



## COMMUNITY BEHAVIOR IN THE UTILIZATION OF MANGROVE FOREST (Case: Belawan Sicanang Village, Medan Belawan District, Medan City)

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### *Abstract*

*This study aims to analyze the behavior of the community in the use of mangrove forests, to determine the value of the community's WTP (Willingness to Pay) on the existence of mangrove forests, and to analyze the influence of community behavior on the willingness to pay (Willingness to Pay) of the community. Determining the research area by purposive sampling and to take samples using the non-probability sampling method. In analyzing the data, the researcher used descriptive analysis and logistic regression methods. The results showed that the behavior of the community in Sicanang Village towards the existence of mangrove forests, in terms of the knowledge, attitudes, and actions of the people carried out was classified in the good category. The value of the community's WTP (Willingness to Pay) for the existence of mangrove forests varies in the range of Rp. 2,000 – Rp. 10,000, with the average value of WTP (Willingness to Pay) of the community of Rp. 3,375. Overall, the behavior of the community on the existence of mangrove forests has a significant effect on willingness to pay (Willingness to Pay), but partially the knowledge and attitudes of the community have no significant effect.*

Keywords: Knowledge, attitude, action, willingness to pay, mangrove forest

### **1. Introduction**

Mangrove is a place that moves because of the formation of mud and land that occurs continuously, so that it slowly turns into semi-land. Various definitions of mangrove actually have the same meaning, namely tropical and sub-tropical forest formations that exist on low and calm, muddy beaches, and are influenced by the ebb and flow of sea water. Mangrove forests are also a very important link in maintaining the balance of the biological cycle of a waters (Arief, 2003).

Mangrove forests have many benefits, namely as a food source, as a carbon sink and storage, as a place for education and research, and as ecotourism. Although it has many benefits, the mangrove forest ecosystem is very fragile and easily damaged. Damage can be caused by direct mechanical action, such as felling, dismantling, and so on. Damage is also an indirect result such as changes in water salinity, water pollution, due to erosion, oil pollution, and so on. Currently, mangrove forests need special attention for their sustainability. Forest destruction and looting in Indonesia has reached 600,000 hectares per year and is continuously increasing in intensity (Ridwan et al, 2005).

Continuous cutting of mangrove trees without replanting by the community will destroy the mangrove trees. If there is no longer mangrove forest, then the community can no longer get economic resources from mangrove trees. In addition, fishermen will also get less fishery products than the mangrove forest where mangrove trees are the habitat of marine animals. Seawater abrasion will also occur so that public safety is threatened because the land is continuously eroded by seawater without any protection from the mangrove forest.

Behavior is a form of response or reaction to a stimulus and is very dependent on the characteristics or other factors of the person concerned, even though the stimulus is the same but the response of each person is different. Human behavior is essentially an activity of the human himself which has a very wide range, including walking, working, including internal activities such as thinking, perception and emotion. Behavior in the interest of the analytical framework can be said that all activities or activities carried out by humans, both those that can be observed directly or indirectly, are observed by outsiders (Notoatmodjo 2007).

Musyafar (2009) said that the behavior of coastal communities is one of the factors that determine the preservation of mangrove forests. Behavior is an action directed at other people or the environment. Behavior is an intention that is realized in the form of real behavior, while behavioral control is determined by past experience and individual estimates of how difficult or easy it is to carry out an action. In this case, a person's behavior can be formed through getting used to or habits to behave as expected, but generally determined by intentions (intentions).

Knowledge is the result of knowing and this occurs after people have sensed a certain object. Knowledge or cognitive is a very important domain for the formation of one's actions. According to Notoatmodjo (2003) attitude is a reaction or response of someone who is still closed to a stimulus or object. Attitude according to Sunaryo (2004) is the tendency to act from individuals, in the form of closed responses to certain stimuli or objects. So attitude is a reaction or response that is still closed from someone to a stimulus or object.

According to Noorkasiani (2009), actions are caused by several factors such as predisposing factors, namely attitudes, values, motivation, and knowledge. An attitude is not necessarily automatically manifested in an action. According to Hombing (2015), personal experience must give a strong impression to be the basis for forming attitudes. Attitudes and knowledge can influence people's actions.

Willingness to Pay is an individual's willingness to pay for an environmental condition or an assessment of natural resources and natural services in order to improve environmental quality. In WTP it is calculated how far the ability of each individual or community in aggregate to pay or spend money in order to improve environmental conditions to suit the desired conditions. WTP is the value of the potential use of natural resources and environmental services (Hanley and Spash, 1993).

## **2. Research methods**

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The research area was determined by purposive sampling (deliberate selection) with the consideration that the area is one of the areas that has a large area of mangrove forest and is close to the coast and the majority of the population utilizes mangrove forest as a support for their livelihoods. Based on these considerations, Sicanang Village, Medan Belawan District, Medan City, North Sumatra Province became the research location

The data collected in this study are primary data and secondary data. Primary data were obtained from direct interviews with parties related to this research or respondents with a list of questions that had been prepared regarding knowledge, attitudes, and actions in accordance with the objectives and needs of the research. While secondary data such as population data, data on the area of research, data on the area of mangroves, and other supporting data were obtained through the Central Statistics Agency of Medan City, Forestry Service of North Sumatra Province, Sicanang Village Office. which is conducted.

Sampling used is non-probability sampling, with snowball sampling technique. This method was chosen because the number of population to be studied is not known with certainty. To test the first hypothesis about community behavior in the use of mangrove forests, descriptive analysis method was used. To see people's behavior, there are three parts to be analyzed, namely knowledge, attitudes, and actions. Knowledge, attitudes, and actions were calculated using a Likert scale.

### **3. Results and Discussion**

#### **3.1 Community Behavior in Mangrove Forest Utilization**

##### **a. Behavior of the Sicanang Community**

The people in Sicanang Village are the majority of people who make a living as laborers, fishermen, and fish farmers. The community is also involved in several farmer groups such as POKDARWIS (tourism awareness group), KOPLING (environmental group), Community Forest Group, POKMAS, Lestari, Tunas Jaya, Tunas Baru, and others that support mangrove forest conservation activities.

The types of mangroves that are known to the community in Sicanang Village are: nipah, mangroves, fires, jeruju, and raw. There are several types of mangroves that can be processed into food or drink. Like nipah into nipah water, fire fruit becomes lunkhead, and jeruju into onion cake and mash.

Thus, the behavior of the people in Sicanang Village is classified as good behavior. Good behavior which means continuing to use mangrove forests for community needs while taking into account the environmental balance that must be maintained.

##### **b. Knowledge**

The measurement of the level of community knowledge about mangrove forests in the research area can be seen in the following table.

Table 1. Community Knowledge About Mangrove Forest

No	Category	Number(Soul)	Percentage(%)
1	Good	35	87.5
2	Enough	5	12.5
3	Not enough	0	0
<b>Total</b>		<b>40</b>	<b>100</b>

Based on the research results obtained in Table 1, it shows that of the 40 people in Belawan Sicanang Village, 35 people (87.5%) have good knowledge, 5 people (12.5%) have sufficient knowledge and no community has less knowledge about mangrove forest in Belawan Sicanang Village. Based on the total value of the entire community, an average value of 86.5 was obtained, it can be concluded that the average level of community knowledge about mangrove forests in Belawan Sicanang Village is classified as good.

### c. Attitude

Table 2. Community Attitudes About Mangrove Forest Utilization.

No.	Category	Number (Soul)	Percentage (%)
1	Good	26	65
2	Enough	14	35
3	Not enough	0	0
<b>Total</b>		<b>40</b>	<b>100</b>

Based on the results of the study obtained in Table 2, it shows that of the 40 people in Belawan Sicanang Village, 26 people (65%) have a good attitude, 14 people (35%) have a sufficient attitude and no community has a bad attitude about the use of mangrove forests. in Belawan Sicanang Village. Based on the total value of the entire community, an average value of 42.25 was obtained, it can be concluded that the average attitude of the community about the use of mangrove forests in Belawan Sicanang Village is classified as good.

### d. Action

Table 3. Community Actions Regarding Mangrove Forest Utilization

No.	Category	Number (Soul)	Percentage (%)
1	Good	27	67.5
2	Enough	12	30
3	Not enough	1	2.5
<b>Total</b>		<b>40</b>	<b>100</b>

Based on the research results obtained in Table 3, it shows that from 40 communities in Belawan Sicanang Village, 27 people (67.5%) have good actions, 12 people (30%) have sufficient actions and 1 community (2.5%) has good actions. which is lacking about the use of mangrove forests in Belawan Sicanang Village. Based on the total value of the entire community, an average value of 42.4 was obtained, it can be concluded that the average community action regarding the use of mangrove forests in Belawan Sicanang Village is

classified as good.

#### **e. Environmental Services**

Natural resources provide two commodities that can be utilized by humans, namely: 1. In the form of goods which are extracted from nature, such as land biota (eg wood, rattan, herbal plants, etc.), aquatic biota (eg various types of fish, seaweed, etc.) and various mining materials (eg oil, gold, tin, etc.). 2. In the form of services, which are called environmental services, which are things that are not in the form of materials, are benefits obtained from non-extraction nature, such as hydrology, beautiful landscapes, coolness (O producers and carbon sinks), and others.

Environmental services are products of living natural resources and their ecosystems in the form of direct benefits (tangible) and/or indirect benefits (intangible). Examples of environmental services are nature tourism services, water system protection services (hydrology), soil fertility, erosion and flood control, natural beauty and uniqueness, carbon sequestration and storage (carbon offset). In addition, environmental services are generated from various types of land use (forest or agriculture), as well as waters, both fresh water (rivers, lakes, swamps) and the sea.

In the Sicanang village, there are environmental services for nature tourism (ecotourism of the Sicanang mangrove forest), fishing pond services, water system protection services (hydrology), erosion and flood control, carbon sequestration and storage, and so on.

### **3.2 The Value of Community Willingness to Pay for the Existence of Mangrove Forests**

Willingness to Pay or willingness to pay is an individual's willingness to pay for environmental services or natural resources and natural services, in this case mangrove forests, in the form of good quality environmental conditions. Willingness to Pay or willingness to pay is a concept to assess environmental services with the aim of making the surrounding community more appreciative of the environment.

The total sample as a whole is 40 people. As many as 23 people are willing to pay more for the existence of mangrove forests while the remaining 17 people are not willing to pay more for the existence of mangrove forests in Sicanang Village, Medan Belawan District, Medan City. The value of the community's WTP varies widely. Willingness to pay (WTP) which is calculated in this case is related to contributions for the preservation of mangrove forests in the research area. The possible fee rate to be withdrawn from individual beneficiaries of mangrove forest environmental services is Rp. 2,000.

Based on the research results obtained, the average community willingness to pay fees for the preservation of mangrove forests in Belawan Sicanang Village, Medan Belawan District, Medan City is Rp. 3,375/month.

## **4. Conclusion**

The behavior of the community in Sicanang Village towards the existence of mangrove forests, in terms of the knowledge, attitudes, and actions of the community carried out is classified as good. The value of the community's WTP for the existence of mangrove forests varies in the range of Rp. 2,000 – Rp. 10,000, with the average value of the community's WTP (Willingness to Pay) of Rp. 3,375. Overall, the behavior of the community towards the

existence of mangrove forests has a significant effect on willingness to pay (Willingness to Pay), but partially the knowledge and attitudes of the community have no significant effect.

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