

TOURIST'S WILLINGNESS TO PAY FOR ENVIRONMENT REHABILITATION
(KEINGINAN MEMBAYAR WISATAWAN UNTUK REHABILITASI LINGKUNGAN)

Riza Firmansyah*, Maria Vianney Oselaga
Fakultas Pariwisata, Universitas Pancasila, Jakarta
*rfirmansyah@univpancasila.ac.id

Abstract

Kepulauan Seribu Marine National Park (TNKpS) which is the only national park in the world located in a capital city, is included as a part of the Kepulauan Seribu Administrative Regency, DKI Jakarta Province. Based on the decree of the Director of Forest Protection and Nature Conservation Number SK.05/VI-KK/2004 concerning the Zonation of the Kepulauan Seribu Marine National Park, not all TNKpS areas can be used as tourism destinations, because there are zones aimed at conservation of natural resources. According to the decree, TNKpS area is divided into 4 zones, namely the Core Zone, Protection Zone, Tourism Utilization Zone and Settlement Zone. One of the residential islands in TNKpS which is also the main destination for tourists for transit, is Harapan Island. Apart from being the main destination for tourists for transit, Harapan Island is the largest island in Seribu Utara sub-district. The cost of traveling to Kepulauan Seribu, especially to Harapan Island, is very affordable, between IDR 350,000 to IDR 400,000. This affordable cost makes Harapan Island a priority natural tourist destination for residents of Jabodetabek (Jakarta, Bogor, Tangerang, and Bekasi). Many tourism activities on Harapan Island have not only a positive impact on the local economy but also a negative impact on the environment. There are a lot of rubbish such plastic snack waste and damaged coral reefs in the snorkeling spots. The concept of Willingness to Pay (WTP) of tourists is the willingness of tourists to pay for the assessment of natural resources in order to improve environmental quality in the Harapan Island area. This study aims to estimate the WTP of tourists to travel on Harapan Island. The design of this study used quantitative methods by collecting data through interviews and distributing questionnaires online. The data were processed by descriptive method and the Contingent Valuation Method (CVM). The results show that the WTP of tourists is as much as IDR 32,976/person/visit that can be included in the price of a tour package. As much as IDR 518,161,947 per year is expected to help the costs of nature conservation on Harapan Island.

Keywords: Kepulauan Seribu Marine National Park (TNKpS)., Harapan Island., Contingent Valuation Method (CVM)., Willingness to Pay (WTP)

Abstrak

Taman Nasional Laut Kepulauan Seribu (TNKpS) yang merupakan satu-satunya taman nasional di dunia yang terletak di ibu kota, termasuk dalam wilayah Kabupaten Administratif Kepulauan Seribu, Provinsi DKI Jakarta. Berdasarkan Surat Keputusan Direktur Perlindungan Hutan dan Konservasi Alam Nomor SK.05/VI-KK/2004 tentang Zonasi Taman Nasional Laut Kepulauan Seribu, tidak semua kawasan TNKpS dapat dijadikan destinasi wisata, karena terdapat zona konservasi. Berdasarkan SK tersebut, kawasan TNKpS dibagi menjadi 4 zona yaitu Zona Inti, Zona Lindung, Zona Pemanfaatan Wisata dan Zona Permukiman. Salah satu pulau permukiman di TNKpS yang juga menjadi tujuan utama para wisatawan untuk transit adalah Pulau Harapan. Selain sebagai tujuan utama turis untuk transit, Pulau Harapan merupakan pulau terbesar di Kecamatan Seribu Utara. Biaya travelling ke Kepulauan Seribu khususnya ke Pulau Harapan sangat terjangkau, antara Rp 350.000 hingga Rp 400.000. Biaya yang terjangkau tersebut

menjadikan Pulau Harapan sebagai destinasi wisata alam prioritas bagi warga Jabodetabek (Jakarta, Bogor, Tangerang, dan Bekasi). Berbagai aktivitas pariwisata di Pulau Harapan tidak hanya berdampak positif bagi perekonomian setempat tetapi juga berdampak negatif terhadap lingkungan. Di titik snorkelling yang ada disekitar Pulau Harapan, banyak ditemukan sampah sampah plastik dan terumbu karang yang rusak. Konsep Willingness to Pay (WTP) wisatawan adalah kesediaan wisatawan untuk membayar lebih terhadap penilaian sumber daya alam guna meningkatkan kualitas lingkungan di kawasan Pulau Harapan. Penelitian ini bertujuan untuk memperkirakan WTP wisatawan untuk berwisata di Pulau Harapan. Desain penelitian ini menggunakan metode kuantitatif dengan pengumpulan data melalui wawancara dan penyebaran kuesioner secara online. Data diolah dengan metode deskriptif dan Contingent Valuation Method (CVM). Hasil penelitian menunjukkan bahwa WTP wisatawan sebesar Rp 32.976/orang/kunjungan yang sudah termasuk dalam harga paket wisata. Sebesar Rp518.161.947 per tahun diharapkan dapat membantu biaya pelestarian alam di Pulau Harapan.

Kata kunci: *Taman Nasional Kepulauan Seribu (TNKpS)., Pulau Harapan., Contingent Valuation Method (CVM)., Willingness to Pay (WTP)*

INTRODUCTION

Marine tourism is a tourism advantage in Kepulauan Seribu due to its marine natural potentials. Snorkeling, diving, fishing, banana boat, etc., are offered as marine tourism activities in Kepulauan Seribu. One of the residential islands that has beautiful landscapes with various natural potentials suitable for marine tourism development is Harapan Island. Harapan Island has aesthetic value of coral reef ecosystem which is considered to be still good. The cover condition of living coral is also included in the medium category (BTNKps 2018). The geographical location of Harapan Island which is close to other small islands makes snorkeling spots more numerous than other residential islands. Snorkeling spots on Harapan Island are Genteng Besar Island, Macan Gundul Island, Bira Besar Island, and Gosong Island. Package offered on Harapan Island is Island Exploration which consists of Bulat Island, Sepa Island, Perak Island, Genteng Kecil Island, and Dolphin Island (BTNKps 2018).

The cost of traveling to Kepulauan Seribu, especially to Harapan Island, is very affordable, between IDR 350,000 to IDR 400,000. This affordable cost makes Harapan Island a priority natural tourist destination for residents of Jabodetabek (Jakarta, Bogor, Tangerang, and Bekasi). Many tourism activities on Harapan Island have not only a positive impact on the local economy but also a negative impact on the environment. There are a lot of rubbish such plastic snack waste and damaged coral reefs in the snorkeling spots (Firmansyah and Hudjimartsu 2019). Physical contact of tourists, whether intentional or unintentional, with coral reefs while diving and snorkeling can have a direct impact on the condition of the coral reefs.

Coral reefs are very vulnerable to damage and take a very long time to recover (Yulianda *et al.* 2010). Therefore, it is important to maintain the sustainability of its use (Yulianda *et al.* 2010). Tourists who do snorkelling for the first time or guides who do not understand the snorkelling guidelines issued by TNKpS, are potential contributors to coral reef damage (Firmansyah and Hudjimartsu 2019). In addition, taking pictures and interacting with marine life encourage the emergence of

dangerous behavior for coral reef ecosystems because snorkelers do not have sufficient snorkeling competence (Rosalina *et al.* 2019).

Nature conservation efforts must become one of the management priorities, especially natural tourism, because tourists can have direct contact with nature so that tourism can be sustainable without destroying the aesthetic value of nature. According to Marjuka (2007), planning and managing development for the future requires a paradigm shift from a strategy of import substitution industry to become a resource-based industry. The awareness of managers, communities and tourists is needed in maintaining the preservation of tourist attractions. A decrease in environmental conditions will certainly greatly affect the desire of tourists to return to the tourism destinations. However, on the other hand, efforts to conserve or restore these affected ecosystems require a continuous effort that comes at a significant cost.

The concept of the maximum amount of goods or services issued by someone to get other goods or services is called willingness to pay of a person for goods or services produced by natural resources and the environment, or it can also be interpreted as the maximum amount someone is willing to pay to avoid a decrease in something (Birdir *et al.* 2013). WTP is usually done by asking respondents directly about someone's willingness to pay other parties as compensation for maintaining these natural resources (Yakin 2015). The WTP value can describe the benefits of a proposed policy such as environmental improvement (Birdir *et al.* 2013).

METHODS

Estimation of the price according to the WTP of tourists for traveling to Harapan Island of TNKpS requires a Contingent Valuation Method (CVM) analysis. CVM is used to measure the use values and the non-use values. This means that CVM will measure the value or price that tourists are willing to pay for the value generated from tourism activities on Harapan Island.

The stages in conducting research to determine WTP using the CVM approach in this study include (Hanley and Spash 1993):

1. Setting Up the Hypothetical Market

The initial stage in running CVM was to create a hypothetical market and questions about the value of environmental goods/services. This hypothetical market built a reason why people should pay for an environmental good/service where there was no value in currency regarding how much the environmental goods/services are. The hypothetical market should describe how the payment mechanism was carried out. The activity scenario must be clearly described in the questionnaire so that the respondent could understand the environmental items in question and the community's involvement in the activity plan. In addition, in the questionnaire, it was also necessary to explain the changes that would occur if there was a public willingness to pay.

2. Estimating the Value of the Offer

Interviews were conducted to obtain the maximum value of the willingness to pay (WTP) of tourists using the payment card technique. This WTP value could be obtained by providing predetermined value options, so that the respondent only chose one of the available values. This method was chosen to make it easier for tourists to choose the amount of willingness to pay according to what they wanted. The lowest price was IDR 10,000, while the highest price was IDR 100,000.

3. Agregating Data

Data summation was the process by which the mean value of the offer was converted to the total population in question. After estimating the mean value of WTP, the total value of WTP from the community could be estimated using the following formula:

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

Where:

EWTP = Mean Value of WTP (IDR)

W_i = the i-value of WTP (IDR)

n = Number of respondents (people)

i = the i-respondent who is willing to pay additional costs for nature conservation (i = 1,2,..., n)

RESULTS AND DISCUSSION

According to the Decree of the Directorate General of Nature Resources and Ecosystem Conservation (KSDAE) of the Ministry of Environment and Forestry Number: SK.386/KSDAE/SET/KSA.0/9/2016, dated 30 September 2016 concerning Management Zoning of the Kepulauan Seribu National Park, Kepulauan Seribu Administrative District, Special Capital Region of Jakarta Province, the zoning arrangement for the TNKpS area (a total area of 107,498.00 Ha) is divided into 4 designations, namely the core zone, marine protection zone, utilization zone I and utilization zone II. One of the residential islands which is geographically close to small islands and has beautiful landscapes with various natural potentials is Harapan Island (BTNKps 2018). Harapan Island is a transit center for tourists aiming for snorkeling and diving because there are many coral reef spots used as snorkeling and diving areas around this island, namely Genteng Besar Island, Macan Gundul Island, Bira Besar Island, Sepa Island, Perak Island, Genteng Kecil Island, and Dolphin Island (BTNKps 2018).

According to Noviana *et al* (2018), high options of snorkeling tours are available because this type of tourism is easy, does not require special skills, and uses simple equipment, so tourists can enjoy the underwater beauty and coral reefs. This also happens to tourists on Harapan Island. According to TNKpS, the number of tourists who snorkel is more dominant than divers. This results in relatively greater utilization pressure in shallow waters, which is directly proportional to the level of damage to coral reefs (Noviana *et al* 2018). Based on observations of snorkeling tourism activities in the Harapan Island area, it is known that coral reef damage is dominated by coral branching, Acropora branching and fallious, and the forms of damage vary such as fractures, detached from the substrate, and scratches.

The Kepulauan Seribu National Park Office (BTNKpS) is a technical implementation unit under the Directorate General of Forest Protection and Nature Conservation of the Indonesian Ministry of Forestry. Therefore, BTNKpS has the authority in Non-Tax State Revenue (PNBP) which applies to the Ministry of Forestry which is listed in the

Government Regulation of the Republic of Indonesia Number 12 of 2014 concerning Non-Tax State Revenue (PNBP) as regulated in PP No. 12 of 2014 Article 1 (p) regarding the collection of fees for the utilization of natural tourism environmental services on Harapan Island. The implementation is in the form of entry tickets of IDR 5,000/weekday and IDR 7,500/weekend for domestic tourists and IDR 150,000 for foreign tourists. According to TNKpS, PNBP cannot be fully used for tourist management because those who pay for PNBP tickets are only tourists who enter the marine biota/turtle park. In addition, not all travel agents who bring tourists to Harapan Island include PNBP component in the tickets of their tour packages even though PNBP should be paid by tourists traveling to Harapan Island.

TNKpS has carried out many conservation activities, including conducting coral planting programs, mangrove arboretum activities, seagrass, animal rescue/eagle rehabilitation assistance, and semi-natural conservation of hawksbill turtles. The coral reef planting program aims to increase coral cover. The percentage of coral cover is expected to remain constant and even increase (Figure 1). This is important because it is able to support the life of other coral reef biotas. Good coral reefs can also increase community income through fisheries and tourism (BTNKps 2018). Therefore, stakeholders are expected to remain focused on protecting coral reefs in Kepulauan Seribu to prevent the decrease of the hard coral cover in the future. Damages in coral reefs will indirectly inflict a financial loss of Kepulauan Seribu residents who highly depend on coral reef ecosystems (Estradivari and Yusri 2009).

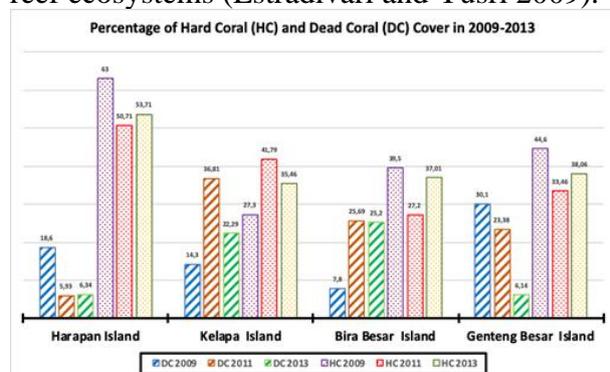


Figure 1 Percentage of Hard Coral (HC) and Dead Coral (DC) covers in 2009-2013

Willingness to Pay Analysis with Contingent Valuation Method Approach

The CVM approach in this study was used to analyze the respondents' WTP on efforts to conserve Harapan Island through additional costs. The results were as follows:

1. Setting Up the Hypothetical Market

All respondents were given information about the environmental damage of coral reefs that occurred in Harapan Island, TNKpS. The damage to coral reefs observed by the researchers occurred due to the lack of knowledge of tourists about the use of snorkeling gear and how to snorkel properly.

Respondents were also given information about the absence of costs for the utilization of natural tourism environmental services according to PP No. 12 of 2014 Article 1 (p). The Harapan Island Manager (Pokdarwis together with the Kepulauan Seribu National Park) plans to carry out a conservation program for Harapan Island by planting mangroves and corals. The manager expects the participation of Harapan Island tourists in terms of costs of which the funds will be used for implementing the program. Thus, the respondents knew the description of the hypothetical situation regarding the plan to increase costs for the conservation of Harapan Island.

2. Estimating the Value of the Offer

The technique used to obtain the offer value was by asking questions, aiming to obtain the maximum value of the willingness to pay (WTP) of tourists using the payment card. The technique of getting the WTP value was done by providing a predetermined value options, so that the respondents only chose one of the available values. This method was chosen to make it easier for tourists to choose the preferred amount of willingness to pay. The lowest price was IDR 10,000, while the highest price was IDR 100,000. The lowest - highest price range was based on the non-tax state revenue (PNPB) set by TNKpS, namely IDR 7,500 on weekends and IDR 5,000 on weekdays, so that researchers took IDR 7,500. The highest price was obtained from the price of the tour package offered (IDR 350,000 - IDR 400,000), so that researchers took the lowest price of the tour package price (IDR 100,000).

3. Agregating Data

A total of 100 respondents were asked for their opinion regarding willingness to pay additional costs. Eighty-four respondents (84%) stated that they were willing to pay, while the remaining sixteen (16%) stated that they were not willing to pay because they thought that the management of the natural conservation of Harapan Island is the responsibility of the manager and local government. It should be the managers and local governments who provide an appropriate budget for the preservation of Pulau Harapan's nature. The willingness to increase the costs for nature conservation could be seen in Table 1.

The mean value of the respondents' WTP was calculated based on the data of the respondent's WTP distribution. This value was obtained from the number of respondents who paid the i-value of WTP (frequency), divided by the cumulative number of respondents, then multiplied by the respective WTP values. The distribution of the respondents' WTP values could be seen in Table 1.

Table 1 Distribution of Respondents' WTP Value

No	WTP (IDR)	Number of respondents	EWTP
	w	(People)	(IDR)
	w	n	(n/N)*w
1	7.500	24	2.857
2	20.000	17	4.048
3	30.000	12	4.286
4	40.000	3	1.429
5	50.000	20	11.905
6	60.000	0	0
7	70.000	1	833
8	80.000	0	0
9	90.000	0	0
10	100.000	7	8.333
Total		84 ^N	32.976

Based on the data in Table 3, the average WTP (EWTP) value of the respondents was IDR 32,976 per visit. However, not all tourists were willing to pay an additional cost of this

value. Of the total respondents in the WTP range of IDR 30,000 (12 people) - IDR 40,000 (30 people), there were 15 tourists who were willing to pay an additional cost of IDR 32,976 per visit per person. Meanwhile, for the rest, they were not willing to pay additional costs for nature conservation according to the average WTP of tourists. This might imply that implementation of the additional costs of nature conservation could reduce the number of tourists. Tourists who were not willing to pay below the average WTP would not travel there anymore in the future. The additional costs for preserving the nature according to the average WTP could be used as a tool to control the number of tourists visiting the area so that the burden received by the environment as a tourist location could be reduced.

4. Determining the Total WTP

Table 2 Estimation of Manager's Revenue with Additional Conservation Costs according to the Tourist's WTP

WTP (IDR)	Number of respondents (People)	Population	TWTP (IDR)
W	n	a = (n/N) * P	w * a
7.500	24	25.141	188.658.571
20.000	17	17.808	356.166.190
30.000	12	12.571	377.117.143
40.000	3	3.143	125.705.714
50.000	20	20.951	1.047.547.619
60.000	0	0	0
70.000	1	1.048	73.328.333
80.000	0	0	0
90.000	0	0	0
100.000	7	7.333	733.283.333
Total	84 ^N	87.994 ^P	2.901.806.903

Source: Researchers

The implementation of additional costs for nature conservation in accordance with the average WTP of tourists (total WTP value) could be used to estimate the number of tourists and manager's acceptance. Data regarding the amount of management revenue with additional costs for conservation according to the WTP of tourists could be seen in Table 2.

The number of tourists (domestic and foreign) per year was obtained from the proportion of tourists who were willing to pay the designated costs, multiplied by the number of visits in a year in Harapan Island, Kelapa Island, and Kelapa Dua Island in 2019 (87,994 visits). The prices set in this study were still within one year. Based on this calculation, it could be seen that the additional costs for nature conservation according to the annual willingness to pay (TWTP) was IDR 518,161,947. The willingness to pay (WTP) of tourists was IDR 32,976 per person per visit or IDR 518,161,947 per year and it could be used for nature conservation.

Conservation efforts carried out by the Kepulauan Seribu National Park include programs for coral planting, mangrove arboretum activities, seagrass, animal rescue/eagle rehabilitation assistance, and semi-natural conservation of hawksbill turtles. These conservation efforts certainly require large costs (Table 3); thus, the result of the WTP is expected to help preserve nature on Harapan Island. The following is the amount of budget used by BTNKpS in carrying out conservation efforts in Kepulauan Seribu.

Table 3 Realization of the 2014-2018 BTNKpS Budget

No	Year	Budget	% Budget Realization
1	2014	12,895,063,000	88.44
2	2015	15,442,577,000	89.92
3	2015	2,295,662,000	92.94
4	2016	11,071,476,000	97.23
5	2016	762,862,000	99.29
6	2017	30,084,700,000	95.93
7	2018	17,525,715,000	95.8

According to Harris *et al.* (2002), environmental assessment should be a prelude to development action. In addition, tourism depends on natural resources as its main capital, so it must lead to eco-centrism.

CONCLUSIONS

The results of the measurement of the value or price that tourists are willing to pay for the value produced by coral reefs in Harapan Island is IDR 32,976 per person per visit or IDR 518,161,947 per year. The WTP which is IDR 32,976 per person per visit is suitable for domestic tourists aged 17-27 years. Through the added value of this WTP, it is hoped that it can help coral reef conservation program, mangrove arboretum activities, seagrass, animal rescue or eagle rehabilitation assistance, and hawksbill turtle conservation carried out by TNKpS.

REFERENCES

- [BTNKpS] Balai Taman Nasional Kepulauan Seribu. 2019. *Statistik Balai Taman Nasional Kepulauan Seribu Tahun 2018*. Jakarta: BTNKpS
- [BTNKpS] Balai Taman Nasional Kepulauan Seribu. 2018. *Laporan Akhir Master Plan Wisata Bahari TNKpS*. Jakarta: BTNKpS
- Birdir S, Ünal Ö, Birdir K, Williams AT. 2013. Willingness to pay as an economic instrument for coastal tourism management: Cases from Mersin, Turkey. *Tour. Manag.* 36(2013):279-283
- Cooper C. 2016. *Essentials of Tourism Second Edition*. London: Pearson Education Limited.
- Estradivari ES, Yusri E. 2009. *Terumbu karang Jakarta: Pengamatan Jangka Panjang Terumbu Karang Kepulauan Seribu (2003-2007)*. Yayasan TERANGI. Jakarta.
- Firmansyah R, Hudjimartu S. 2019. Tourism Suitability Towards Sustainable Tourism In Kepulauan Seribu National Park. *ATRC 2019: ASEAN Tourism Research Association Conference*. Hoa Sen: Vietnam 19-20 January.
- Hanley N, Spash CN. 1993. *Cost Benefit Analysis and Environmental*. Edward Elger Publishing Limited: England
- Harris R, Griffin T, Williams P. 2002. *Sustainable Tourism, Second Edition: A Global Perspective*. London: Butterworth-Heinemann
- Kelurahan Pulau Harapan. 2020. *Laporan Tahunan Kelurahan Pulau Harapan Kecamatan Kepulauan Seribu Utara Tahun 2019*. Jakarta

- Noviana L, Arifin HS, Adrianto L, Kholil. 2018. Studi Ekosistem Terumbu Karang di Taman Nasional Kepulauan Seribu. *Journal of Natural Resources and Environmental Management*: 9(2).
- Yoeti OA. 1996. *Pengantar Ilmu Pariwisata*. Bandung: Angkasa
- Yoeti OA. 2008. *Ekonomi Pariwisata: Introduksi, Informasi, dan Implementasi*. Jakarta: Kompas
- Yakin A. 2015. *Ekonomi Sumber Daya Alam Dan Lingkungan: Teori, Kebijakan, Dan Aplikasi Bagi Pembangunan Berkelanjutan*. Jakarta: Akademika Pressindo.
- Yulianda F, Fachrudin A, Hutabarat AA, Hartati S, Kusharjani, Sang KH. 2010. *Pengelolaan Pesisir dan Laut Secara Terpadu (Integrated Coastal and Marine Management)*. School of Inviromental Conservation and Ecotourism Managemant (SECEM). Ministry of Forestry Republic of Indonesia. KONICA. Korea International Cooperation Agency.