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# Causality Between Tourism Industry Development and the Ecological Sustainability In Marine Environment: A Convergence and Divergence among Stakeholder With Mactor Analysis

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## ABSTRACT

Tourism is currently one of the mainstay sectors in increasing income in virtually all countries in the world. In the past decade, the tourism sector has contributed significantly to the income of countries in the Southeast Asia region. The growth of the tourism sector reached 8.3%, well above global growth of only 3.6%. Indonesia is one country with vast tourism potential. However, it is feared that the massive growth and potential will have an impact on the degradation of environmental quality, especially marine, which constitutes two-thirds of Indonesia's total area. This study aims to explore the profile of ecology and marine based tourism in Central Java Province, to analyze the supporting factors priority in the development of natural and marine tourism based on community empowerment, and to analyze stakeholders' participation in tourism development. The research used sequential mix method with Geographic Information System, ATLAS.ti, and stakeholder analysis with MACTOR as analysis tools. This study found that environmental and marine tourism development requires infrastructure and facilities, institutional preparation, and community empowerment. Ecomarine tourism development requires the involvement of various parties including regulators, executors, supporting institutions, targets, and the community as the main actor. The development model of ecomarine tourism is based on the concept of who does what, where the people gains empowerment support through community capacity building, transformation of work from fishermen/farmers to tourism business operators, local assistance, and the opening of tourism networks.

**Keywords:** Ecomarine, Tourism Development, Stakeholder, MACTOR, Convergence

**JEL Classifications:** Q56, Q57

## 1. INTRODUCTION

Tourism is currently one of the mainstay sectors in increasing income in virtually all countries in the world. In the past decade, the tourism sector has contributed significantly to the income of countries in the Southeast Asia region. The growth of the tourism sector reached 8.3%, well above global growth of only 3.6%. Indonesia is one country that relies on tourism as a source of income. The potential of natural tourism in Indonesia which includes the potential of flora and fauna, nature's beauty, customs richness, culture, and language are the main attractions of tourist visits. Artificial tourism currently also continues to be

developed whether based on shopping tourism, culinary tourism, or tourism villages with back-to-nature atmosphere, and these are geographically spread from Sabang to Merauke. The combination of natural and artificial tourism has now become a prime attraction for both domestic and foreign tourists. Indonesia's tourism data shows that the number of foreign tourist visits has continued to increase from 14,039,799 in 2017 to 15,806,191 in 2018, or an increase of 11.17% (Badan Pusat Statistik, 2018). The increasing number of tourist visits is followed by an increase in hotel and accommodation occupancy rates and employment absorption in the tourism sector reaching 10.6 million workers or 8.9% of the total workforce. The contribution of the tourism

sector to exports also increased from 10% to 17% in 2017 (Sasono et al., 2016).

A trending, new phenomenon is the development of sustainable tourism, which does not simply end at research but develops further into strategies and policies involving four fields: (1) Community stakeholders' perspectives, (2) business approaches to the sustainability of the tourism industry, (3) influence on social culture, and (4) methodological responses related to sustainability (Fang and Dakui, 2014). Sustainability is one of the main topics. Environment-oriented development includes the concept of attention to and guaranteeing the sustainability of the welfare and quality of life of the present and future generations. The challenges of sustainable tourism in the future are relatively complex, for example adaptability and acceptance that are beneficial in community transformation, continuous creativity, climate change, and the influence and impact of social media. Sustainable environment concept faces trade-offs with the economic needs of the society, where in communities with lower level of life quality, tourism will cause environmental degradation due to excessive exploration (Budeanu et al., 2016; Tiwari et al., 2013).

Tourism trends that are beginning to develop and are in demand are natural tourism and preserved cultural heritage sites. Research by Pardo-García et al. (2018) in Valencia shows that tourist arrivals have increased by 50% over the past 7 years, driven by tourism policies formulated through public/private foundations namely the Valencia tourism convention and its control of activities carried out by the public through the Chamber of Commerce, company associations and Valencia City Council. Planning is carried out strategically every 5 years and is proven to drive an increase in the number of tourist visits. One of the important efforts made is to revitalize cultural heritage.

Indonesia is an archipelago consisting of 17,504 islands large and small and separated by 12 seas and 47 straits. Approximately two-thirds of Indonesia's territory consists of the ocean, making it a major resource. The coast, beach, and sea of Indonesia is known to be very beautiful, for example Raja Ampat, Wakatobi, and Karimunjawa. Marine tourism is very diverse ranging from diving and scubing, fishing, to seafood. However, utilization of marine resources through fisheries, namely both modern and traditional fishing, diving, and scubing has caused environmental problems especially damage to coral reef, an important part of marine biota. Damage to coral reefs in the long run will cause a decrease in the quantity and quality of marine resources, which have an important role in improving the welfare of the community, especially those who live along the coast. This situation shows the importance of research on the development of ecomarine tourism based on community empowerment in the efforts of sustainable development. A research by Scheyvens (1999) reveals that ecotourism will succeed if it involves the community. Ecotourism that involves culture and the environment can provide benefits to the community if they are designed to be part of the tourism activity. Thus, tourism will directly improve the economy and welfare of the community (Scheyvens, 1999; Moutinho, 2015). This study aims to (1) explore the profile of ecology and marine

based tourism in Central Java Province, (2) analyze the supporting factors priority in the development of natural and marine tourism based on community empowerment, and (3) analyze stakeholders' participation in tourism development.

## 2. LITERATURE REVIEW

Heritage, ecology and marine conservation is an interesting blend because it supports the development of a green economy. Nature tourism conservation, known as ecotourism, will protect the interests of society in a sustainable manner, as indicated by research by Charnley in Tanzania on the nature tourism of the Ngorongoro conservation area, the protected area of Tanzania which is inhabited by Maasai Pastoral. Tourism development is directed at sustainable development which has three basic requirements, namely: (1) Opportunities to capture the economic benefits of tourism must be arranged in a way that is culturally appropriate so that it is accessible to the community, (2) the community benefits from ecotourism with secure land tenure over the area where it occurs, and the ability to make land use decisions for the area, (3) the tourism benefits for the local community must be more than simply economic; it must include the promotion of social and political justice. These three steps ensure that local communities are not excluded by the natural tourism development (Charnley, 2005).

Ecomarine tourism is part of sustainable development based on green economy. The principle of sustainability based on natural conditions managed without local participation will be detrimental to environmental preservation. The United Nations (UN) Environment Program (UNEP), an agency of the UN which plays a role in environmental sustainability, coordinates to help developing countries implement policies regarding nature and promote sustainable development. The concept of a green economy supports the application of economic values to natural resources. This concept is then directed towards the Millennium Development Goals which are now being developed into Sustainable Economic Goals, an important agenda for sustainable development. The UN adopts Ecosystem Protection and Recovery to promote sustainable use of terrestrial ecosystems, forests, desertification, and elimination of biodiversity degradation. Therefore, ecotourism plays an important role as the SDGs driver (Ashok et al., 2017).

Community empowerment is defined as an effort to provide power to the people who have the potential but have not been able to develop it. The government is responsible and tasked with identifying potential and providing direction to the community in an effort to increase empowerment. Empowerment is a long-term process that requires certain steps ranging from socialization, training, to mentoring that requires community involvement (Mafruhah et al., 2019). Ecomarine tourism is a tourism industry that is part of a cultural industry so it needs the involvement of the entire community. Research by Idajati et al. (2016) shows that the social influence of tourism has a broad impact, for example, the occurrence of social inequality. The influence of tourism is part of a change in the social process, in which there is cooperation and competition among tourism actors, and reciprocal relationships among individuals, between individuals and groups, and among

groups, based on their respective potential or dynamic strength. Social processes carried out by stakeholders occur in various forms, namely cooperation, competition, disputes/conflicts, and accommodation (Idajati et al., 2016).

### 3. METHODOLOGY AND DATA

This study used sequential mixed method, a combination of qualitative and quantitative analysis processed sequentially. The analytical tool used was Geographic Information System (GIS) to map the potential of natural tourism in Central Java Province. The second analysis tool was ATLAS.ti which was used to analyze the factors that influenced the development of ecomarine tourism based on community empowerment. This is a quantitative qualitative analysis tool. The third tool was stakeholder analysis which was used to see the actors' influence and dependence and analyze the divergence and convergence among actors in the development of natural and marine-based tourism. The three results of the analysis were processed into a model for developing community-based ecomarine tourism.

This study used primary data obtained from 150 respondents consisting of tourists (75), business actors (50), and the local government (25) represented by those from the Regional Development Planning Agency, Tourism Agency, Community Empowerment Agency, Village Officials, Environmental Agency, and Fisheries and Marine Agency. From these respondents, the key persons were selected and then used to obtain data on the role of stakeholders in tourism development. The key persons consisted of 15 people comprising 6 Government Actors, 4 tourists, and 5 tourism-affected community members. Stakeholder analysis was carried out using Mactor (*Matrix of Alliances and Conflicts: Tactics, Objectives and Recommendations*) (Fontaine et al., 2006) (Widayati et al., 2019) (Dewae et al., 2018).

### 4. RESULTS AND DISCUSSION

Central Java possesses several beautiful and scenic marine tourism areas that are attractive for tourists. In 2012, the number of tourists was 22,231,246 people consisting of 392,895 foreign tourists and 21,838,351 domestic tourists. This number continues to increase, with domestic tourists increasing by 68.6% and foreign tourists by 47.4% from 2011 to 2016. In detail, the increase in the number of tourists is shown in the following Table 1:

Tourist destinations in Central Java include natural, cultural, religious, shopping, and artificial tourism that spread throughout the regencies and cities as shown in the following tourist maps:

**Table 1: Visitors' Growth 2012-2016**

Year	Visitors		
	Foreign (%)	Domestic (%)	Total (%)
2012	-5.20	15.58	15.21
2013	4.21	16.60	16.42
2014	8.10	1.43	1.52
2015	-10.59	5.29	5.07
2016	54.31	17.40	17.83

Source: Central Java Tourism Office, various years processed

These ecological, heritage and marine tourist destinations are interconnected so that they can be formed into attractive tourist packages. Research in Venice found that tourists' motivation is curiosity, nostalgia, and hope in addition to recreation, so that today cultural, natural and religious tourism has become the main choice. The same situation also occurs in Central Java, where natural tourism is currently one of the main choices. Central Java has several highland areas and is flanked by several mountains so that natural tourism is the main interest of visiting tourists by 24%, as shown in the following Figure 1:

Figure 2 shows that tourist interest was natural tourism with 24% followed by 22% culture and 16% culinary. Nature tourism that was in demand was the Dieng Plateau with 20%, Karimunjawa islands with 19%, and Taman Wisata Bandungan with 15%. These three natural attractions can be developed into Ecomarineturism. In addition, heritage elements can also be included in the three tourisms because Dieng is famous for its Buddhist temples, while Bandungan is famous for Gedong Songo, its nine temples. Other natural attractions include Tawangmangu which connects with Cetho Temple and is located on the slopes of Mount Lawu, and Ketep Pass with its Mount Merapi attraction. In marine tourism, Central Java has the potential along the coast of the southern sea such as Wonogiri, Kebumen and Purworejo regencies and along the northern sea coast such as Brebes, Tegal, Kendal, Demak and Jepara. Nature tourism equipped with artificial tours, shopping tours, and culinary tours is a complete tour package. Several events were created by the local government as an effort to introduce regional tourism, for example, paragliding competition in Gajah Mungkur Dam in Wonogiri.

Tourism development must pay attention to five things: *What to See, What to Do, What to Buy, What to Stay, What to Visit*. The five elements show that the community has an important role. Natural elements are more likely to be *what to see*, while the other four elements show how the role of the community must be developed by collaborating with other stakeholders. The ATLAS.ti analysis shows the following results in Figure 3.

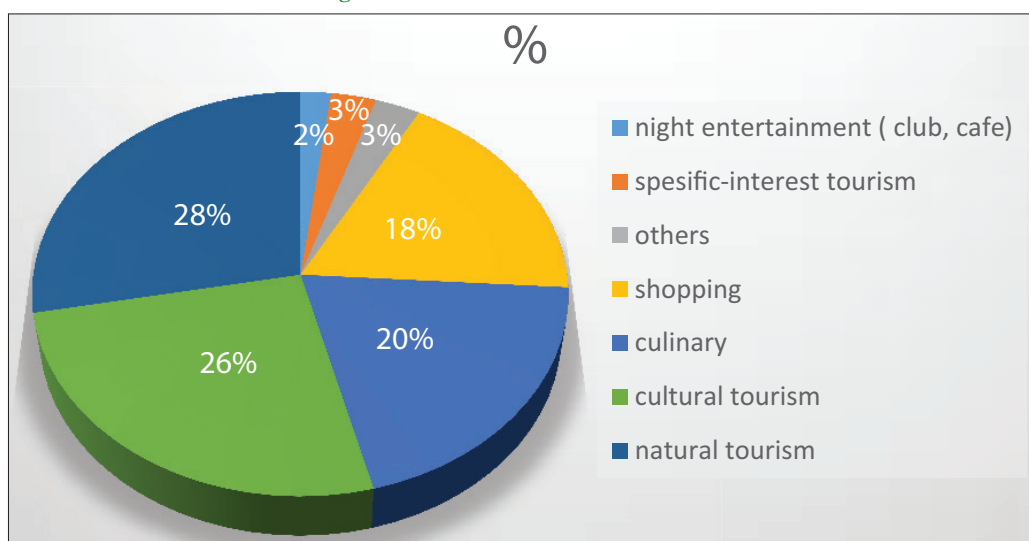
Figure 3 shows that the development of ecomarine tourism requires three important parts. The first part is the development of infrastructure that affects accessibility, because natural tourism is often located in areas that are difficult to reach so that it requires infrastructure development such as roads to tourist attractions and facilities at tourist attractions. This infrastructure must also consider equality for people who are vulnerable such as people with disability, children, and the elderly. At present, there are many tourist attractions which have provided special routes for people with disabilities. In addition, infrastructure must also pay attention to safety and comfort. These three things are an important concern for tourists. The second part of developing ecomarine tourism is institutional that includes environmental protection. In order to preserve the environment, the government has established several tourist attractions as national park areas through laws and hence will support overall environmental protection. Another steps that must be taken is licensing and cooperation involving all stakeholders, including the government, business people, tourists, and the people who live around tourist attractions. An important part in the development of ecomarine tourism is the promotion to



Figure 1: Central Java tourism map

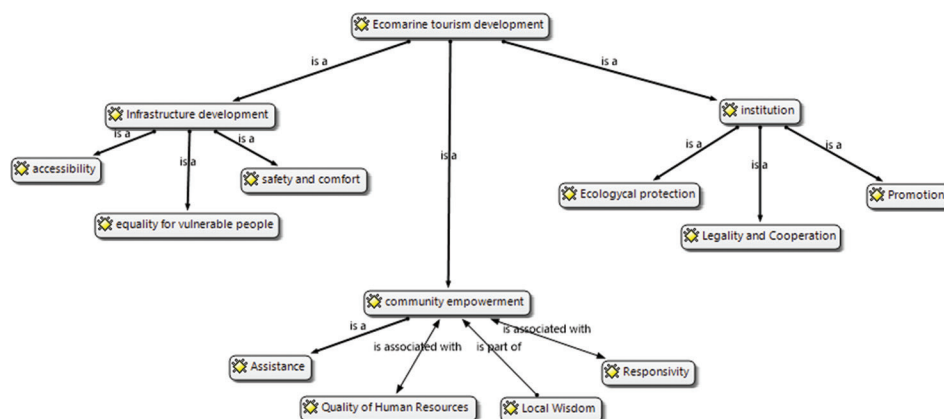


Figure 2: Tourism interests in Central Java



Source: Primary data, 2018

Figure 3: The ATLAS.ti analysis results



Source: Primary data processed by ATLAS.ti, 2018

attract tourist visits, which need to be followed by various efforts to improve facilities provided at tourist attractions.

The third part of developing ecomarine tourism is community empowerment through local wisdom. Communities in natural

tourism areas in Central Java have a culture that supports especially hospitality, which is part of the tourism attractions. Other wisdom must be maintained is honesty, helpfulness, and mutual cooperation. The three wisdoms will encourage tourists to extend their visit. One of the problems faced by people in natural tourism

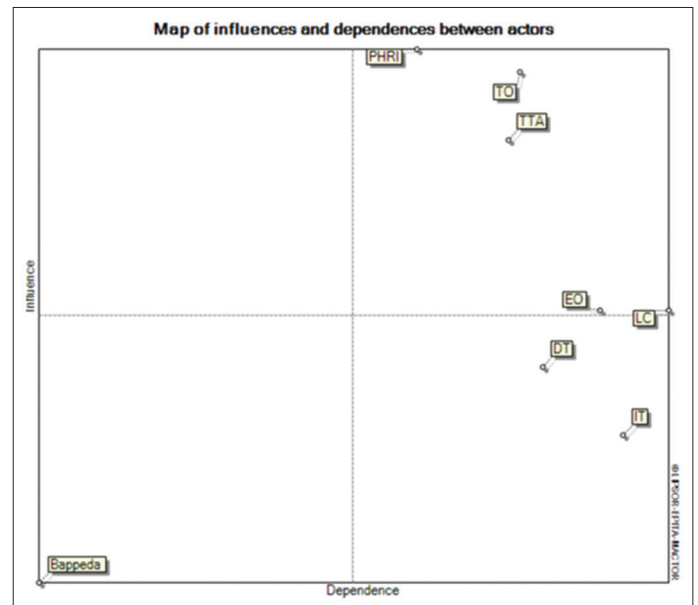
areas is poverty areas, so that natural destruction often occurs to maintain their economy. The step that must be taken is to involve the community so that the determination of natural tourism will actually improve the economy. One element of *what to buy* can be captured by producing goods needed by tourists. This condition is in accordance with responsiveness, how the community and other actors are responsive to the existence of natural tourism, the sustainability of environmental protection, and the lives of the community. Therefore, community empowerment requires an increase in the quality of human resources and assistance to the community so that environmental sustainability can be maintained.

Environmental damage particularly in coastal areas is influenced by several factors, namely (a) natural factors such as earthquakes, tsunamis, storms, global warming, predators, and erosion which are either purely natural or caused by human intervention, especially in regional development that does not consider environmental impact analysis; (b) human factors namely anthropocentrism, which is a symbol of human greed that is not only individual but also collective. One problem that often arises is property and industrial development carried out along the coastal area and fishing activities (traditional and modern) that are not environmentally friendly so that it will damage coral reefs and other coastal ecosystems. The results of the study by White et al. (2000) in the Philippine show that long-term damage to coral reefs will reduce fish production so that economically it will be detrimental to fishing communities. The research also shows that one of the main attractions of marine tourism is maintained coral reefs. (White et al., 2000). Environmental and marine conservation needs attention from all stakeholders, including government, society, and business actors, and therefore an analysis of influence, dependence, convergence and divergence between actors and stakeholders is needed as a reference in carrying out policies (Kilipiris and Zardava, 2012).

The development of ecomarine tourism must pay attention to the roles of all stakeholders in the objectives achievement. The tourism stakeholders consist of (a) Tourism Office (TO), (b) Environmental Agency (EO), (c) Regional Development Planning Agency (Bappeda), (d) Tour and travel agent (TTO), (e) Local Community (LC), (f) International Tourists (IT), (g) Domestic Tourist (DT), and (h) Indonesian Hotel and Restaurant Association (PHRI). The objectives of this study are (1) development of tourism infrastructure and facilities (I and F), (2) protection of coral reefs (Coral), (3) development of coastal areas (Coastal), (4) eviction of people for tourism purposes (eviction), (5) private sector involvement (private), (6) restrictions on the fishing area (restrict), (7) transfer of work from fishermen/farmers to tourism business actors (transwork), (8) community assistance (assistance), and 9) community capacity building (CCB). In-depth interviews were conducted with each actor. For local communities, foreign tourists, and domestic tourists, interviews were conducted with saturated samples and then mean was calculated to assess the relationship between actors and towards objectives. The results of processing with MACTOR produced the value of dependency and the value of competitiveness as follows:

Figure 4 shows that four actors are in quadrant 2, a condition with high influence and high dependency. Actors in this quadrant were

Figure 4: Map of influence and dependence between actors



Source: Primary data processed by mactor, 2018

PHRI, Tourism Agency, Tour and travel agents, and Environmental Office. This happens because even though the four actors have a high influence, they are very dependent on decisions and policies carried out by other actors. Actors in quadrant 3, a condition with low influence and low dependency, are foreign tourists, domestic tourists, and local communities. This condition indicates that all their activities are not influenced by the activities of other actors. There is only one actor in quadrant 4, namely Bappeda. This is because Bappeda, as a planner, will submit its program activities and policies to the technical implementation offices, namely the environmental office and TO.

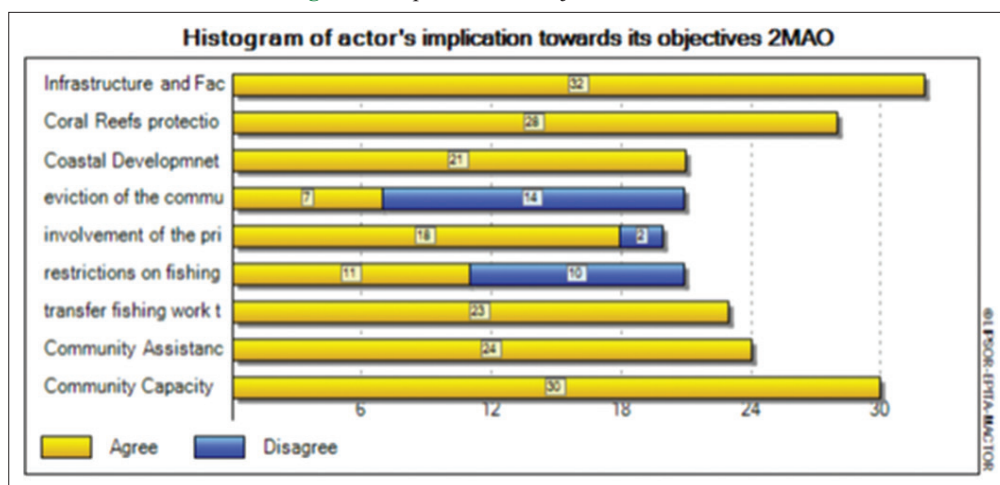
The opinions of each stakeholder will be analyzed against the objectives. The results show that all actors agreed on the objectives of developing infrastructure and facilities, protecting coral reefs, developing sustainable areas, transforming jobs from fishermen/farmers to tourism business operators, assisting communities, and developing community capacity. However, for the objective of the community eviction for tourist sites, involvement of the private sector, and restrictions on the fishing area, there were pros and cons between the actors as shown in the following Figure 5:

Figure 5 shows that not all actors agreed on the stated objectives due to economic interests. Community relocation from tourist attractions is actually an effort to protect the community itself and as an effort for more intense engagement. However, so far this kind of relocation is often interpreted as an eviction that has a negative connotation because it is considered to expel the community from the location where it lives.

The next step is to measure the convergence between actors against the objectives (using order 3). The processing results are shown as follows:

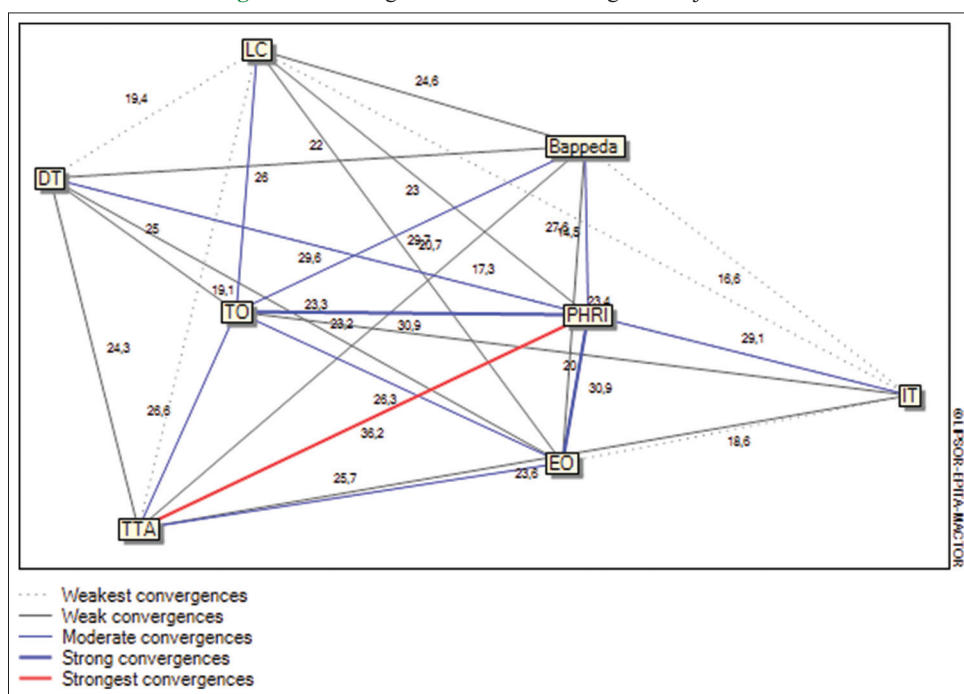
Figure 6 shows that actors with very strong convergence are PHRI and tour and travel agents, because both have business

Figure 5: Implications of objectives for actors



Source: Primary data processed, 2018

Figure 6: Convergence between actors against objectives



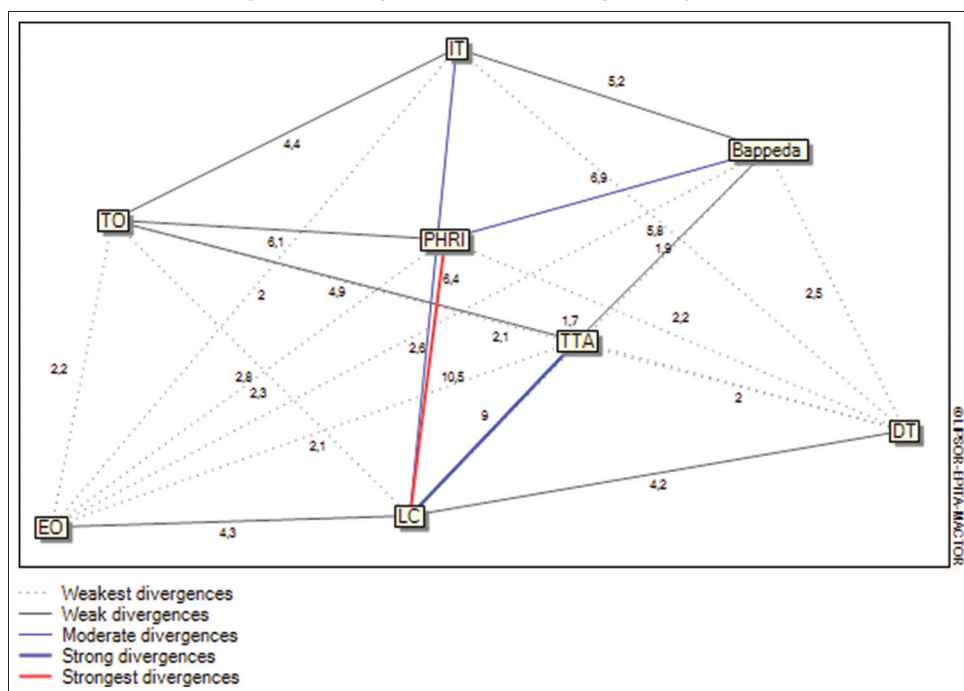
Source: Primary data processed by mactor, 2018

relationships. Strong convergence is shown by PHRI, TO, and Environmental Office, while moderate convergence occurs between the TO, Local Communities, Bappeda, PHRI, Domestic Tourists, Environmental Office, and Tour and Travel Agencies. Figure 6 also shows convergence between local people and tour and travel agents, domestic tourists and foreign tourists. This indicates that the community has not been actively involved and is able to capture opportunities as a tourist destination. This is consistent with the results of ATLAS.ti processing, which highlights the importance of community responsiveness to tourism. This finding will be used as a reference in determining policies, namely developing community capacity and community assistance so that they can be more actively involved in economic empowerment in natural and marine-based tourism activities.

The results of the analysis show the divergence between actors against the objectives as shown in the following Figure 7:

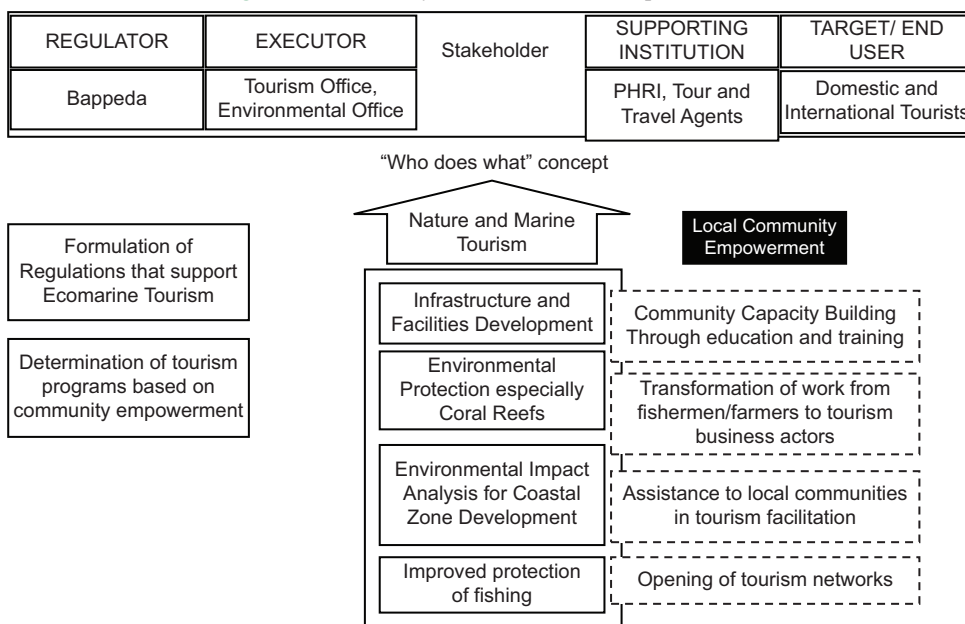
The figure shows that the divergence is weak among actors, because there is no deep conflict of interest between actors. The strongest divergence came from local communities with PHRI, followed by strong divergence between local people and tour and travel agents, and moderate divergence between local communities and foreign tourists. These results further reinforce the opinion that the community has only been a spectator in developing tourism in their area. The author conducted in-depth interviews and found that people were worried that the emergence of tourism in their area would reduce their income and economic welfare. The poor feel that environmental preservation will force them to reduce their

**Figure 7:** Divergence between actors against objectives



Source: Primary data processed by mactor, 2018

**Figure 8:** Community-based tourism development mode



economic activities. During this time, they directly fulfill their daily needs from nature so that it would be disrupted because of the rules and determination of protected natural tourist areas. In addition, the involvement of local communities is very low, so the steps that must be taken in the formulation of the environmental and marine tourism development model are as follows:

Figure 8 shows that the development of environmental and marine tourism can be done through collaboration between various economic actors ranging from local governments as regulators and executors, tourism actors as supporting institutions, and

domestic tourists and foreign tourists as targets. CCB is aimed at education and training that supports the improvement of the quality of human resources and the transformation of work from farmers/fishermen. This intervention is expected to help the community capture opportunities, not only as producers of raw materials but also ready-made goods that can be accepted as souvenirs and tourists' facilities. Assistance is directed at improving the ability of the community to be willing and able to be involved in the development of ecomarine tourism activities, so that the community is not only an audience but an active actor. Meanwhile, the opening of networks is an effort to reduce the



divergence that occurs between local communities and tourism business actors such as PHRI and tour and travel agents. These efforts can be pursued by empowering local communities to be directly involved in the development of marine and environmental tourism and supporting sustainable development.

## 5. CONCLUSION

This research concludes that Central Java Province has enormous potential in tourism, both natural tourism, artificial tourism and its supports. Nature tourism is the main choice for tourists, especially mountain, heritage, and marine tourism. Environmental and marine tourism development requires (a) infrastructure and facilities, (b) preparation of institutional aspects, and (c) community empowerment. The development of Ecomarine tourism requires the involvement of various parties from regulators, executors, supporting institutions, targets, to the community as the main actor. The model of Ecomarine tourism development is based on the concept of *who does what*, where the community receives empowerment support through CCB, transformation of work from fishermen/farmers to tourism business operators, assistance, and the opening of tourism networks.

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