it must be implemented together in an effort to realize the vision and mission of Wonorejo mangrove ecotourism management. Promosi dilakukan seperti mengajak masyarakat ikut peduli menanam mangrove, menambah tempat pembibitan (*green house*), dan mengajak wisatawan memanfaatkan obyek biota dengan sebaik-baiknya.Promotion can be carried out by inviting the community to take care mangroves, add nurseries (green house), and invite visitors to take advantage of biota objects sufficiently.

The promotion can be iPeningkatan promosi dapat dilakukan melalui media cetak seperti brosur, pamflet, spanduk maupun media elektronik seperti internet berupa *website* , televisi, dan radio untuk mendapatkan dukungan dan partisipasi masyarakat.ncreased through printed media such as brochures, pamphlets, banners, and electronic media such as internet websites, television, and radio to get the support and participation of the community.Promosi merupakan sarana yang paling efektif untuk mengajak atau memperkenalkan program kegiatan atau produk meskipun biaya yang harus dikeluarkan cukup besar. Promotion is the most effective means to invite and to introduce the program or product even though the incurred cost is quite large aSeperti penelitian berikut “promosi situs ekowisata di China dapat dilakukan lewat media sosial” (Cheng, Wong, Wearing, & McDonald, 2017)s stated in the research of “*promosi situs ekowisata di China dapat*

dilakukan lewat media sosial" or, in English, "the promotion of ecotourism sites in China can be done through social media" (Cheng, Wong, Wearing, & McDonald, 2017)

A coordination with the landowners should be done well so as not to cause conflicts that disturb the development of the area. Di ekowisata mangrove Wonorejo terdapat beberapa pemilik lahan yang termasuk dalam kawasan pengembangan.In Wonorejo mangrove ecotourism, there are several landowners who are included in the development.Nampak beberapa pemodal mendirikan perumahan baru yang dekat dengan kawasan pengembangan ekowisata. It appears that some of the financiers have set new housing close to the ecotourism development area. Hal ini tentu mengganggu pemerintah dalam upaya memperluas kawasan ekowisata.This certainly disrupts the government in an effort to expand the ecotourism area.

A research from (Carlos, Leon, & Minsun, 2017) on ecotourism in Metro, Manila found that an integrated management for the protected area with land-use planning through law at certain times and clear procedures is needed to help resolve the conflicts of land use for urban protected areas.Perubahan dari hutan mangrove primer dan sekunder menjadi areal non hutan mangrove diakibatkan oleh konversi, terutama pembukaan areal untuk pertambakan dan pertanian (Onrizal, 2010). The changes from primary and secondary mangrove forests into non-mangrove forest areas are caused by a conversion that particularly from the opening of farm and aquaculture areas (Onrizal, 2010).

The addition of budget is also needed to improve the quality of infrastructure in order to increase its appeal.Saat ini ekowisata mangrove Wonorejo hanya mengandalkan area *jogging track* sehingga pada saat *peak season* wisatawan sudah melebihi ambang batas daya dukung. Currently, Wonorejo mangrove ecotourism relies solely on the jogging track area. Thus, during the peak season of tourism, the jogging track will exceed the carrying capacity threshold.Oleh karena itu perlu tambahan area baru untuk mengantisipasi lonjakan kunjungan, seperti perbaikan *trecking* arah gazebo dan kelengkapan gazebo dengan kuliner lokal. Therefore, it is essential to add new areas to anticipate the visit such as the improvement of tracking area that leads to a gazebo and complete the gazebo with some local culinary. Those two alternatives are considered toDua alternatif tersebut yang memungkinkan dapat dilakukan untuk mengurangi ambang batas daya dukung. reduce the threshold of carrying capacity.Daya dukung ekowisata mangrove di Blanakan sebesar 425 pengunjung/hari (Muhammad, Basuni, Munandar, Landskap, & Kehutanan, 2012) Perlunya perhatian untuk mengembangkan sumberdaya manusia pada semua aktivitas di kawasan mangrove Wonorejo. The carrying capacity of mangrove ecotourism in Blanakan is 425 visitors/day (Muhammad, Basuni, Munandar, Landskap, & Kehutanan, 2012) This also needs to pay more attention to the development of human resources in all activities. Penambahan tenaga koordinator lapangan untuk mangrove tersebut sangat penting, seperti menanam mangrove, mengatur kerapatan mangrove, membersihkan gulma hingga membersihkan sampah yang semakin banyak.The addition of field coordinator is very important to do the planting, mangrove density management, and weeds cleaning to clean the garbage. Di samping itu peningkatan sumberdaya manusia diperlukan untuk membina masyarakat yang mengolah bijih mangrove untuk menghasilkan variasi produk yang berkualitas sehingga dapat dijadikan souvenir bagi wisatawan.In addition, the increase of human resources is needed to nurture the community in processing the mangrove seeds to produce a variety of qualified products that can be used as souvenirs for tourists or visitors.

Typical souvenirs should be provided by the manager in the form of foods derived from various products of mangrove seeds such as *jenang, dodol*, candy, syrup, and in the form of clothing such as batik.Apabila pemerintah lebih peduli untuk memberdayakan masyarakat lokal maka peluang ini dapat membuka kesempatan kerja sekaligus meningkatkan ekonomi masyarakat. If the government have more concerned about empowering local people, this opportunity can open such employment while it also improves the welfare of the community. (Subadra, 2008) in his research argued that ecotourism activities can also increase income for nature conservation and generate economic benefits for the lives of surrounding communities.

The government may support this program by establishing small-scale fishing industry and oyster and fish processing to free the community from poverty and sustain the mangrove conservation (Cavalcanti, Santos, Gasalla, Dahdouh-guebas, & Dantas, 2017). Ecotourism is a

tourism activity that pays great attention to the sustainability of tourism resources. Masyarakat ekowisata internasional mengartikannya sebagai perjalanan wisata alam yang bertanggung jawab dengan cara mengkonservasi lingkungan dan meningkatkan kesejahteraan masyarakat lokal (Garrod dan Wilson, 2003).The international ecotourism community defines it as a responsible natural tourism trip by conserving the environment and improving the welfare of local communities (Garrod dan Wilson, 2003).

On the other hand, the activities of Wonorejo mangrove ecotourism also cause negative impacts such as the increased amount of garbage coming from food packaging (plastics) brought by visitors. Sampah ini akan mengganggu kenyamanan wisatawan selama di ekowisata.This garbage will disturb the convenience of the visitors during the ecotourism.Penelitian dari Onrizal & Kusmana (2009) memperlihatkan kegiatan ekowisata kemungkinan akan membawa dampak menurunnya kualitas dan kuantitas hutan mangrove seperti abrasi yang meningkat, penurunan tangkapan perikanan pantai, intrusi air laut yang semakin jauh ke arah darat, malaria dan lainnya. A research from Onrizal & Kusmana (2009) showed that ecotourism activities will likely impact the declining quality and quantity of mangrove forests as abrasion increases, declining catches for coastal fisheries, sea water intrusion, malaria, and others.

Putra, C. *et al.,* (2015) suggested to develop ecotourism mangroves in Pramuka Island (Pulau Pramuka) in the priority of coordination between the public and stakeholders, spatial planning for ecotourism activities, a provision of knowledge to public in regard to ecotourism management and effective management training, infrastructure improvement, performing environmental impact, and exploring the potential of its maritime and nature with a guidance to the community.

Patang (2014) explained that the strategies used in the mangrove forest management in Kabupaten Sinjai are done by planting activities based on the existing potency, forming protected forest area, increasing the community organization role masyarakat dan memberdayakan masyarakat, sosialisasi kepada masyarakat tentang bahaya penebangan mangrove, perlu sentuhan teknologi, serta peningkatan peran pemerintah, penyuluhan tentang lingkungan dan ekosistem mangrove, sosialisasi penerapan peraturan pemerintah tentang lingkungan, pemerintah dan masyarakat bersama-sama mendukung pengelolaan mangrove, peningkatan penanaman mangrove di sekitar pesisir pantai.and empowerment, establishing a socialization to the community about the dangers of mangrove logging and the need for a touch of technology, as well as increasing the role of government, realizing an extension of the environment and mangrove ecosystem, conducting a socialization of government regulations implementation on the environment, and doing an act together with government and community to support mangrove management around the coast.

5. Conclusion

The results show that Wonorejo mangrove area has a high potential to be developed as an ecotourism with a total value of 30. Seen from the quadrant position, the program is located in quadrant I indicating that the development of Wonorejo mangrove ecotourism is in growth or strong position. Therefore, the right strategy for the development of this ecotourism area is an aggressive strategy.

The development strategy of Wonorejo mangrove ecotourism requires an integrated and sustainable management by using a top-down and bottom-up model. Both of the models are done holistically with a cooperation among stakeholders in order to raise an awareness to protect the environment. This effort has an impact on the increase of ecotourism carrying capacity.

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