Visitors’ Willingness to Pay for The Existence Value of A Coastal Ecosystem on Rupat Island, Bengkalis Regency, Riau Province, Indonesia

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Abstract. This current work was conducted on July 2021 in Rupat Island, Regency of Bengkalis, Province of Riau. The study aimed to estimate visitor’s Willingness to Pay (WTP) and analyze factors contributing to the funding in attempt to develop ecotourism of Rupat Island. Outcome of this work can be beneficial to tourism management in relation to improvement of service and facilities that support tourist activities. Primary and secondary data were collected using interview and field observation. Population of the study included travelers in ecotourism of Rupat Island, while those accepting interview were regarded as sample or respondents. In this regard, number of respondents reached 30 persons. Data were collected through Contingent Valuation Method approach and then analyzed using logistic regression. As the results, average value of visitor’s WTP was Rp15.429, with the lowest and highest of IDR3.000 and IDR30.000, respectively. For a month, total visitor’s WTP could reach IDR231.428.571. Furthermore, analysis on factors contributing to WTP significantly revealed that visitor’s income showed positive correlation with WTP, while travel cost and distance showed contrast result. Other factors, i.e. age, education and sex, showed no effects on decision of WTP in development of Rupat Island as ecotourism in Bengkalis.

1. Introduction

Ecotourisms have provided considerable advantages for local people through the increase in income, creation of job employment and diverse business activities. The growth of ecotourism activities attracts more domestic and foreign tourist inflow to enjoy splendid natural attractions. Local people living near the tourism spots benefit financially from tourist’s activities. Despite generating economic benefits, concern on environmental disadvantages due to tourism industry should be considered.

The growth of ecotourism in Rupat Island has recently received concern from local people in its relation with ecosystem sustainability. Ecotourism promoting the idea of natural resource improvement is a mission of constructing an alternative tourism that essentially supports environmental and sociocultural condition [1]. Tourism activities such as snorkeling, canoeing and fishing closely relates to the environmental attributes. Adverse tourist behavior is also a crucial factor that harms environment [2]. However, some researches revealed that tourists’ behavior could be different, depending on their knowledge and perspective on environment [3], [4], and [5].
As mentioned by a researcher [6], ecotourism can be defined as responsible travel to natural spots that support the attempts of environment conservation and welfare of local inhabitants. In case of Rupat Island, local people in that area are economically susceptible and not well educated. The increasing ecotourism activities in this area may bring positive impact to social and economic status for local communities.

Wonderful natural spots in Rupat Island are a form of environment service that brings economic benefit to local inhabitants. The benefits could affect, either directly or indirectly, the economic growth and ecology. Therefore, there is a need to calculate an optimum level of tax based on perception of tourists in respect to natural resources and environment [7]. The condition of natural resources remarkably affects Willingnes to Pay (WTP) of tourists travelling to ecotourism in Rupat Island, Regency of Bengkalis.

2. Material and methods
This present research was conducted on July 2021 in ecotourism of Rupat Island, Bengkalis. The study site was purposely determined regarding that the area has developed rapidly as one of the most favorite destinations.

Field observation was conducted to capture directly current situation and problem. The stage helped researchers in finding detail explanation and description, enabling to collect comprehensive data [8]. Population targeted in this work included tourists and prospective travelers willing to visit Rupat Island. A total of 30 respondents were accidentally sampled. Primary and secondary data were collected. The tourists were interviewed according to a prepared questionnaire and documented to obtain primary data. Meanwhile, data from literature study and relevant government institutions were collected as secondary data.

Factors affecting WTP for development of ecotourism in Rupat Island were analysed using logistic regression, while WTP value was determined using Contingent Valuation Method (CVM) [7]. The method applied as known as effective and widely used approach to estimate WTP in environment resource with multi attributes [9], [10] and [11]. Adjusted R² from multiple linear regression was applied to evaluate the use of CVM.

3. Result and discussion
Analysis of factors affecting visitor’s WTP on development of ecotourism in Rupat Island, Regency of Bengkalis, was applied using logistic regression. The variables included travel cost, income, age, distance, education and sex. The regression model was obtained as follows:

\[ Ln = 3.056 Y - 0.406 X1 + 0.527 X2 - 0.681 X3 - 0.397 X4 - 0.605 X5 - 0.028 X6 \]

Based on multiple linear regression, adjusted R² is 0.663 with significance of 0.00000276 (p<0.05). This means that studied variables in the model significantly affect the decision of visitor’s WTP in ecotourism of Rupat Island. Among these variables, visitor’s income shows a positive impact to WTP, while travel cost and distance are two variables that negatively relate to WTP. The results complied with previous studies [12], [13], [14], and [15]. However, we found that age, education and sex did not affect visitor’s WTP for development of ecotourism in Rupat Island.

Furthermore, the average of WTP value was counted from mean of the values. WTP value is essential to provide description for tourists in attempt to conserve environmental attributes. Additionally, implementation of WTP enables to change tourist behavior regarding to protection and conservation of environment. The value can relate to not only financial benefit, but also conservatory actions for future [16], [17], [18], [19], [20], [21], [22] and [23].
**Table 1.** Average value of WTP given by respondents in attempt to develop ecotourism of Rupat Island in Regency of Bengkalis, Province of Riau

| No | WTP (IDR/ respondent) | Number of respondents | WTP x respondent (IDR) |
|----|-----------------------|-----------------------|------------------------|
| 1  | 3.000                 | 9                     | 27.000                 |
| 2  | 5.000                 | 9                     | 45.000                 |
| 3  | 10.000                | 6                     | 60.000                 |
| 4  | 15.000                | 4                     | 60.000                 |
| 5  | 20.000                | 2                     | 50.000                 |
| 6  | 25.000                | 2                     | 50.000                 |
| 7  | 30.000                | 1                     | 30.000                 |
| **Total** | **33** | **IDR 312.000** | |
| **Average** | | **IDR 15.429** | |

The sum of individual accumulation in one option of WTP value was used to estimate WTP curve (Figure 1).

![Figure 1. The estimated curve of visitor’s WTP in attempt to develop ecotourism of Rupat Island in Bengkalis, Riau.](image)

The results showed that average score of WTP was Rp15.429. It can be used as a reference in determining an entrance fee. The fee is collected for supporting environmental conservation in Rupat Island. Using the average of Rp15.429, total WTP monthly collected from 15.000 visitors reached Rp231.428.571 per month. The fund is essential for maintaining tourist spots in Rupat Island, while it can be also used to conserve environment and protect all wonderful attractions; therefore, these resources still exist for future generations. Such sustainability may also bring economical benefit to local inhabitants. This is in line with a previous research [24], reporting that WTP in Gua Pindul reached Rp371.868.750/month, while [25] reported WTP in sea tourism Benan island reached Rp54.627.141.360,5 per year collected from domestic and foreign tourists.

4. **Conclusion**

The study revealed that visitor’s income was significantly noted as a factor that positively contributed to WTP; on the contrary, travel cost and distance negatively related to WTP. Other factors studied, i.e. age, education, sex, did not affect WTP. The average value was Rp15.429 for each attendance, and monthly funding was estimated to reach Rp231.428.571, with 15.000 visitors per month. Ecotourism in Rupat Island provided huge impacts to the locals, thus efforts for enhancing the tourism destination...
should be carried out according to WTP. The funding support from visitor’s WTP shall be managed properly to ensure the sustainability of Rupat Island ecotourism.

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