

An Economic Valuation of the Repang Muaif Bird Watching Area

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The aim of this study is to see how much the utilisation of the tourism potential of the Repang Muaif Bird Watching Area in Jayapura Regency could increase the economic value of it for the region. This study uses a sample of 15 groups consisting of 52 visitors. The results of the study show that the total revenue from the management of the Repang Muaif Bird Watching Area Jayapura Regency increases sharply.

Key words: *Economic Potential, Economic Value, Willingness to Pay (WTP).*

Introduction

Tourism has become a rapidly growing industry in the past few decades globally. Tourism can encourage rapid economic growth through the provision of jobs, increase in income, living standards and it is also considered capable of stimulating other productivity sectors. The development of tourism in each region can have a positive impact on the surrounding community (Yuliari & Riyadi, 2019). Tourism can be divided into several types and includes cultural tourism, health tourism, sports tourism, commercial tourism, industrial tourism, political tourism, convention tourism, social tourism, and agricultural tourism.

Forest resources play a role as an economic driver that can be identified in several ways, as follows: firstly, in relation to the provision of foreign exchange to develop other sectors that require technology from abroad; secondly, in relation to the provision of forests and land as initial capital for the development of various sectors, especially for plantation, industrial and other economic sectors; and thirdly, with respect to the role of forestry in environmental and social environmental services. These three roles are related to the role of forest resources as a potential economic driver that is highly complex and interrelated (Syamsu Alam, Supratman, Muhammad Alif KS, 2009).

According to Fauzi (2006), besides the production of goods and services that can be consumed either directly or indirectly, natural resources can also be used to produce environmental services that provide benefits in other forms, such as the benefits of amenities which are linked

to beauty and tranquillity. These benefits are often referred to as the benefits of ecological functions that are not always quantified in a comprehensive calculation of the value of resources. This value is not only related to the market value of goods produced from a resource but also includes the value of environmental services that results from these resources.

Papua Province is one of the provinces in Indonesia with abundant biodiversity. Stretching across a very large area, Papua Province offers great tourism potential. The Repang Muaif Bird Watching area in Jayapura Regency is a tourist destination for both domestic and foreign tourists. The Repang Muaif Bird Watching area has vast tracts of unspoiled forest. These conditions are the main attraction for domestic and foreign tourists. Rheapang Muaif is a village that is administratively included in the administrative area of Nimbokrang District. Nimbokrang District is one of the districts in Jayapura Regency out of a total of 19 Districts and is located between 139o-140o East Longitude and between 2o-3o South Latitude. The area of Nimbokrang District is 774.8 km², or around 4.42% of the total area of Jayapura Regency. Kampung Jam Rhoa Muaif is included in the administrative area of Nimbokrang District, Benyom Jaya I Village, namely Benyom Jaya II, Nembukrang, Nimbokrang Sari, Berab, Wahab, Hamokrang, and Bunyom (WWF Indonesia, 2016).

Based on the results of the Diversity Database Development on Bird Species in the Rheapang Muaif region conducted by WWF Regional Papua in 2016, it was found that the Rheapang Muaif region has a high diversity of birds. There are 84 bird species from 31 families in the forest, 64 species of which have conservation status and are spread across the forest lowland from secondary forest to primary forest types. The Rheapang Muaif region fulfils two important regional criteria for birds because there are species of *Casuaris unappendiculatus*, *Harpyopsis novaeguineae*, *Goura victoria*, *Psittaculirostris salvadorii* which are classified as threatened species. In addition, there are various types of *Epimachus bruijnii* which are classified as near threatened. The second criterion includes the species of bird known as *Psittaculirostris salvadorii* which is a species with a limited distribution in the lowland forest areas of northern Papua; this species is included as an endemic species. Based on the analysis of objects and natural attractions (ODTWA), the Rheapang Muaif region has the potential to be developed into a natural tourist attraction, especially the Isio area. The development strategy based on the SWOT analysis entered in quadrant II used a diversification strategy using all available strengths to overcome the threats that arise in the development of natural tourism in Rheapang Muaif.

By observing the potential of natural tourism at the Repang Muaif Birdwatching area, the concept of developing tourism in the region can be examined. In order to increase the economic value of Repang Muaif Birdwatching area, it is necessary to conduct an economic valuation of the Repang Muaif Birdwatching area.

Thus, this research specifically aims to 1) Identify the characteristics of visitors of the Repang Muaif Birdwatching area in Jayapura Regency in order to increase visitor interest; 2) Provide a more definitive picture of the potential of the Repang Muaif Birdwatching area in Jayapura Regency by way of a study of the distribution of locations and the availability of natural resources based on data from relevant agencies and field surveys of the potential of the Repang Muaif Birdwatching area; 3) Provide an overview of the economic value of the Repang Muaif Birdwatching area in Jayapura Regency.

Literature Review

There is limited research on teaching, learning and communicating the core concepts of Ecology and Environmental Economics. However, highlighting these issues are important in order to find more effective teaching activities, and for supporting public debate about ideas which aim to shape a sustainable future. This paper investigates teaching and learning about one of the concepts that is most widely researched, applied and contested in Environmental Economics and Ecology: namely, Ecosystem Assessment and Valuation (ESAV). It presents students' conceptions of ESAV which were obtained through group discussions. Transcripts were analysed using phenomenographic and documentary methods. This analysis focuses on the way students describe the ecological, social and economic aspects, and on the criteria they use to make political and management decisions. The main result is that students tend to see nature as a place of recreation and wildlife, they do not see knowledge as uncertain and almost never bring up the idea of economic valuation. Based on students' conceptions, as well as research from Ecology and Environmental Economics and Economic Education, a curriculum for ESAV is suggested (Beer, 2018).

Although most assessment approaches are useful for explaining ecosystem services at the macro/system level, the application of assessment approaches which are locally relevant and allow more integrated evaluation relevant to decision making are still hampered by data scarcity. The emergence of explicit spatial policy support systems shows special promise for making the best use of available data and simulations. Data collection remains important at a local scale and in areas where data is scarce. Utilising citizen-based knowledge data and knowledge co-generation can support integrated assessments, while at the same time making the assessment process more inclusive, replicable and policy oriented (Pandeya et al., 2016). In addition, comprehensive and critical reviews of biodiversity assessment studies, with special emphasis on biodiversity assessment, are used to illustrate state-of-the-art aspects of this field of research. This helps develop evaluation criteria to identify best practice applications and shows that the field of biodiversity assessment studies is rather heterogeneous regarding the object of assessment and the method of valuation. On the basis of our evaluation criteria and best practice studies, we suggest that to take into account the complexity and abstract nature of biodiversity, a multi-attribute approach that includes the provision of information must be used



which emphasises the role of biodiversity in human welfare (Bartkowski, Lienhoop, & Hansjürgens, 2015).

This forest and economic policy is based on a paper presented and discussed at the International Conference on the New Border of Forest Economics, 26-30 June 2012 held at ETH, Zurich, Switzerland. This paper discusses the need for new frontiers of forest economics, provides an overview of specific issues, and presents thoughts on new frontiers. This paper shows that the knowledge of forest economists involves conjecture, and without contradictory theoretical competition, forest economics will sink into intellectual poverty. Forest economic progress will require endless falsification of new and bold theories to solve problems and strong efforts to refute, to critically assess and discuss, and to empirically test new theories. This paper addresses three areas for new frontiers of forest economics - the integration of science using multidisciplinary and transdisciplinary approaches, the integration of various economic streams, and answering unanswered questions by developing new models and methods (Kant et al., 2013).

The researchers have developed a social optimisation model that integrates financial and ecological costs associated with wastewater treatment and ecosystem damage. The level of reduction in water pollution that is socially optimal was determined by finding an exchange between the costs of controlling pollution and the damage to the ecosystem that was generated. This model was applied to data from the Taihu Lake region in China in order to show this exchange. The cost function of wastewater treatment was estimated with a sizeable sample from China, and the ecological damage cost function was estimated to follow the ecosystem service assessment framework. The results show that the cost function of wastewater treatment has economies of scale in facility capacity, and diseconomies in pollutant discharge efficiency. The results also show that the low value of ecosystem services will cause serious ecological damage. One important policy implication is that the assimilative capacity of the lake must be increased by prohibiting the withdrawal of water from the lake. It is also recommended that more work must be done to improve the accuracy of economic valuations (Jiang, Dinar, & Hellegers, 2018). What type of analysis might be used, which captures the convergent actions of the material and social systems that work together? The Social Ecology Framework, which first emerged in response to the Chicago School for Human Ecology in the early 1900s, developed over the following decades as an effort to integrate it. We review the historical origins of social ecology and basic assumptions. We propose that the social ecology framework can offer useful conceptual foundations for ecological economics scholars. We then illustrate how this analytical lens provides a deeper understanding of system problems and unsustainable assessments (Lejano & Stokols, 2013).

In assessing Willingness to Pay (WTP) under changing economic conditions, two specific questions are asked: a) is WTP stable over time? And b) if not, is change only driven by socio-

economic effects, or something else? To investigate these questions, we use data from a Contingent Valuation Method (CVM) study which was conducted after the Prestige oil spill in Spain in 2006, and the second wave of the same survey was repeated in 2009, after Spain entered a serious recession. The estimated average WTP fell from € 60.36 in 2006 to € 26.92 in 2009 per household, a statistically significant decrease. To investigate the number of WTP reductions due to observability versus changes in preferences between 2006 and 2009, we used the estimated logit WTP coefficient for 2006 with the level of the 2009 independent variable and we obtained an IPA of € 46.37. This estimate was statistically different from the 2009 estimate (€ 26.92). In the same way, using the 2009 WTP log coefficient with 2006 data, we obtained an estimate of € 50.29, which was also different from the 2006 estimate. Implications of these findings for the temporal stability of welfare measures and benefit transfer were also discussed (Loureiro & Loomis, 2017).

The results of research on how to conduct an economic assessment of natural resources have been carried out. This assessment is intended to provide an overview of how much the economic value of a resource is optimally managed in an economy. Yessy Mei Nina Simanjuntak (2009) revealed that the development of Ecotourism had a positive influence on the level of employment opportunities. According to the research, it is known that the economic value of Tangkahan Ecotourism, which includes a large managerial income each year, is quite large. Meanwhile, Sumakul and Patnasari (2013) revealed that the total economic value of the Gunung Sewu Karst area was estimated from the sum of direct use values, indirect use values, choice use values, inheritance values, and very large values of existence. Various benefits were derived from use value, direct use value which provides the largest contribution, 4.81% of the total economic value, followed by indirect use value and option use value. Meanwhile, from the various benefits derived from non-use value, the value of existence provides the largest contribution, which is 93.65% of the total economic value of the KKGS. Whereas Subanti (2013), who examined the Measurement of Economic Benefits of Tourism Objects in Semarang Regency Rawapening area using the Travel Cost Model Approach, and the Contingency Valuation and Choice Model, revealed that the travel cost method showed the factors influencing the number of visits to the Rawapening region were visiting experience, travel costs, income of respondents per month, age, perceptions of respondents related to the decision to visit the Rawapening area in general, and respondents perceptions related to preference for attraction to tourism objects in the Rawapening region. Secondly, the contingency valuation method shows the factors that influence the willingness of respondents to accept a ticket offer in the market hypothesis scenario in the Rawapening region is the nominal price of an entrance ticket to a market hypothesis given to the respondent, monthly respondent income, and education level of the respondent. Thirdly, the choice model method shows the attribute influencing the preferences of respondents in choosing changes in tourism conditions in the Rawapening area, started from travel costs, natural environment, staging Javanese culture, and traditional markets.

Methodology

Scope

This study was conducted in Jayapura Regency by analysing the tourism development planning document of Jayapura Regency. The objects observed in this study include travel costs and willingness to pay for natural resources use. This research was done by conducting preparations, implementation and dissemination activities.

Data Collecting Methods

This research uses secondary and primary data collected using an institutional survey, observation, questionnaire distribution, and in-depth interviews.

Data Analysis Methods

Quantitative Descriptive Statistical Analysis

Quantitative descriptive statistics are the application of statistical methods to collect, process, present, and analyse quantitative data descriptively. Activities included in this category are data collection activities, grouping data, determining values and statistical functions, and finally includes the construction of graphics and pictures.

In this study, quantitative descriptive statistics function to explain the circumstances, symptoms or problems found in the implementation of Jayapura Regency government policy, both of which are sourced from secondary and primary data.

Descriptive statistical methods used in this study include: Frequency distribution, Crosstab Analysis, Time Series Analysis, centralisation and correlation measures.

Contingent Valuation Method

Contingent Valuation Method (CVM) is a survey technique method for asking residents about the value or price they provide for commodities that does not have a market, such as environmental goods (Yakin, 1997). CVM uses a direct approach that basically asks the public how much Willingness to Pay (WTP) for additional benefits and / or how much Willingness to Accept (WTA) there is as compensation for damage to environmental goods. In this study, the approach used is the WTP approach.

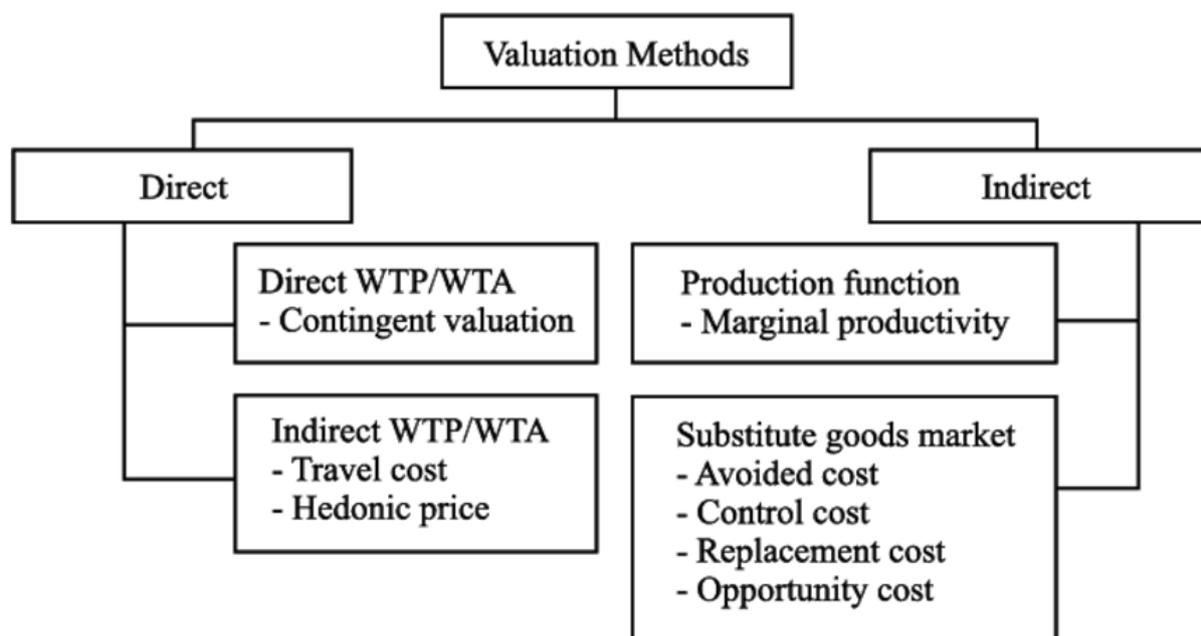
Travel Cost Method (TCM)

According to Yakin (1997), the model underlying this method is to assume that other people will repeatedly travel to a place until reaching the point where the marginal value of the last trip is equal to the amount of money and time has been spent to reach the location and to estimate the value of the benefits of efforts to change the environmental quality of the recreation areas visited.

Data Analysis Method

Primary and secondary data processing, to support the completion of work in accordance with the goals and objectives of the work through the analytical methods in this study, were as follows:

- To answer the first and second research objectives, descriptive analysis methods were used in the form of centralisation measures, ratios, and percentages to describe the results of the study.
- To answer the third research objective, the analysis method used was Total Economic Value. Traditionally, values occur based on interactions between humans as subjects (assessors) and objects (something that is valued). Each individual has a number of values that are said to be the value of mastery (held value) which is the basis of individual preferences. In the end, the value of an object is determined by the various values that are stated (assigned value) by individuals (Pearce and Turner, 1990).



Source: Pearce dan Turner, 1990).

Results and Discussions

Visitor Characteristics of the Repang Muaif Birdwatching area in Jayapura Regency

In this study, the respondent was the head/group leader who brought a group of tourists to visit the Repang Muaif Birdwatching area in Jayapura Regency. The number of groups visiting the Repang Muaif Birdwatching area in Jayapura Regency during the study period was as many as 15 groups.

Table 1: The Gender of Group Leaders Who Visited the Repang Muaif Bird Watching area

Occupation	Female	Male	Total	Percentage
Private	2	5	7	46,67
Civil Servant	2	4	6	40,00
Student	1	1	2	13,33
Grand Total	5	10	15	100

Sumber: Data Diolah, 2019

Most respondents work as private entrepreneurs, and consisted of 7 people, comprising 5 men and 2 women. There were 6 respondents who work as civil servants, comprising 4 men and 2 women. There were 2 respondents who work as students, comprising 1 male and 1 female.

Table 2: The Number of Visitor Groups Based on Residence

Visitors' Residence	Total	Percentage
Jayapura (Jayapura City, Jayapura Regency & Keerom Regency)	12	80,00
Outside of Jayapura	3	20,00
Grand Total	15	100

Source: Data processed, 2019

The visitors to the tour during the observation period at the Repang Muaif Bird Watching area came from the Jayapura region as well as outside Jayapura, while as many as 15 groups or 80% came from the Jayapura area, while the other 20 percent came from outside Jayapura.

Table 3: The Age Group of Group Leaders Who Visit the Repang Muaif Birdwatching Area in Jayapura Regency

Age Group (Year)	Total	Percentage
16 – 25 Years Old	5	33,33
26 – 35 Years Old	4	26,67
36 – 45 Years Old	4	26,67
46 – 55 Years Old	2	13,33
Grand Total	15	100

Sumber: Data Diolah, 2019

The percentage of media information that attracted groups of visitors to the Repang Muaif Birdwatching area in Jayapura Regency was from radio/people's stories, with as many as 14 groups (93.33 %), while the remaining one group (6.67 %) received information from television.

Table 4: The Source of Information about the Existence of the Repang Muaif Birdwatching Area in Jayapura Regency

Information Sources	Total	Percentage
Television (National and Local TV)	1	6,67
Advertising / Promotion (Newspaper, leaflet, etc.)	0	0,00
Other (Radio / People Stories)	14	93,33
Grand Total	15	100

Source: Data processed, 2019

From the 15 groups of visitors visiting the Repang Muaif Birdwatching area in Jayapura Regency, as many as 13 groups travelled for just one day, while two other tour groups chose to take a tour in the Repang Muaif Bird Watching Area for a duration of two days.

Table 5: The Total Days of Travelling at the Repang Muaif Birdwatching Area, Jayapura Regency

Number of trips (days)	Total	Percentage (%)
One day trip	13	86,67
More than one day trip	2	13,33
Grand Total	15	100

Source: Data processed, 2019

During the observation period, the Gamtebang location was the most visited location, with a total of 6 groups, consisting of 22 visitors. The Isio and Korean roads were also found to be appealing to visitors, but not as much as Gamtebang.

Table 6: Number of Visitors at the Repang Muaif Bird Watching Area Based on Observation of the Location

Location of Observation	Number of Visitors	Percentage (%)
Location of Isio	5	33,33
Korea Street Location	4	26,67
Gamtebang Location	6	40,00
Grand Total	15	100

Sumner: data diolah, 2019

The types of vehicles used by each group of visitors were a combination of private vehicles and rental vehicles, where private vehicles were the most widely used by as many as 10, while 5 other groups used rental vehicles to make a tour to the Repang Muaif Birdwatching area in Jayapura Regency.

Table 7: Types of Vehicles Used by Groups in the Repang Muaif Bird Watching Area

Transportation type	Grand Total	Percentage (%)
Private vehicle	10	66,67
Rental Vehicle	5	33,33
Motorcycle	0	0,00
Grand Total	15	100

The Potential of the Repang Muaif Birdwatching Area in Jayapura Regency

The research results of The Bird Species Database Development of the Rheapang Muaif area conducted by WWF Indonesia (2016) showed that based on the results of bird diversity surveys in the Rheapang Muaif area, 84 birds were found, consisting of 31 families. The area of observation includes Isio, Jalan Korea and Gamtebang. The area with the highest number of species from the obtained information was Gamtebang with a total of 61 species; the next was Isio with a total number of 51 species, and the last was Korea Road with 34 species. The low number of species observed on the Korean Road was due to the effort or observation time on the Korean road which was shorter compared to the observation time in the Gamtebang and Isio areas, so the species meeting rate was less compared to the other two locations.

In addition, the results of the aforementioned research also found that the families or tribes of birds that were found originated from 31 families, namely the families of Casuariidae, Megapodiidae, Accipitridae, Columbidae, Psittacidae, Cuculidae, Podargidae, Apodidae, Alcedinidae, Meropidae, Coraciidae, Bucerotidae, Campephagidae, Orthonychidae, Maluridae, Acanthizidae, Pomaostomidae, Monarchidae, Rhipiduridae, Petroicidae, Pachycephalidae, Dicaeidae, Nectariniidae, Meliphagidae, Sturnidae, Oriolidae, Dicruridae, Cracticidae, Ptilonorhynchidae, and Paradidsaeidae. The most successfully observed families

of bird species were Columbidae (14.29%), Psittacidae (14.29%), Cuculidae (7.14%), Camphephagidae (7.14%) and Paradisaeidae (7.14%) (Figure 4). 12 species of Columbidae were found, most of which were frugivores, and most were found in the Gamtebang area. 12 species of Psittacidae were found, most of which were parrots which ate nectars and pollen, and were most commonly found in the Gamtebang area. 6 species of Cuculidae were found, mostly in the Gamtebang Area, while for 6 species of both Camphephagidae and Paradisaeidae were found, with most of the species being found in the Isio area. The high diversity of Columbidae and Psittacidae in the Gamtebang area shows correlation with the forest type. The forest types in the Gamtebang Area are primary forests with lowland tropical forest ecosystem types. These forest types provide a greater niche for types of fruit and flower eaters, where the primary forest ecosystem types that have reached maturity provide various types of plants that produce fruit and flowers. This condition explains why the types of Columbidae and Psittacidae as the eaters of fruit, nectars and pollen eaters are more commonly found in the Gamtebang area.

The average number of visitors in each group was 3 visitors. According to observation of the Gamtebang sites as many as 22 visitors came from 6 groups (42.31%).

Table 8: Average Visitors Per Group at the Repang Muaif Bird Watching Area

Location of Observation	Number of Visitor Groups	Number of Visitors	Average Group Visitors	Percentage (%)
Isio	5	16	3	30,77
Korea Street	4	14	4	26,92
Gamtebang	6	22	4	42,31
Grand Total	15	52		100

The above conditions are supported by the results of research on the Development of Diversity Database on Bird Species in the Rhepang Muaif area conducted by WWF Indonesia (2016). The Shannon-Wiener Index shows that the Gamtebang area has the highest diversity level with a value of 3.73 with the number of individuals successfully obtained numbering as many as 249. The Isio area has a diversity index value of 3.62 with 230 individuals successfully obtained, while in the area Road of Korea the value is 3.27 with the number of individuals numbering as many as 134. High diversity in the Gamtebang area shows the condition of primary forests at climax conditions capable of providing niches which is broader for bird species, showing that it can support high bird diversity, whereas in secondary forests in the Isio area and Korean Road the value is slightly lower than primary forests but it still falls into the high diversity category. In addition, the relative abundance of bird species is only found in the Isio and Gamtebang areas, covering 78 species from 30 families. The relative abundance of the calculation results shows that there are only three types of categories in Isio and Gamtebang,

namely, uncommon, frequent and general. Types that are categorised as uncommon are those that were not easily found in observations; only a maximum of two individuals were observed per 10 hours of observation, which were included in the frequent category; types that were easily found during observation, with 2-10 individuals observed per 10 hours of observation, whereas included in the general category, the types that were most easily found numbered 10 - 40 individuals per 10 hours of observation. Types included in the general category are usually social types that live in a fairly large group size. Whereas the Isio area, which is secondary forest with lowland tropical forest ecosystem types, is dominated by species of the family Psittacidae (9.52%), Columbidae (4.76%), and Paradisaeidae (4.76%). The types of fruit eaters, nectars and pollen is lower in the Isio Area compared to the Gamtebang area, because secondary forests that have been damaged have fewer plants which produce fruit and flowers. But these conditions are favourable for fruit and insectivorous species such as the species of Paradisaeidae which are found in the Isio area. These conditions indicate that both the primary and the secondary forest areas in Rhepang Muaif play an important important role for the habitat of 84 bird species that were successfully obtained as part of this study.

Table 9: The Group Travel Experiences at the Repang Muaif Bird Watching Area

Travel Experience	Total	Percentage
Enjoy	13	86,67
Not Enjoying	2	13,33
Grand Total	15	100

13 groups who visited the Repang Muaif Birdwatching area in Jayapura Regency reportedly enjoyed the journey experience, while two other groups did not really enjoy it. After a deeper examination of the reasons, what makes visitors not enjoy the trip is related to the observation time being too early, so it would be better if tour groups were adjusted to the times when the birds gather and can therefore be observed.

The Economic value of the Repang Muaif Bird Watching Area Based on the Willingness to Pay Approach

In assessing whether the Repang Muaif Birdwatching area in Jayapura Regency has economic value that will impact the improvement of the community's economy, several measures of concentration can be made to ascertain the economic benefits which can be derived from the area.

Based on the results found during the observation period, the total revenue obtained from the management of the Repang Muaif Birdwatching area in Jayapura Regency from as many as 15 travel packages amounted to Rp.7,500,000, with the Gamtebang observation location being the

most visited place by as many as 6 tour groups. In the operation of conducting observations in each observation location, the manager provides a tariff of Rp. 500,000 for each group.

Table 10: Total Revenue in the Repang Muaif Bird Watching Area Based on Observation Location

Location of Observation	Number of Packages	Observation Costs (Rp)	Total Income (Rp)	Percentage (%)
Location of Isio	5	500.000	2.500.000	33,33
Korea Street Location	4	500.000	2.000.000	26,67
Gamtebang Location	6	500.000	3.000.000	40,00
Grand Total	15	1.500.000	7.500.000	100

Source: Data retrieved, 2019

The average expenditure of each group on a tour to the Repang Muaif Bird Watching Area is Rp. 1,003,667, with a total group expenditure of Rp. 15,055,000.

Table 11: Average Group Expenditures at the Repang Muaif Bird Watching Area based on Observation Location

Location of Observation	Total Cost of each Group	Number of Visitor Groups	Average Expenditures
Isio	4.525.000	5	905.000
Korea Street	4.750.000	4	1.187.500
Gamtebang	5.780.000	6	963.333
Grand Total	15.055.000	15	1.003.667

Source: Data processed, 2019

In measuring the relationship between Revenue, Transportation Costs, and Travelling Expenditures to the Occupancy to Pay, multiple regression was used as a tool to analyse the relationship. Based on the results of data processing using SPSS 20, several values were found and used as considerations in this study.

Table 12: Multiple Linear Regression Coefficient

Coefficients ^a						
Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-12326.876	16212.521		-.760	.463
	Y	1.774	.949	1.189	1.870	.088
	BT	.014	.432	.013	.033	.975
	PB	-.402	.564	-.325	-.714	.490

a. Dependent Variable: KM

The Income Variable (Y) has a coefficient of 1.774 which means that the trend of changes in income is in line with changes in willingness to pay by tourists. Based on the above coefficient figures it can be stated that if the income is increased once, it can increase the willingness to pay from tourists for the utilisation of the Repang Muaif Birdwatching area in Jayapura Regency by 1,774, or more than 100%.

Transportation Cost (BT) has a coefficient of 0.014 meaning that the tendency of changes in transportation costs is in line with changes in willingness to pay by tourists. Based on the above coefficient figures it can be stated that if transportation costs are increased once, it can increase the willingness to pay from tourists for the utilisation of the Repang Muaif Jayapura Birdwatching area in Jayapura Regency by 0.14 (1.4%).

The variable expenditure for tourism (PB) of tourists has a coefficient of -0.402 which means that the tendency of changes in spending for tourists is not in line with changes in the willingness to pay by tourists. Based on the above coefficient figures it can be stated that if spending on tourist trips increases by once, it can reduce the willingness to pay from tourists for the utilisation of coastal resources in the Depapre Region by -0.402 (40.2%).

Table 13: Results of the Determination Coefficient Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 ^a	.769	.705	290.712

a. Predictors: (Constant), PB, BT, Y

The table above justifies that the income, transportation costs and travel expenses for having a holiday, had a strength of 0.769 units in explaining the willingness to pay in the Repang Muaif Bird Watching area, and the remaining 0.231 units were affected by another variable variance that has not been revealed yet in this research. This shows that if the Revenue, Transportation Costs, and Tourism Expenditures factor is increased once, it will increase the Willingness to Pay at the Repang Muaif Bird Watching Area by 0.769 units (76.9 %).

Table 14: Simultaneous Hypothesis Testing Results

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3086952.605	3	1028984.202	12.175	.001 ^b
	Residual	929646.995	11	84513.363		
	Total	4016599.600	14			

- a. Dependent Variable: KM
b. Predictors: (Constant), PB, BT, Y

The table above shows that the calculated F value in this study, 12.175 is greater than the F table $df_1 / df_2 (3/2)$ at 5% of 19.16 and the calculated sig F value of 0.001 is smaller than 0.05, thus the simultaneous hypothesis of this study: ‘There is a simultaneous influence of income, transportation costs and travel expenses in increasing the ability to pay at the Repang Muaif Bird Watching Area’ is **accepted**.

Table 15: Partial Hypothesis Testing Results

Model		Coefficients ^a				
		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-12326.876	16212.521		-.760	.463
	Y	1.774	.949	1.189	1.870	.088
	BT	.014	.432	.013	.033	.975
	PB	-.402	.564	-.325	-.714	.490

- a. Dependent Variable: KM

The table above interprets that:

- 1) Partially, the income factor has a calculated t value of 1,870 which is greater than t table df $(n-k = 2)$ 5% = 1,703 and the probability value is 0.088 higher than 0.05. This means that partially the income factor has a positive impact but has no significant effect on the willingness to pay at the Repang Muaif Birdwatching area in Jayapura Regency.
- 2) The transportation cost factor has a calculated t value of 0.033 less than t table df $(n-k = 2)$ 5% = 1,703 and the probability value is 0.975 higher than 0.05. This means that partially the cost of transportation does not have a positive and significant effect on increasing the willingness to pay at the Repang Muaif Birdwatching area in Jayapura Regency.
- 3) In addition, the travel expenditure factor has a calculated t value of -0.325 smaller than t table df $(n-k = 2)$ 5% = 1,703 and the probability value is 0.490 higher than 0.05. This means that partially the expenditure factor for travel does not have a positive and significant effect on increasing the willingness to pay at the Repang Muaif Birdwatching area in Jayapura Regency.

Conclusions and Recommendations

Based on the research results, some conclusions that can be drawn are as follows:

- Respondents who work as private entrepreneurs were the highest number of respondents, comprising 7 people of 5 men and 2 women. Respondents who work as civil servants comprised 6 respondents, with 4 men and 2 women. The respondents who work as students comprised 2 people, with 1 male and 1 female. The number of visitors who toured during the observation period at the Repang Muaif Jayapura Birdwatching area came from the Jayapura region as well as outside Jayapura, where as many as 15 groups (80%) came from Jayapura, while the other 20% came from outside Jayapura. The percentage of information sources that attracted groups of visitors to visit the Repang Muaif Birdwatching area in Jayapura Regency was from other sources (radio/stories of people) which was 14 groups (93.33%), while one (6.67%) of others received information from television. Out of 15 groups of visitors visiting the Repang Muaif Birdwatching area in Jayapura Regency, as many as 13 groups travelled for just one day, while two other tour groups chose to take a tour in the Repang Muaif Bird Watching Area across two days. During the observation period, the Gamtebang location was the most visited location, with a total of 6 groups consisting of 22 visitors. The Isio and Korean roads were also appealing to visitors, but not as much as Gamtebang. The types of vehicles used by each group of visitors were private vehicles and rental vehicles, with private vehicles being the most widely used by as many as 10, while 5 other groups used rental vehicles to make a tour to the attraction at the Repang Muaif Birdwatching area in Jayapura Regency.
- The average number of visitors in each group comprised 3 visitors. The Gamtebang sites showed 22 visitors coming from 6 groups which was where 42.31% of the data was obtained. 13 groups who visited the Repang Muaif Birdwatching area in Jayapura Regency reportedly enjoyed the experience, while two others did not report as enjoying it. However, upon closer examination of the reasons, it was deduced that what makes visitors not enjoy the trip was that the observation time was too early; this could be adjusted to times when the birds gather.
- Based on the results found during the observation period, the total revenue from the management of the Repang Muaif Birdwatching area in Jayapura Regency from as many as 15 travel packages amounted to Rp.7,500,000, with the Gamtebang location being the most visited place by as many as 6 visiting groups. For the operation of conducting these observations in each location, the manager charged a tariff of Rp. 500,000 for each group. The average expenditure spent by each group on a tour to the Repang Muaif Bird Watching area was Rp. 1,003,667, with a total group expenditure of Rp. 15,055,000. The Income Variable (Y) has a coefficient of 1.774 which means that the trend of changes in income is in line with changes in willingness to pay by tourists. Based on the above coefficient figures it can be stated that if income is increased once, it can increase the willingness to pay from tourists for the utilisation of the Repang Muaif Birdwatching area in Jayapura Regency by 1,774 (more than 100%). Transportation Cost (BT) has a coefficient of 0.014 meaning that the tendency of changes in transportation costs is in line with changes in willingness to pay by tourists. Based on the above coefficient figures it can be stated that if transportation

costs are increased once, this can increase the willingness to pay from tourists for the utilisation of the Repang Muaif Birdwatching area in Jayapura Regency by 0.14 (1.4%). The variable expenditure for tourism (PB) of tourists has a coefficient of -0.402 which means that the tendency of changes in spending for tourists is not in line with changes in the willingness to pay by tourists. Based on the above coefficient figures it can be stated that if spending on tourist trips increases by 1 time, it can reduce the willingness to pay from tourists for the utilisation of coastal resources in the Depapre Region by -0.402 (40.2%). The calculation results also justify that simultaneous factors of Revenue, Transportation Costs and Expenditures for Travel, have a strength of 0.769 units in explaining the increase of Loyalty to Pay in the Bird Watching Area in the Repang Muaif Jayapura Regency, and the remaining 0.231 units are influenced by other variable variances that have not been revealed in this research. This shows that if Revenue, Transportation Costs, and Tourism Expenditures factor are increased one-fold, it will increase the willingness to pay in the Birdwatching area in Repang Muaif Jayapura Regency by 0.769 units (76.9%).

Recommendations

In an effort to enhance the role of the Repang Muaif Birdwatching area in Jayapura Regency, the authors provide the following recommendations:

- Increase the tourism promotion of the Repang Muaif Birdwatching area in Jayapura Regency in order to increase the number of potential visitors.
- Increase the number of tourist destinations at the Repang Muaif Birdwatching area in Jayapura Regency through the provision of information related to strategic locations and endemic bird watching.
- Provision of facilities, both recreational facilities and public facilities, to support tourism activities need to be improved for the visitors' convenience at the Repang Muaif Birdwatching area in Jayapura Regency.
- Further research needs to estimate the economic impact of the Repang Muaif Birdwatching Area in Jayapura Regency and the prospect of developing the Repang Muaif Birdwatching Area in Jayapura Regency.
- The Regional Government needs to conduct a more in-depth study about the role of the Repang Muaif Birdwatching area in Jayapura Regency regarding the economy of Jayapura Regency.
- Conduct Ecosystems Economic Valuation of the Repang Muaif Birdwatching area in Jayapura Regency.
- Study the Eco-tourism Development Model at the Repang Muaif Birdwatching area in Jayapura Regency.

- Assist the efforts to increase the promotion of the Repang Muaif Birdwatching area as one of the leading tourist destinations in Jayapura Regency.

Implication

The implications of this research are 1) Provide a comprehensive overview to all groups regarding the management of the Repang Muaif Birdwatching area in Jayapura Regency and the value of the economic benefits that can be obtained from the Repang Muaif Birdwatching area in Jayapura Regency; 2) Provide an overview to the Jayapura Regency local government on the importance of the Repang Muaif Birdwatching area and the value of the economic benefits that can be obtained from the Repang Muaif Bird Watching area in increasing strategic and optimal sustainable development efforts which could be developed, and 3) The results of this study are expected to be able to provide an illustration of the importance of the Repang Muaif Birdwatching area for increasing community income in the Jayapura Regency through tourism management of the Repang Muaif Bird Watching area which can be integrated with other supporting sectors, such as transportation, food-drink and hospitality.

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