

**PERCEPTION AND CITIZEN PARTICIPATION LEVEL TO
MANGROVE ECOSYSTEM MANAGEMENT IN THE PENITI RIVER
ESTUARY, MEMPAWAH REGENCY**

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ABSTRACT

This research aims to determine the perception and citizen participation level to the mangrove ecosystem in the Peniti River Estuary, Mempawah Regency. This research was started from February 2021 to July 2021. The methods was conducted with a survey technique of 100 respondents which was then analyzed quantitatively and presented descriptively. This research data consists of two types, there are primary data and secondary data. The results obtained are the level of community knowledge of mangroves in the Estuary of the Peniti River, Mempawah Regency is included in the sufficient criteria, with a respondent's level of knowledge of 65.28%. In addition, the citizen's perception of the function and role of mangroves is in the positive range with a perception index of 0.68, for perceptions of mangrove management a perception index of 0.68 is obtained. Then the average of citizen participation index on mangrove management is 0.58 at the level *tokenism* in ladder of citizen participation. At this stage the citizen is just a formality that allows them to hear and have the right to vote, but their opinions have not been material for decision making.

Keywords : *Citizen knowledge level, Citizen perception, Citizen participation index, Citizen participation level.*

INTRODUCTION

The mangrove ecosystem is one of the coastal area ecosystems that has the potential for the welfare of the community and the environment. According to Rahmawaty (2006), mangroves have several ecological and economic functions, their ecological functions include preventing abrasion, as a habitat for aquatic biota, feeding grounds, spawning grounds, and nursery grounds. Meanwhile, its socio-economic function is as a place for educational activities such as research, as a tourist attraction, producing industrial raw materials and household needs. (Rahmawati 2006). Because it has economic value, mangroves are used by some people in meeting their needs and development activities such as land clearing. As a result, the mangrove ecosystem is vulnerable to damage if it is not managed and conserved in a sustainable manner.

Human activities are thought to be the biggest cause of damage to mangrove ecosystems. Activities such as massive resource exploitation and development and the absence of sustainable conservation efforts have led to the degradation of mangrove ecosystems. Exploitation of mangrove forests, whether in the form of forest product exploration or land conversion for aquaculture, agriculture and plantation business as well as mining has actually been carried out for a long time and these activities are still ongoing (Budiman and Kartawinata in Pramudji 2002).

The essence of the problem of mangrove forest degradation is essentially human and their behavior, in this case the community around them, because perception and participation are elements of human behavior that will affect how a human acts (Gumilar 2012). The role of the surrounding community is very important for the sustainability of mangroves in an area, but the lack of knowledge and public awareness of the importance of the existence of mangroves is a problem that must be faced. Involving the citizen in mangrove forest management is one of the first steps in realizing sustainable mangrove forest conservation (Bengen 2003).

RESEARCH METHODS

The research was conducted at the Peniti River Estuary, Segedong District, Mempawah Regency, West Kalimantan Province. This research was conducted in February - July 2021 which includes data collection, data processing, and data analysis. The research location is about 43 km from Pontianak City. Geographically, the estuary of the peniti river is located between 0°11'05" North Latitude and 109°8'14" East Longitude and between 0°6'13" North Latitude and 109°9'49" East Longitude.

The primary data in this study include data on knowledge, attitudes, characteristics of respondents, and community participation obtained from direct interviews with 100 respondents using a questionnaire. Meanwhile, secondary data used to support research is sourced from literature, books, or journals. The method used in sampling is purposive sampling, namely the technique of determining the sample with certain considerations (Sugiyono 2012).

DATA ANALYSIS METHODS

1. Likert scale

Likert scale is a measurement method used to measure attitudes, opinions and perceptions of a person or group of people about social phenomena (Sugiyono 2012). In this method, most of the questions are collected and structured in such a way that they can be answered on a five-level scale with the following details:

Table 1. Likert Scale

Criteria	Score
Very Know/very agree	5
Know/Agree	4
Neutral	3
Don't know/don't agree	2
Really don't know	1

2. Citizen Participation Index

According to Gumilar (2012), the citizen participation index is an aggregate measure to assess citizen participation on certain issues with a value range of 0 to 1. The level of citizen participation in environmental management is measured

using the participation index (IP), which is an aggregate measure that is compiled to measure a variable. specifically in this case community participation. The index can be calculated with a maximum value of 1 and a minimum value of 0 using the following formula:

$$In = \frac{TS}{x}$$

Information:

In = Index

TS = Total of Score

ST = Highest Score

ΣR = Number of Respondents

x = ST x ΣR

RESULTS AND DISCUSSION

General Description of Research Location

The Peniti River Estuary is located in Segedong District, which is one of the sub-districts in Mempawah Regency. This area is located between 00°20'00" and 00°30'00" North Latitude and 108°55'00" and 109°06'40" East Longitude. The area of Segedong District is 164 km² or about 10.45% of the total area of Mempawah Regency.

The largest village is Peniti Dalam II Village with an area of 77.50 km² or 47.26 percent while the smallest is Parit Bugis Village with an area of 9 km² or 5.49 percent of the total area of Segedong District. Administratively, the boundaries of the Segedong District are: a. North: Sungai Pinyuh District and Landak Regency
 b. South: Siantan District and Kubu Raya Regency
 c. West: Karimata Strait
 d. East: Kubu Raya Regency

Characteristic of Respondents

The number of samples taken in this study were 100 respondents. The criteria for the selected respondents are: 1. Man and Woman
 2. Being at the age of 20-65 years, because according to Notoatmodjo (2007), someone aged >20 years has been able to distinguish

and have the ability to think rationally so that he can interpret things well.

3. Having a type of work that interacts directly with the mangrove forest and which does not interact directly with the mangrove forest.

4. Ever had formal education or never.

Respondents by Age

In table 2, it can be seen that the highest frequency was at the age of 27 to 33 years as many as 28 people, ages 20 to 26 years as many as 26 people, ages 34 to 40 years as many as 18 people, ages 41 to 47 as many as 11 people, ages 48 to 54 years as many as 10 people, aged 55 to 60 years there are 5 people, and age 61 to 65 there are 2 people.

Table 2. Respondents Age

Age (Year)	Frecuency	Percentage (%)
20-26	26	26
27-33	28	28
34-40	18	18
41-47	11	11
48-54	10	10
55-60	5	5
61-65	2	2
Total	100	100

Education Level

The education level of respondents out of 100 people is mostly high school level (SMA) which is 46%, junior high school 24%, elementary school 20% and bachelor degree 10%, can be seen in the table below:

Table 3. Respondents Education Level

Education Level	Frecuency	Percentage (%)
Elementary school	20	20
Junior high school	24	24
High school	46	46
Bachelor degree	10	10
Total	100	100

The wealth of knowledge, information, knowledge possessed by a person or group of people is also a factor that greatly influences the mindset. A scholar certainly has a different mindset from people with only low education. Furthermore, one's view or understanding of natural reality (worldview), views of values and so on also determine one's or society's thought style (Widdah, 2012).

Respondents job

Table 4. Respondents job

Jobs type	Frecuency	Percentage (%)
Housewife	20	20
Farmer/fisherman	10	10
Entrepreneur	28	28
Private Employee	33	33
Civil servant	2	2
College student	7	7
Total	100	100

Seen from table 6, there are various types of respondent jobs obtained, the largest number of 100 respondents are private employees/employees with a percentage of 33%, entrepreneurs as much as 28%, housewives 20%, farmers/fishermen 10%, students 7%, and civil servants 2%.

Citizen Knowledge of Mangroves

Citizen knowledge is measured by several indicators such as understanding of mangroves, the existence and condition of mangrove forests, benefits of mangrove forests, activities carried out in mangrove forests, mangrove damage factors, inhibiting factors for mangrove conservation, the influence of mangroves on the community, government efforts to conserve mangroves, and community activities to mangrove conservation.

Table 5. Citizen Knowledge of Mangrove

No	Answers choice	Frecuency	Total Score	Score Percentage (%)	Respondents level of satisfy (%)
1	Very Know	30	150	4,6%	
2	Know	404	1616	49,51%	
3	Neutral	366	1098	33,64%	65,28
4	Don't Know	200	400	12,25%	
5	Really don't know	0	0	0%	
	Total	1000	3264	100%	

Table 5 explains the results of the result of answers from 10 questions asked to respondents totaling 100 people with a Likert scale questionnaire model consisting of 5 answer choices, namely: Very Know (ST), Know (T), Neutral / Doubtful (N), Don't Know (TT) and Very Don't Know (STT). The total score of answers that were obtained by the respondents as a whole was 3264. The average score obtained from each respondent who became the sample was 32.6. The highest score from filling out

the questionnaire by the respondent is 42. Then the respondent's level of achievement (TCR) achieved by the respondent is 65.28%. Based on Nursalam (2008), the classification of the level of knowledge is in the sufficient classification because the score is between 56% - 75%. In general, it means that the community already knows enough about mangroves.

Citizen Perception of Mangrove Functions and Roles

Based on Table 6, the total answers that were obtained by the respondents as a whole were 5084. The average score obtained from each respondent who became the sample was 50.84. The highest score

from filling out the questionnaire by respondents was 60. Then the perception index obtained was 0.68. In other words, the citizens perception of the function and role of mangroves is in the positive range.

Table 6. Citizen Perception of Mangrove Functions and Roles

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Very know	0	0	0%	
2	Know	602	2408	47,36%	
3	Neutral	880	2640	51,93%	0,68
4	Don't know	18	36	0,71%	
5	Very don't know	0	0	0%	
Total		1500	5084	100%	

According from a good perception of the function and role of mangroves, people are aware of the importance of mangrove ecosystems for their lives as coastal protectors from ocean currents, mudguards, fish spawning grounds, as tourist attractions, research, and nature conservation.

Citizen Perception of Mangrove Management

Total answers that were successfully obtained by respondents as a whole were 5075 which can be seen in the table below:

Table 7. Citizen Perception of Mangrove Management

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Very Know	3	15	0,3%	
2	Know	624	2496	49,18%	
3	Neutral	818	2454	48,35%	0,68
4	Don't know	55	110	2,17%	
5	Very don't know	0	0	0%	
Total		1500	5075	100%	

The average score obtained from each respondent who became the sample was 50.75. The highest score from filling out the questionnaire by respondents was 62. Then the perception index obtained was 0.68. In other words, the citizen perception of the function and role of mangroves is in the positive range.

Citizen Participation in Planning

In the questionnaire, several answer options were given, namely planting trees (score 5), not cutting down (score 4), don't know (score 3), taking regularly (score 2), taking at will (score 1). Then the results obtained from the answers of respondents who chose as follows:

Table 8. Citizen Participation in Planning

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Planting trees	73	365	77%	
2	Not cutting down	27	108	23%	
3	Don't know	0	0	0	0,95
4	Taking regularly without planting trees	0	0	0	
5	Taking too much	0	0	0	
Total		100	473	100%	

According from 100 respondents, there are 73 people or 77% who choose to plant trees as a form of participation in mangrove management planning. The remaining 27 people or 23% chose not to cut trees as part of their participation in mangrove management planning. Then obtained a participation index of 0.95 which is included in the high criteria. Many choose to plant trees as a plan because it is considered not enough to just not cut down and let the mangroves grow by themselves, where the ecosystem is now vulnerable to damage. caused by various natural factors and also from humans themselves. However, with an index of 0.95, community participation is still in the form of wishes/ideas that have not been

channeled, meaning that there is no direct participation in mangrove management planning.

Citizen Participation in Mangrove Utilization

There are 73 people or 77% who choose to plant trees as a form of participation in mangrove utilization planning. The remaining 27 people or 23% chose not to cut trees as part of their participation in mangrove management planning. Then obtained a participation index of 0.95 which is included in the very good criteria. This can be seen in table 9 below:

Table 9. Citizen Participation in Mangrove Utilization

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Utilize mangrove as a nature conservation area	73	365	77%	
2	Not utilize mangrove	27	108	23%	
3	Don't know	0	0	0	0,95
4	Take advantage of some results without control	0	0	0	
5	Utilize mangrove space for development activities	0	0	0	
Total		100	473	100%	

The majority of respondents chose to use it as a nature conservation area, because it can be used as a mangrove tourism potential which will have an impact on the economy of the surrounding area, and if it is used as a conservation and tourism area, it is hoped that mangrove planting activities will also be often carried out as a form of sustainable management.

Citizen Participation in Implementation

Implementation is included in the citizen participation indicators section after the planning stage. Citizen participation in the implementation by involving the community in activities related to the preservation of mangrove forests or activities such as nature conservation which will indirectly affect the mangrove forest.

Table 10. Citizen Participation in Implementation

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Very often	11	55	14%	
2	Often	76	304	77%	
3	Sometimes	10	30	7,5%	0,79
4	Only once	3	6	1,5%	
5	Never	0	0	0	
Total		100	395	100%	

Based on table 10, there are 11 people who answered very often, 76 people answered often, 10 people answered not often, and 3 people answered that they only participated in community activities once.

The participation index is 0.79 and includes good criteria. Thus, quite a number of respondents are often actively involved in community activities.

Table 11. Participation in Mangrove Planting

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Very often	0	0	0	
2	Often	0	0	0	
3	Sometimes	21	63	34%	0,37
4	Only once	45	90	48%	
5	Never	34	34	18%	
Total		100	187	100%	

From the results of table 11 regarding participation in mangrove planting activities, only 66 people have ever participated in mangrove planting activities, and 34 people answered that there were no mangrove planting activities. Then obtained

an index of 0.37 which includes the low criteria. The low participation of the citizen in planting mangroves could be due to the fact that these activities are rarely carried out in the surrounding area, while people who answered that they had participated in these

activities might have carried out planting activities in other places.

participation in inviting, reprimanding, repairing and supervising activities related to mangrove forest conservation, this is related to their participation in community activities related to environmental monitoring.

Citizen Participation in Evaluation

Evaluation is a form of citizen

Table 12. Participation in Evaluation

No	Answers choice	Frecuency	Total score	Score percentage (%)	Index
1	Very often	11	55	14%	
2	Often	76	304	77%	
3	Sometimes	10	30	7,5%	0,79
4	Only once	3	6	1,5%	
5	Never	0	0	0	
Total		100	395	100%	

Based on table 12, there are 11 people who answered very often, 76 people answered often, 10 people answered not often, and 3 people answered that they only participated in community activities once. The participation index is 0.79. It can be seen that quite a number of respondents are active in environmental monitoring activities, such as inviting the citizen to participate in preserving the environment, reprimanding those who litter, monitoring violations of

environmental damage.

Citizen Participation Level

From several indicators of participation in planning, implementation, and evaluation, the total score of the participation level from the 5 questions on the questionnaire is calculated as shown in the following table:

Table 13. Level of Citizen Participation

No	Indicator	Frecuency	Total score	Score percentage (%)
1	Management planning	473	24,6%	
2	Mangrove utilization	473	24,6%	
3	Participation in implementation	395	20,54%	0,77
4	Mangrove planting	187	9,72%	

5	Evaluation	395	20,54%
Total		1923	100%

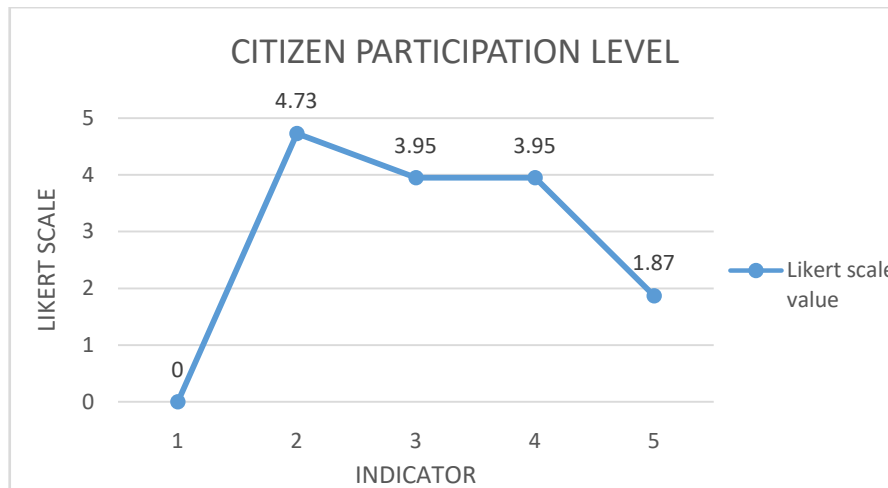


Figure 1. Citizen Participation Level

From the results of the study, the average of citizen participation index was 0.58 or in the range of 0.5 - 0.6. This means that the degree of citizen participation in mangrove management is still low because it is less than 1. Citizen participation is at the stage *informing* or delivering information. This level is at the level *tokenism*. the citizen is just a formality that allows to hear and have the right to vote, but their opinions have not been material in decision making.

According to Gumilar (2012), ideally the citizen is said to fully participate if it is at stage 8, namely citizen supervision. With the results of citizen participation level which is at the stage of delivering information, this is an obstacle faced in mangrove management in the future. The citizen has not been able to exert influence on the policies made.

CONCLUSION

1. The level of citizen knowledge of mangroves in the Peniti River estuary, Mempawah Regency is included in the moderate/adequate criteria, with a respondent's level of achievement of 65.28%.

In general, it means that the citizen already knows enough about mangroves. Then for the public perception of mangroves in general are in the high category and positive range with a perception index of 0.68. Judging from the good perception of mangroves, the citizens realizes the importance of the mangrove ecosystem to their lives and mangrove management is a shared responsibility.

2. The average of citizen participation index to mangrove management is 0.58. This means that the degree of citizen participation is still low because it is less than 1. Community participation is at the stage *informing* . This level is at the level *tokenism*. The citizen is just a formality that allows to hear and have the right to vote, but their opinions have not been material in decision making.

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