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ECONOMIC VALUATION OF THE MANGROVE AND PROSPECTIVE PROPERTIES CONSERVATION AREA IN THE CITY OF TARAKAN

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ABSTRACT

Mangrove forests in the mangrove and proboscis monkey conservation area (KKMB) are natural resources that are closely related to the survival of the rare endemic species of Kalimantan, and also KKMB is one of the forests located in the city center which has benefits as a life support system up to a medium development of science and education, as well as having benefits in the form of services that function as nature tourism. This study aims to calculate the economic value of the mangrove and proboscis monkey conservation area in Tarakan City, North Kalimantan. The type of data used in this research is quantitative with a survey approach. The data analysis method used is the travel cost approach to determine the value of tourism objects, replacement cost to determine the abrasion-resistant value, benefit transfer to determine the value of biodiversity, and willingness to pay to determine the existence value and heritage value. Based on the results of this study indicate that the total economic value of KKMB reaches Rp. 239,482,368,922/year including a tourist object value of Rp. 318,116,633/year, the value of the abrasion barrier is Rp. 3,852,800,082/year, biodiversity value of Rp. 28,174,607/year, the mangrove existence value is Rp. 114,988,068,000/year, and the proboscis monkey's inheritance value is Rp. 120,295,209,600.

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1. INTRODUCTION

Indonesia has mangrove forests in almost every region. One of them is the City of Tarakan, which is located in the North Kalimantan region. Tarakan is bordered by the area to the north of the Coastal District of Kec. Bunyu, east of Kec. Bunyu and the Sulawesi Sea, south of the Coastal District of Kec. Tanjung Palas and the West Coast of Kec. A wing. Tarakan has various forests located in the districts of Tarakan city. Protected forests, urban forests and mangrove forests which have a role in protecting the ecosystem in the city of Tarakan. The mangrove and proboscis monkey conservation area is one of the remaining forests and green fields in the middle of Tarakan City which has benefits as a support for life support systems, preservation of genetic wealth of flora and fauna as well as a medium for the development of science and education. Economically, the use of mangrove conservation areas comes from the products of the area in the form of services that function as nature tourism. The Proboscis Monkey Conservation Area (KKMB) produces direct benefits in the form of service products in the form of tours that can be sold to consumers. Mangrove forests have an important role in protecting the land from waves and abrasion. Not only that, mangrove forests can also maintain the rich biodiversity of animals and plants in them, including maintaining the productivity of Indonesia's fishery resources. Therefore mangroves are said to be one of Indonesia's rich biodiversity, and proboscis monkeys are protected living things and their homes are in mangrove forests. Therefore, conservation of mangroves and proboscis monkeys is related to efforts to protect wild animals and their habitat as well. (Galih Yogi Rahajeng, Etty Wahyuni, Arni, 2019). This

conservation area also has indirect benefits, namely as a protector of sea abrasion. The forest area in Tarakan City is determined based on its utilization which is divided into protected forest which is currently an urban forest and conservation forest which is currently a mangrove forest with an area of 22 ha. Mangrove forests are part of the coastal ecological system of Tarakan City which supplies natural resources rich in food sources, mineral and energy mines such as oil, gas and coal, communication media, as well as recreational or tourism areas (Pratiwi, 2013). The main purpose of establishing the KKMB is to protect the mangrove ecological system and the population of an endemic species of Borneo called the proboscis monkey. Mangrove and proboscis monkey conservation areas currently require good management, so that their utilization can take place continuously, in accordance with the purpose for which these areas were established. Recognizing the importance of this mangrove forest area, therefore by calculating the economic valuation of KKMB resources is one way to find out the total economic value of each value obtained. Knowing the total economic value obtained, will later have an impact on the amount of public appreciation for the goods and services produced by KKMB.

2. METHOD

Measuring the magnitude of the economic valuation of the Mangrove and Proboscis Monkey Conservation Area means carrying out an economic assessment that includes the value of tourism objects, the value of abrasion protection, the value of biodiversity, the value of mangrove existence, and the value of proboscis monkey inheritance. The sum of these values is the total economic value of the KKMB. In accordance with the research objectives to be achieved, the data analysis model used is as follows:

2.1 KKMB Total Economic Value

$$NET = Now + Npa + Nkh + Nk + Nw \dots\dots\dots\dots (1)$$

Information:

NOW : tourism object value
Npa : abrasion resistance value
Nkh : the value of biodiversity
Nk : existence value
Nw : inheritance value

2.2 Tourism Object Value

$$BP = BT + BK + BTk + Bp \dots\dots\dots\dots (2)$$

Information:

Bp : travel expenses
BT : transportation costs
Bk : consumption costs
BTk : entrance ticket fee
Bp : parking fee

$$BPR = \sum BP/n \dots\dots\dots\dots (3)$$

Information:

BPR : average travel cost
BP : travel expenses
n : number of travel respondents

$$NOW = BPR\ x\ N \dots\dots\dots\dots (4)$$

Information:

NOW : tourism object value
BPR : average travel cost
N : average tourist population

2.3 Abrasion Protection Value

$$Nilai\ Pelindung\ Abrasi = Pgp\ x \frac{B}{Dt} \dots\dots\dots\dots (5)$$

Information:
Pgp : the length of the KKMB coastline
B : cost of building a breakwater
Dt : data hold (10 years)

2.4 Biodiversity Value

$$FV = PV(1+i)^n \dots\dots\dots\dots (6)$$

Information:
FV : future value
Pv : present value
i : interest rate
n : the number of time periods

$$Nkh = FV\ x\ Mx \frac{UMK\ Tarakan}{UMK\ Papua} \dots\dots\dots\dots (7)$$

Information:
Nkh : the value of biodiversity
FV : future value
M : area of KKMB
UMK : city minimum wage

2.5 Mangrove Presence Value

$$NK = \left(\frac{\sum_{i=1}^{n} \quad x\ WTPi}{n}\right) N \dots\dots\dots\dots (8)$$

Information:
NK : existence value
WTPi : WTP mangrove from respondent to in
n : number of samples
N : total population (245,701 people)

2.6 Proboscis Monkey Inheritance Value

$$NW = \left(\frac{\sum_{i=1}^{n} \quad x\ WTPi}{n}\right) N \dots\dots\dots\dots (9)$$

Information:
NK : existence value
WTPi : Proboscis monkey WTP from respondent to in
n : number of samples
N : total population (245,701 people)

3. RELUST AND DISCUSSION

3.1 Tourist Object Value Valuation Results

Table 1. Results of Calculation of the Value of Tourism Objects in the Mangrove and Proboscis Monkey Conservation Area in Tarakan City, 2022

Information	Amount
KKMB area	22
Average Cost of Respondents' Visits Per Visit/Trip (Rp/Trip)	IDR 30,280
Average Number of Visits/Trip respondents per year	7
Average Cost of Respondents' Visits Per Year (Rp/Year)	IDR 211,960
Average Number of Tourists per year (person)	1501
Value of Tourism Objects per hectare per year (Rp/ha/year)	IDR 14,459,847
Total Value of Tourism Objects per year (Rp/year)	IDR 318,116,633

Source: Primary Data Processed, 2022

The economic value derived from tourism related to mangroves and proboscis monkeys is calculated based on the *travel cost method* (TCM) approach, which calculates the average travel cost and the average number of tourists visiting the KKMB annually. Based on the research that has been done, it is known that KKMB visitors come from Tarakan City. The total travel costs obtained from 25 respondents is Rp. 757,000 per visit, so the average travel cost for visitors is Rp. 30,280 per person per visit. The economic value of tourism objects can be determined by multiplying the average travel costs of visitors by the number of visitors for one year. According to the KKMB management, in 2021 the average number of visitors will reach 1,501 people per year, so the economic value of tourism objects in KKMB is Rp. 318,116,633 per year or Rp. 14,459,847 per hectare per year. The number of visitors affects the economic value of tourism objects, the more the number of visitors, the higher the economic value generated.

3.2 Abrasion Resistance Value Valuation Results

Table 2. Results of Calculation of Abrasion Retaining Value in the Mangrove and Proboscis Monkey Conservation Area of Tarakan City, 2022

Information	Amount
KKMB Beach Length (m)	761
Abrasion Resistance Cost (Rp/m3)	5,062,147
Economic Age of the Embankment (years)	10
Abrasion Resistance Value per year (Rp/year)	**385,280,008**
Total Value of Abrasion Resistance 10 years durability (Rp)	**3,852,800,081.70**

Source: Processed Secondary Data, 2022

The value of the abrasion barrier cannot be measured according to market prices, so the measurement is carried out using the approach of making a wave barrier (Mahayana, 2012). The length of KKMB beach is around 761 meters, therefore it can be calculated that the abrasion barrier value reaches Rp. 3,852,800,081. It is estimated that the embankment can last up to 10 years, then the abrasion resistance value is divided by the durability/economic life of 10 years to obtain an abrasion resistance value of Rp. 385,280,008 per year.

3.3 Results of Biodiversity Value Valuation

Table 3. Results of Calculation of Biodiversity Values in the Mangrove and Proboscis Monkey Conservation Area of Tarakan City, 2022

Information	Amount
Indonesian Mangrove Biodiversity Value (US$/ha)	15
BI Interest Rate November 2022 (%)	5,25
Future Value (US$/ha)	69.62
Rupiah Exchange Rate against USD December 2022 (IDR)	15,595
Area of KKMB (ha)	22
UMK City of Tarakan (Rp)	3,774,378
UMK Papua (Rp)	3,200,000
Mangrove Biodiversity Value in KKMB per hectare per year (Rp/ha/year)	1,280,664
Total Mangrove Biodiversity Value in KKMB per year (Rp/year)	28,174,607

Source: Processed Secondary Data, 2022

The value of biodiversity in this study was calculated using the *benefit transfer method* , namely by assigning a value to the amount of biodiversity present in mangroves. The value of biodiversity in this study was calculated based on research results from Ruttenberg (1992) conducted in Bintuni Bay, Irian Jaya. Where Indonesia's mangrove forests have a biodiversity value of US $ 15 per ha per year. This value can be used throughout Indonesia if the mangrove forest ecosystem is ecologically important and is maintained naturally

3.4 Valuation Results of the Existence of Mangrove Values

Table 4. Results of Calculation of the Existence of Mangrove Values in the Mangrove and Proboscis Monkey Conservation Area in Tarakan City, 2022

Information	Amount
Average Value of Respondents' WTP per Month (Rp/month)	IDR 39,000
Average Value of WTP Respondents per Year (Rp/year)	IDR 468,000
Number of Population (people)	245701
Area of KKMB (ha)	22
Mangrove Existence Value per hectare per year (Rp/ha/year	**IDR 5,226,730,363.64**
Total Value of Existence of Mangrove per year (Rp/year)	**IDR 114,988,068,000**

Source: Primary Data Processed, 2022

Based on the results of the interviews, the lowest WTP was Rp.0.0 and the highest WTP was Rp. 100,000, - the variety of WTP values obtained is caused by WTP questions that are open to respondents, meaning that respondents are free to determine the desired WTP value without being limited to a certain range of values. Details of the WTP value and the socio-demographic conditions of the respondents can be seen in the attachment. The average respondent's WTP per month is IDR 39,000 per month or IDR. 468,000,- per year. The total value of PAP is an estimate of the value of the existence of mangrove forests obtained from the multiplication of the average WTP value of respondents per year with the total population in Tarakan City. Thus, the population of Tarakan City is 245,701 people and the number of sample respondents in this study is 25 respondents, the value of the presence of mangroves in the KKMB is Rp. 114,988,068,000 per year or Rp. 5,226,730,363 per hectare per year. .

b. Proboscis Monkey Heritage Value Valuation Results

Table 5. Results of Calculation of Proboscis Monkey Inheritance Value in the Mangrove and Proboscis Monkey Conservation Area in Tarakan City, 2022

Information	Amount
Average Inheritance Value of Respondents per Month (Rp/month)	IDR 40,800
Average Value of Inheritance of Respondents per Year (Rp/year)	IDR 489,600
Number of Population (people)	245701
Number of proboscis monkeys in KKMB (heads)	40
Proboscis Monkey Inheritance Value per head per year (Rp/head/year)	**IDR 3,007,380,240**
Total Proboscis Monkey Inheritance Value per year (Rp/year)	**IDR 120,295,209,600**

Source: Primary Data Processed, 2022

Based on the mortgage market scenario, the number of respondents who are willing to pay is 21 respondents and those who are not are as many as 4 respondents. The number of respondents' willingness to pay regarding Kalimantan's endemic animals was almost the same as the number of respondents' willingness to pay regarding mangrove forests. However, the magnitude of the willingness to pay for the inheritance value is different from the existence value.

3.5 Total Economic Value Valuation Results

The total economic value in the mangrove and proboscis monkey conservation area of Tarakan City is the sum of the values described previously, namely the value of tourism objects, the value of abrasion resistance, the value of biodiversity, the value of mangrove existence and the value of proboscis monkeys heritage which can be calculated in the area.

Table 6. Results of Calculation of Total Economic Value in the Mangrove and Proboscis Monkey Conservation Area in Tarakan City, 2022

Type	Total Economic Value (Rp/year)	Economic Value per hectare (Rp/ha/year)	Proportion
Tourism Object Value	318,116,633	14,459,847	0.1
Abrasion Resistance Value	3,852,800,082	385,280,008	1.6
Biodiversity Value	28,174,607	1,280,664	0.0
Mangrove Presence Value	114,988,068,000	5,226,730,364	48.0
Proboscis Monkey Inheritance Value	120,295,209,600	3,007,380,240	50.2
Total value	**239,482,368,922**	**8,635,131,123**	**100**

Source: Primary Data Processed, 2022

4. CONLUSION

The total economic value of the Mangrove and Proboscis Monkey Conservation Area that can be quantified from the total identified values is Rp. 239,482,368, - per year or Rp. 8,635,131,123, - per hectare per year. The largest value contribution comes from the inheritance value of the proboscis monkey, which is Rp. 120,295,209,600 per year with a percentage of 50.2 percent, followed by the existence of mangroves of Rp. 114,988,068,000 per year with a percentage of 48.0 percent, then the value of the abrasion barrier is Rp. 3,852,800,082 per year with a percentage of 1.6 percent, then the tourism object value is Rp. 318,116,633 per year with a percentage of 0.1 percent, and finally the optional benefit is Rp. 28,174,607 per year with a percentage of 0.0 percent. Mangrove forests in the mangrove and proboscis monkey conservation area are used as tourist attractions, with the presence of endemic species of Kalimantan adding to the attraction of visitors to come to this place.

REFERENCES

[1] Abdul Jabbar, Rossie W. Nusantara, Aji Ali Akbar. 202. Economic Valuation of Ecotourism-Based Mangrove Ecosystems in Village Forests in Batu Ampar District, West Kalimantan. Volume 19 Issue 1 (2021) : 140-152.

[2] Anisa Dwi Apriyanti, Suradi Wijaya Saputra, Churun A'in. 2021. Economic Valuation of Mangrove Ecosystems in Bedono Hamlet and Morosari Hamlet, Demak Regency, Central Java. Jan 202. 13(1):51-64.

[3] Akhmad Solikin, Rohana Abdul Rahman, Edy Saefrudin, Norafifah Suboh, Nur Hafizah Zahari, Eri Wahyudi. 2019. *Forest Valuation Using Travel Cost Method: Case Of Pahang National Park And Srengseng Jakarta Urban Forest* . Journal Of The Malaysian Institute Of Planners. Vols (17) 365-376.

[4] Andrianto, L. 2006. Introduction to the Concept and Methodology of Economic Valuation of Coastal and Marine Resources. Bogor: PKSPL IPB.

[5] Bakti, R. & Oktafiani, N. 2019. Effect of location, service quality, facilities and environmental atmosphere on visitor satisfaction at the Bogor Botanical Gardens. Journal of Management Economics and Accounting, 15(1), 47-55.

[6] Bishop, JT 1999. Valuing Forests : *A Review of Methods and Applications in Developing Countries. International Institute for Environment and Development. London.*

[7] Bellatrix Santri, Private Rudhi, Irwani. 2020. Economic Valuation of Mangrove Forest Ecosystems in Betahwalang Village, Boning District, Demak Regency, Central Java. Vol. 9. No. 4. November 2020. Pp 355-361. Eissn : 2407-7690.

[8] Calvyn FA Sondak, Erly Y. Kaligis, Robert A. Bara. 2019. *Economic Valuation Of Lansa Mangrove Forest, North Sulawesi, Indonesia* . Vol 20. No 4. April 2019. Pages: 978-986.

[9] Dory Rachmawati. 2007. Study of Sustainable Management of Mangrove Ecosystems in Tarakan City, East Kalimantan (Case Study of Binalatung Village, East Tarakan District). Graduate School. IPB.

[10] Davis, LS and Johnson KN 1987. Forest Management 3rd Edition. McGraw-Hill Book Company. New York.

[11] Damanik, J and HF Weber. 2006. Ecotourism planning: from theory to application. Andy Yogyakarta. Yogyakarta.

[12] Diyan Rashieqa Khaeruddin. 2018. Economic Valuation of Coastal Tourism Objects (Case Study in the Baron-Pok Tunggal Beach Area, Gunung Kidul Regency,

[13] Province of the Special Region of Yogyakarta). Thesis. Postgraduate Program, Faculty of Economics and Business, Padjadjaran University, Bandung.
[14] Tarakan City Tourism Office. 2021
[15] Dahuri, R. 2003. Marine Biodiversity Indonesia's Sustainable Development Assets. PT Gramedia Pustaka : Jakarta
[16] Ferli Hartati, Rommy Qurniati, Indra Gumay Febryano, Duryat. 2020. The Economic Value of Mangrove Ecotourism in Margasari Village, Labuhan Maringgai District, East Lampung Regency. Department of Forestry, Faculty of Agriculture. Lampung University.
[17] Fauzi Ahmad. 2014. Economic Valuation and Assessment of Damage to Natural Resources and the Environment. Bogor. IPB Press.
[18] Fauzi Ahmad. 2010. Natural Resource and Environmental Economics, Theory and Application. Jakarta. Pt Gramedia Pustaka Utama.
[19] Fandeli, C. 2001. Definition and Basic Framework of Tourism. In Fandeli, C. (Editor). 2001. Fundamentals of Natural Tourism Management. *Liberty* editors . Yogyakarta. 3 p.
[20] Febryano, IG & Rusita. 2018. Tourist perceptions in the development of educational tourism based on the conservation of the Sumatran elephant (Elephas maximus sumatranus). Journal of Natural Resources and Environment Management, 8(3), 376-382.
[21] Ferli Hartati, Rommy Kurniati, Indra Gumay Febryano, Duryat. 2021. The Economic Value of Mangrove Ecotourism in Margasari Village, Labuhan Maringgai District, East Lampung Regency. Vol 4. No. 1, March 202 (01-10).
[22] Fitri Nur Fitriani. ... Concept of Total Economic Value and Method of Valuing Forest Resources.
[23] Fauzi, Ahmad. 2006. Economics of Natural Resources and the Environment. PT. Main Library Gramedia. Jakarta. pp 207-215.
[24] Galih Yogi Rahajeng, Wtty Wahyuni Ms, Arni. 2019. Economic Valuation of the Proboscis Monkey Conservation Area (Kkmb) in Tarakan City. Vol 2. No 1. April 2019. Pg 40-45.
[25] Hendriawan. 2017. Economic Value of Tourism Objects on Labengki Island, North Konawe Regency, Southeast Sulawesi Province. Hasanuddin University. Macassar.
[26] Hatta Djuanda. 2016. Economic Valuation of Tourism Value in the Maros-Pangkep Karst Area, Travel Cost Method Application. Hasanuddin University. Macassar.
[27] Hilda Fadhila, Suradi Wijaya Saputra, Dian Wijayanto. 2015. The Value of Economic Benefits of Mangrove Ecosystems in Kartika Jaya Village, Patebon District, Kendal Regency, Central Java. Vol 4. No 3. Year 2015. Pages 180-187.
[28] Hufschmidt, MM et al. 1987. Environment, Natural Systems, and Development: Guidelines for Economic Valuation. Reksohadiprodjo S, translator. Gadjah Mada University Press. Yogyakarta. Translated from: Environmental, Natural Systems, and Development, An Economic Valuation Guide.
[29] Haslindah. 2012. Economic Valuation of Coral Reef Ecosystems in the Kapoposang Marine Tourism Park, Pangkep Regency. thesis. Unpublished. Hasanuddin University, Makassar.
[30] Irwan Muliawan and Maulana Firdaus. 2018. Economic Value of Coral Reef Ecosystems in Kapoposang Marine Tourism Park, South Sulawesi. Vol 13. No 2. December 2018. Hal : 133-142.
[31] Kusumawardani Deni. 2019. *Economic Valuation Of Mangrove Forest In The East Coast Of The City Of Surabaya, East Java Province, Indonesia* . Department of Economics, Faculty of Economics and Business, Airlangga University, Indonesia.
[32] Ministry of Environment. 2008. Guide to Economic Valuation of Mangrove Ecosystems. Assistant Deputy for Intensive Affairs and Environmental Funding.
[33] Tarakan City in Figures 2022. Tarakan Municipality In Figures. Catalog : 1102001.6571. Central Bureau of Statistics of Tarakan City. 394 Pages.
[34] Leffy Hermalena, Hijaz Jalil, Toni Junaedi, Ivonne Ayesha, Herda Gusvita. 2019. Economic Valuation of the Padaido Islands Marine Protected Area, Biak Numfor Regency, Papua Province. Vol 1. Issue 1. December 2019. Pgs 20-29.
[35] Lutfia I. Litiloly, guna wardiyatmoko, debby V. pattimahu. 2020. Economic analysis of mangrove forests in Kotania Bay, West Seram District. ISSN Online : 2621-8798.
[36] Mahardika, SM, Saputra, SW & Ain, C. 2019. Economic valuation of fish resources and mangrove ecotourism in Muara Angke, Jakarta. Journal of Maquares, 7(4), 458-46

[37] Malahayati, Zein Zahari, Fitriawati. 2020. *Economic Valuation Of Forest As A Natural Tourism Service Provider By Using Travel Cost Method In Ecotourism In Kampung Nipah Sei Nagawala Village Serdang Bedagai Regency.* Department Of Economics, State University Of Medan.
[38] Marcelina, SD, Febryano, IG, Setiawan, A. & Yuwono, SB 2018. Tourist perceptions of tourist facilities at the Way Kambas National Park Elephant Training Center. Journal of the Wilderness, 1(2), 45-53.
[39] Mahayana, S., et al. (2012). The Economic Benefits of Mangrove Ecosystems in Padaido Marine Tourism Park, Biak Numfor Regency. Macassar. FPIK, UNHAS.
[40] Mohammad Nur Nobi, AHM Raihan Sarker, Biswajit Nath, Eivin Roskaft, Ma Suza, Paul Kvinta. 2021. *Economic Valuation Of Tourism Of The Sundarban Mangroves, Bangladesh. Journal Of Ecology And The Natural Environment* . Vol. 13(4). 100-109.
[41] M. Hema And P. Indira Devi. 2015. *Economic Valuation Of Mangrove Ecosystems Of Kerala, India* .. Vol 4. No 1. Hal : 1-16.
[42] Nonon S, Hermansyah, Hariyanto, Hesty, Moh Arif. 2014. Mangrove and Proboscis Monkey Conservation Efforts to Preserve Biodiversity of Tarakan City. P3m Graduate School of National University. Jakarta.
[43] Neda Amiri, Soleiman Mohammadi Limaei. 2021. *Estimating the recreational value of a forest area using contingent valuation and individual travel cost methods, case study: Kahmann forest area, Iran* . Central Asian Journal Of Environmental Science And Technology Innovation. (4). 164-174.
[44] Nurfadillah. 2017. Economic Valuation of Mangrove Forests on Lakkang Island, Tallo District, Makassar City. Essay. Fisheries Socioeconomic Study Program. Faculty of Marine Sciences and Fisheries. Hasanuddin University.
[45] Nyoto Santoso, Rizki Praba Nugraha, Ricardo Andalas. 2019. Total Economic Value of Mangrove Forest in Pangkah Kulon and Pangkah Wetan Villages, Ujung Pangkah District, Gresik Regency. East Java Province. Vol. 24. No. 2. August 2019: 152-162.
[46] Pamela Paterson Drake, Frank J Fabozzi. 2009. *Foundation And Application Of The Time Value Of Money. Published By John Wiley And Sons, Inc., Hoboken, New Jersey* .
[47] Pearce, D. 1992. Economic Valuation and The Natural world. World Bank Working Papers. The World Bank. New York.
[48] Pearce and Moran. 1994, The Economic Value of Biodiversity, IUCN and CSERGE
[49] Ruitenbeek. HJ1991. *An Economic Analysis Of Management Options With A Focus On Bintuni Bay. Irian Jaya. EMDI.* Environmental Report. Jakarta.
[50] Rachma, NA (2018). Economic Valuation of Mangrove Forest Resources in Tongke-Tongke Village, East Sinjai District (Doctoral dissertation, Alauddin State Islamic University, Makassar).
[51] Setiawan, W., Harianto, SP & Qurniati, R. 2017. Ecotourism development to preserve mangrove conservation efforts: Case study in Margasari Village, District of East Lampung, Indonesia. Journal of Ocean Life, 1(1), 14(19).
[52] Shahirawati Nurul. 2010. *Application Of The Travel Cost Method To Urban Forest In Johor Bahru. Faculty Of Built Environment* . Malaysian University of Technology.
[53] Suparmoko. 2006. Guidelines and Analysis of Economic Valuation of Natural Resources and the Environment (Concepts, Calculation Methods, and Applications). Yogyakarta. Bpfe-Yogyakarta.
[54] Sukirman Rahim, Dewi Wahyuni K. Baderan. 2017. Mangrove Forests and Their Utilization. Publishing Group Cv Budi Utama. 78 Pages.
[55] Sudia, BL 2017. Economic valuation of environmental services for the natural tourism object of the Bungkutoko mangrove tracking, Kendari City. Ecogreen Journal, 3(1), 41-47.
[56] Soleha, Yudi Sapta, Evahelda. 2020. Economic Valuation of the Munjang Mangrove Forest Tourism Object in Kurau Barat Village, Central Bangka Regency. Vol 14. No 1. 32 January 2020. Hal : 101-113.
[57] Soemarno, (2010) Economic Valuation Method of Agricultural Land Resources. Study Materials for MK. Natural Resource Economics. PDIP PPS FPUB. 43 p.
[58] National University Pt Pertamina Ep Asset 5 Bunyu Field. 2015. Community-Based Proboscis Monkey Conservation on Bunyu Island. National University Postgraduate School Publisher. First Edition. Isbn 978-602-99475-6-4.
[59] Widiastuti, MD 2016. Economic Valuation of Mangrove Ecosystems in the Coastal Areas of Merauke Regency. Journal of Sosek Kp. 11(2) : 147-159.

[60] Yuyun Wahyuni, Eka Intan Kumala Putri, Healthy Mh Simanjuntak. 2014. Total Economic Valuation of Mangrove Forests in the Delta Mahakam Region, Kutai Kartanegara Regency, East Kalimantan. Vol. 3. No. 1. April 2014 :1-12.
[61] Yunandar, Y. (2007). Spatial Utilization Analysis in the Muara Kintap Coastal Fishery Development Area, Tanah Laut Regency, South Kalimantan Province. (Doctoral dissertation, Diponegoro University Postgraduate Program).
[62] Zainol Rodziah. 2016. *Recreational Travel Cost To Late Ripe* , Mangrove Forest. Putra Malaysia University.