ECONOMIC VALUATION OF "BEEJAY BAKAU RESORT (BJBR)" MANGROVE FOREST TOURISM PROBOLINGGO AND IT IS IMPACT TO THE ENVIRONMENT TOWARDS SUSTAINABLE RESOURCE MANAGEMENT

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Abstract Economic growth often occurs at the expense of the quality of natural resources and the environment because of the impact caused by economic activity. These impacts create external costs that the public and future generations must bear. Internalization of external costs must be enforced to prevent damage to natural resources and the environment *(ex-ante strategy)* or repair the damage that has occurred *(ex-post strategy).* Therefore, economic valuation is needed to provide important information regarding the value of ecosystems and the resulting economic benefits, especially for non-market environmental goods that have important policy implications and as an effort to achieve the *Sustainable Development Goals* (SDGs). This study aimed to analyze and estimate the economic value and identify the ecological, social and economic impacts at BeeJay Bakau Resort Probolinggo. Types of descriptive research with data collection methods include interviews, observations, documentation, and questionnaires. The sampling method used 2 methods: the *accidental sampling* technique for tourists by determining the number of samples using the *linear time function* formula so that a total sample of 84 respondents was obtained and the *purposive sampling* technique for *stakeholders* with a sample of 40 respondents. The results of the analysis show that the economic value generated is Rp. 584,347,909,947/$_{year.}$ The output of identification of ecological, economic and social impacts which includes three dimensions, namely the ecological, economic and social dimensions, each of which has 4 defined attributes, then it can be concluded that the ecological dimension has a high category, this is because the manager of the BeeJay Bakau Resort mangrove forest tourism carry out various efforts in development that involve both stakeholders and the surrounding community, especially in maintaining and committing to environmental sustainability.

Keywords: *economic valuation, mangrove forest tourism, SDGs, social and economic ecological impact*

INTRODUCTION

Here, the paper includes Introduction, Material and Methods, Results and Climate change is increasingly important as a driver of habitat loss and degradation, with negative impacts on biodiversity and the provision of ecosystem services seen across land, coastal, and marine systems. Various habitat loss and degradation drivers have combined to cause a *sustainable* biodiversity crisis (WWF, 2020). Mangrove forest ecosystems (tidal forests) have substantial and economic importance from local, national and global perspectives. It has balanced the ecosystem that functions as a fish nursery, a haven of biodiversity, and a carbon repository. Globally, mangrove forests act as very effective carbon sinks, absorbing 97.57 tons of carbon per hectare, or more than three times the absorption capacity of non-mangrove forests (Rovai et al., 2021). Indonesia has a very high value for the existence of the world's largest mangrove ecosystem and resources with a total mangrove forest of 3,489,140 hectares. The value of the mangrove forest is 23% of the total value of the mangrove forest in the world. The area of mangrove forest ecosystems owned worldwide is estimated at around 16,530,000 hectares (KLHK, 2017). However, the 2012 Indonesian Environmental Status (SLHI) report shows that more than 7% of the mangrove forest area in Indonesia is severely damaged.

It is because mangrove resources are very vulnerable *(vulnerable natural resources)* to damage, decline in function, and even habitat extinction (land conversion) due to human intervention. Mangrove resources have been destroyed and converted by

humans for various reasons and purposes (Gueabae et al., 2015). Modernization and market integration have also caused a dramatic decrease in mangrove area which often exceeds the carrying capacity of its recovery for various alternative uses. In addition, the *grand design* that places the economy as a development paradigm poses a separate threat to environmental sustainability. The rate of destruction of mangrove forests in Indonesia turned out to be the fastest and the largest in the world. In line with data (FAO, 2007), Indonesia lost about 40% of its mangrove forests in the last three decades. It has negative consequences for both the environment and extractive economic conditions, so if left unchecked, it will lead to a decline in the quality of its ecological functions and habitats.

The pattern of natural resource management that is less sustainable and tends to be exploitative also has the potential to cause significant economic losses. A study conducted by the World Bank led by Josef Leitmann in 2009 showed that the cost of environmental degradation in Indonesia varies between US$0.56 billion to US$7, 7 billion per year, as in Table 1.

Table 1. Economic Losses due to environmental degradation in Indonesia (Leitmann, 2009)

Evironmental Degradation Type	Degradation Costs (2007 in US$ billion)	% of PDB
Climate Change	increasing until the end of the 21st century	2,5-7
Water Sanitation	7,7	2
Air Pollution (Outdoor)	3,9	0,9
Land Degradation	0,56	0,13

Therefore, the management of natural resources, especially mangrove forests, has a goal: to optimize the overall functions and benefits of forests, which are very important in life based on sustainable management *(sustainable development).* So, forest functions can be optimized well in their management. In that case, it is hoped that the forest will be sustainable and the people or surrounding communities can enjoy the benefits of the forest itself. The implementers or users of environmental services who are obliged to preserve the environment in managing forest resources themselves are institutions and communities that do not conflict with the UUD 1945 (Harahab, 2016). Given the important role of natural resources, tourism activities that respect the potential of local and community-based resources are a priority. It is based on considerations, among others, to anticipate changes in land ownership, social order, and community culture. The role of the community in this case is of course the actors and those who get the main benefits, tourism activities can generate economy because the community is given the

opportunity or becomes an alternative source of income for the community (Dasgupta, 2020).

The United Nations (UN) has development goals regarding *Sustainable development goals* (SDGs) where it is globally recognized that regional development must aim for ecological/environmental, economic and social sustainability in that context, the tourism industry including mangrove forest management has an important role in achieving The United Nations Sustainable Development Goals (SDGs), apart from contributing directly to the economic well-being of coastal communities and fisheries (SDGs 14), sustainable product processing has the potential to help achieve other goals including eradicating poverty (SDGs 1), achieving food security and improving nutrition (SDGs 2), promote sustainable, inclusive and sustainable economic growth (SDGs 8), and reduce inequality (SDGs 10) (Kronenberg & Fuchs, 2021). Mangrove forest tourism based on sustainable management *(sustainable development)* needs to be encouraged because it is to achieve an integrative balance and harmony between ecology, economy and society under the 2009 PPLH Law which comprehensively regulates the principles of environmental protection and management based on *good governance* which is also a "legal umbrella" related to the Perpu on development and the environment. It prompted the Indonesian government to take the stance conveyed by President Joko Widodo at the time of his inauguration through his speech, namely the development of human resources, infrastructure development, simplification of laws, simplification of the bureaucracy and economic formation, which is not dependent on natural resources and increasing competitiveness through added value. Other products, making the tourism sector a *leading sector* so that in 2018 the tourism sector will become one of the leading sectors of development.

One of Indonesia's uses and forms of mangrove forest management is the BeeJay Bakau Resort Probolinggo mangrove forest tourism. BJBR Tourism *(Beejay Bakau Resort)* is one of the leading tourist destinations in Probolinggo City. The location is on the coast of the Mayangan Fishing Port, north of the Probolinggo City Square. This tourist destination integrates natural tourism products from mangrove forest tourism with artificial and conservation tourism. Unfortunately in 2020 the number of visits to BJBR, especially by foreign tourists at the beginning of the year, experienced a significant decline, this was due to the Covid *19 (Corona Virus Disease)* outbreak which caused a decrease in the intention of foreign tourists to go on vacation because Covid-19 was declared a pandemic. global and have a direct impact on tourist destinations (Gössling et al., 2020). So that in the end the tourism sector becomes the most affected sector and the last recovery.

Utilization conflicts that occur in mangrove forest areas are sometimes caused by needing to know

the benefits and functions of the potential of mangrove resources both now and in the future. It causes the value of these benefits and functions to escape economic calculations. At this level, the reason for estimating the economic value of mangrove forest ecosystems is either through empirical studies at the research site. Economic valuation can be used to transform the ecological value of the mangrove ecosystem into economic value by measuring the monetary value of all goods and services produced. In addition, efforts to develop tourism potential by heeding ecology in every development program implemented as well as integrated conservation *(integrating conservation and development programs),* among others by taking into account the quality of the carrying capacity of the environment *(carrying capacity)* and friendly to the environment. Part of what is obtained from this activity is earmarked for fund donations *(eco-cost)* for the conservation of natural resources and biodiversity. This activity can minimize the impact on the quality of biodiversity due to mass or conventional mass tourism activities *(mass tourism)* (Andronicus et al., 2016). In Indonesia, a mangrove ecosystem's economic assessment *(valuation)* still needs to be done. The method for assessing environmental products and services offers a more comprehensive assessment of the various goods and services produced by mangrove ecosystems, wherein the results of the assessment can contribute more in-depth information that will later assist public policy in determining compensation for natural resources and services environment. Using economic valuation information, the value of natural resources, especially those not marketed *(non-marketed)*, can be understood. From the results of this assessment, it is also expected to be a crucial point in the environmental policy formulation process by both the central government and local governments, especially the management based on *(Sustainable Development)*

RESEARCH METHODS

This research was conducted from January to March 2022 at BeeJay Bakau Resort Mangrove Forest Tourism, Mangunharjo Village, Mayangan District, Probolinggo City, East Java Province. This descriptive research type provides an overview or summary of what is happening in the community and is used as the object of research. In this study, the data sources are classified into two based on the method of obtaining them: primary data and secondary data. The primary data obtained in this research is the history, the existing mangrove species, as well as the tourism facilities and infrastructure of the BeeJay Bakau Resort mangrove forest. In addition, data on the characteristics of visitors consisting of gender, age, education, occupation, income, address of origin, length of visit, type of transportation, travel groups, sources of information, number of visits in a year and

distance traveled to mangrove forest tourism at BeeJay Bakau Resort. . Furthermore, secondary data was obtained from Mangunharjo Village, BAPPEDA Probolinggo Regency, and the official website of DKP Probolinggo Regency. The sampling technique in this study used 2 methods: the *accidental sampling* technique for tourists by determining the number of samples using the *linear time function* formula so that the number of samples was 84 respondents and the *purposive sampling* technique for stakeholders with a sample of 40 respondents. In the sampling technique using the *accidental sampling* technique, the members of the population that are used as samples are those who happened to be encountered by the researcher during the research activity. In this study, the specified sample is visitors who are at least 17 years old, at which age visitors are considered to be able to make their own decisions, can communicate well, and are willing to be interviewed so that it is easy to collect the required data. Respondents are also not visitors who make *multiple trips* so that travel costs can be fully calculated accurately. Data collection techniques include interviews, observations, documentation, and questionnaires. The data analysis method uses the ITCM *(Individual Travel Cost Method)* method and the consumer surplus calculation uses the *Willingness to pay* concept.

In this study, the dependent variable and the independent variable were used. The research indicator variables used in this study are:

y = Frequency visit rate
x_1 = Travel Cost Variable (Rp/org)
x_2 = Variable Mileage (Km)
x_3 = Income Level Variable (Rp/bulan)
x_4 = Education Level Variable
x_5 = Age Variable (Tahun)
D_6 = Gender *Dummy* (0 = woman, 1 = man)

Furthermore, an analysis using multiple linear regression was carried out to determine the demand function and the determination of the consumer surplus coefficient in the BeeJay Bakau Resort mangrove forest tourism. Based on the results of the regression that has been carried out, it is used as a model for the number of visits to the BeeJay Bakau Resort mangrove forest tourism. The function can be written as follows:

$$y = f(x_1, x_2, x_3, x_4, x_5, D_6)$$

In general, the economic value of natural resources and the environment can be divided into two groups, namely use value or known as *use value* and non-use value or *non-use value*. Use value can be defined as the economic value assessed on the in situ benefits of natural resources and the environment. The value of this utilization can be reflected in the natural resources used for consumption or recreation. In contrast to use value, non-use value is a use value

known as value whose benefits are obtained indirectly without consuming or enjoying it manually. One of the valuation techniques commonly used in concept quantification is to calculate the willingness to pay of individuals for environmental services or resources called *Willingness to Pay* (WTP) or willingness to receive from individuals in compensation called *Willingness to Accept* (WTA) (Fauzi, 2014). In general, economic valuation techniques are used for natural resources and the environment that do not have a market value *(non-market valuation)* which can be classified into two groups. The first group is a valuation technique with an implicit price with *Willingness to Pay* (WTP) revealed through the developed model. The valuation technique in the first group is called *revealed* WTP. The second group is a valuation technique based on surveys. This technique uses the willingness to pay (WTP) obtained directly by the respondent which is expressed orally or in writing. The techniques included in the revealed WTP include *travel cost*, *hedonic pricing,* and the *random utility model.* For the second group of techniques, one technique that is quite popular is the *Contingent Valuation Method* (CVM) and the discrete choice method (Figure 1).
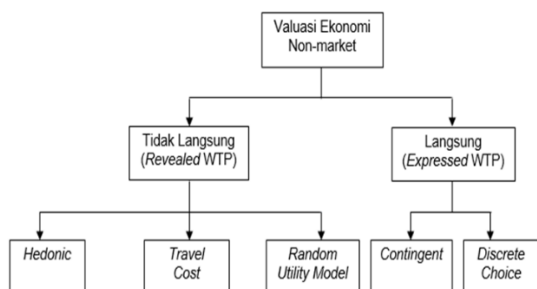

Figure 1. Valuation techniques *Non-Market*

According (Fauzi, 2014), *Travel Cost Method* (TCM) or the travel cost method is an approach used to analyze the economic value of a good or service. TCM includes round-trip transportation costs from residence to tourist sites. The TCM model is known as the Clawson-Knetsch model. TCM is based on the theory of consumer demand where the value a person places on the environment can be inferred from the costs incurred to the location visited. The costs of consuming these environmental services include transportation, entry fees, expenses in recreational areas, and the cost of time spent by someone. The farther a person is to a tourist location, the higher the travel costs the individual will incur. The travel cost method is built based on consumer demand theory, so the concept of consumer surplus is a central issue in the travel cost method. The consumer surplus in the *travel cost method* will show how much someone values a tourist place based on his visits (Fauzi, 2014).

According (Walcker, 2015), the basic assumptions in TCM to build a demand function so that the assessment of natural resources is not biased, among others, is the cost of travel and the cost of time

is used as a proxy for the price of recreation or tourism. Travel time is neutral, meaning it does not generate utility or disutility. The trip is a single trip (not multiple trips). The ITCM request functions are as follows:

$$V_{ij} = f(C_{ij}, X_i) \qquad (1)$$

Description:
V_{ij} = Number of visits per year from individual i to recreation area j.
C_{ij} = Travel costs incurred by individual i to tour j (rupiah).
X_{ij} = Other factors that affect the number of visits

According (Fauzi, 2006), to get the value of consumer surplus, first is to form a demand function. The request function is often written as follows:

$$V = \alpha_1 + \alpha_1 C \qquad (2)$$

Description:
V   = Number of visits
0   = Constant
1   = Regression coefficient
c   = Travel costs incurred by individuals

Based on the above function, the consumer surplus can then be calculated which is a proxy for the WTP *(Willingness to Pay)* value for tourist sites. The formula used to calculate the value of the consumer surplus is as follows:

$$WTP \approx CS = \frac{N^2}{2\,\alpha_1} \qquad (3)$$

Description:
CS   = Consumer Surplus
N   = Number of visits made by individuals
1   = Regression coefficient of travel cost

Determination of economic value that needs to be done is to determine the value of consumer surplus for each individual per visit. To obtain the value of consumer surplus, what is done is to form a demand function which can be written as follows:

$$Dx = Qx = \alpha - bP$$

Description:
Dx = Visit Request
Qx = Number of Visits
α = Constant
b = Travel cost regression results
P = Price or amount of travel cost

After obtaining the consumer surplus value for each individual per year, the next step is to calculate the economic value of the BeeJay Bakau Resort (BJBR) mangrove forest tourism which can be formulated as follows:

$$NE = CS \times JK_{2021}$$

Description:
NE = Economic Value (Rp/years)
CS = Consumer Surplus (Rp/visit)

JK_{2021} = Total number of visits in a certain period, namely in 2021

RESULTS AND DISCUSSION

3.1 Factors influencing the demand for visits to the BeeJay Bakau Resort's mangrove forest tourism

To determine the effect of the independent variables on the dependent variable, multiple linear regression analysis was used with the OLS *(Ordinary Least Squares)* approach and used an analytical tool, namely the SPSS 19 application. travel costs, mileage, income level, education level, age and gender dummy. The result output of OLS *(Ordinary Least Squares)* is as follows.

Table 2. Result output of OLS(Ordinary Least Squares) request for visit to mangrove forest tour of BeeJay Bakau Resort (Primary data, 2022 (processed))

Model	B	t_{hitung}	Sig.
Constant (α)	1,916	2,248	,027
Travel cost (X1)	-4,097E-6	-2,315	,023
Mileage (X2)	-,010	-2,474	,016
Income level (X3)	1,954E-7	1,862	,066
Education level (X4)	-,122	-2,139	,036
Age (X5)	,082	3,962	,000
Gender dummy (D6)	,147	,714	,477

Based on the results of the regression, the value of the equation of the regression model can be obtained as follows.

$$Y = 1,916 - 0,000004097x_1 - 0,010x_2 - 0,000000954x_3 - 0,122x_4 + 0,082x_5 + 0,147D_6$$

The interpretation of the equation model is as follows.

a) The constant value of 1.916 can be interpreted that if all the independent variables, namely travel costs, mileage, income level, education level, age, and gender dummy are considered equal to zero. The request for visits is 2 times in the last year.

b) The Value x_1 of -0,000004097 means that every increase in travel costs will reduce the number of requests for visits once a year.

c) The Value x_2 of -0,010, it can be interpreted that every increase in mileage, it will reduce the number of requests for visits once a year.

d) The Value x_3 of -0,0000001954, it can be interpreted that every increase in the level of income, it will reduce the number of requests for visits once a year.

e) The Value x_4 of -0,122, it can be interpreted that every increase in the level of education will reduce the number of requests for visits once a year.

f) The Value of x_5 of 0,082 indicates that every increase in age will increase the number of requests for visits once a year.

g) The Value D_6 of 0,147 shows that female respondents have a probability of deciding to visit a tourist attraction 0.147 percent greater than male respondents.

3.2 Economic value of mangrove forest tourism BeeJay Bakau Resort

The economic value of BeeJay Bakau Resort mangrove forest tourism occurs through changes in satisfaction *(utility)* where one of the assumptions in *utility* is *substitutability. Substitutability* is the preference of individuals who can switch between marketed and non-marketed commodities such as environmental services. Indication of a good *substitutability* assessment is based on *willingness to pay and willingness to accept. Willingness to pay* is the ability to pay where the value of *willingness to pay* shows the benefits of a policy that will be proposed. *Willingness to accept* is a willingness to accept compensation where the value of *willingness to accept* describes the amount needed by individuals to reject a change that should be experienced voluntarily. (Fauzi, 2014).

The total number of visits in one year, both *weekdays* and *weekends,* from the beginning of January 2021 to the end of December 2021, is 52.000 visitors annually. So that the demand function obtained from the regression results above is as follows:

Dx = Qx = 1,916 - 0,000004097P

The demand function obtained the absolute value of b or the travel cost regression coefficient of 0,000004097. With this value, it can be an estimator of the value of consumer surplus by using WTP and economic value. The total value of consumer surplus based on *willingness to pay* resulted in CS IND/JKG of Rp. 11,237,460 where the consumer surplus value illustrates the benefits of the BeeJay Bakau Resort mangrove forest tourism which is much greater than the entrance ticket price, which is Rp. 30,000 for *weekdays* and Rp. 50,000 for *weekends*. The economic value of BeeJay Bakau Resort's mangrove forest tourism is obtained by multiplying the consumer surplus generated by the total number of visits during the past year, from the beginning of January 2021 to

the end of December 2021. The real calculation is as follows:

$$NE = CS \times JK_{2021}$$
$$NE = 11,237,460 \times 52.000$$
$$NE = Rp. 584,347,909,947$$

Based on these calculations, the economic value of BeeJay Bakau Resort's mangrove forest tourism was Rp. 584,347,909,947/year. The economic value of BeeJay Bakau Resort's mangrove forest tourism has the potential as a tourist destination in the Probolinggo area that can increase Probolinggo Regency's Original Regional Income (PAD). The magnitude of the value of the economic benefits of the resource shows that management and development must be carried out properly and based on *sustainable development* by increasing income and reducing the distance between the income itself and the economic value generated from the BeeJay Bakau Resort mangrove forest tourism as compensation due to environmental degradation. it is caused by tourism activities. Further (Fauzi, 2014), explained that economic valuation plays an important role in providing information to assist the decision-making process in this case related to management based on sustainable management *(sustainable development)* where always to maintain ecological (environmental) quality because if there is carelessness in management it will cause environmental damage which later the stability of both ecological, economic and social will be disturbed and this will have an impact on the loss of the potential of the tourist attraction itself.

3.3 Identify the ecological, economic and social impacts of BeeJay Bakau Resort's mangrove forest tourism

The development and management of mangrove forest tourism at BeeJay Bakau Resort can have a socio-economic impact on the surrounding community and a physical impact on the ecology (environment). The ecological impact due to the BeeJay Bakau Resort's mangrove forest tourism is possible because of *sustainable development* based management so that it is more awake and sustainable from an ecological perspective. Descriptive analysis in this study was used to identify ecological, economic and social impacts. This study uses 3 dimensions, namely the ecological dimension, the economic dimension and the social dimension, where each dimension has 4 defined attributes. The interview process was carried out to *key informants*, namely stakeholders who were residents around the BeeJay Bakau Resort mangrove forest tourism with 40 respondents. The next step is categorizing the scores into three categories: low, medium and high. The steps for making score categories include: calculating the average, calculating the standard deviation, making intervals and classifying scores. The results of identifying ecological, economic and social impacts are as follows.
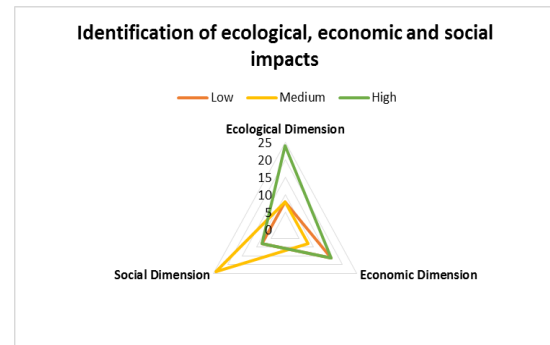

Figure 2. Outputs Identification of ecological, economic and social impacts

Based on Figure 2, it can be seen that the recapitulation of the identification of ecological, economic and social impacts which includes three dimensions, namely the ecological, economic and social dimensions where the ecological dimension has a high category, this is because the BeeJay Bakau Resort mangrove forest tourism manager has made various efforts in developing involving both stakeholders and the surrounding community, especially in maintaining and being committed to environmental sustainability.

For example, to conserve the mangrove forest environment, the management of BJBR facilitates educational facilities aimed at visitors or the community. These facilities are called *"ecokinds"* and *"ecoyouth"* which are intended to educate school children about the importance of planting mangrove seedlings. The facilities for planting mangrove seedlings provided by the management have a very positive impact on the ecology or the environment around the coastal area of the Mayangan Fishery Port, Probolinggo. Then the tourism manager also held an activity called the GTS motto (trash stick movement) which was intended for the entire community or visitors around the tourism area in order to maintain environmental sustainability and not litter. The slogan of the trash-picking movement was made to call on the public to care about waste and as a step to minimize the accumulation of waste. In addition, the management collaborated with the Probolinggo City Environment Service (DLH) regarding waste management and disposal arrangements in the BJBR area. So, once every 2 days a week the Environmental Service will pick up piles of garbage and recycle the resulting waste. In line with (Putera et al., 2013), that the ecological dimension describes the order of environmental systems that can support sustainable coastal tourism management, so the attributes analyzed in the ecological dimension are beach cleanliness and biodiversity conservation.

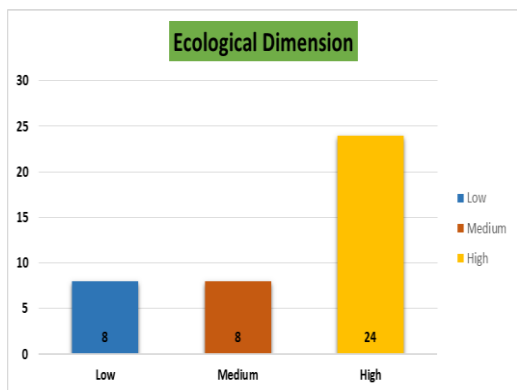Figure 3. Trash Stick Movement

a)   Ecological dimension

Figure 4. Outputs Ecological dimension

Based on Figure 3, it can be seen that the recapitulation of the ecological dimensions in the high category is as many as 24 people from the total number of respondents. There are 4 attributes, namely wave height, biodiversity conservation, tourist cleanliness and regional arrangement. According to (BMKG, 2019), consists of 3 categories, including: (1) High or >2.50 m, (2) Medium or 1.25 – 2.50 m, and (3) Low or 0.1 - 1.25 m. The wave height in the BeeJay Bakau Resort mangrove forest tourism is low, with an altitude interval of 0.1–1.25 m. If viewed in real terms, the wave height with a low category will create a sense of security for tourism business actors and a sense of comfort for tourists if they want to play activities on the beach or enjoy rides around the beach.

One form of structuring the area in the BeeJay Bakau Resort mangrove forest tourism is that some mangrove plants are managed and utilized by providing colorful lights. These lights are used as street lights and beautify the mangrove forest area at BeeJay Bakau Resort, so that visitors who come, especially in the afternoon and evening, can see the exotic scenery of the lights above the mangroves. Usually the manager of the tourist area is called the light of love. The colorful lights are placed along the bicycle path leading to the Kuda Cipta Willaha statue. The manager also said that installing lights in the nets embedded in the mangrove plants would not damage the mangroves because the installation of lights also looked at the ecology and this technique is called "Pruning".

Figure 5. Colorful lights on the mangrove
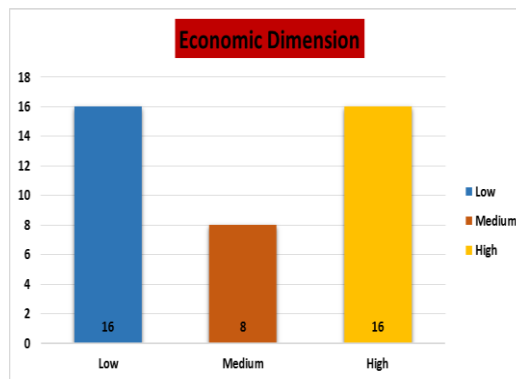
b)   Economic dimension

Figure 6. Outputs Economic dimension

Based on Figure 4, the recapitulation of the economic dimensions with low and high categories, namely as many as 16 people from the total number of respondents can be seen. There are 4 attributes: job opportunities and creating jobs, tourist visits, tourism market potential and income levels. According to (Kurniawan, 2016), employment has 3 categories, among others: (1) Low, (2) Seasonal, (3) High. The absorption of labor in the BeeJay Bakau Resort mangrove forest tourism is in the high category where almost 60% of the employees are residents who depend on their livelihood and the livelihood of the BeeJay Bakau Resort mangrove forest tourism.

In the mangrove forest tourism area of BeeJay Bakau Resort, you can find various types of work, this is because the manager provides job opportunities and opportunities, especially for residents, namely the surrounding community. The types of work most commonly encountered other than as employees are as traders and rental services for attractions. The ownership system in business in the mangrove forest tour of BeeJay Bakau Resort is self-owned, lease ownership system and profit sharing business ownership system. One example of a profit-sharing business ownership system is the ownership system between the manager and the local community who sells in the mangrove forest tourism area of the BeeJay Bakau Resort (Pujasera). Profit sharing system where the income received by food court traders is they were shared with the manager. Food court traders will get 10% of the total income for a day of selling. Previously, the income results were deposited in advance to the manager. Then the manager will

calculate and share the income with each food court trader.

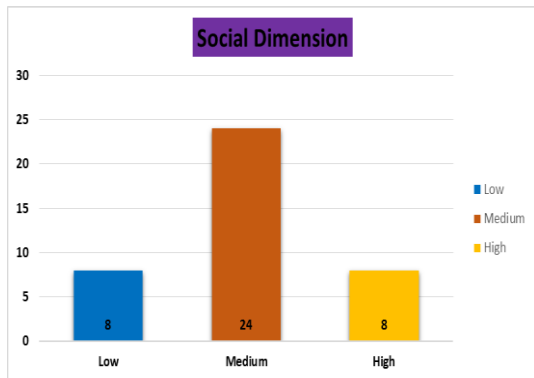Figure 7. Profit sharing business ownership system

c)   Social dimension

Figure 8. Outputs Social Dimension

Figure 5 shows a recapitulation of social dimensions with low and high categories of as many as 16 people from the total number of respondents. There are 4 attributes: livelihoods before and after tourism, the level of community compliance, cooperation (social processes), and assessment of people's lifestyles. According to (Kurniawan, 2016), the level of community compliance and kinship between communities are classified into 3 categories, namely: (1) The level of community compliance is low and there is no good kinship between communities, (2) The level of community compliance is low but kinship relations between communities are well established, (3) The level of community compliance is high and kinship relations between communities are well established. The level of community compliance in the BeeJay Bakau Resort mangrove forest tourism is classified as moderate which is indicated by the many violations committed by the community in the area, namely by entering the BeeJay Bakau Resort mangrove forest tourism area without the knowledge of the officers and taking shells.

Conflicts or social deviations caused by the existence of BeeJay Bakau Resort's mangrove forest tourism against the local population that are quite large have never happened. Even externally between the residents, the government and the area manager are also absent. If there is a conflict or social deviation, they will immediately resolve the problem by deliberation to reach consensus. The conflict around the BeeJay Bakau Resort's mangrove forest tourism

area occurred only to the extent of social deviation and was internal. For example, such as the conflict with the shellfish farmer group. Groups of farmers whose livelihoods are looking for shells around the mangrove forest enter without the manager's permission, so this triggers conflict. Therefore, the manager and the shellfish farmer group hold a joint meeting to make the right decision, so that on the other hand the farmers do not damage the mangrove forest ecosystem that has been managed and on the other hand they continue to work and are allowed to look for shellfish. In preventing and anticipating potential conflicts, the manager enters into a cooperation agreement with the local community and partners.

Figure 9. MoU

CONCLUSSION

Based on the OLS *(Ordinary Least Squares)* output, the factors that significantly influence the demand for visits to the BeeJay Bakau Resort mangrove forest tourism with a 5% level of significance are the variables of total travel costs, distance traveled, income level, education level and age. Travel costs with a coefficient of $-4,097 \times 10^{-5}$, mileage with a coefficient of -0.010, income levels with a coefficient of $-1,954 \times 10^{-6}$ and a level of education with a coefficient of -0.122 have a negative influence on the demand for visits to BeeJay mangrove forest tourism. Bakau Resort, while age with a coefficient value of 0.082 and a gender dummy with a coefficient value of 0.147 have a positive influence on the demand for visits to mangrove forest tourism at BeeJay Bakau Resort. The value of the consumer surplus for CS IND/JKG is Rp. 11,237,460. The economic value of BeeJay Bakau Resort's mangrove forest tourism is Rp. 584,347,909,947/year. The economic value of BeeJay Bakau Resort's mangrove forest tourism has the potential as a tourist destination in the Probolinggo area that can increase Probolinggo Regency's Original Regional Income (PAD). The output of the identification of ecological, economic and social impacts which includes three dimensions, namely the ecological, economic and social dimensions, each of which has 4 defined attributes, then it can be concluded that the ecological dimension has a high category, this is because the mangrove forest tourism manager at BeeJay Bakau Resort carry out various

efforts in development that involve both stakeholders and the surrounding community, especially in maintaining and committing to environmental sustainability.

ACKNOWLEDGEMENTS

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