Community Perceptions on Mangrove Forest Sustainability in Dukuh Bendo, Jatikontal Village, Purwodadi District, Purworejo Regency, Central Java

I. F. Setiyaningrum
Department of Environmental Science,
Graduate School Universitas Gadjah Mada, Yogyakarta, Indonesia
Email: ife.hamasah@gmail.com

Abstract: Mangrove forest has many functions, such as prevention of coastal erosion and seawater intrusion, the place for spawning, nursery, and feeding grounds of marine biota, carbon storage, and direct use for human. However, many functions that mangrove has, unsustainable utilization of mangrove make the area of mangrove has decreased. The mangrove forest of Jatikontal, Purwodadi District, Jawa Tengah is studied as a case area that has suffered from degradation and declining the area during some years. Whereas, the south coast of Purworejo has a high risk of a tsunami. This research has aims to know the perception and behaviour of a community with the mangrove forest. The method of collecting data use the questionnaire giving to 30 respondents in Bendo, Jatikontal sub-district. Respondent is chosen with the purposive technique. The result of this study is as much 83.3% respondents have good perception, 16.7% respondents have moderate perception, and no respondent has a low perception of the sustainability of mangrove forests. Most of the community (66.7%) in Dukuh Bendo have a high concern for the preservation of mangrove forests. No single respondent is not concerned about the preservation of mangrove forests.

Keywords: mangrove; community; perception; sustainability

1. Introduction
Mangrove forests are a type of forest that grows in tidal areas, especially on sheltered beaches, lagoons, estuaries and rivers that are inundated and free from inundation at low tide on muddy substrates [1,2]. Mangrove forests as an ecosystem have a role as a habitat for various wildlife, including fishes, shells, microbes [2], and certain specialized plant forms [1,2] that have been adapted to salinity [1]. Mangrove forests have a variety of important roles, such as spawning fish in waters [3], and nursery [4], as hydrological regulators, flood mitigation [2], buffers against seawater intrusion [2,3], land-protecting from abrasion by the waves, land-covering from the wind, filtering the heavy metals that are harmful to human, and the migratory shelter of birds [3]. The direct benefits humans can take from mangrove forests are fuelwood, timber resources [2, 5, 6], housing material [5], human food [5,6], medicine [6]. Another important role of the existence of mangrove forests is its potential to absorb carbon [7,8]. Even its ability to store carbon is greatest compared to other forest types [7,8,9,10]. Most of the carbon is stored in the soil beneath the mangrove forests. In mangrove forests categorized as wetland ecosystems, carbon storage reaches 800-1,200 tons per hectare. The release of airborne emissions in mangrove forests is less than forests on land. This is because the decay of the litter of aquatic plants does not release carbon to the air, whereas in tropical forest plants that die release about 50 per cent of its carbon into the air [9]. Mangrove forests have an important role in relation to global climate change [10].

Indonesia has the largest mangrove ecosystem in the world and the highest biodiversity. With a long coastline of 95,181 km2, Indonesia has a mangrove area of 3,489,140.68 Ha (in 2015). This amount is equivalent to 23% of the world's mangrove ecosystems of the total area of 16.53 million ha.
Of the mangrove area in Indonesia, it is known that the area of 1,671,140.75 Ha is in good condition, while the remaining area of 1,817,999.93 Ha is in damaged condition [11]. Based on other sources mentioned that the mangrove Indonesia is in good condition of 30.7%, 27.4% in lightly damaged conditions, and as many as 41.9% in heavily damaged conditions [2]. Although the mangrove forest area in Indonesia is the largest in the world, actually the rate of mangrove forest destruction of Indonesia is high and already at an alarming rate. In 15-20 years ago, the area of mangrove forest is still about 8 million hectares. Currently, the area of mangrove forests is estimated to be only 2.5 million hectares [9].

The destruction mangrove forests destruction is caused by various human activities, including changes in mangrove for agricultural purposes, cultivation, ecotourism [2], settlement, industry [2,11,12], coastal or port infrastructure, ponds, plantations [11], fisheries [2,12], mining, and salt ponds [2]. Other problems with mangrove ecosystems are pollution by plastic waste, household waste, oil spills [11], as well as waste from industrial and agricultural activities [2]. Illegal logging and natural disasters are also factors that threaten the existence of mangrove forests [11].

Damage to mangrove forest certainly has various negative impacts that will be felt by the community, such as the high intensity of the occurrence of abrasion. In addition, regeneration of mangrove plants naturally cannot run well, thus reducing the value of forests. The clearing of mangrove land can also lead to other problems, such as a salty environment, high pyrite content (FeS2), anaerobic conditions which then impact on mangrove land disability for agriculture and aquaculture. The opening of mangrove land can also cause the oxidation process to remove sulfuric acid, so the soil becomes very acidic and contains a lot of dissolved salt [13].

Purworejo Regency is one of the regencies in Central Java Province bordering the Indian Ocean in the south. Purworejo has a coastal area of mangrove forests (mangroves) that enter into the area of nature conservation. The coastal area with mangrove forest approximately 80 hectares, which includes Purwodadi District, Ngombol District, and District Grabag [14]. Purwodadi sub-district includes Jogoboyo, Karanganyar, Gedangan, Jatikontal and Jatimalang villages.

The mangrove area in Purworejo Regency is decreasing due to logging, conversion to fish and shrimp farming areas, settlements, and agricultural areas. Logging and various forms of mangrove land conversion in Purworejo District have resulted in degradation of mangrove area in the form of significant mangrove standing loss [15]. Whereas according to data BNPB (2013), the southern coastal region Purworejo has the potential risk of a high tsunami disaster. In fact, the southern coast of Purworejo was ranked the third vulnerability of the tsunami disaster in Central Java [16].

This paper examines the perception of people in the coastal district of Purworejo, precisely in Dukuh Bendo, Jatikontal Village about the preservation of mangrove forests. This study is useful to know the extent to which people assess the benefits of the existence of mangrove conservation in their village. This is because there is a contradiction between the phenomenon of mangrove conversion, whereas the area has high tsunami vulnerability. Therefore, there needs to be a study to know the public perception about the existence of a mangrove ecosystem from their point of view. By knowing their perceptions, it can be a recommendation material for follow-up for local government to make certain policies that are able to promote the preservation of mangrove ecosystem whose existence is in the environment around the community have various functions, both ecologically, economically, and disaster mitigation.

2. Area of Study and Data

The research location is in Dukuh Bendo, Jatikontal Village, located on the southern coast of Purwodadi District, Purworejo District. The mangrove forest in this area grows on the right side of Lereng Pantai River which extends from Sungai Bogowonto (Pasir Mendit Village, Kulonprogo Regency) to Cokroyasan River (Keburuhan Village, Purworejo Regency) [17]. The mangrove forest in this village includes the area of nature conservation. Nature conservation area is a region with certain characteristics, both inland and in waters which have the function of protection of life buffer system, preservation of the diversity of plant and animal species, and sustainably biological natural resources and its ecosystem [14].
The data used in this research is in the form of primary data and secondary data. Primary data were obtained from respondents who had filled out questionnaires. Primary data consists of community perceptions and community awareness of the sustainability of mangrove forest in their village. In addition, the primary data in the form of historical use of mangrove forest conducted by surrounding communities. Secondary data is obtained from the literature that supports the discussion of topics in this study.

3. Methodology

The research was conducted in April- July 2018. The method used in this research is a descriptive method with a quantitative and qualitative approach. Descriptive research is the activity of collecting data in order to test the hypothesis or answer questions concerning the state at a time running from the subject of a study. Descriptive research determines and reports on the present situation (Gay, 1976) [18]. Descriptive research according to Travers (1978), has a purpose to describe the nature of a situation that is temporarily running at the time of the research done and examine the causes of a particular symptom [18].

In this research, data collection is done by using survey method that is distributing questioner to respondents. In addition, interviews were also conducted with informants who know the history of mangrove forests and its utilization. Observation method is used to see the direct condition of mangrove forest located in Dukuh Bendo. The number of respondents in this study is 30 from 325 persons of the adult population in Dukuh Bendo, Jatikontal Village, Purwodadi District, Purworejo. The sampling technique in this population is by purposive sampling. The sample determination was done by selecting respondents who reside in the surrounding mangrove forest assuming they have greater access to the mangrove resources. Data retrieval technique conducted in this study through the distribution of questionnaires to respondents. Data were analyzed with descriptive statistics by calculating a maximum and minimum value, then determining the desired number of classes and intervals. After that, calculate the percentage of respondents that occupy in each class.

4. Result and Discussion

4.1. Result

4.1.1. Characteristics of Respondent

Characteristics of respondents in this study based on gender groups, age, and the highest level of educational attainment.
Characteristics of respondents by gender consists of 15 men (50%) and women as many as 15 people (50%).

Characteristics of respondents by age group consisted of 1 people aged <20 years (3%), 18 people aged 20-40 years (60%). The respondents included in the age of >40 years there are 11 people (37%).

Characteristics of respondents based on the last level of education consisted of 3 people not in school (10%), 3 graduated from elementary school (10%), 9 graduated from junior high school (30%), 14 graduated from high school (47%), and 1 graduate from college (3%). The majority of respondents consist of community groups who completed their education at the high school level. The level of education is one of the factors that influence the perception of the community regarding the application of environmental management efforts and environmental monitoring efforts[19].
4.1.2. Perceptions of Dukuh Bendo Community

Table 1. Perceptions of Dukuh Bendo Community

| No | Category       | Number of Respondents | Percentage |
|----|----------------|------------------------|------------|
| 1  | Good perception| 25 people              | 83.3%      |
| 2  | Moderate perception| 5 people            | 16.7%      |
| 3  | Low perception  | 0 people               | 0%         |

Based on calculation to community perception about mangrove forest conservation obtained a result that as much 25 respondents (83.3%) have good perception, 5 respondents (16.7%) have moderate perception towards the sustainability of mangrove forest, and no respondent has a low perception of the sustainability of mangrove forests. Perceptions measured in this study include 4 parameters, namely: (1) mangrove forest characteristics (2) mangrove forest benefits (3) mangrove forest condition (4) factors causing damage to the mangrove forest.

4.1.2.1. Community Perceptions of Mangrove Forest Characteristics

Table 2. Community Perceptions of Mangrove Forest Characteristics

| No | Category       | Number of Respondents | Percentage |
|----|----------------|------------------------|------------|
| 1  | Good knowledge | 30 people              | 100%       |
| 2  | Moderate knowledge| 0 people             | 0%         |
| 3  | Low knowledge  | 0 people               | 0%         |

As many as 100% of respondents have a good perception of knowledge about the characteristics of mangrove forests. None of the respondents did know the characteristics of mangrove forests. Characteristics of mangrove forests in question include the definition of mangrove forest, mangrove characteristics, and species found in mangrove forests.

Although based on the results of the public perception questionnaire about the characteristics of the forest is good, but people do not yet know that various species of plant species that can live in mangrove forests around them belong to the category of mangroves. According to some of the respondents who asked for more detailed information, mangrove consists of only one plant species and usually, mangrove is identical with the tourist location. This is because, in another village adjacent to Jatikontal Village, mangrove forest has been managed to be ecotourism.

4.1.2.2. Community Perceptions on the Benefits of Mangrove Forest

Table 3. Community Perceptions on the Benefits of Mangrove Forest

| No | Category       | Number of respondents | Percentage |
|----|----------------|------------------------|------------|
| 1  | Very helpful   | 21 people              | 70%        |
| 2  | Quite useful   | 9 people               | 30%        |
| 3  | Useless        | 0 person               | 0%         |

A total of 21 respondents (70%) have a perception that mangrove forests are very useful in their lives. A total of 9 respondents (30%) have a perception that the mangrove forest is quite useful and none of the respondents has a perception that the mangrove forest is not useful.

The benefits of mangrove forests are meant here consisting of physical, biological, and economic benefits. Physical benefits of mangrove forests are reducing the risk of tsunamis, preventing seawater intrusion, preventing abrasion by sea water, reducing the risk of storms, and providers of clean air. The biological benefits of mangrove forests are for biota habitat (fish, shrimp, crab), bird droppings, and fish spawning sites. The economic benefits of mangrove forests are sources of firewood and building materials, food, can be used as ponds, and managed into ecotourism mangroves.
Table 4. Community Perceptions on the Benefits of Mangrove Forest
(Physical, Biological, and Economic Aspect)

| No | Mangrove Benefits                          | Number of Respondents | Percentage |
|----|-------------------------------------------|-----------------------|------------|
|    | **Physical Benefits**                     |                       |            |
| 1  | Reducing the risk of tsunamis             | 25                    | 83%        |
| 2  | Preventing sea water intrusion            | 10                    | 33%        |
| 3  | Preventing abrasion by seawater           | 26                    | 87%        |
| 4  | Reducing the risk of storms               | 26                    | 87%        |
| 5  | Providers of clean air.                   | 29                    | 97%        |
|    | **Biological Benefits**                   |                       |            |
| 1  | Biota habitat (fish, shrimp, crab)        | 24                    | 80%        |
| 2  | Bird droppings                            | 15                    | 50%        |
| 3  | Fish spawning sites                       | 21                    | 70%        |
|    | **Economic Benefits**                     |                       |            |
| 1  | Firewood sources                          | 13                    | 43%        |
| 2  | Building material sources                 | 6                     | 20%        |
| 3  | Food sources                              | 24                    | 80%        |
| 4  | Be used as ponds                          | 10                    | 33%        |
| 5  | Ecotourism mangroves                      | 30                    | 100%       |

Based on the results of questionnaire analysis distributed to the respondents, as much as 83% of respondents have the perception of mangrove benefits to reduce the risk of tsunami, as much as 33% of respondents considered mangrove has the benefit of preventing seawater intrusion, as much as 87% of respondents assessed mangrove has benefits to prevent abrasion and reduced storm risk, and as many as 97% of respondents have a useful mangrove perception as a provider of clean air.

As many as 80% of respondents have a perception of mangrove forest as a habitat of biota, as many as 50% of respondents considered mangrove have benefited as bird stop place, and 70% respondents have a perception of mangrove benefit as spawning place of fish.

Viewed from the aspect of the economic benefits of mangrove forest, as many as 43% have a perception that mangrove forests are used as a source of firewood, and only 20% who judge that mangrove wood can be used as building materials. As many as 80% of respondents have a perception that resources in mangrove forests can be processed into food. Only 33% of respondents considered that mangroves could be converted into ponds. All respondents (100%) have a perception that mangrove forest can be managed into ecotourism.

In addition to the benefits mentioned above, based on the findings of researchers obtained from the narrative of the residents, it turns out that the species *Acanthus ilicifolius* or that the community called ‘drujon’, has the benefit of being a medicine. *Acanthus ilicifolius* can be used as a liver medicine. In addition, *Acanthus ilicifolius* can also be used as a medicine for shrimp that diarrhoea. How to use it is to blend the leaves and then spread to shrimp ponds.

4.1.2.3. Community Perception of Mangrove Forest Condition

Table 5. Community Perceptions of Mangrove Forest Condition

| No | Category     | Number of Respondents | Percentage |
|----|--------------|-----------------------|------------|
| 1  | Damaged      | 13                    | 43,3%      |
| 2  | Lightly damaged | 10               | 33,3%      |
| 3  | Good         | 7                     | 23,3%      |

The community perception about the condition of mangrove forest in Dukuh Bendo, Jatikontal are diverse. A total of 13 respondents (43,3%) stated that the condition of mangrove in a damaged condition. A total of 10 respondents (33,3%) stated mangrove condition is quite damaged, while 7 respondents (23,3%) stated the mangrove condition in good condition.
4.1.2.4. Community Perceptions about Causes of Mangrove Forest Damage

Table 6. Community Perceptions about Causes of Mangrove Degradation

| No | Causes of mangrove degradation          | Number of respondents | Percentage |
|----|-----------------------------------------|-----------------------|------------|
| 1  | Conversion function to shrimp pond       | 19                    | 63%        |
| 2  | Waste disposal in mangrove forest        | 14                    | 47%        |
| 3  | Conversion to residence                  | 10                    | 33%        |
| 4  | Mangrove logging                         | 0                     | 0%         |

When analyzed for each factor causing mangrove damage, it can be seen that as many as 63% of respondents thought that the transfer of land into a pond is the cause. A total of 47% thought that the presence of waste disposed into the forest caused mangrove damage, and as many as 33% of respondents thought that the conversion to residences was the cause of mangrove damage. No respondent that thought mangrove logging is the factor that causes mangrove degradation.

4.1.3. Community Concern on Conservation Mangrove in Dukuh Bendo

The following is presented data on the concerned value of the Dukuh Bendo community towards the preservation of mangrove forest:

Table 7. Community Concern on Conservation Mangrove in Dukuh Bendo

| No | Category       | Number of respondents | Percentage |
|----|----------------|-----------------------|------------|
| 1  | High concern   | 20                    | 66.7%      |
| 2  | Moderate concern| 10                   | 33.3%      |
| 3  | Low concern    | 0                     | 0%         |

Based on the questionnaires that have been distributed to the respondents, as many as 20 respondents (66.7%) have a high concern for the preservation of mangrove forests. As many as 10 people (33.3%) care enough about the sustainability of mangrove forests. And no single respondent is not concerned about the preservation of mangrove forests.

Concern for the mangrove forest referred to in this study includes several parameters such as the utilization of mangrove forests in an environmentally friendly manner and participation in extension and mangrove planting activities.

4.2. Discussion

Mangrove condition in Dukuh Bendo, Jatikontal Village as a whole is in a damaged condition seen from the distribution of mangrove tree category [20]. This is in accordance with the perceived by the majority of the surrounding community (76.6%) to see the current mangrove condition. The cause of mangrove damage is based on community perception, the majority is caused by the conversion of mangrove to pond (63%). Unfortunately, the rampant mangrove conversion to shrimp ponds is, in fact, a lot of people stop operating after the failure experienced by the community, where the failure has caused people to lose a lot of money and leave the debt borrowed from the bank. Based on one of the resource persons (Mr Prapto), the capital needed to finance the procurement of shrimp ponds can reach 50 million / pond. The capital is usually obtained by borrowing the bank. According to information from other sources (Mrs Wiratmi), he did not continue the ponds because to manage the pond needed seriousness and hard work, while his family members did not want to continue the activities of the pond and instead chose other professions (ie as coconut farmers). Based on the observations of researchers, currently, many ponds are just left alone, without any use by the community. There are only a few ponds that still exist to continue the activities of ponds. Actually shrimp farming activities rampant conducted by new communities within the last 4-5 years. Previously existing ponds used for fish farming. However, because within the last 4-5 years of incessant shrimp farming business and the number of profits obtained from shrimp farming, so many people who converted its original pond for the cultivation of fish into ponds of shrimp ponds. Currently, the community is reluctant to manage the pool they have, according to Mr Prapto, is due to the relatively small profits earned from the fish farming business. The conversion of mangrove land into a pond actually began in the 1980s. At that time, mangrove is a land that is open access, or by the
community called gege land (no certificate, may be used but not private property). In the 1980s, people who had the desire to open mangrove fields into ponds were allowed with the consequences of paying taxes on the land used. Because of the utilization of the land, so many people who cut down mangrove trees, one of them is the species *Sonneratia alba*. According to Mrs Jaenat and Mrs Wiratmi, once there were many trees, but now the trees are rarely present. The desire of the community to open the mangrove area into a pond (according to Mr Prapto) was initiated by the creation of ponds by the scout activist of 3 ha, which then the pool was granted to the community. Since then, the community then helped create ponds on other lands for fish farming.

The second factor according to the perception of the majority of people that the condition of mangrove is damaged is the presence of waste that much discarded in the mangrove forest (47%). The waste disposed into the mangrove is dominated by domestic waste in the form of plastic that can not be degraded in a short time. The number of piles of garbage is causing reduced beauty of mangrove scenery. The existence of this garbage according to the narrative of some residents is due to come from the overflowing river. The garbage comes from upstream that flows downstream, toward the sea estuary. In this Jatikontal Village, there is the Lereng Pantai River which is located between Bogowonto River and Cokroyasan River, where the volume of river water is highly determined by the season and the physical condition of the estuary. During the dry season (April-September), the volume of river water decreases so that the flow of river water also decreases. River water at the estuary is more affected by tidal water. The end of the dry season of the river estuary is gradually covered in sediment (bembeng) so that the river water can not flow into the sea. The water volume of the Lereng Pantai River has gradually increased and can turn into a puddle covering the (alluvial land) area on the left-right of the river slope (Kamiso et al., 2001) [17]. The presence of this river water that then brought the garbage scattered on the mangrove land. The puddles in the river slope area can occur for approximately 3 months (September-November) (Kamiso et al., 2001) [17].

The next factor that causes the degradation of mangrove forest in Dukuh Bendo is the conversion of mangrove lands to residents (33%). This is in accordance with the results of observation researchers that some of the mangrove lands by the population has been converted into a residence with landfill.

Based on perception analysis that is owned by the community on the aspect of mangrove forest as a whole, most of the people (83.30%) have a good perception on mangrove forest, covering characteristic aspect, benefit, mangrove condition and the causal factor of mangrove damage. Viewed from the level of community awareness, most of the people (66.70%) have a high concern for the preservation of mangrove forests. Concern for the sustainability of mangrove includes aspects of mangrove land use in an environmentally friendly, community participation in extension and mangrove planting activities conducted. The existence of good perception and high level of awareness by the community on the sustainability of mangrove forests, it is necessary for proper direction in the utilization of mangrove land that is around them.

With the condition of mangrove forest that has been included in the damaged category, one of the efforts that can be done is by conducting rehabilitation program. Especially considering that the mangrove forest area in this village including the area of nature conservation. The rehabilitation program is an attempt to restore the structures and functions of ecosystems that have been damaged or lost (Field, 1998) [12].

There are several important issues to consider in order for the rehabilitation program to succeed, including government institutions, community support, the feasibility of rehabilitation seen from economic and ecological aspects, and the integration of approaches from various multidisciplinary science related to mangrove ecosystem [12].

Government agencies working with communities will be able to run an effective rehabilitation program and be able to reduce the risk of failure [12]. Involvement of the community becomes a very important thing because the human factor becomes the driving factor of the damage and loss of mangrove ecosystem, so there needs to be community involvement in [12, 21]. Given the results of the assessment of perceptions and level of awareness of the people of Dukuh Bendo towards the preservation of mangrove forests are included in the good category, then one of the successful aspects of the rehabilitation program, ie community support is expected to be fulfilled.

To assess the feasibility of mangroves rehabilitated viewed from the economic aspect is to use the analysis of cost-benefit ratio, ie by calculating the cost and profit (both direct and indirect) from
the implementation of the rehabilitation program [12]. The success of mangrove rehabilitation according to Primavera and Esteban (2008), is with the availability of adequate budget, community involvement and commitment, cooperation with local government, consider suitable (high to mid-intertidal) sites, and correct species [22]. Approaches from various multidisciplinary sciences play an important role in the success factors of the rehabilitation program. Some of the sciences that have links to mangrove rehabilitation programs are ecology, hydrology, engineering, and economics [12].

The rehabilitation of mangroves has a positive impact on the surrounding communities, including protecting people from events such as cyclones, ocean currents, etc. Moreover, with the presence of sustainably managed resources sustaining their livelihoods amidst increasing climate change [21]. The approach that can be done so that the community has a willingness to participate in the rehabilitation program and does not do mangrove destruction is through understanding the current issues of global warming and sea level rise [12]. This becomes important to be understood by the community so that they have the awareness to preserve the mangrove forest that is around them.

In addition, in order for the community to be able to enjoy the benefits economically with the existence of sustainable and sustainable mangrove forests, there needs to be a community-based natural resource management strategy. What is meant by this strategy is the direct involvement of the community in managing the natural resources in a region. Managing, in this case, has a meaning, that is to contemplate, formulate, plan, implement, evaluate, or monitor existing resources. With the existence of community-based management, it aims to make the community become the main actors in the sustainable use of mangrove forests by growing responsibility for raising awareness and their participation in maintaining and preserving the existing mangrove resources around them [23].

Based on the society's perception of the benefits of mangrove economically, all respondents (100%) people think that mangrove can be used as ecotourism. They have understood that the services of mangrove forest can be utilized as natural tourism rides. Factors behind their perception that mangroves can be used for tourism are based on the facts they have seen in their neighbouring villages in Pasir Mendit and Pasir Kadilangu villages, Kulon Progo. In the village, mangrove forests have been managed to become ecotourism rampant visited by tourists. Because of the community's understanding of the benefits of mangrove forests that can be used as tourism, the management of community-based mangrove forests can be directed to the tourism sector. With the sustainable management of mangrove forests, the economic benefits as well as other mangrove services, both physically and biologically, remain.

5. Conclusion and Recommendation

Perception and level of concern of a majority of society to mangrove forest at Dukuh Bendo, Jatikontal Village classified in a good category. As much 83.3% respondents have good perception and 66.7% of respondents in Dukuh Bendo have a high concern for the preservation of mangrove forests. The condition of mangrove forest in Dukuh Bendo is categorized as damaged and it is in accordance with the perceived by most of the community. Therefore, with the perception and high level of awareness of the community on the sustainability of mangrove forests need a direction for them from the government to conduct a mangrove rehabilitation program so that the condition of mangrove forest ecosystems are better and services available from the existence of mangrove forests are increasingly perceived benefits for the community around. Moreover, based on RTRW Purworejo District Government, the mangrove forest area is included in the area of nature conservation, namely the area that has the function of protection of the life buffer system, preservation of the diversity of plant and animal species, and sustainably biological natural resources and its ecosystem. Therefore, the government needs to initiate a rehabilitation program in this area as well as encourage the community to be able to utilize the existence of mangrove forests in a sustainable manner.

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