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Analysis of Travel Costs in Various Kinds: Marine Tourism Transport Modes of Coastal Community in Karimunjawa Island

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***Abstract*— Karimunjawa archipelago is a tourist destination, has 27 islands and 4 of them are inhabited (coastal communities). Karimunjawa coastal communities can provide marine tourism transportation services as an additional income in addition to their main duties as fishermen. They can be used 3 kinds of marine transportations mode to take tourist to travel destinations around Karimunjawa archipelago. The Research to analyzing the travel costs of the various modes, will help the community in choosing the right mode of transportation and produce the highest income in operation. The economic models are estimated in order to explain relationship between travel cost and the kind transportation mode value. As a result, it is indicated that the highest marine tourism transportation mode value. The model estimation results show that to improve coastal community income.**

Keywords*— *Karimunjawa, Travel cost, Marine tourism transportation mode

I. INTRODUCTION

Karimunjawa Islands has a wealth of waters in the form of attractive and unique ecosystems as a distinction of marine eco-tourism, but tourist visits have only reached 0.07% from Central Java. Marine tourism activities usually use a fleet of fishing vessels, this can be an economic support for coastal/fishermen communities in the Karimunjawa archipelago (the average income has only reached Rp.224,737,-/week/man). Increasing the number of tourist visits in line with sea transportation needs, as well as the involvement of coastal communities or fishermen as operators or providers of marine tourism services is part of marine tourism transportation management.

Tourists visiting has a special interest in marine tourism as ecotourism at Karimunjawa has 2,599,770 hectares of tourist destinations as seen in figure 1. Ecotourism implements conservation and preserving natural resources in the neighborhood of object tourist destinations, so as to give the local community economy improvement [1].

90% of visitors do nautical tourism (2184 people / week, 2016) and require maritime tourism transportation mode, as well as the involvement of coastal communities or fishermen as operators or providers of marine tourism services is part of the management of marine transportation. Transportation infrastructure is one of the important factors in development goals as a function of international tourism demand [2]. Here are three alternative modes of maritime tourism transportation that can be used by the community, namely: fishing vessels, speed boats, modified ships with modest design and easy to build by the community.

In order to obtain the best maritime tourism transportation mode in supporting coastal economies, it is necessary to conduct research aimed at identifying the types of marine tourism transportation modes and their respective economic values as additional revenue for coastal or fishermen communities in Karimunjawa archipelago.

II. EXPERIMENTAL DETAILS

Research related to the types of maritime tourism transportation modes that can support the economy of coastal / fishermen communities aims to analyse and evaluate the number of needs and economic value of marine tourism transportation modes, evaluating the number of tourists visiting marine tourism areas as a guarantee of sustainability of maritime tourism transportation activities.

Field survey of each existing marine tourism transportation mode (survey period 2014 s.d. 2016) with sea transportation routes in the archipelago of Karimunjawa marine tourism zone, the island names; Mejangan Besar; Mejangan Kecil, Kembar, Tengah, Kumbang, Bengkoang, Cemara Besar, Cemara Kecil, Tanjung Gelam, Katang, Krakal Besar, Krakal Besar, Cilik, Pulau berpenduduk Parang and Nyamuk;

The further activity, designs and evaluates alternative modes of transportation for maritime tourism that meet the eligibility, safety, security, and affordability requirements for tourists in enjoying marine tourism, design models can be seen in figure 2.

III. Result and Discussion

A. The tourist quantity

The development of the quantity of tourists visiting Karimunjawa, increased in line with the increasing transportation fleet to Karimunjawa and publications on the internet.

The generation model or estimated quantity of tourists visiting Karimunjawa:

$$Y=0{,}003X_1 - 1.897X_2 + 0{,}004X_3 + 1{,}857X_4 + 31{,}534X_5 - 16244 \quad (1)$$

Where :

- Y = Estimated number of tourists to Karimunjawa.
- X1 = GRDP of Central Java province
- X2 = GRDP of Jepara district
- X3 = Number of International Tourists visiting Indonesia
- X4 = Information intensity via internet (Website)
- X5 = Number of ship arrivals to the port of Karimunjawa (Ship call)

Based on the equation model 3.1. at the end of 2016 the number of tourists could reach 80,899 people, 87,263 people in 2027, and continue to rise by an average of 0.28% per year.

B. Maritime Tourism Transportation Mode

Maritime tourism transportation in the Karimunjawa islands uses fishing vessels (as mode.1), but fishing vessels do not have safety standards as passenger ships. The number of fishing vessels owned by coastal or fishermen communities in the Karimunjawa archipelago can be seen in table 1. Mode 2 is a speedboat, and Mode 3 is the result of design using simple technology, all modes can be seen in Figure 2.

Table.1. Number of Fishing Vessels in Karimunjawa, 2014 to 2016 survey.

No.	Island Name	Vessel	< 5 GT	5 sd.10 GT
1	Karimunjawa	160	144	16
2	Nyamuk	48	46	2
3	Parang	65	61	4
4	kemojan	98	93	5
Total		371	344	27

Economic analysis carried out on modes 1, 2 and 3, among others, with the following criteria: Operational costs, income, profits, investment, residual value, NCF, NPV, PW, cumulative flow of funds, IRR and BC.

NPV (net present value), is calculated based on an increase in bank interest rates of 15% per year.

Investment feasibility for mode 3 can be assessed from the Internal Rate of Return (IRR), eligible criteria if the percentage exceeds 15% (bank interest rates).

The feasibility of the next investment is measured by using a comparison of benefits and operational costs. Criteria for the value of BC < 1, the investment is not economical / not feasible, and BC > 1 means that the investment is feasible. If B / C ratio = 1 said that investment is marginal (no loss and not profitable). Economic analysis graph can be seen in figure 3.

Fig.1. Zones and maritime tourism routes of the Karimunjawa.

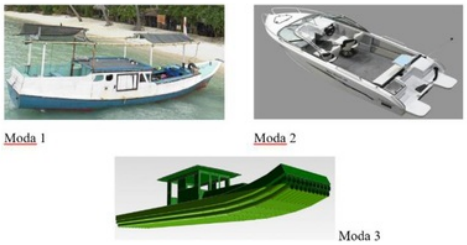

Fig.2. Mode of maritime tourism transportation (mode 1, 2 and 3)

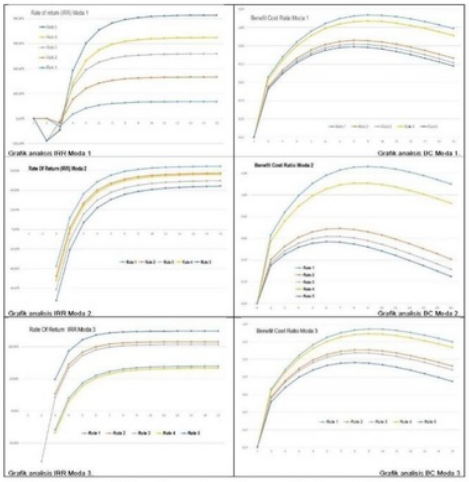

Fig.3. Graphic of economic analysis mode:1, 2 and 3.

IV. Conclusion

Research result; Karimunjawa requires a mode of sea transportation from the port of Kartini (Jepara) to Karimunjawa, 2,618 people / week (125,480 people / year), with a seating capacity of 85% (3,085 seats).

The number of tourists to Karimunjawa is 79,750 people in 2014 and estimates until the end of 2016 reach 80,899 people, with a peak of 87,263 people in 2027.

Visitors do marine tourism for an average of 2184 people / week, so it takes +110 units of maritime tourism transportation mode.

The 3-mode maritime tourism transportation model applies appropriate technology that can be built: easily and meets the requirements of eligibility, safety, security, affordability and provides a sense of comfort for tourists in enjoying maritime tourism transportation services.

Mode-3 provides benefits as a supporter of the coastal economy, with the highest value obtained in; route 2 is IDR 5,330,108 per month.

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