

## NUSAWIRU MANGROVE FOREST ECOTOURISM DEVELOPMENT THROUGH LOCAL COMMUNITY EMPOWERMENT

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*Abstrak:* Karakteristik Hutan Mangrove Batukaras berpotensi sebagai kawasan ekowisata di Kabupaten Pangandaran. Kawasan Ekowisata Hutan Mangrove yang berlokasi di Dusun Sanghiangkalang Desa Batukaras Kecamatan Cijulang Kabupaten Pangandaran, memiliki potensi untuk dijadikan sebagai objek tujuan wisata. Namun dengan kondisi dan potensi yang ada, pengelolaan kawasan tersebut masih belum optimal dan belum berkembang. Tujuan penelitian ini adalah mengidentifikasi karakteristik dan potensi hutan mangrove sebagai kawasan ekowisata serta pengembangannya dengan melibatkan masyarakat lokal. Metode dalam penelitian ini adalah metode deskriptif dengan teknik pengumpulan data melalui observasi lapangan, wawancara, studi dokumentasi dan studi literatur. Tahapan dalam penelitian ini adalah 1) Inventarisasi data 2) Koleksi data; 3) Tahap analisis dan sintesis data. Hasil penelitian ini menunjukkan karakteristik alami yang terdiri dari tiga jenis mangrove dan fauna serta karakteristik budidaya manusia berupa bibit mangrove dan memiliki potensi sebagai kawasan ekowisata: panorama alam, potensi sosial ekonomi, kegiatan menarik yang dapat dilakukan di Kawasan Hutan Mangrove Batukaras.

*Kata kunci:* Ekowisata, hutan mangrove, pemberdayaan masyarakat

*Abstract :* Characteristics of the Batukaras Mangrove Forest as a potential ecotourism area in Pangandaran Regency. The Mangrove Forest Ecotourism Area, which is located in Sanghiangkalang Hamlet, Batukaras Village, Cijulang District, Pangandaran Regency, has the potential to be used as a tourist destination object. However, with the existing conditions and potential, the management of the area is still not optimal and has not yet developed. The purpose of this study is to identify the characteristics and potential of mangrove forests as ecotourism areas and their development by involving local communities. The method in this research is descriptive method with data collection techniques through field observations, interviews, documentation studies and literature studies. The stages in this study are 1) data inventory 2) data collection; 3) Data analysis and synthesis stage. The results of this study indicate the natural characteristics consisting of three types of mangroves and fauna as well as the characteristics of human cultivation in the form of mangrove seeds and have potential as ecotourism areas: natural panorama, socio-economic potential, interesting activities that can be carried out in the Batukaras Mangrove Forest Area.

*Keywords :* Ecotourism, mangrove forest, community empowerment

### A. INTRODUCTION

Geography is very important in 4.0 century learning, through the development of important geography skills for solving global inequality. Understand world events and be able to solve problems related to local, national

and world environmental issues. Lab practicums, field observations and field trips are a fundamental part of many earth science and environmental science courses. The involvement of students in practicum in the field can be shown to improve their conceptual knowledge,

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which then leads to an in-depth understanding of a theory. M. M. Peercy (2017:26). Spatial ability is the mental capacity to manipulate visual patterns, as indicated by the level of difficulty and complexity in visual stimulus material that can be handled successfully". has three main skills, namely: map skills, field skills, and photographic interpretation skills. J. J. Monk (2007:37). With spatial skills can understand environmental characteristics, problems found in the environment and solving problems spatially. Human intelligence in utilizing space can provide an overview of a process modification in the natural environment for survival E. Maryani (2015).

Today, ecotourism is one approach to realizing sustainable coastal areas. Ecotourism activities that were originally only favored by nature lovers are now favored by almost all tourists. Ecotourism or ecological tourism was popularized for the first time by an organization called The Ecotourism Society in 1990 which stated that ecotourism is a form of travel to natural areas carried out with the aim of conserving the environment and preserving the life and welfare of the local population (Kete, 2016: 28). ). Utilization of mangrove ecosystems for the concept of tourism (ecotourism) is in line with the shift in tourist interest from

old tourism (tourists who only come to do tours without any elements of education and conservation) to new tourism (tourists who come to do tours in which there are elements of education and conservation). To manage and search for specific ecotourism destinations that are natural and rich in biodiversity and can preserve the environment (Rutana in Umam 2013:2).

Pangandaran Regency has been known as a district that has quite large mangrove potential. The mangrove forest area in Pangandaran Regency is an example of community-based mangrove forest management, where its success is highly dependent on the community. Based on data from Pusluh KP (29 August 2018), the area of mangroves in Pangandaran Regency is around 237.59 Ha, Cijulang District has a mangrove forest area of 37.30 Ha. Some of the existing mangrove plants grow naturally and some are deliberately planted by the surrounding community as a step in managing mangrove forests. Visitors can also plant the mangrove seedlings in the area that has been prepared by the management. The mangrove plants that were deliberately planted were a direct suggestion and were funded by the Minister of Maritime Affairs and Fisheries, namely Mrs. Susi Pudjiastuti.

## **B. METHOD**

This research was made to examine Ecotourism Development of the

Nusawiru mangrove forest with community empowerment. The method used in this study is through a qualitative descriptive approach. Data collection techniques used observation activities in the Nusawiru mangrove forest area, literature studies and documentation. The stages carried out in this study were 1) Inventory of both primary and secondary data, 2) Collection of primary data and secondary data; 3) Data analysis and synthesis stage.

## **C. RESULT AND DISCUSSION**

### **C.1. RESULT**

#### **a. Characteristics of the Batukaras Mangrove Forest as an Ecotourism Area in Batukaras Village**

The Batukaras Mangrove Forest as an ecotourism area has been visited by many tourists. Tourists get information about the existence of the Batukaras Mangrove Forest, namely from social media and word of mouth. The author has conducted interviews with visitor respondents about where visitors get information about the existence of the Batukaras Mangrove Forest, which is obtained by most visitors, namely through relatives or family, then via electronic media or social media.

Accessibility to visiting the mangrove forest area can be reached by using motorized vehicles such as cars and motorbikes. Car users can park in the space provided but cannot go directly to the mangrove forest area, instead they

have to walk about 500 m to get to this location due to road conditions that make it impossible for four-wheeled vehicles to pass. Motorcycle taxis are also available for visitors who park their cars in the space provided, by paying Rp. 15,000 for one return trip. Whereas motorbike users can still walk to the motorbike parking lot which is located right in front of the entrance to the mangrove forest area. On the way to the mangrove forest area, there are shrimp ponds owned by local residents. The price of admission to the Batukaras Mangrove Forest Area is IDR 5,000 per person, plus a motorbike parking fee of IDR. 3000,- per motorcycle and a car parking fee of Rp. 5000,- per car. Initially, tickets were held in the Batukaras Mangrove Forest Area for visitors.

To reach the location of the mangrove forest area not only from one entrance, but can be reached from another entrance in Cijulang Village by boat. The capacity of the boat to carry a maximum of 7 passengers or how comfortable the passengers themselves are. Visitors can also rent a single canoe whose capacity can accommodate one person or a double canoe which can accommodate two people by paying a rental fee of Rp. 15.000,-/hour.

#### **1. Natural Characteristics**

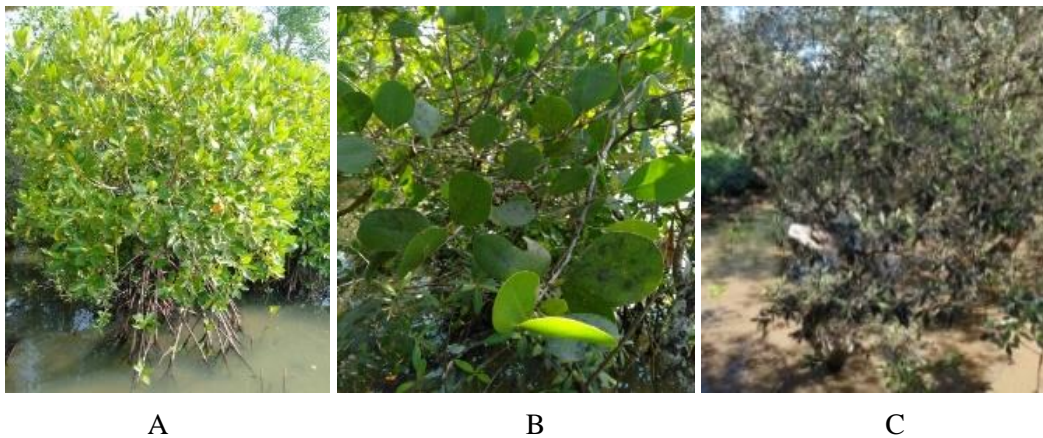
The Batukaras mangrove forest has been visited quite a lot by tourists, because it has interesting natural

characteristics. One of them is natural characteristics consisting of:

#### a) Mangrove tree species

Mangrove trees are specific vegetation in coastal areas so that their existence has its own characteristics. Basically there are many types that are included in mangrove plants. In the forest *mangrove* Batukaras has three types of

mangrove plants namely Putut (*Bruguiera Gymnorhiza*), Pidada (*Sonnerataria Caseolaris*), and Api-api (*Avicennia Germinans*). Some of the existing mangrove plants grow naturally and some are deliberately planted by the local community, as one of the steps for managing mangrove forests.



**Figure 1. Types of Mangrove: Mangrove (A) Putut Mangrove (*Bruguiera Gymnorhiza*), (B) Pidada Mangrove (*Sonnerataria Caseolaris*) and (C) Api-api Mangrove (*Avicennia Germinans*)**

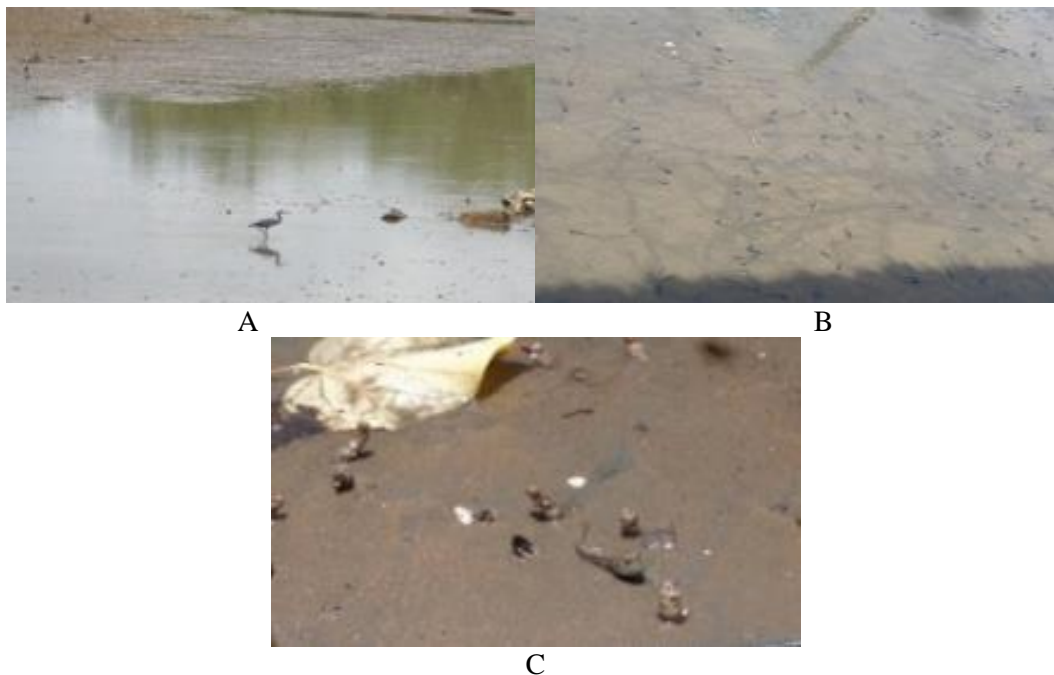
#### b) Benefits of Mangrove Plants

Mangrove plants have physical functions to protect the coastline and many are also used as medicines, which are found in the mangrove leaves. In addition to health benefits, mangrove plants also have benefits as food or drink ingredients derived from the mangrove fruit. Mangrove fruit can be used as an ingredient to make syrup because it has a sour taste. Usually mangrove fruit is processed with a mixture of sugar. But currently there is no management of utilization of mangrove plants both leaves and fruit. This is because the

surrounding community has never received counseling or socialization about the good use of mangrove plants from the local government, so that if they are used by the surrounding community it will not disturb the mangrove ecosystem itself.

#### c) Types of Fauna in the Batukaras Mangrove Forest Area

There are both terrestrial and aquatic fauna, such as egrets, small fish and shellfish. Some of the fauna found in the Batukaras Mangrove Forest Area, both terrestrial and aquatic fauna, include the following:



**Figure 2. Types of fauna: (A) Egret (*Ardea Intermedia*), (B) Mangrove Clams (*Telescopium*), (C) Shoot Fish (*Pheriopthalmus Modestus*)**

## **2. Characteristics of Human Cultivation Results**

The characteristics of the results of cultivation are mangrove seedlings that are well managed. The seeds are sown by the manager in a place that has been prepared. Nurseries for various mangrove species are built in the tidal zone so that natural irrigation can be carried out. The manager also provides seeds if visitors want to plant them by paying Rp. 3000/seed. Many institutions often order seeds to be planted in the Batukaras mangrove forest area, such as schools, offices, and so on. The mangrove seeds sown by the manager are from the putut mangrove species or *Bruguiera Gymnorrhiza* in Latin. The seeds were obtained from putut

mangrove trees that had grown large. The location for planting mangrove seedlings for visitors is on the outskirts of the estuary which makes it easier for visitors to plant the mangrove seedlings.

As a support for ecotourism, in the Batukaras Mangrove Forest Area there is a bridge that starts from the edge of the estuary to the mid-estuary area, where at the end of the bridge, namely in the middle of the estuary, there is a small pier. The bridge was built by the Maritime Affairs and Fisheries Service of Pangandatan Regency in collaboration with the Ministry of Maritime Affairs.

The initial access to the bridge is divided into two directions, namely to the West and East. The bridge to the west has a length of  $\pm 100$  meters and in the middle

of the bridge there is a seat made of boards for visitors to rest. The end of the bridge is still in a dead end, because according to information from the bridge manager it will still be extended to the car park area but it is still in the planning stage. While the bridge to the West has a length of  $\pm 150$  meters. The shape of the winding bridge follows the path of the Batukaras Mangrove Forest Area which can be used as an interesting photo or video spot for visitors. The end of the bridge to the west is a small pier. The mangrove bridge pier is a pier that is used as a place for boats to bring visitors from the entrance to Cijulang Village.

## **b. The Potential of Mangrove Forest as an Ecotourism Area in Batukaras Village**

### **1. Natural Panorama**

The Batukaras Mangrove Forest Area has a naturally formed estuary which makes the area beautiful and distinctive, such as the existence of a mangrove forest with various types of plants, several types of fauna in it, an estuary that connects to the ocean stretching along the mangrove forest, a bridge that can be used for walking through the mangrove forest, and can enjoy the natural scenery of the setting sun.

Mangrove plants are a special attraction in the Batukaras Mangrove Forest Area. This mangrove plant makes the natural panorama in the area more beautiful and also cool. There is also a

natural panorama in the form of a sunset that can be enjoyed from the mangrove bridge. In the Batukaras Mangrove Forest Area, visitors can enjoy natural panoramas in the form of sunset views. This view is often used as a photo object for photo enthusiasts. Based on interviews with natural panoramas in the Batukaras mangrove forest, it has the potential to be used as an ecotourism area.

### **2. Social and Economic Potential**

After looking at the physical conditions in the Batukaras mangrove forest, there is tourism potential that can be developed into an ecotourism area. Therefore, it is necessary to develop the Batukaras Mangrove Forest as an ecotourism area so that the potential of existing resources can be utilized as well as possible for the welfare of the community itself. Local people can take advantage of opportunities in many aspects, including managers, guides, food or restaurant providers, accommodation facilities, transportation and souvenirs from household crafts. Community participation in planning must be continued at the implementation stage and the next stage.

In the middle of the estuary there is also a place to catch fish or other marine biota in the form of a hut equipped with a large net belonging to

the local community which is commonly called "jodang". This shows that the community can take advantage of the fauna found in the estuary. According to the local community, the results of the fishing are often used as household consumption and if the results of the fishing are quite large then they are sold to the market.

**a) Activities that can be carried out in the Batukaras Mangrove Forest Area**

The Batukaras mangrove forest area provides activities that visitors can do such as planting mangrove seedlings, taking pictures and walking around the bridge area. Visitors can plant mangrove seeds that have been provided by manager. The planting process is carried out in an area that is already available for visitors if there are visitors who want to plant mangrove seedlings. With the help of the manager, visitors can plant mangrove seedlings in the area provided. Visitors also usually take pictures using the estuary as a photo object while walking in the mangrove bridge area. Then the visitors uploaded their photos to social media which made the Batukaras Mangrove Forest Area, Cijulang District, famous and known to many people, both local residents and residents from outside the area.

**b) Facilities and infrastructure**

The Batukaras mangrove forest area has inadequate facilities and infrastructure. The entrance from Batukaras Village is partially paved and some is still rocky. The condition of the road before the entrance gate is in pretty good condition. Apart from land access, the road to the location can also be reached by access by water, namely by using a motorized boat through the road from the direction of Cijulang Village. There is a pier that is intended for visitors who want to visit the Batukaras Mangrove Forest Area. In addition to motorized boats there are also canoes.

The manager of the Batukaras mangrove forest area provides sufficient parking space to accommodate  $\pm 50$  two-wheeled vehicles which are located after the entrance gate which is about 500 m away using makeshift facilities. In addition to motorcycle parking, in the Mangrove Forest Area there is also an area for car parking. The location for the Batukaras car park can accommodate  $\pm 15$  cars. The distance from the entrance gate is about 300 meters. Toilets are important facilities and infrastructure for visitors, where their existence is needed by tourists who come to every tourist attraction location. There is only one toilet in the Batukaras Mangrove Forest Area. The number of toilets is still

lacking for visitors who come to the Batukaras Mangrove Forest Area.

## **C.2. DISCUSSION**

### **a. Characteristics of the Batukaras Mangrove Forest as an Ecotourism Area in Batukaras Village**

The Batukaras Mangrove Forest Ecotourism Area is one of the Mangrove Restoration and Learning Centers (PRPM) areas in Pangandaran Regency. The Mangrove Restoration and Learning Center area is divided into two administrative areas, namely the mangrove forest area which is in Batukaras Village, Cijulang District, Pangandaran Regency and the second is the mangrove forest area which is in Cijulang Village, Cijulang District, Pangandaran Regency. The Batukaras Mangrove Forest Ecotourism Area is located in Sanghyang Kalang Hamlet and has an area of  $\pm 16$  Ha. This Mangrove Forest area is now managed by the "Sanghyang Mangrove Lestari" community, which consists of the Batukaras Village community and is supervised by the Maritime Affairs and Fisheries Service. The location of this mangrove forest area is in the southwest of Pangandaran Regency, precisely in Batukaras Village, Cijulang District, Pangandaran Regency.

According to Rahim and Wahyuni (2017: 35), mangrove forests are a unique

ecosystem because they include terrestrial and marine ecosystems. Therefore a mangrove ecosystem is inhabited by various terrestrial and aquatic biota.

### **1. Natural Characteristics**

Mangrove ecosystem resources included in Mangrove resources have several roles both physically, chemically and biologically which greatly support the fulfillment of human needs and function as a buffer for the balance of the ecosystem in coastal areas (Saparinto, 2007:19). An area of Batukaras mangrove forest can be used as an ecotourism area because it has characteristics that support ecotourism or nature-based tourism activities. According to Noor, et al (2006: 8-9) in simple terms, mangroves generally grow in 4 zones, namely: open mangroves, central mangroves, brackish mangroves, inland mangroves.

Natural characteristics are a characteristic of an object in question. The characteristics found in the Batukaras Mangrove Forest as an Ecotourism Area consist of the presence of several types of mangrove trees and several types of fauna as well as ebb and flow of estuary water. In the mangrove forest there are three types of mangrove plants namely Putut (*Bruguiera Gymnorrhiza*), Pidada (*Sonnerataria*



Caseolaris), and Api-api (*Avicennia Germinans*). Some of the existing mangrove plants grow naturally and some are deliberately planted by the local community, as one of the steps for managing mangrove forests.

In the Batukaras Mangrove Forest Ecotourism Area, all types of mangrove plants are not used in such a way because there are rules that prohibit the use of plants in ecotourism areas. The types of fauna found in the Batukaras Mangrove Forest as an Ecotourism Area include egrets, shooting fish and shellfish. These marine biota spawn or breed and lay eggs under mangrove plants. Because one of the functions of the mangrove area is as an area spawning of several marine biota. However, the fauna found in the mangrove forest area cannot be managed optimally, because there has been no counseling or socialization from the government to the surrounding community. Mangrove plants grow in an estuary, and Batukaras mangroves grow in Cijulang Muara.

## **2. Characteristics of Human Cultivation Results**

Objects and tourist attractions are related formations and facilities, which can attract tourists or visitors to come to a certain area or place. Tourist objects and attractions are the basis for tourism. Without an attraction in a particular area

or place, tourism is difficult to develop. In addition to the natural panorama which is a tourist attraction, in the Mangrove Forest Area there is also an attraction in the form of the cultivation of the surrounding community. The characteristics of the results of community cultivation are the presence of well-managed mangrove seedlings. The mangrove seeds are sown by prepared managers, namely on the outskirts of the estuary which are affected by tidal currents. This is so that the mangrove seedlings get natural watering. The mangrove seeds sown are of the Putut Mangrove species or *Bruguiera Gymnorhiza* in Latin. With the availability of mangrove seeds, visitors can also plant seeds in the area provided by the manager by paying Rp. 3000,- per seed.

As a support for ecotourism, in the Mangrove Forest Area there is a bridge that starts from the edge of the estuary to the mid-estuary area, where at the end of the bridge, namely in the middle of the estuary, there is a small pier. The bridge was originally only used as a place for fishing boats that had gone to sea. However, because the mangrove bridge is often used as a photo object for those who visit it and also as a place to exercise, from time to time the mangrove bridge becomes known to the general

public, both local people and people from outside the Batukaras area.

### **b. Potential of Mangrove Forest as an Ecotourism Area in Batukaras Village**

Tourism potential is all things and events that are regulated and provided so that they can be used for tourism development in the form of atmosphere, events, objects and services (Pendit, 1990:108). The potential of the ecotourism environment which can be developed into an ecotourism attraction is divided into three main parts, namely abiotic potential, biotic potential, and socio-cultural potential. (Antara. 2017). The potentials in the Barukaras Mangrove Forest Area are as follows:

#### **1. Natural Panorama**

Each tourism destination has different attractions according to their abilities or potential, the types of tourist attractions that are usually displayed at tourism destinations include natural tourist attractions, man-made tourist attractions (man-made tourist attractions). . Tourist attraction has its own strengths as a component of tourism products because it can generate motivation for tourists and attract tourists to travel (Suryadana and Ovtavia, 2015:48).

The potential possessed in the Batukaras Mangrove Forest is a beautiful and unique natural panorama, such as the

presence of a mangrove forest with various types of plants, several types of fauna in it, an estuary that connects to the ocean stretching along the mangrove forest, a bridge that can be used for walking walking through the mangrove forest.

#### **2. Social and Economic Potential**

Socio-economic potential is potential that can be developed both from the results of natural resources and human resources that can generate economic value. The economic functions of Mangrove Forests include a source of fuel for aquaculture, a place for salt production, a source of food for medicines, beverages, fisheries, aquaculture, animal feed, fertilizer, a source of paper, soil and so on. Given the many benefits of mangrove forests or mangroves, efforts to save mangrove ecosystems. (Edi, K. 2011). According to Saparinto (2007: 153-159), the use of mangrove forests for nature tourism aims to increase and disseminate efforts to preserve the mangrove biological natural resources and their ecosystems and improve the welfare of the people living around the forest and state income.

In traditional societies, the dynamics of society are protected by customs, in this case traditions is a strong binding rope in building community order (Ningrum, 2012). Local people take

advantage of the existence of the Batukaras Mangrove Forest as an ecotourism area by selling in the area with an agreed order and system. There are two stalls selling snacks and cold drinks for visitors. However, traders do not sell every day in the Batukaras Mangrove Forest Area, but only on certain holidays. There are no rental fees charged to traders from the management.

On the way to the mangrove forest ecotourism area, there are shrimp ponds managed by the local community. This shows that the local community can take advantage of the existence of the estuary by creating shrimp ponds in an area not far from the estuary. The estuary has an irrigation system using a machine that is capable of flowing water from the estuary to the ponds.

#### **a) Activities that can be carried out in Mangrove Forest Areas**

The Batukaras mangrove forest area provides activities that can be carried out by visitors who come such as planting mangrove seedlings for visitors who are assisted by the manager, taking pictures with typical natural panoramic objects and walking around the bridge area. The activity of planting mangrove seedlings depends on the tidal state of the estuary. The area used for sowing mangrove seedlings is on the outskirts of the estuary which is affected by tidal

currents. This is because the mangrove seedlings get natural watering from the estuary.

#### **b) Facilities and Infrastructure**

The Batukaras Mangrove Forest area can be reached in two directions, namely from Cijulang Village and Batukaras Village. The condition of the road from Cijulang Village is in good condition with asphalt. Visitors must rent a boat or canoe to be able to reach the Batukaras Mangrove Forest Area by following the flow of the Cijulang River. The entrance gate to the Batukaras Mangrove Forest Area is in two villages, namely Cijulang Village and Batukaras Village. The entrance gate in Cijulang Village is  $\pm 1$  km from the village office, while the entrance gate in Batukaras Village is  $\pm 3$  km from the village office.

The manager provides adequate parking space for visitors. The car park is  $\pm 300$  meters from the gate PRPM, while the parking lot for two-wheeled vehicles is  $\pm 500$  meters from the gate. There is a motorbike parking area right in front of the entrance to the Batukaras Mangrove Forest Area. The condition of the toilets in the Batukaras Mangrove Forest Kasan is no longer maintained and there is only one toilet. This is because the management has not paid much attention to the condition of the toilet so that visitors rarely use it.

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#### D. CONCLUSION

In the Batukaras Mangrove Forest Area there are three types of mangroves, three types of fauna and tides, as well as the results of human cultivation in the form of cultivated mangrove seeds and have potential as ecotourism areas including natural panoramas, socio-economic potential, interesting activities that can be carried out in the Batukaras Mangrove Forest Area as well as adequate facilities and infrastructure.

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