

Challenges and Strategies: Willingness to Pay for Mangrove Forest Ecotourism Development In Indonesia

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Abstract

This study aimed to develop processed cracker products made from brown rice flour dregs. This research was experimental research. Based on the experimental results, brown rice tea dregs can be developed into three types of crackers that have different colors, aromas, tastes, textures & crispness, and shapes. Crackers were produced using the same method but with the addition of different ingredients; crackers A used wheat flour, crackers B used tapioca flour, and crackers C used brown rice flour. The organoleptic test involved 62 respondents who were asked to provide an assessment of the crackers produced. Based on the organoleptic test, it can be seen that in terms of texture and crunchiness, people liked crackers C the most, in terms of taste the people also liked crackers C the most, in terms of color the people liked the color of crackers B the most, in terms of smell the people liked the aroma of crackers C the most, and in terms of form, the community liked cracker B the most.

Keywords: brown rice; culinary; innovation; Jatiluwih.

INTRODUCTION

Background

Mangrove ecosystems face rampant deforestation and conversion (Basyuni *et al.*, 2022) Even though it provides benefits in carbon sequestration and storage 4-5 greater than land forests, preventing abrasion and being a home for marine biota (Kusumaningtyas *et al.*, 2019). In addition, in most developing countries in Asia and West and Central Africa, communities depend on mangrove ecosystem resources (Mukherjee *et al.*, 2014). Because of the benefits provided by the issue of mangrove ecosystems, the world's attention and urgency in ecosystem conservation.

The condition of the mangrove ecosystem in Indonesia is quite alarming, where the annual degradation of mangroves in Indonesia is about twice the global average of mangrove ecosystems (Hanggara *et al.*, 2021). The area of Indonesia's mangrove ecosystem is around 3.31 million hectares or 24% of the world's total mangroves. This is the largest mangrove ecosystem in the world, in addition to controlling the global climate (Arifanti, 2020). However, the condition of the mangrove ecosystem in Indonesia is critical, reaching 637,000 hectares (BRGM, 2021). Caused by the conversion of mangrove land for illegal ponds, plantations, settlements, and deforestation for firewood and charcoal raw materials (Cahyaningsing *et al.*, 2022).

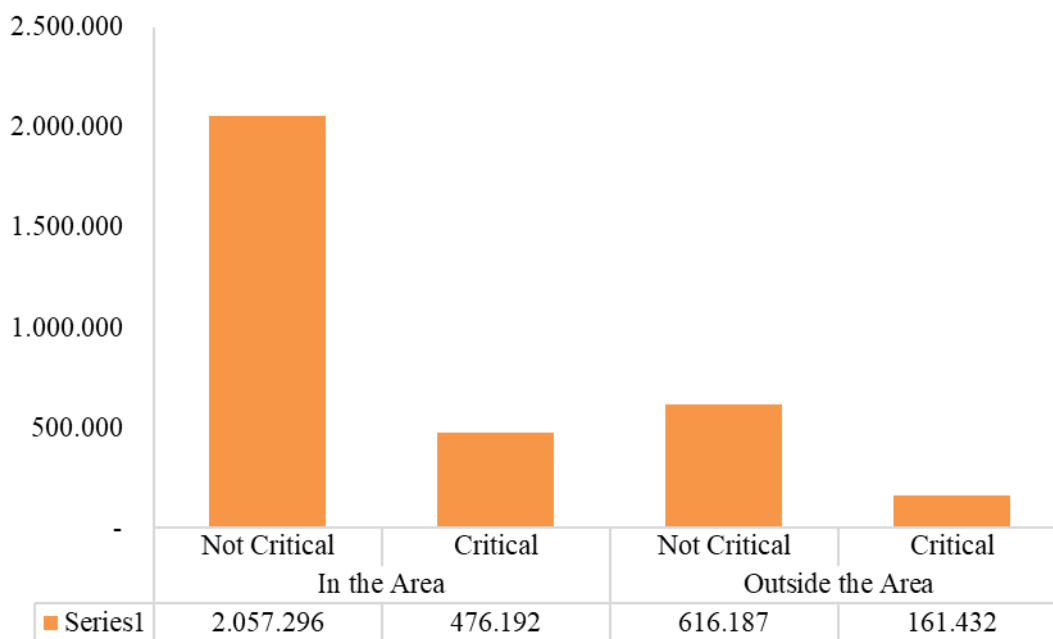


Figure 1. Mangrove ecosystem condition in Indonesia 2020

Figure 1 shows the condition of the mangrove ecosystem in Indonesia. Forests outside the area are permanent forests such as Essential Ecosystem Areas, nature reserves, and nature conservation areas. On the other hand, the forest outside the area is a forest whose designation has not been determined (Republik Indonesia, 2020).

Mangrove forests located inside and outside the area are green lines for coastal areas that have socio-ecological and economic functions (Turisno *et al.*, 2021). The condition of the mangrove ecosystem outside the area with critical land in which is higher than the condition of the critical land inside the mangrove area, which is 19%. According to Marine

and Fisheries Ministry (KKP, 2021), it is known that the mangrove ecosystem with the highest dense cover is in East Kalimantan Province, the highest medium mangrove is in North Kalimantan Province, and the highest rare mangrove is in North Sumatra and Central Java Provinces.

To rehabilitate mangrove ecosystems, the Indonesian government through Presidential Regulation 120 of 2020 concerning the Peat and Mangrove Restoration Agency (BRGM) and Coordinating Minister for Economic Affairs Regulation Number 4 of 2017 concerning Policies, Strategies, Programs, and Performance Indicators for National Mangrove Ecosystem Management aims to restore approximately 637,000 hectares by 2024 (Arifanti *et al.*, 2022; Asian Forest Cooperation Organization (AFoCO), 2022). Mangrove rehabilitation efforts carried out by BRGM not only restore ecology but also pay attention to and improve the welfare of people living around mangrove forest areas (BRGM, 2021). To support macro and micro planning for mangrove rehabilitation, the government synergizes with various actors including the community by developing ecotourism.

One of the main forms of tourism in coastal areas is mangrove ecotourism (Hakim, Siswanto and Makagoshi, 2017). Mangrove habitats provide various socio-economic purposes, including tourism potential, in addition to their physical and biological purposes (Rahmila and Halim, 2018). Considering that ecotourism can encourage the preservation of mangrove ecosystems as buffer zones, especially in coastal areas, the use of mangrove areas as ecotourism destinations is a very reasonable and strategic solution (Massiseng *et al.*, 2020).

Ecotourism has a positive effect on tourist destinations, including environmental protection, conservation of natural resources, economic improvement, and cultural preservation (Ashok *et al.*, 2017; Binu and Phil, 2022). Mangrove ecosystems provide very important benefits for the survival of marine biota and communities by providing goods and services such as fish and wood, providing a balance between direct financial benefits and long-term ecological benefits (Vo Trung, Viet Nguyen and Simioni, 2020). So, for effective management of mangrove ecosystems, scientific evaluation of the economic value of mangrove forests is very important.

The Contingent Valuation Method (CVM) method is used to estimate the economic value of the mangrove ecosystem and examines the factors that influence the community's Willingness To Pay (WTP) for mangrove conservation efforts (Diswandi and Saputryningsih, 2019). Economic assessment is important for making decisions about implementation to determine the implementation of mangrove ecotourism (Hafiz Iqbal and Nur Mozahid, 2022). In several studies that have been carried out, CVM is useful for measuring the monetary value that individuals place on goods, services, and facilities that are not traded in the market (Doris and Wang, 2018). However, there are still few studies that focus on the estimation of WTP for the development of mangrove ecotourism in the bidding game method. In a study conducted by Nesha Dushani *et al* (2022), the mean WTP for mangrove restoration was calculated using the contingent assessment method and the single-bounded discrete choice (SBDC) approach. then, research by Ardiansyah *et al* (2019) estimates the value of forest conservation in the waters of

Karimunjawa, but his research focuses on marine-protected areas, not focusing on the development of mangrove ecotourism. So, this research will focus on the development of mangrove ecotourism and formulate strategies for the development of ecotourism.

Research Objectives

The purpose of this study was to analyze the community's willingness to pay and formulate strategies for the development of mangrove forest ecotourism. Rembang Regency was chosen as the study area because the mangrove forest ecosystem in Rembang Regency is one of the best mangrove ecosystems in Central Java (Indarsih and Masruri, 2019), so this has the potential to be developed into eco-tourism. So that it can increase the potential of ecotourism while maintaining the preservation of the mangrove ecosystem. This research will contribute to the development of mangrove ecotourism by estimating the community's willingness to pay and providing ecotourism development strategies obtained based on the results of in-depth interviews with relevant stakeholders.

LITERATURE REVIEW

Mangrove Ecotourism

One of the important instruments to improve and support environmental protection, especially the preservation of tropical mangrove ecosystems is ecotourism (Fattah, Utami and Intyas, 2020). In addition, ecotourism fosters ecological awareness among residents of tourist sites (Salman *et al.*, 2021). Ecotourism is a type of travel involving going to natural areas to learn about them or to engage in activities that benefit the environment, offer nature-based experiences, and support the local community's social and economic

development (Antari and Connell, 2021). Ecotourism aims to help people understand nature and socio-culture while creating economic opportunities for local communities (Salman *et al.*, 2021).

Ecotourism arises because of the adverse effects of mass tourism (Ocampo *et al.*, 2018). Mass tourism can be replaced by ecotourism, which aims to reduce the negative impact of tourism on the local economy, environment, and society. In addition, the researchers found that ecotourism supports the area's local culture, encourages community involvement, and enhances the experiences of tourists and residents in tourist destinations (Treephan, Visuthismajarn and Isaramalai, 2019). Ecotourism, one of the tourism niches with the fastest expansion rate today, supports the sustainable growth of the tourism industry. Governments use it to promote sustainable tourism development, which is generally recognized worldwide. (Salman *et al.*, 2021).

Ecotourism aims to protect the environment, conserve local resources, and ensure that they are used to ensure their sustainability and continue generating income for the destination (Mendoza-Ramos and Prideaux, 2018). Since ecotourism is nature-based recreation, ecotourism will be affected by climate change through changes in the composition and quality of ecosystems that provide the services needed for ecotourism (Salpage, Aanesen and Amarasinghe, 2020). Ecotourism has interrelated elements, including environmental and ecological sustainability, natural areas and cultural resources, providing participation and benefit for the local economy, environmental and ecological education to stakeholders, and community satisfaction with ecotourism.

(Velmurugan, Thazhathethil and George, 2021).

In mangrove areas, for ecotourism to be sustainable, it must maintain social, economic, and environmental pillars (Swangjang and Kornpiphat, 2021). Mangrove forest restoration plays an essential role in preserving mangrove ecosystems and strengthening ecotourism against the impacts of climate change, especially in coastal wetlands (Musa, Fozi and Hamdan, 2020; Nesha Dushani, Aanesen and Armstrong, 2022). In research Arkwright & Kaomaneng (2018) ecotourism management by applying ecotourism principles can help local communities and preserve the environment for the next generation. Then, mangrove ecotourism has also succeeded in increasing the income of local people (Marzuki, 2020).

Contingent Valuation Method

The economic valuation was first developed in the United States in the 1960s. This method measures the monetary value of goods, services, and facilities that cannot be traded on the open market (Doris & Wang, 2018). The Contingent Valuation Method (CVM) aims to increase the reliability of the estimated non-use value results. CVM builds a hypothetical market using survey questionnaires to construct scenarios that allow respondents to express their willingness to pay in exchange for environmental quality improvements (Aizaki et al., 2022). This method is utilized in particular to provide a more accurate estimate of the non-use value of biodiversity and support for the mangrove ecosystem.

CVM is applied in several ecosystems that cannot be monetized, including the mangrove ecosystem. Monetizing the conservation of mangrove ecosystems is very important for stakeholders in making decisions

about ecotourism and land use (Hafiz Iqbal and Nur Mozahid, 2022). CVM is a survey-based approach in which an individual independently declares his willingness to pay for the conservation of environmental services (Pham *et al.*, 2018). According to the research, most Malaysians choose to respond to WTP according to the bid price and socio-demographic variables because they believe that mangrove restoration will improve their quality of life now and for future generations.

Many types of research using CVM have been carried out, especially those that aim to determine people's willingness to pay. Research conducted by Ramli (2017) shows an estimate of WTP for conservation costs where each visitor pays 17.60 Ringgit (Malaysian currency), which is important for the conservation of the Matang mangrove forest in Perak, Malaysia. Then, using the double-delimited dichotomous choice contingent method Vo Trung et al (2020) directly estimate how much people are willing to pay for mangrove conservation in Xuan Thuy National Park. Using a hypothetical scenario that describes policies that measure the environmental change that will be achieved by 2030 and at the same time determine the amount of payment. Owuor et al (2019) assessed the diversity of mangrove forests and ecosystem services in the Mida River, Kenya by looking at the variables of shoreline erosion protection, biodiversity richness and abundance, fish nurseries and breeding grounds, education, and research to estimate workers' willingness to pay for mangrove conservation.

METHODS

This research was carried out from December 2021 to May 2022 which was carried out in Rembang Regency. Mangrove forest ecotourism is located in

Pasar Banggi Village. This village is one of the villages located in Rembang Regency, more precisely, which is located east of the city of Rembang. Pasarbanggi is one of the coastal villages which is about 11 km from the capital city of Rembang district and 9 km from the capital of Rembang Regency. Administratively, Pasar Banggi Village is bordered by the Java Sea in the north, in the south by Padaran Village, in the east by Tritunggal Village, and in the west by Tireman Village.

This research uses primary data and secondary data. Primary data were obtained from survey sources from as many as 155 respondents, both those who had visited mangrove ecotourism and those who had never visited. by filling out questionnaires and in-depth interviews, with 7 key people. While the secondary data in this study were obtained from documents or literature from books, journals, or the internet and obtained from agencies. This research was carried out from December 2021 to May 2022 which was carried out in Rembang Regency.

This research uses a qualitative and quantitative approach (mixed method). Mixed methods are methods that combine qualitative and quantitative approaches in methodology and two approaches at once in all stages of the research process (Ramlo, 2020). Quantitative analysis in this study is descriptive statistics and the Contingent Valuation Method. While the qualitative analysis is an in-depth interview where the interview transcript will be made and processed with the help of Atlas.TI software. Atlas.TI is an analytical tool that offers a variety of tools to manage, extract, compare and explore in-text data for later analysis (Susilowati, 2020). Some of the features of the Atlas.TI applications used to assist in conducting data analysis in this study include document handling,

encoding, grouping, and text search features (Smit and Scherman, 2021).

This study uses the CVM method to estimate the community's willingness to pay for developing mangrove forest ecotourism. The CVM method is a technical survey method used to inquire about the value of prices that people are willing to give for non-market commodities such as environmental goods (Haab, Lewis and Whitehead, 2020). A valid WTP estimate can be used to develop an optimal pricing strategy (Waridin et al., 2018). The stages of CVM activities in this study are (Khoiriyah *et al.*, 2021): (1) building a hypothetical market; (2) obtaining the value of the WTP offer; (3) calculating the average value of WTP and aggregated data; (4) estimate the behavior patterns of respondents.

The first stage, in using the CVM method is to build a hypothetical market that aims to make respondents or tourists have preferences which will be outlined in the form of several contribution payments. The questionnaire in this study provides information to tourists about developments that will be carried out by the manager and the government through the scenario created. This information aims to provide an overview to tourists so that tourists can decide how many fees to choose from according to what has been determined in the hypothetical market for tourism development and conservation of mangrove forest tourism objects. Second, determines the bid value that will be offered to tourists by providing the lowest to the highest bid value. Tourists will be given a choice of scenarios along with the estimated investment costs for developing a tourist attraction, then each respondent is only allowed to choose one option in the several scenarios offered according to the respondent's ability. third, determine the average WTP value of each person. this value is calculated based on the auction value (bid) obtained

in the second stage. in detail the calculation of the average WTP is shown in the following formula (Khoiriyah *et al.*, 2021):

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

Description:

- EWTP : Estimated value of WTP
- Wi : WTP sample
- n : Number of Respondents
- i : Respondent i who is willing to pay (i = 1,2,3... etc)

After knowing the average value of WTP, then adding the data by converting the average value of WTP to the total population. The formula for calculating the total value of community WTP is:

$$TWTP = \sum_{i=0}^n WTPi ni$$

Description:

- TWTP : Total WTP
- TPi : WTP sample
- ni : The number of samples willing to pay the amount of WTP
- i : Respondent i who is willing to pay (i = 1,2,3,...n)

The fourth stage is estimating the respondent's socio-economic behavior pattern. this stage is obtained by analyzing the relationship between the socio-economic factors of tourists in mangrove forest tourism objects with the value of the offer offered to respondents. The variables of age, gender, marital status, education, and income are socio-economic variables in this study.

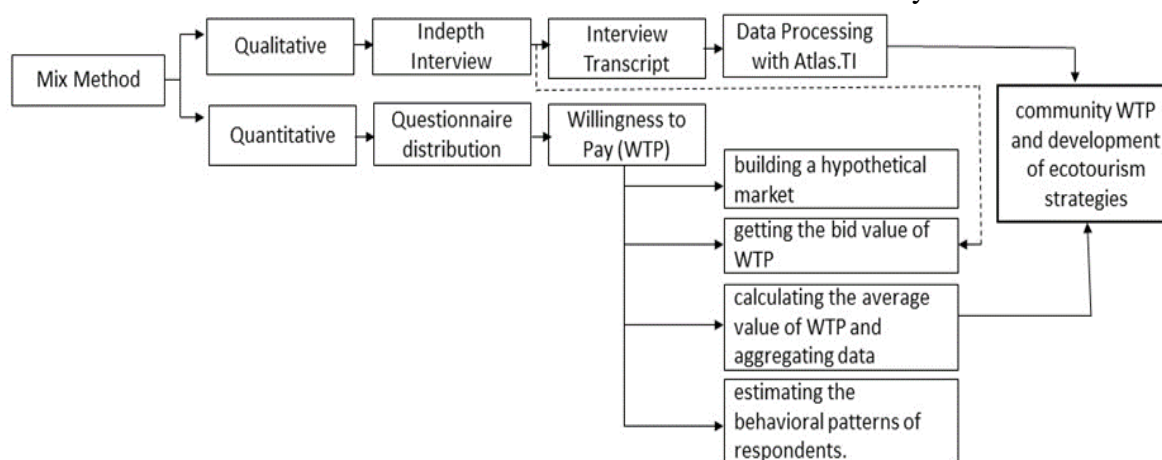


Figure 2. Mapping of Research Methods

Results and Discussion

Table 1 shows the socio-economic characteristics of the respondents. Respondents in this study have different backgrounds, both in terms of gender, age, marital status, education level, and income. Thus, with different

socioeconomic backgrounds, estimates of WTP may be different (Zhang *et al.*, 2020). A more detailed background of the socio-economic characteristics of the respondents is shown in Table 1

Table 1. Socio-Economic Characteristics of Respondents (N = 155)

Characteristics of Respondents		Frequency	Percentage	Description
Gender	Male	104	67%	
	Female	51	33%	
Age (Years)	< 20	39	25%	Mean = 21,3
	20 – 29	112	72%	Min = 18
	33 - 39	4	3%	Max = 39
				Standard deviation = 2,86
Status Marriage	Married	14	9%	
	Unmarried	141	91%	
Level Education	Elementary School	1	1%	Mean = 12,7
	Junior High School	3	2%	Min = 6
	Senior High School	120	77%	Max = 16
	D3	4	3%	Standard deviation = 1,73
	S1	27	17%	
Income	< 1.000.000	36	23%	Mean = 1.870.323
	1.000.000 – 2.999.000	97	63%	Min = 400.000
	3.000.000 – 4.999.000	10	6%	Max = 8.500.000
	5.000.000 – 6.999.000	8	5%	Standard deviation =
	6.999.000 >	4	3%	1.414.979

Willingness To Pay (WTP) Analysis of Mangrove Forest Ecotourism

Value of willingness to pay studied in this study uses the CVM method. for the efforts to develop mangrove forest ecotourism in Rembang Regency. Before knowing the amount of community willingness, the respondents first need to be given information about the environmental conditions of mangrove forest ecotourism. After providing information about the

condition of ecotourism, visitors will be given several price offers for the development of mangrove forest ecotourism. Visitors only need to answer “yes” or “no”. A "yes" answer indicates that the visitor is willing to pay the bid price a predetermined amount. And if the visitor answers “no”, it must provide a clear reason for refusal. Scenario 1 and scenario 2 show several prices that will be offered to respondents, as shown in table 2 shows scenario 1 and table 3 shows scenario 2.

Table 2. Scenario 1 Development of Rembang Regency Mangrove forest ecotourism

Description	X	Amount	Unit	Price	Total
Short Course Procurement	2	12	Package	Rp 1.800.000	Rp 43.200.000
Construction of viewing posts	1		Unit	Rp 80.000.000	Rp 80.000.000
Construction of prayer room and bathroom	1		Unit	Rp 65.000.000	Rp 65.000.000
Making ticket booth	1		Unit	Rp 8.000.000	Rp 8.000.000
Wages freight and installation	7	3	Hok/month	Rp 150.000	Rp 94.500.000
Total					Rp 290.700.000
Scenario 1 bid value: population size					
= Rp 290.700.000 : 19.667					
= Rp 14.781 per year					
= Rp 15.000 per year					

Table 3. Scenario 2 Development of Rembang Regency Mangrove forest ecotourism

Description	X	Amount	Unit	Price	Total
Short Course Procurement	2	12	Paket	Rp 1.800.000	Rp 43.200.000
Construction of viewing posts		1	Unit	Rp 80.000.000	Rp 80.000.000
Construction of prayer room and bathroom		1	Unit	Rp 65.000.000	Rp 65.000.000
Making ticket booth		1	Unit	Rp 8.000.000	Rp 8.000.000
Wages freight and installation	7	3	Hok/month	Rp 150.000	Rp 94.500.000
Addition photo spots		3	Unit	Rp 14.000.000	Rp 42.000.000
Construction park of playground		3	Unit	Rp 20.000.000	Rp 60.000.000
Total					Rp 392.700.000
Scenario 2 bid value: population size					
= Rp 392.700.000 : 19.667					
= Rp 19.967 per year					
= Rp 20.000 per year					

Scenario 1 presented in Table 2 shows the value results bid of US \$ 1 or can be rounded up to US\$ 1.01. Meanwhile, Table 3 shows the results of the acquisition of the bid value of US\$ 1.35. The bid value obtained will then be offered to respondents to determine how much the community is willing to pay for the development of mangrove ecotourism.

Currently, to be able to visit mangrove forest ecotourism in Rembang Regency, visitors are not charged an entrance ticket, they are only charged a parking fee. Based on research conducted by (Saputro, Purwanti and Rudiyantri, 2019), the condition of mangrove forests in the Rembang Regency is suitable for ecotourism. This is evidenced by the community and government's commitment to turning the mangrove forests of Rembang Regency into ecotourism. This is done other than as an effort to conserve mangroves, ecotourism services can also improve the welfare of the surrounding community by increasing income from the tourism sector. This is in line with the theory Aye et al (2019) that people can take advantage of the mangrove ecosystem resources around them to increase household income by trading and opening transportation services around ecotourism.

Since 2016 the mangrove forest in Rembang Regency has become ecotourism. However, based on observations, ecotourism is still less attractive and public facilities are still minimal, so it is necessary to develop ecotourism. This study proposes ecotourism development scenarios shown in Tables 2 and 3, which will later be offered to the community whether they are willing to pay a predetermined amount of money to develop tourism. In line with research (Tseng *et al.*, 2019), this study also proposes community involvement to assess ecotourism potential.

With the help of a questionnaire, respondents and key persons were interviewed and asked to fill out a questionnaire containing questions related to the number of costs they were willing to spend and the efforts to develop mangrove forest ecotourism which had been determined in two scenarios (see Table 2 and Table 3). After collecting data, it was found that 89% (138 people) of respondents answered that they were willing to pay a predetermined amount. In comparison, the remaining 10.97% (17 people) of respondents answered that they were unwilling to pay. Respondents are not willing to pay because they have had enough ecotourism. The average WTP

value of mangrove forest ecosystems is obtained based on the ratio of the total WTP value given by respondents to the

number of respondents willing to pay shown in Table 4.

Table 4. Distribution of EWTP Value of Respondents for mangrove forest ecotourism

No	WTP (Rp)	Repondent Total	Percentage (%)	WTP x Total Respondent (Rp)
1	Rp 15.000	53	34,2%	Rp 795.000
2	Rp 20.000	85	54,8%	Rp 1.700.000
Total		138	89%	Rp 2.495.000
EWTP				Rp 18.079,71

On the results of the calculation of the distribution of the WTP value of respondents in Table 4, the average WTP value of respondents is Rp 18.079,71 which can be rounded up to Rp 18.000. The average value of the respondents' WTP can be used to determine the number of admission tickets that will be charged to visitors, which can later be used to finance the development and conservation of mangrove forest ecotourism. A total of 138 or 89% of respondents in this study are willing to pay a predetermined amount of money for the development of mangrove forest ecotourism. This follows the theory that the community is willing to pay a certain amount to ensure a sustainable mangrove ecosystem (Musa, Fozi and Hamdan, 2020). The aggregate value of the total WTP (TWTP) of respondents in the effort to develop tourism and conservation of mangrove forests in Rembang Regency can be seen in Table 5.

Table 5. Distribution of EWTP Value of Respondents for mangrove forest ecotourism

EWTP (a)	Population size (b)	TWTP/year (a x b)
Rp 18.000	19.667	Rp 354.006.000

The value is Rp 354.006.000 per year. The total value of WTP in Table 5 can be used by ecotourism managers for development or maintenance, as well as to improve existing supporting facilities in the mangrove forest ecotourism in Rembang Regency.

Mangrove Forest Ecotourism Development Strategy

Through in-depth interviews with key persons, a transcript of the in-depth interviews will then be analyzed with the help of Atlas.TI software. Based on the analysis results, it can be seen that the ecotourism of the mangrove forest is in good condition and comfortable for tourists to visit. However, mangrove forest ecotourism also has problems that need to be addressed to offset the increasing number of tourist visits. Therefore, it is necessary to have a strategy that can be done to support the development of mangrove forest ecotourism. Figure 3 shows the proposed strategy for the development of mangrove ecotourism.

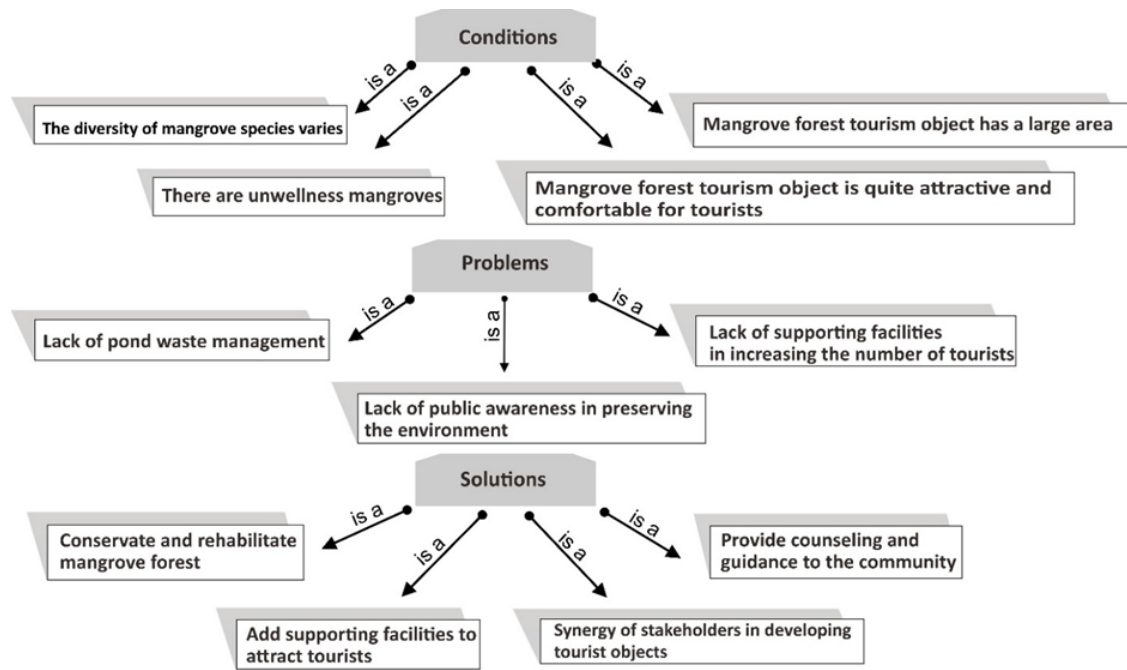


Figure 3. Mapping of Research Methods

Figure 3 is the result of stakeholder triangulation visualization. Figure 4 shows how the condition of mangrove forest ecotourism, problems in mangrove forest attractions, and solutions or strategies to develop mangrove forest ecotourism. Based on the results of in-depth interviews with relevant stakeholders, as a solution to these problems, strategic scenarios for developing mangrove forest ecotourism were obtained, namely, improving ecotourism supporting facilities and conducting efforts to preserve mangrove forests and increasing synergy between stakeholders.

Improving Ecotourism Supporting Facilities

Facilities are proportional to complement the main facilities so that tourists will feel more comfortable with the existing atmosphere (Ginting and Sasmita, 2018). This study proposes providing supporting facilities that tourists can later use in prayer rooms, toilets, viewing posts, photo spots, and children's playgrounds. These supporting facilities are expected to

increase tourist satisfaction while maintaining the sustainability of mangrove ecotourism. So that sustainable ecotourism can be achieved. This follows the research conducted by Purwanti & Gunawan (2019) where ecotourism supporting facilities and infrastructure affect sustainable ecotourism in the city of Bontang. Then, according to research by Song et al (2012), a higher level of tourist satisfaction allows it to increase tourist loyalty, attract new tourists and improve the reputation of ecotourism itself.

Conducting Efforts to Preserve Mangrove Forests

In the utilization of the environment, conservation principles need to be enforced to maintain environmental balance and maintain its function as physical and biological protectors. Following the research of Jimenez et al (2022), mangrove conservation through replanting is a strategy to restore mangrove ecosystem services. In this study, as an effort to conserve the mangrove ecosystem, it is proposed to procure a short

course package (see Tables 2 and 3), whereas in this scenario it is suggested to have a short course related to mangrove planting. In practice, this short course package is provided for tourists who want to learn and know how to plant mangrove ecosystems. The majority of respondents or 89% of respondents in this study agreed with the short course program to support the success of mangrove ecotourism in Rembang Regency. As stated in the research by Tseng et al (2019), the management of facilities with environmental conservation and protection and ecosystem activities based on natural resources in attractive areas affect the success of ecotourism.

Increasing Synergy Between Stakeholders

The success of ecotourism depends on synergies between local communities, relevant stakeholders, and government agencies that work together to preserve ecosystems and community culture (Osman, Shaw and Kenawy, 2018). Previous research has identified that ecotourism development without involving stakeholders will not succeed (Chen and Jim, 2010; Pyke *et al.*, 2018). Mangrove ecotourism management in Rembang Regency is currently managed by the community and assisted by the government, such as the Tourism Office. However, the involvement of the Rembang Regency government is felt to be lacking due to the lack of ecotourism funding allocations and human resource development programs, and natural resources that are still not felt by the community. So that, to support the success of the development of mangrove ecotourism, better synergy from various stakeholders is needed. The importance of stakeholder involvement has also been conveyed in the research of Tseng et al (2019) dan Salman et al (2021), where stakeholder involvement has a crucial role in helping to maintain environmental quality and in the

practice of ecotourism development.

CONCLUSION

The contingent Valuation Method (CVM) in this study was used to determine the level of community willingness to support the development of mangrove forest ecotourism in Rembang Regency. Based on the results of the study, it can be seen that most of the people stated that they were willing to pay to support the development of mangrove forest ecotourism in Rembang Regency. Where as many as 89% of respondents stated that they were willing to pay a predetermined amount of money in the scenario of developing a tourist attraction. The results obtained from the calculation of WTP can be used by ecotourism managers to determine the entrance fee (ticket). Thus, it can support the success of mangrove ecotourism while preserving the mangrove ecosystem itself.

Based on the findings above, this study provides several suggestions, namely: first, to develop mangrove ecotourism in Rembang Regency, it is necessary to increase the provision of supporting facilities in mangrove forest ecotourism, both public facilities and supporting facilities for tourists for the convenience of tourists. Second, the value of the average Willingness to Pay (WTP) of visitors can be used as a reference in determining policies and pricing for mangrove forest ecotourism tickets and can be allocated for operational costs in ecotourism development efforts, and. Third, the synergy between stakeholders in the development of Mangrove forest ecotourism needs to be further improved.

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