Vol.1, No. 5 July 2023
e-ISSN: 2963-7589
Economic and Business Journal | ECBIS
https://ecbis.net/index.php/go/index

WILLINGNESS TO PAY FOR USE OF WATER SOURCE FOR DOMESTIC CONSUMPTION IN RANGOMALI VILLAGE, WOLO DISTRICT, KOLAKA DISTRICT

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Abstract

Water is a very important natural resource for help to survive. Water perpendicularoma on providing has impacts. Unwise overuse of water resources you are horrified can jeopardize their sustainability. The objective of this study is to estimate the economic value of spring water utilization in Rangomari village. The method used is Willingness to Pay (WTP) Analysis using Conditional Valuation Method (CVM). As a result, the average I WTP is IDR 5,788.46 per month and the total IWTP is IDR 5,788.46 per month. 1,724,961.54 per month. The annual economic value of this urinary tract in Rangomali village is IDR 20,699,538.5. Governments are expected to implement payment of environmental services for water use and modernization of source management.

Keywords: ***Water, Water Resources, Willingness to Pays, Contingent Valuation Methods.***

1. INTRODUCTION

Water resources are water and the potential it contains, usable sources of water, including irrigation systems and infrastructure, but excluding the animal wealth they contain. Water is a very important natural resource for human survival. Water resources are a strategic resource as they are the source of many people's livelihoods. Under Article 33(3) of the Constitution of the Republic of Indonesia, 1945 (Constitution of 1945), it is stated that: And in Article 3 of Law No. 7 of 2004 on Water Resources, ``Water resources shall be managed in a comprehensive, integrated and environmentally friendly manner with the aim of achieving sustainable use of water resources for people. It must be used in a method." This indirectly means that all Indonesian citizens have the right to use existing water resources without neglecting their sustainability.

Indonesia is a tropical country and classified as a country with abundant water resources. However, the issue of drinking water crisis is still frequent. For example, water resources decrease in the dry season, and water quality declines in the rainy season, although water is abundant. It is therefore appropriate that the use of water resources be managed wisely with a view to sustainable development.

The people of Rangomari village have long used spring water as their main source of clean water. Apart from the lack of access to the Regional Drinking Water Company

(PDAM), Rangomari village has access to abundant water resources due to its strategic location at the foot of the mountain. Spring water development in Rangomari Village has been ongoing since 1998, and a management drainage system in the form of a reservoir with pipes for drainage of residents' homes was built with local residents' own funds. Faced with growing population and growing water demand, Kolaka District Public Works Department built another reservoir and pipeline for new water sources in 2011 to meet the clean water demand of Rangomari villagers. . Currently, 1,168 residents in 289 households (KK) use water sources to meet their household needs with clean water for drinking, cooking, bathing, washing and toileting (MCK).

The Rangomari village community uses two water sources to meet the demand for clean water as a free public good. Using uncharged water can be inefficient. According to Surna et al. (2014:5) From an economic point of view, there is no self-generating equilibrium mechanism that can limit exploitation, resulting in abuse of the use of common property resources. These shared resources (water, air, land, etc.) are free, so their actual scarcity is not reflected in the cost of each use. Water resources as an environmental service have quantitative and qualitative limits. Overuse and poor management of water resources will ultimately make water a scarce commodity. The impending water scarcity in Rangomari village should have changed the perception of local communities that water is no longer a cheap commodity, but a commodity with inherent economic value based on the premise of limitation and scarcity. Therefore, in order to raise awareness of the importance of water resource conservation, it is necessary to quantitatively evaluate the economic value of water.

2. LITERATURE REVIEW AND HYPOTHESIS

A study by Pratama et al. (2013) “Estimation Analysis of River Water Consumption and Economic Value of Parsalirang River Water for Residential Sector Needs (Case Study of Hapeson Baru Village, Batang Tolu District, South Tapanuri District)”. The purpose of this study was to calculate the economic value of directly used water in the Parsilan River in Batang Tol district and to analyze a model for estimating the economic value of water in the household needs sector. The results of this study show that the total economic value of water directly used by households around Parsalirang river in Hapeson Baru village is his Rs 1.5 lakh. For the whole village it is Rp 28,482,552 per year and the average benefit felt by each householder is Rp 418,860 per year.

Research by Merryna (2009) “Analysis of community willingness to pay for environmental services” (case study: Krug Kung Village, Padaringchan District, Serang District, Banten). The purpose of this study is to determine the value of economic instruments, community willingness to pay (WTP) for payments for environmental services, and the factors that influence this willingness to pay. The results showed that respondents' willingness to pay for environmental services was influenced by several factors, including their rating of water quality, the amount of water they needed, and the distance from their

home to the water source. Her WTP value in this survey is the value respondents gave to the environmental performance of her Cirahab springs per liter per household. The average WTP value is 83,835 IDR/liter.

A study by Angraeni et al. (2012) National Park Management Section (SPTN) Region II Semitau Danau Centrum National Park (TNDS) entitled Economic value of water for domestic and cage use in Kapuas Hulu District. The purpose of this study was to investigate the impact of socioeconomic factors on household and cage water use, calculate the economic value of household sector and cage water, and estimate the contribution of water use to the community in TNDS SPT Wil. was to decide. II Semith. Studies have shown that household water consumption is influenced by water bills, family size, and the age of the householder. The DSNP area will provide significant water benefits if valued financially and willing to pay Rs 13,444,886,086.92 per annum. The amount paid for domestic water demand in SPTN Area II Semitau area is Rs 1,658,421,549.56 per annum. In addition to willingness to pay Rp 127,641,323,610.00 per year, the value to be paid will be Rp 15,744,508,380.00 per year, resulting in consumer surplus of Rp 111,896,815,230.00 per year for water demand of households in DSNP area. In addition, water sources in DSNP area help meet water demand in both domestic and fisheries sectors, contributing to 39% of the average gross income of the community, which is equivalent to Rp 70,939,513.33 of his SPTN Will. To do. II Semith.

Research by Angraeni (2015) "Estimation of Economic Value of Spring Protection (Case of Chihidung Udik Village, Bogor Regency, West Java, Champhea District)". The purpose of this study is to identify well usage patterns and management systems, estimate the scale of option prices and option values, and estimate the economic value of protecting the Cixiu Nudik well. The result of the option price estimate, representing the willingness to pay the community for efforts to protect the Cixiun-Udik Spring, averaged Rp. 13,063.6/KK/month. As a result of calculating the expected value (option value), it is Rp. 12,739.3/month. After conducting a sensitivity analysis to changes in the probability/likelihood of rain occurrence in the Bogor district, it can be concluded that the option values are not very positive for changes in the probability/likelihood of seasonal rain occurrence. The economic value of protecting the Cihideung Udik spring is Rp. 16,815,876 per year.

Study by Simanjuntak (2009) "Analysis of community willingness to pay for improved water system services by WSLIC (Water Sanitation in Low Income Areas) (Case Study of Situdaung Village, Tenjoraya District, Bogor Regency)". The purpose of this study is to further investigate the water treatment plants in the WSLIC project. A qualitative descriptive analysis tool was used to identify the general state of the WSLIC user community and water use and management in Situdaung village. Quantitative data are used to determine the water user's water purification model. Research shows that income levels and the group of

respondents are factors that influence communities to pay their water bills. Her WTP value of the average WTP of all respondents is Rp.634.21053.

Research by Sudin (2014) Economic Analysis of Water Resource Use and Development (Bogor City, South Bogor District, Mriya Harjah Village, Edited Case Study of Sibeleum Village). The purpose of this study is to investigate the characteristics of water supply users, estimate the amount of purified water, analyze the factors affecting the amount of purified water, and examine the development of water resource reservoirs. As a result, it was found that the average unit price of purified water in the municipality in Kampong Sibereum Edith was 100 million rupees. 149.05/m3. It was declared that the development of clean water resources in Kampung Sibereum Edith, which was the subject of the feasibility study, is financially and economically feasible and will bring lasting benefits to the people of Kampung Sibereum Edith.

3. RESEARCH METHODS

This research was conducted in Langgomali Village, Wolo District, Kolaka Regency. The population in this study were 298 heads of households (KK) who used water from a spring in Langgomali Village, while the sample (informants) of the study were heads of families or people who played a role in the household who could provide the information needed. The number of samples in this study was taken as much as 10 percent of the total population, namely as many as 30 respondents.

The type of data used in this study is primary data obtained directly through interviews with water users in Langgomali Village, and secondary data obtained from the Langgomali village office, literature, journals, the internet and others.

Data analysis in this study used the Contingent Valuation Method (CVM) analysis. There are several stages in determining CVM, namely:

1. Create a Hypothetical Market

The initial stage in running the CVM is creating a mortgage market and questions about the value of environmental goods or services. The mortgage market builds a reason why society should pay for goods and services that have no value in the currency of what the environmental goods or services cost. The market hypotheses in this study are:

Unfair and continuous use, lack of a special management system for water sources, and lack of payment for water usage make water very devalued and even wasteful. If we continue without taking any measures, we cannot deny the possibility that water shortages will occur in the future. Related to this issue, protecting wells requires community contributions to raise conservation funds and resources for well maintenance. As a user of your local water source, understand that you also have to pay for water conservation activities.

2. Get WTP amount offers (Get Bids)

After filling out the questionnaire, samples were taken. At this point, the respondents were interviewed directly. The bidding method adopts an open inquiry method. This method is performed by directly asking respondents for their maximum WTP count without making an initial suggestion.

3. Estimating the Average Value of WTP (Calculation Average WTP)

The estimated WTP average value of respondents is obtained by the formula:

$$EWTP = \sum_{i=1}^{n} \frac{Wi.\,Pfi}{n} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Information:
EWTP = estimated average value of WTP (Rp)
Wi = WTP in class 1
Pfi = relative frequency of class 1
n = Number of data
i = class (1,2,….,n)

4. Estimating the WTP Demand Curve (Estimating Bid Curve)

To estimate the demand curve in this study is to use the cumulative number of individuals who answer a WTP value. The assumption of this method is that individuals who are willing to pay a certain WTP value will also be willing to pay a smaller WTP value.

5. Aggregating Data (Aggregating Data)

Summing or aggregating data is a process when the average supply is converted to the intended total population. As for the formula:

$$TWTP = \sum_{i=1}^{n} WTP_i \left(\frac{ni}{n}\right) P \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Information:
TWTP = Total WTP
WTPi = WTP individual sample i
ni = The number of sample i who is willing to pay WTP
n = Number of samples
P = Total Population

i = Respondent i who is willing to pay for environmental services

4. RESULTS AND DISCUSSION

Economic valuation is an attempt to assign a quantitative value to goods and services produced by natural resources and the environment based on both market value (market value) and non-market value (non-market value). A resource economic valuation is a tool that uses specific valuation techniques to estimate the monetary value of goods and services produced by natural resources and the environment in an effective and efficient manner. This is because the application of economic valuation shows the link between conservation of natural resources and economic development. Economic valuation can therefore be used as an important tool to raise public awareness of the use and management of natural resources and the environment. (Surna et al. 2014).

1. Defendant's acceptance of WTP

In this study, respondents were asked about their willingness to pay for the use of springs in Rangomari village. Respondent acceptance can be seen in the following chart.

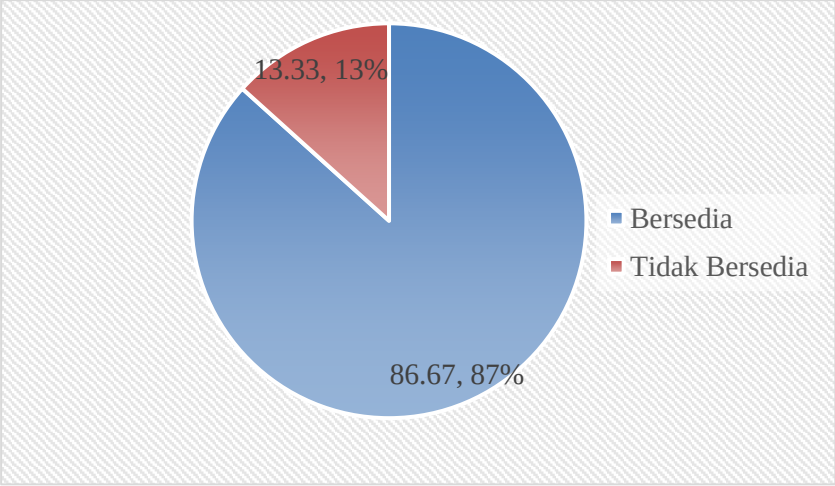

Figure 1. Percentage of Respondents' Pen Usage Acceptance of Payments

Figure 1 shows that 26 respondents, or 86.67 percent, are willing to pay for nib usage, while 4 respondents, or 13.33 percent, are unwilling to pay for nib usage. As for the reasons for respondents' willingness to pay, the majority of respondents said that paying spring water usage fees would improve services for obtaining clean water and maintaining water availability.

2. Estimation of average WTP

The estimated mean of WTP respondents is calculated based on data about the distribution of WTP respondents.

Vol.1, No. 5 July 2023
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Economic and Business Journal | ECBIS
https://ecbis.net/index.php/go/index

Table 1. Distribution of Respondents' WTP in Langgomali Village

No.	Category of WTP (Rp/KK/Month)	Frequency (Respondent)	Relative Frequency (Pfi) %	Total (Rupiah/Month)
1	2000	4	0.15	307.69
2	2500	1	0.04	96.15
3	3000	2	0.08	230.77
4	5000	12	0.46	2307.69
5	7000	2	0.08	538.46
6	10000	3	0.12	1153.85
7	15000	2	0.08	1153.85
Total		**26**	**1.00**	**5788.46**

Based on the above table, the average WTP value is Rp. 5788.66, which means the respondents believe the price of water resources in Rangomari Village is Rp. 5788.66. 5,788.66 per month. This value indicates the municipality's willingness to pay for the use of the resource. This level of average water purification is believed to be influenced by the policy of neighboring villages where Ponle-Wal imposes a water charge of IDR 5,000 per month on Trowe village.

3. Estimation of clean water demand curve

A respondent's her WTP curve is based on the respondent's her WTP and the number of respondents who chose her WTP. Her WTP demand curve for payments for environmental services is shown below.

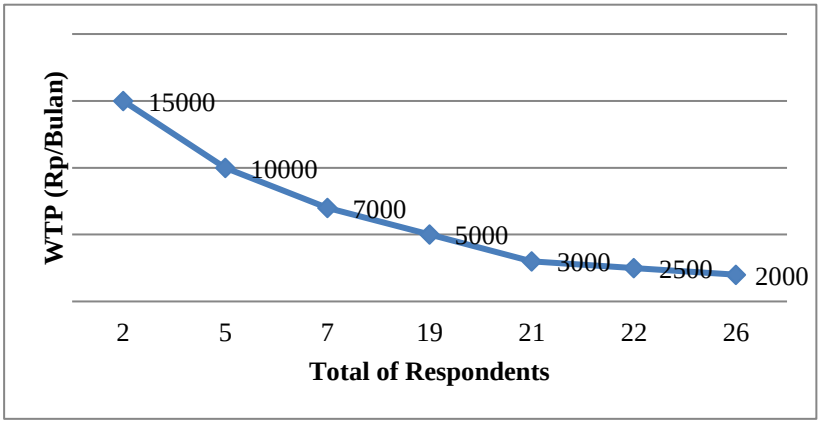

Figure 2. WTP Demand Curve

Based on Figure 2, this curve is constructed on the assumption that people willing to pay a particular WTP value are also willing to pay a lower WTP value. From this we can see that the higher the WTP value, the fewer people are willing to pay. This means that the respondent is willing to pay at her lowest WTP value level.

4. Overview of WTP data

Total WTP or TWTP is calculated based on the distribution of his WTP data using Equation 2. Overall WTP results are shown in the table below.

Table 2. Total Respondents' WTP for Payment for Environmental Services in Langgomali Village

No.	Category of WTP (Rp/KK/Month)	Frequency (Respondent)	Relative Frequency (Pfi) %	Total (Rupiah/Month)
11	2000	4	45.85	91692.31
22	2500	1	11.46	28653.85
33	3000	2	22.92	68769.23
44	5000	12	137.54	687692.31
55	7000	2	22.92	160461.54
66	10000	3	34.38	343846.15
7	15000	2	22.92	343846.15
Total		**26**	**298.00**	**1724961.54**

Based on the calculation results, the total WTP for the whole population is Rp. 1,724,961.54 per month. The total WTP value is calculated by multiplying the average WTP value of the respondents by the total population. Based on this value, the economic value of spring in Rangomari village he can be calculated to be Rp.20,699,538.5 in one year. It is natural to make sure that the economic value is not lost. In addition, this value could be a recommendation for the local government to manage and protect the water source of Rangomari village to keep it sustainable.

5. CONCLUSION

Based on the results of the analysis and discussion on the economic value analysis of the use of feathers as household necessities in Rangomari Village, Wolo District, Kolaka District. Using the CVM (Continent Valuation Method) analysis technique, we can conclude that the average WTP (Willingness to Pay) value will be Rp. 5,788.46 per month per Head of Household (KK). This value reflects the community's desire to pay the resource fee for the spring in Rangomari village. The total WTP is IDR 1,724,961.54 per month, so the potential economic value of the spring in Rangomari village is IDR 20,699,584 per year.

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