JEJAK

Journal of Economics and Policy

Willingness to Pay of Ecotourism Visitors

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Abstract

This study aims at analyzing the willingness to pay (WTP) of the visitors in Bird Watching Ecotourism in Lake Meno and the factors that influence the WTP value. The research is located in Gili Meno. The method used is quantitative method. The total samples are 38 obtained by accidental sampling. The procedure of analysis used the Contingent Valuation Method and Logit Model. The results showed that in the samples there are 27 people (77.14%) who are willing to pay (dominated by foreign tourists) and eight people (22.86%) who are not willing to pay with various reasons. The average value of WTP that can be proposed as a reference of environmental service is Rp 39,189.

Key words : *WTP, CVM, Logit.*

How to Cite: Paranata, A., Sutanto, H., & Dakwah, M. (2017). Willingness to Pay of Ecotourism Visitors. *JEJAK: Jurnal Ekonomi Dan Kebijakan, 10*(2), 350-360. doi:http://dx.doi.org/10.15294/jejak.v10i2.11299

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INTRODUCTION

Over the last few decades, tourism sector has become an interesting topic to discuss in the study of development economics (Holik, 2016). Indonesia is an archipelago country that has various kinds of species and ecosystem (Chairiyah, 2013). Therefore, with the various diversities, the tourism sector, especially in the region, can be a force in order to develop the potential of each region. The tourism sector in North Lombok Regency (KLU) becomes the backbone of the regional economy. The Three Gili Islands in Lombok is now famous as one of the most destinations that are visited by tourists. In fact, the area is always crowded by the domestic and foreign tourists. The region is famous as Gili Matra (Gili Meno, Gili Air and Gili Trawangan).

The swift flow of tourists visiting the region of Three Gili does not only occur on weekends and school holidays but almost every day. Here is the presentation of data on the number of tourists visiting the Three Gili Islands. Based on the information presented in table 1 above, it shows that the number of tourists' visits is dominated by the foreign tourists. Overall the number of tourists is 28,000 people. In April the number of tourists' arrivals has not been recorded as a whole. However, the development of tourists' visit data in Gili Meno is the lowest among the two other gili. It is because Gili Meno has fewer lodging facilities compared to Gili Trawangan and Gili Air. Moreover, Gili Meno is designed as a special destination for the visitors who look for peace with a natural atmosphere.

Gili Meno has an area of ± 150 ha with a circumference of ± 4 km island. Geographically it is inseparable from the other two gili, which located at 8º 20º - 8º 23º LS and 116º00º - 116º 08º BT. Administratively Gili Meno is included in Gili Indah Village, Pemenang District. Gili Meno has its own uniqueness. The uniqueness that can be found in Gili Meno is a salt water lake located in the middle of the island, and also the mangrove forests that are home to a variety of fauna, one of which is birds. Hadiprayitno (2000) found 34 bird species belonging to 16 families. Later, Hadiprayitno and Saleh (2001) and Hadiprayitno and Abdurrahman (2002) recorded 28 species of birds belonging to 12 families. In 2009 the research was continued and recorded 25 species of birds belonging to 15 families.

Furthermore, Atmanegara (2010) has found eleven species of birds in Gili Meno that belong to four families. Meanwhile, the following year Hadiprayitno (2010) claimed that he has found twelve bird species belonging to five families. Atmanegara explained that the species of birds found did not have too much difference with Hadiprayitno's findings. Hadiprayitno (2012) explained that the different types of birds found previously are caused by various factors, including the reduction of the lake water that occurred when the research was conducted.

Table 1. Tourists' Visits in Three Gili, North Lombok Regency, until April 2015

Month	Trawangan		Meno		Air		Total
	Indonesia	Foreign	Indonesia	Foreign	Indonesia	Foreign	
January	3,704	15,953	1	493	233	7,725	28,109
February	3,127	18,992	20	83	153	7,270	29,645
March	4,092	16,554	11	96	225	7,839	28,817
April	-	-	9	38	-	-	47

Source: Office of Tourism KLU, 2015

In rainy season the volume of water increases, while in dry season the volume of water decreases, resulting in the reduction of the resources in it (fish). Besides, the destruction of mangrove forests also triggers the reduction of bird species in Lake Meno.

Variety of bird species in Gili Meno, especially in Lake Meno may be the special attraction for the tourists, so the existence of the fauna needs to be preserved. This form of conservation can be tested from the tourists' willingness to pay for the nature tourism services in Lake Meno that is bird watching. Besides, the role of Gili Meno community is also considered very important in maintaining the sustainability of Lake Meno Bird Watching Ecotourism. According to Ahyadi, et.al.(2014), mangrove forests around Lake Meno have great potential for developing bird watching tourism area. But the Gili Meno people have a great dependence on the mangrove forests, especially for firewood, so that it causes an increase in forest destruction.

The future potential development of bird watching ecotourism is largely deter-mined by various stakeholder behaviors. Therefore, the research becomes very inter-esting because not only seeing the behavior of the surrounding community in maintaining the sustainability of mangrove forests as the habitat of various species of birds but also seeing the response of the tourists related to their willingness to pay for the bird watching ecotourism in Lake Meno.

Darmayanti (2001) conducted a research to determine the amount of recreational benefits with the Travel Cost Method and the Contingent Valuation Method approaches. The results obtained that the economic impact of the existence of Bali Bird Park (BPP) for the surrounding community from both Singapadu Village and from outside the village is quite beneficial because most villagers are the art workers and their products can be sold around the BPP area.

Then, Marjuka (2007) conducted a research at the small island tourism object in Kepulauan Seribu (Thousand Islands) with travel cost method. The results show that on the ecotourism object of coastal area of Kepulauan Seribu, the average willingness to pay is Rp 50,641.2 per 1000 people or equals to 23,034 per visit. The value paid by the consumers is Rp 32,108.69 per 100 people or Rp 14,605 per visit and the consumer surplus is 18,550.43 per 1000 people or Rp 8,429 per visit.

Furthermore, Miandi and Arifin (2010) conducted a research on the development and management plan of the landscape of Lake Kerinci tourism object in Kerinci Regency, Jambi. The objective to achieve is to analyze the existing condition of the landscape of that area. The method used is survey method. The results obtained that there are still weaknesses of the funding deficiencies such as the following: 1) the management and maintenance of the landscape is still low, 2) the condition of are is arid and hot, 3) the division of space for recreational activities is not clear and 4) the number of managers is very little.

A research was also conducted by Suja and Budiarta (2012) that aimed at finding a model of Lake Buyan ecotourism development as a tourist object in Bali. The method used is the contingent valuation by exploring the individual response about willingness to pay (WTP) per visit. The results obtained in the field of the total value benefits without the use of Lake Buyan ecotourism area as a tourist object depend on the WTP that amounted to Rp 11,646,800

Furthermore, Maria et.al.(2013) conducted a research on the economic value of ecotourism of Lake Sentarum National Park in Kapuas Hulu Regency, West Kalimantan Province. The method used in this research is Stepwise

Regression with dependent variable (Y) = visit per 1000 inhabitants, X_1 is the total average travel cost from each zone (Rp / org), X_2 is the average visitor age, X_3 is the average income (Rp / org), X_4 is the level of education (year), X_5 is the length of visit (day). The result is R_2 88,7%. The effect of these four variables is significant in 95% of confidence degree. If there is no additional price of admission, it is estimated that the number of visits per year of 409 visitors with the economic value of ecotourism in this area is a value of Rp 332,904,984. Actually the visitors have willingness to pay Rp 486,970,684 so that the consumers' surplus obtained is Rp 154,065,699.

Mahyuda et.al. (2013) conducted a research on the potential of Lake Bekat in Sanggau Regency. The method used is the descriptive method based on the Standard of Rewarding and Development of Natural Tourism Object issued by the Commission for Cooperation of Assessment and Development of Nature Tourism Object (1993). The result shows that the attractive potency of Lake Bekat is categorized enough (C) to be a water tourism destination, which means that Lake Bekat can be used as a tourism object but there are still some things that require special attention from the surrounding community or the local government.

More than that, Hadiprayitno (2014) conducted a research on Lake Meno as a learning media for observation of bird bio-ecology in North Lombok. Some bird species are endemic and protected by the law. Lake Meno is an area that has a significant meaning as a habitat that supports the life of species of birds that are important in conservation.

Ahyadi, et.al.(2014) also conducted a research in the same location. But here, the researchers tend to direct the research more on the development of bird watching ecotourism by doing action research with Participatory Rural Appraisal method. The bird watching training has succeeded in increasing the knowledge and skills of Meno Lestari Group in conducting bird watching in the field. A total of 25 species of birds have been well identified by the group.

Buaton and Purwadio (2015) examined what criteria can be developed in Lake Toba Tourism Area, Prapat, North Sumatra. The method used is descriptive and Delphi analysis. In the formulation of development criteria, a triangulation analysis is applied. Haisl's research indicated that the development criteria of Lake Toba must have a cool climate, environment without pollution, the community participate in maintaining cleanliness and environmental sustainability, tour packages around the tourism objects in Parapat and tour packages with Samosir tourism area in Tomok and Tuk-Tuk, the role of institution in managing the tourism and abstraction of Tor-tor dance culture tourism and Gondang Batak music and the utilization of online media for promotion.

According to Douglas (1982) in Darmayanti (2001), the demand for recreation is the number of recreational opportunities desired by the community or the total description of public participation in recreational activities in general that is expected when adequate facilities are available or when fulfilling the community's wishes.

Badrudin (2001) defined tourism as a journey from one place to another, temporary, conducted by individuals and groups, in an effort to find balance or harmony with the environment in the social, cultural, natural, and scientific dimensions.

According to Pendit (2000: 20), everything is interesting and worth to visit and seen is called the attraction or commonly also called tourism object. The attraction Includes amazing

panorama of natural beauty such as mountains, valleys, canyons, waterfalls, lakes, beaches, sunrises, sunsets, weather, air etc. Besides, it also includes some of the cultures of human creation such as monuments, temples and classical buildings, ancient relics, cultural museums, ancient architecture, dance, musical art, religion, customs, ceremonies, festivals, anniversaries celebrations, matches, or cultural activities of a special, prominent and festive nature.

The travel cost model is used to see the amount of time and money the visitor spends on traveling to a place as a proxy or a price substitute, together with the level of participation and the characteristics of visitors to estimate the recreational value of the place (Basuni 1997).

According to Hufschmidt et.al. (1996), the core of the travel cost approach is that the cost of traveling to a recreation place will affect the number of visits made by a person. The farther a person's home to come utilizing the facilities of tourism objects are, the less the opportunity to take advantage of the place will be. The assumptions in the trip cost approach are as follow: 1) all users receive the same total benefits over recreational benefits and this equals to the cost of the marginal user that is zero; 2) the surplus of the marginal user consumer is zero; 3) the travel cost is the price change data; 4) the person at all distance will consume the same amount for a certain cost.

Furthermore, the contingent valuation method (CVM) is used in rural surveys and the CVM tourist survey is used as an alternative method of the travel cost method to estimate the park's total value for the tourists. This question is arranged within the limits of how many tourists will have the willingness to pay for their travels if the new parks are built for their visit (Basuni 1997).

The assumptions used in the contingent method according to Davis and Jhonson (1987) in Safri et.al. (1996) are as follows: 1) respondents must be representative and comparable for all surveys, 2) in the first survey the visitor must have enough ability to develop the relative value, 3) interview and questionnaire can objectively determine the value of benefits without any different interpretation of each respondent

Meanwhile, according to Pearce and Turner (1990) in Safri et.al.(1996), this approach can lead to several biases in the following: 1) bias due to the strategy to get the correct answer; 2) bias due to the design of the questionnaire because of different understanding of means of payment (tax and entrance ticket prices). Based on the above background, this research has a purpose that is to analyze the willingness to pay visitors to the Bird Watching Ecotourism in Lake Meno and the factors that affect the value of WTP.

RESEARCH METHODS

This research was conducted at North Lombok Regency, Gili Matra area (Meno, Trawangan and Air), precisely in Gili Meno. The research was conducted for six months. The respondents in the research are the tourists who visited Gili Meno both abroad and domestic. The sampling technique was done by accidental sampling of 35 people. There are several stages of method in data analysis as follows:

Analysis of the tourists' (visitors') willingness to pay the "levy" of bird-watching eco-tourism as an effort to conserve the Nature. Logit model is as follows:

$$L_i = \left(\frac{e^{(\alpha + \beta x)}}{1 + e^{(\alpha + \beta x)}} \right) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots1$$

So there will be a form of logit model:

$$L_i = \beta_0 + \beta_1 TP_i + \beta_2 PD_i + \beta_3 PM_i - \beta_4 FK_i - \beta_5 BK_i + \varepsilon_i$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots2$$

where:

L_i = middle value of WTP
       respondent (Rp)

β_0 = Intercept

$\beta_{1,...}\beta_6$ = coefficient of regression

PD = average income monthly
       (Rp)

BK = Visit's Cost

PM = Knowledge of benefits of
       Bird-Watching ecotourism
       (valued 1 for "Know" and
       valued 0 for "Not Know"

FK = Visit's Frequency

i = the-i respondent $(i = 1,2,3$
       $...n)$

ε = galat

Analysis of WTP Value from Tourists by creating a hypothetical market. If the bird-watching ecotourism manager plans to preserve Lake Meno to keep the ecosystem function and the preservation, thus, the manager will also expect the funding for the participation of tourists who come to visit where the funds will be managed as operational funds such as improving areas, buying facilities and supporting infrastructure.

The technique to getting bids of value of WTP used method of open questioning approach because in this research wanted to know the tourists' concern that can be seen from the lowest to the highest WTP the tourists give so that the manager will know the amount of services that can be reached by the community.

Estimating the WTP Average Value (Calculating Average WTP). WTP can be expected by using the average value of the overall value. The following is the formula:

$$EWTP = \frac{\sum_{i=1}^{n} W_i}{n}$$

....3

$EWTP$ = expected average of WTP

W_i = The-I WTP value

n = number of respondents

i = the-i respondent willing to pay

The sum of data is the process in which the middle value of the bid is converted to the total population concerned. After guessing the middle value of WTP, the value of Total WTP from the tourists can be assumed.

$$TWTP = \sum_{i=1}^{n} WTP_i \left(\frac{n_i}{N}\right) P$$ 4

TWTP = Total WTP

WTP_i = WTP the-i individual sample

n_i = the-i sample willing to pay WTP

N = Number of sample

P = Number of population

i = The-i respondent willing to pay
     retribution (i=1,2,3...n)

Evaluating CVM Usage
Analysis of WTP Function

Regression equation of WTP value in this research is:

$$WTP_i = \beta_0 + \beta_1 PD - \beta_2 BK_i + \beta_3 PM_i - \beta_4 FK_i + \varepsilon_i$$

....5

In which :

WTP = middle value of WTP respondent (Rp)

β_0 = Intercept

$\beta_{1,...}\beta_6$ = regression coefficient

PD = Average of monthly income (Rp)

BK = Visit Cost

PM = Knowledge of benefits of *Bird Waching* eco-tourism (valued 1 for "Know" and valued 0 for "Not Know"

FK   = Visit Frequency

i   = the-i respondent *(i = 1,2,3 ...n)*

ε   = galat

Parameter of testing is conducted to check the model's goodness, which steps are Test G, Wald Test, Test t Statistic, F Test Statistic and Deviation Test (Multicollinearity, Heteroscedasticity Test, Odd Ratio).

RESULTS AND DISCUSSION

Lake Meno is in Gili Meno KLU. In general, Gili Meno is not as busy and as dense as the two other Gili (Gili Trawangan and Gili Air), because besides having the small area, it is usually visited by tourists who want high privacy. Of the 35 samples taken, most of the tourists are 69% of foreign tourists and 31% of domestic tourists, which cover 51% female and 49% male. Furthermore, there are two civil servants, four students, and 29 private employees. Respondents who are "willing to pay" are 27 and who are "not willing to pay" are eight respondents.

In the logit model the results show the data processing that the difference (-2 Log likelihood before the independent variables enter the model: 37.628 minus -2 Log likelihood after the independent variable enter the model: 36.494 = 1.134) is the chi-square value 1.134. The significance value of 0.889 (> 0.05) thus receives Ho, which indicates that the addition of the independent variable cannot bring a real effect on the model. This means there is no significant influence simultaneously from the four variables to the willingness to pay because of the p value. For Pseudo R Square, Cox & Snell R Square and Nagelkerke R Square values are used. The value of Nagelkerke R Square is 0.048 and Cox & Snell R Square 0.023, indicating that the ability of independent variables in explaining the dependent variable is 4.8% and there are 100% - 4.8% = 95.2% other factors outside the model explaining the dependent variable.

Hosmer and Lemeshow Test is a test of Goodness of fit test (GoF), which is a test to determine whether the model formed is correct or not. The value of Chi Square Hosmer and Lemeshow calculate 4.685 <Chi Square table 7.82 or significance value of 0.000 (> 0.05) so as to receive Ho, indicating that the model is acceptable and the hypothesis testing can be done because there is no significant difference between the model and the value observation. Furthermore, the result of parameter estimation is presented in the following table:

Table 2. Step 1 – Independent Variable Testing

Variable	Coefficient	Wald Test	Significance	Odd Ratio
Constanta	0.818	0.307	0.725	2.267
PD	0.357	0.123	0.916	1.429
BK	0.100	0.011	0.831	1.105
MFT	-0.179	0.045	0.790	0.836
FK	0.2280	0.071	0.580	1.322

Source: Data Processed

All independent variables of P value of Wald test (Sig)> 0.05, which means that each variable has no significant partial influence to the chance of WTP in the model. The magnitude of influence is indicated by the odds ratio (OR). The average variable of income is with OR 1.429 then the respondents with high income are more willing to pay 1.429 times compared to the low income respondents. Value B = Natural Logarithm of 1.429 = 0.357. Since the value B is positive, the average of income has a positive relationship with the WTP. Based on the fact of study, the trend of this result is obtained because the respondents often encountered are foreign tourists where their response to the environmental improvement is very good.

The results indicate that the average variable of income does not significantly influence Lake Meno Bird Watching ecotourism, but it positively correlates indicating the lack of attention of the tourists to the existence of ecotourism. Moreover, the ecotourism is located in Three Gili Area where Gili Meno is minimally visited. Besides, more tourist activities are spent in Gili Trawangan that provide more complete party facilities and the average of tourists will spend the holiday (and money) there. According to the data, there are no respondents with average income above Rp 1 million. It should be expected that for the tourists that if they have an average of income above Rp 1 million, they will be willing to pay for the services of Bird Watching ecotourism.

In variable cost of visit with OR 1.105, the respondents with big cost are more willing to pay 1.105 times compared to the respondents with low cost. Because value B is positive, the cost of visit has a positive relationship with WTP. Of course, the respondents with high costs are foreign tourists with high expectations of the objects they visit. Moreover, the object visited is a bird-watching ecotourism that is united with Lake Meno. Therefore, for the visitors, paying more services for the environmental quality improvement around the ecotourism is considered as an investment for the environment.

However, in fact the cost of visits does not affect the WTP opportunity variables. This is understandable considering that Bird Watching tourism object has not been managed optimally by the Local Government so it possibly will break the expectations of the tourists on a visit to the object. The lack of promotion and spatial arrangement of a good area becomes the trigger of the low chances of WTP tourists although the visit is as an effort to preserve the environment.

The variable knowledge of the benefits of Lake Meno Bird Watching Ecotourism is with OR 1.323, so the respondents who know the benefits are more willing to pay 1.323 times compared to those who do not know that. These variables have a positive relationship with WTP opportunities. Based on the results of data processing, it is known that although it has a positive relationship but partially the variable of knowledge of the benefits of Bird Watching ecotourism has no significant effect.

Tourism area of Three Gili is included in the kind of nature tourism area. Most tourists spend the holiday time just to have fun enjoying the beautiful beach area at Three Gili. Among the tour packages offered in Three Gili, none of which offers a trip to Lake Meno. Therefore, although the tourists know the benefits of Bird Watching ecotourism but it does not mean that it will increase the opportunity of WTP because it does not include the priority objects visited. Of course the characteristics of Lake Meno - Bird Wacthing are included in the special interest tours. The government needs to cooperate with the tour and travel agents in Three Gili area an also in North Lombok so that in the package of tourist trip the object of Lake Meno also becomes the target.

The above thing also applies equally to the traffic frequency variable. It can be seen that with OR 0.836 the respondent with frequency of visit more than 1 times are more willing to pay 0.836 times compared to the respondent with frequency -1. This means that if the frequency of respondents <2 times, the respondent is willing to pay, vice versa. The meaning of the data processing is clear that Lake Meno, especially the Bird Watching ecotourism has not become a priority of tourists. Therefore, the local government's efforts in handling and managing

the ecotourism must be maximized by the effort of cleaning the area, providing the officers and the tour guides, cleaning the lake, providing the water sports facilities, providing public toilets appropriate for the tourists. After all facilities and infrastructures are well provisioned, the government can provide reciprocal services for the Lake Meno Bird Watching ecotourism area.

Furthermore, based on the calculation of the average value of WTP with 27 respondents who are willing to pay, the average value of WTP is Rp 39,189. The average value of WTP is quite representative considering the efforts of Lake Meno conservation area along with the entire ecosystem in it will take a long time if there is the damage either natural or not. For that reason, the economic value of Lake Meno area based on the calculation is considered quite appropriate.

The local government of KLU must seize the new opportunities as revenue of PAD from the new post that is Lake Meno Bird Watching Ecotourism. Adaptive efforts such as rearranging the area with processes such as waste cleaning activities around the lake area, maintaining the cleanliness of the lake water, creating a guard post in some places around the lake, providing a garbage can, clean toilet providers for visitors and also providing a basic reference about bird fauna in mangrove forest of Lake Meno (in cooperation with related institutions for inventory).

Moreover, based on the results of multiple linear regression testing, the results are obtained as presented in the following table 3. Based on the results in table 3, it is known that t-table is 1.697. In the first variable, t-count is smaller than t-table, which means that if the income increases one unit, it will cause a decrease in the mean value of WTP. This becomes interesting because the

assumption is that it goes the same way. However, in the case of Lake Meno Bird Watching Ecotourism, these assumptions do not work. One of the allegations that make it happen is that Lake Meno is not the top priority of the tourists. The problem is that the government does not provide promotional space for the ecotourism.

Table 3. Result of Regression Test

Variable	Coefficient	t-count	Significance
Constanta	34692.70	4.270	0.000
PD	-0104	-0.521	0.606
BK	0.613	3.217	0.003
MFT	-0.268	-1.871	0.071
FK	0.109	0.775	0.444

Source: Data Processed

Furthermore, the second variable t-count is greater than t table. The cost of increased visits leads to an increase in the average value of WTP. This indicates that the more foreign tourists are, the more the WTP will also increase. This means rejecting the initial hypothesis posed in the model with a negative sign. Of course this is a great opportunity for the management of Bird Watching ecotourism if the object becomes a target trip moreover the area of Tiga Gili especially Gili Meno is dominated by the foreign tourists. For the third variable it is known that t-count is greater than t table.

The more increasing the knowledge of respondents to the efforts of the Lake Meno area preservation is, it will reduce the average value of WTP. This is in contrast to the proposed hypothesis. It could be possible that the higher the level of knowledge is not directly proportional to the level of education of the respondents. In this case, only the high level of knowledge on the benefits of Bird Watching ecotourism does not mean there are high levels of willingness to pay of the respondents.

In the fourth variable t-count is smaller than t table. This means that the higher or the more frequent the visits to the Lake Meno Bird Watching ecotourism area is will increase the awareness of willingness to pay of the tourists. This is in accordance with the hypothesis proposed in the model. Of course, with any improvements made by the local government as the owner of the regional authority, it is not impossible that there will be an opportunity for high number of tourists, especially in Lake Meno, which will affect the PAD of the tourism sector. Besides, the calculation results obtained R Square value of 0.472. In other words, there are still variables that need to be considered for inclusion in the willingness to pay model for Lake Meno Bird Watching ecotourism.

CONCLUSION

To capture the opportunities of PAD revenue from tourism posts, particularly the special interest tourism such as Lake Meno Bird Watching Ecotourism, the KLU Local Government should make the area the priority of special conservation or improvement. So far, when viewing the facts, the field seems neglected. More attention from the local government is desirable for the sustainability of Lake Meno ecosystem particularly the existing bird habitat.

Furthermore, it needs an institutional strengthening one of which is the legal umbrella of Lake Meno area and the ecosystem in it. The imposition of tariff or environmental service can be combined with the entrance ticket of Three Gili area.

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