

THE IMPACT OF PLASTIC WASTE IN THE MANGROVE COASTAL AREA, THE SERVICE AREA OF THE FISHERMAN GROUP "SEGARA GUNA BATU LUMBANG", SOUTH DENPASAR BALI

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ABSTRACT

The "Segara Guna Batu Lumbang" Fisherman Group Denpasar is one of the fishermen groups that traditionally manages an area of the Ngurah Rai Mangrove Forest Park Tourism Conservation Area, South of Denpasar. The mangrove forest area has problems related to waste sent from several rivers, namely Tukad Badung, Tukad Mati, and Denpasar Estuary Dam. This condition causes a reduction in the beauty of the mangrove forest. The shipping waste that is quite dangerous is plastic waste which can cause serious disruption to the growth of mangrove seedlings. This study is conducted to determine the impact caused by the flow of plastic waste on the growth of mangrove forests, activities that can be carried out to minimize environmental problems, and the benefits for the environment and fishermen in the mangrove forest area in South Denpasar to support sustainable tourism development.

The method used in this research is a qualitative method through Data Collection Procedures which includes qualitative observations, qualitative interviews, and qualitative documents. Data collection focused on the perceptions and motivations of the management and members of the fishermen's group, and visitors, accompanied by in-depth interviews to find out the strengths, weaknesses, opportunities, and threats faced by fisherman management in overcoming the impact of plastic waste shipments.

Through this research, it is hoped that the Segara Guna Batu Lumbang Fisherman Group can develop strategies for its conservation programs and can take part as an education center for the community, especially students to learn about the importance of mangrove forest conservation, attract voluntourism tourists to visit and carry out activities to clean mangrove areas and planting mangrove seedlings. Besides that, this research is also expected to give a model for organizing voluntourism activities in the mangrove forest area with local fisherman groups.

Kata kunci: perception, motivation, voluntourism, mangrove conservation, sustainable tourism development.

1. Introduction

World tourism before the outbreak of the Covid-19 pandemic showed positive growth, especially with the birth of new tourism products such as voluntourism. Bali as one of the world's tourism destinations is one of the most important tourism destinations, especially in the Asia and Pacific region. The number of tourism visits in the last five years before Pandemi Covid-19 shows an increasing number of tourists (BPS Bali, 2000). Construction of facilities and infrastructure along with facilities that are continuously being carried out, among others, improving the development of airports, is intended to be able to anticipate the growth in the number of tourist visits that continue to increase. The readiness of the destination with all forms of infra and supra structure, prepared attractions, and facilities prepared by the government and

all components of Bali tourism stakeholders is to attract an increasing number of tourist visits. Efforts to develop tourist destinations in Bali are carried out through various diversification of tourism products, including making mangrove forest areas a tourist attraction as part of education tourism.

The main attraction of Bali tourism is the beauty and diversity of its beaches, including coastal areas that have mangrove forests. One of the coastal areas with mangrove forests that are easily found is along the Ngurah Rai Bypass road from Denpasar to Ngurah Rai Airport. The area is known as the Ngurah Rai Mangrove Forest Park Conservation Area, located in the Village of Suwung Kauh, Denpasar Municipality.

In some coastal areas in Bali, there are many mangrove trees which are often referred to as Mangrove Forests. One area that is easily found is along the Ngurah Rai Bypass road from Denpasar to Ngurah Rai Airport. The area is known as the "Ngurah Rai Forest Park and Tourism Conservation Area", which is located in Suwung Kauh Village (UPT Ngurah Rai), Denpasar, Bali. The cooperation of UPT Tahura Ngurah Rai with various fishing groups has been well-developed. These fishing groups take good care of their growth and environmental cleanliness, as well as full support from the local community who have realized the importance of conserving mangrove forests, and one of these areas is the "Segara Guna Batu Lumbang Fishermen Group", Denpasar. As an area that is being developed, this area gets tourist visits, both local, national and international. Cooperation that is built in the form of community participation in community service activities is based on the aim of providing positive benefits to the recipient community through various forms of activities based on the real needs of the community (Wearing, 2001). The benefits obtained by the beneficiary community must be based on a broad scope and sustainable scale (Holmes, et. all, 2009). Hawkins (2005) mentions that the results of the activity should contribute in various ways to the community in the destination of the activity as an effort to improve the image and quality of the appearance of the area in that place. Lamoureux (2017) emphasizes that activities at a destination are not only beneficial for certain community groups but stakeholders.

The steps taken in realizing service activities need to be carried out in an integrated manner. Callanan, et al, (2007) emphasize that all forms of activities that will support environmental improvement in tourist destinations are to deconstruct activities by including activities that promote social tourism, cultural tourism, eco-tourism, and responsible tourism. While Holloway, et al, (2009) emphasize social activities of whatever form, especially those carried out by educational institutions so that they are arranged with planning and are not spontaneous. WTO (1993), and OECD (2001) in the WTTC Report Agenda 21 emphasize that activities that aim to assist certain community groups in minimizing the problems that arise must look thoroughly at several issues such as environmental, sociocultural, economic, climate change, security, health, and others.

The cooperation between UPT Tahura Ngurah Rai and various fishing groups in the area has been well established. These fishing groups maintain well the growth and cleanliness of the environment, as well as the full support of the local community who have realized the importance of conserving mangrove forests. One of the fishermen groups in the area is The Segara Guna Batu Lumbang Denpasar. As an area that is being developed, this place is visited by tourists both locally, nationally and internationally.

As a mangrove forest that receives water from several rivers namely Tukad Badung, Tukad Mati and Estuari Dam Denpasar, the mangrove forest area of South Denpasar faces environmental problems, that is, sending various types of waste from various types including dominant plastic waste. This condition causes a decrease in the beauty and beauty of the South Denpasar mangrove forest area as tourist objects and attractions that serve as a service area for the Segara Guna Batu Lumbang Fisherman Group Denpasar. To overcome this impact, community service activities have been carried out to support fishermen groups to overcome the problem of plastic waste and at the same time be able to provide a model and technique that can provide a solution for handling plastic waste that flows into the waters of mangrove forests in South Denpasar. Plastic waste that flows at high tide and at low tide that is hanging/stuck in mangrove trees so that it can disturb the beauty and also make the growth of mangrove trees unhealthy. Because it needs to be done in a way to clean plastic waste in a sustainable manner. In this proposal this activity will include elementary school children in several places around the Mangrove Forest Service Area of the Segara Guna Batu Lumbang Fishermen Group in South Denpasar by giving lectures and introductions on the functions and benefits of mangrove forests, technical training in handling plastic waste, and implementation of activities in the field.

2. Problem

From the above background several problems can be identified namely:

- 2.1 The mangrove forest area receives water from several rivers, namely Tukad Badung, Tukad Mati, and Denpasar Estuary Dam. They bring various types of waste, including plastic waste. The flow of water from Tukad Mati, Tukad Badung, and Estuary Dam to the mangrove forest is mostly household waste, traditional markets, hotels, and very little from industrial factories (most of these factories are home industries). The lack of awareness of the community is one of the reasons why plastic waste is still thrown into the river for quick, practical reasons, and besides that, the garbage service by the city planning office is still not optimal. This condition causes a decrease in the beauty of the South Denpasar mangrove forest area as a tourist object and attraction which is the service area of the "Segara Guna Batu Lumbang Fishermen Group".
- 2.2 The importance of maintaining the cleanliness of a sustainable mangrove forest park area in accordance with the principles of sustainable tourism development. At this time there are still many who do not realize and understand the importance of the functions and benefits of mangrove forests for the environment, fishermen and the surrounding community. One party that does not fully understand this is school children, especially elementary school children who live and go to school near the mangrove forest area.
- 2.3 Habitat diversity in mangrove forests in south Denpasar which is a service area for fishermen groups in Segara Guna Batu Lumbang has not been fully made an educational center for the community, especially school children. Utilization of the mangrove forest park area as a tourist attraction by the management of the fisherman group "Segara Guna Batu Lumbang" Denpasar requires assistance so that the area is maintained preservation so that it can function as education for the community especially school children.

- 2.4 The lack of understanding of the functions and benefits of mangrove forests has not been well felt because of the lack of lectures and training related to handling waste, especially plastic waste in the mangrove forest area.

3. Objectives of Community Programs

- a. Providing understanding, understanding and strengthening the awareness of elementary school children in the mangrove forest environment in the service area of the Segara Guna Batu Lumbang Fishermen in South Denpasar about the functions and benefits of mangrove forests for the environment, fishermen groups, and the community.
- b. To make the working area of the Segara fishing group in the south of Denpasar Denpasar as a place of education for the preservation of the mangrove forest environment so that it can become an example for the community to raise awareness of the environment and take part directly in conservation activities.
- c. To overcome this impact, community service activities are carried out with the aim of (1) supporting fishing groups to overcome the problem of plastic waste in mangrove forest areas; (2) supporting the expansion of mangrove forest areas through mangrove tree planting activities; (3) environmental education learning that can be applied by educational institutions as a form of sustainable tourism development activities in the mangrove forest area of South Denpasar.

4. Materials and methods

This community service is carried out in the Ngurah Rai Mangrove Forest Park Bali on Ngurah Rai Street By 21km Suwung Kauh, Denpasar. The object of community service includes the activity of handling the shipment of waste, especially plastic, which flows into the mangrove forest area of the service area of the Segara Guna Batu Lumbang Fishermen in South Denpasar Bali.



Map: Location of the mangrove forest south of Denpasar

This study was designed using a qualitative approach through the stages of collecting and analyzing data with observations, questionnaires, interviews, and literature studies. The data were analyzed to understand the relationship between the impact of plastic waste in the mangrove coastal area in the south of Denpasar City, Bali. This research is based on sustainable tourism. These theories were used in explaining the research concept clearly and measurably about the impact of plastic waste in the mangrove coastal area, the service area of the fisherman group "Segara Guna Batu Lumbang" South Denpasar, Bali.

The method used in maximizing the implementation of these activities is carried out by (1) discussing with the management of the fishing group to discuss the problems they are facing; (2) conducting field observations and planting the steps for field activities starting from the preparation of equipment, implementation time, coordination of implementation, the process of handling plastic waste storage; (3) delivery of educational lectures by the head of the fishermen's group to students about the conservation of mangrove forest waters in the work environment of the "Segara Guna Batu Lumbang Fishermen Group" Denpasar; (4) carry out field activities directly by using the equipment and facilities prepared by the fishermen group management under the guidance of the fishermen who serve as companions; (5) Conduct environmental clean-up campaigns through mass media, and petition the government to handle the handling of household and industrial waste more optimally, as well as apply legal sanctions. Metode meliputi uraian yang rinci tentang cara, instrumen, dan teknik analisis penelitian yang digunakan dalam memecahkan permasalahan. Metode statistik dan tingkat signifikansi yang dipilih harus dinyatakan secara jelas.

5. Analysis, Result, and Field Implementation

5.1 Analysis

The development of tourism potential in the Mangrove tourism area is directed at increasing tourist attractions such as tracking tours, natural beauty and environmental education. Mangrove tourism development can be done by improving existing facilities and making promotional efforts that have a tourist attraction. In developing Mangrove tourist attraction that needs to be known in advance is the potential of Mangrove tourism which includes positive potential (strengths and opportunities) that can be used as a reference for developing Mangrove natural tourism and negative potential (weaknesses and threats) that can threaten and inhibit the development of mangrove natural tourism. Each of these potentials is described based on the internal environment and external environment by using a SWOT analysis tool in which there are internal factors that can demonstrate the performance of the Segara Guna Batu Lumbang Fishermen Group in developing development strategies and there are also external factors that can identify opportunities and threats faced. in developing Mangrove tourism areas. There are 4 (four) types of activities that are used as the basis of the assessment, namely (1) Attraction. Fishermen Group Segara Guna Batu Lumbang Denpasar as the manager of the Mangrove tourist area is a place to get more information about Mangrove forests in Bali and also as a place for recreation to enjoy the beautiful natural scenery and do water tourism to know in detail and learn about Mangrove tourism areas such as ecosystems and habitats contained therein; 2. Accessibility. Fishermen Group Segara Guna Batu Lumbang Denpasar is easy to reach because it is inside the Mangrove forest area in Suwung Kauh Village, South Denpasar; (3) Facility (amenities) The Mangrove tourist area has ample parking and a clean and cool environment; (4) Ancilliary. Mangrove tourism area is managed by Segara Guna Batu Lumbang Fishermen Group in Denpasar and its members carry out tasks with voluntary assignments in accordance with the division of labor.

Analysis of the Internal Environment

1. Location

The location of a tourist destination is very influential in developing tourist attractions. The location of a strategic tourist area is easily accessible and has a minimum distance that is not too far away will make it easier for tourists to go to the location of the tourist area. In this case, the Mangrove tourist area is in the Bali tourism route which is between the Kuta and Sanur lines and is very close to the airport which will make it easier for tourists to stop and just visit the Mangrove tourist area.

2. Human Resources

Quality human resources are very influential in the development of a tourist area which in this case is meant by people who are competent and professional in the management and development of Mangrove tourism as well as tourism actors around the tourist area such as travel agents and local communities. All parties must be able to work together and help each other in carrying out the planning of the development of the Mangrove tourist attraction to maintain the sustainability of Mangrove Forest by increasing awareness of the community and local and visitors of the importance of environmental cleanliness and the influence of waste for the survival of Mangrove trees.

3. Human resources in the Fishermen Group of Segara Guna Batu Lumbang Denpasar have not been supported by adequate staff because the process of management is still very traditional so its activities have not been organized as management should be.

4. Tourism Areas

The beauty of the Mangrove tourism area and the state of unspoiled tourist attraction because it is inhabited by various kinds of marine biota and various kinds of birds that live around the Mangrove Forest is the main attraction for tourists to visit. Mangrove tourism area is visited by many natural and environmental lovers, but it is not uncommon to visit Mangrove tourism areas with families for recreational purposes and some tourists also come to do pre-wedding photos. Mangrove tourism areas must be kept clean to maintain their sustainability and attract tourists to visit.

5. Finance

The development of a tourism area certainly requires a lot of money in facilitating operational activities. Fishermen Group Segara Guna Batu Lumbang Denpasar in its operations is assisted by the Denpasar City Government. These costs are allocated to making infrastructure and facilities needed by tourists when visiting Mangrove Forests.

6. Infrastructure

Mangrove tourism areas can be reached by land by using public transport or private vehicles because of the fast access and rare traffic congestion. The condition of the road to the Mangrove tourist area is very good for small vehicles and large vehicles to go through such as the Tourism Bus. In addition to very adequate access, in the Mangrove tourist area, there are also some facilities needed by tourists when visiting Mangrove tourism areas such as large parking lots, toilets, food stalls, wooden bridges for tracking tours, and towers at some points to see birds in the Mangrove Forest.

7. Technology

The equipment used such as computers and laptops to support operations that are not yet owned and recording activities is still using logbook books that are filled manually. Likewise, the provision of new information is carried out orally and does not have brochures and websites. In its operational activities, the communication process between people within the organization and communicating with outsiders in the delivery of information is still limited through the use of mobile phones. Under these conditions, it can be understood if the information on social media is done privately by visitors.

8. Products

Mangrove Forest tourism area can be said to still look beautiful and avoid the noise of vehicles passing traffic. By visiting the Mangrove tourism area, tourists can enjoy the observation of sea birds by climbing to the towers that have been provided. In addition to observing birds, tourists can also do tracking tours by walking on a long bridge that has been determined and there are several resting huts at some points intended for travelers who are tired on the way. After traveling to the end of the bridge, tourists can enjoy the beautiful natural scenery of the beach. Green Mangrove Forest Landscape is also much in demand by tourists to do pre-wedding photos.

9. Services

The service provided by officers from the Segara Guna Batu Lumbang Fishermen Group is very friendly. In providing maximum service for tourists visiting the group, it is usually advisable to contact the Mangrove in advance so that tour guides can be provided who will organize tourism activities in the Mangrove Forest. In addition to friendly service, tourists will also get information related to Mangrove Forest.



Images 1. Students from the University of Dhyana Pura Bali collect plastic rubbish at the mangrove area.

External Environmental Analysis

1. Competitor

In addition to the Mangrove Forest natural tourism, there are also tourist objects that are close to the natural attractions of the Mangrove Forest such as Sanur beach attractions and Kuta beaches which are located one lane to the Mangrove tourist area. Some tourist objects are also equipped with tourist attractions such as Tanjung Benoa tourist attractions with watersport tourism which is adjacent to the Mangrove Forest area such as the Benoa / Tanjung beach area.

2. Security Domestic

Security is often disrupted due to the many terrorist threats that make domestic tourists and foreign tourists afraid to travel. Some riots also occurred due to differences in beliefs in Indonesia which made tourists reluctant to visit Indonesia. In Bali, there are still a number of criminal and criminal acts, but the Government has tried to further improve security, especially in areas or tourist areas that are usually visited by tourists. In the Mangrove tourism area, it can be said to be quite safe because when entering the forest area there is a guard post because the main door enters the mangrove forest through the property of the Denpasar PDAM and the Estuary Dam Manager in Denpasar.

3. Government Regulations

The regional government of Bali strongly supports the development of natural mangrove forest tourism which can be seen through the efforts made by the regional government in providing financial assistance, making regulations and following up on any violations committed in the Mangrove tourism area. More and more support from the Government of Indonesia, the Central Government and Regional Governments, such as banning development in green areas so that the balance of nature is maintained will make it easier to carry out tourism development.

4. Economics

The economy of the local community is also an important thing in supporting the development of Mangrove tourism can be seen from the many people who work in the tourism sector such as travel agents and some are working as fishermen. The community has a role in the development of Mangrove Forests, if the Mangrove Forest develops well and sustainably, their income will also increase because the fish caught will also be more given the number of fish that breed around the Mangrove trees.

5. Environment

Environmental cleanliness around the Mangrove tourism area still needs to be improved because the problem of waste shipments from several rivers such as Tukad Badung, Tukad Mati, and Estuary Dam Denpasar is still quite high, especially plastic waste which is very susceptible to mangrove seedling growth. As the person in charge of the mangrove area, the group of fishermen routinely share the task of cleaning in the mangrove forest waters.

6. Social

The attitude of the community around the Mangrove tourism area is quite positive and awareness of the importance of maintaining the mangrove forest area is getting better, especially with the role of the fishermen group who always provide information to visitors who come to tour. On various occasions, the fishermen group also provides assistance and support to students who come to do educational activities on the aquatic environment.



Images 2. Students using cano to reach the deep of the mangrove forest to collect plastic rubbish.

5.2 Result

The results of conversations, conversation, and interviews with the management and members of the fishing group combined with educational lectures delivered by the chairman of the management of the fishing group, some information was obtained that how important is to provide a deeper understanding of the function of mangrove forest coastal for the environment and water conservation for the public, community, and students. The mangrove forest area along the Ngurah Rai Bypass road from Denpasar to Ngurah Rai Airport is known as the Ngurah Rai Forest Park Tourism Conservation Area which is located in Suwung Kauh Village, Denpasar, Bali has an important role in managing the grand forest park wisely to ensure the optimal and sustainable functioning of the forest park ecosystem (mangrove forest) through community empowerment to support the preservation of culture and tourism destinations, oriented to the ecological, social and sustainable use of forests. Ecosystems in mangrove areas have very important ecological, socio-economic, and socio-cultural roles; for example, maintaining coastal stability from abrasion, sources of fish, shrimp, and other biodiversity, sources of firewood and building wood, and the function of conservation, education, ecotourism, and cultural identity (Setyawan, 2006). A mangrove forest is a tropical coastal vegetation community, which is dominated by several species of mangrove trees that are possible to grow and develop in muddy coastal tidal areas. This vegetation community generally grows in intertidal and subtidal areas that receive adequate water flow, and are protected from large waves and strong tidal currents. Therefore, mangrove forests are found in shallow bay beaches, estuaries, deltas, and protected coastal areas (Kenish, 1990).

The cooperation of UPT Tahura Ngurah Rai with various fishing groups has been well-developed. These fishing groups take good care of their growth and environmental cleanliness, as well as full support from the local community who are

aware of the importance of conserving mangrove forests one of the groups that manage the place, is the "Segara Guna Batu Lumbang Fisherman Group Denpasar in collaboration with the Denpasar City Marine Service. The area of the main mangrove forest which is a direct service area for fishermen groups is approx 288 hectares of the approximately 800 hectares of mangrove forest area around the north and west sides of Benoa harbor to the Tuban area. The mangrove forest area in southern Denpasar is a small part of the world's mangrove forest, about 3% of the total forest area and 25% of all mangrove forests in Indonesia (Saparinto, 2010).

Broadly speaking, mangroves have several linkages to human needs as a provider of food, shelter, and health so the environment is divided into five, namely: physical function, chemical function, biological function, economic function, and other functions (Dixon, 2001). Tomlinson (1986), the word mangrove means tropical plants and their communities that grow in intertidal areas. Intertidal areas are areas under the tidal influence along coastlines, such as lagoons, estuaries, beaches, and river banks. Bengen (2002) states that the impact of waste is one aspect of human behavior (especially the community around mangrove forests) that directly causes problems in the environment. The results of interviews with fishermen show an understanding that mangrove forest areas need to be minimized the impact of plastic waste. Mangroves are specific ecosystems that are generally only found on beaches with relatively small waves or even protected from waves, along deltas and estuaries which are influenced by water and mud input from the mainland.

During its journey, the Segara Guna Batu Lumbang Fishermen Group received various types of training and related mentoring support, including Mammal Rescue Training, Mangrove Area Security Supervision Training, Main and Supporting Area Rescue Training, Mangrove Forest Fire Management Training, Training on the use of FADs in mangrove forest areas, Environmental development at Estuary Dam, training on planting mangrove seedlings, training on handling shipping waste, especially plastic from Tukad Badung and Tukad Mati.

As the front line in preserving the environment of the mangrove forest area, this group of fishermen has a very difficult task as a consequence of the utilization of the mangrove forest area for the fisherman group, namely preventing illegal logging in the mangrove forest area, preventing fishing with chemicals or electricity, preventing smuggling carried out by dark ships, Maintaining the beauty of the mangrove forest coastal area by maintaining the cleanliness of the area, together with patrol officers from the Mangrove Forest Park UPT carrying out periodic surveillance tasks that can disrupt the security and safety of the mangrove forest area which is directly adjacent to the Benoa port, Ngurah Rai toll road, Ngurah Rai Airport and the coastal environment of Tuban and Nusa Dua.

The results of the study show that tourists, local communities, and fisherman groups want conservation activities in the mangrove forest is essential to improve the quality of tourism development in the coastal area along the Bali beaches because tourism is the main industry in Bali and is expected to be sustainable. The perspective of tourists, communities, and fisherman groups shows that conservation and environmental activities must have a wide scope of depth as authentic activities describe the needs of the local community, tourists feel the natural beauty of the culture of the local community, communication that exists between the community and tourists creates a sense of confidence for both parties, developing conservation and environment activities based on sustainable principles while for tourists the

satisfaction obtained can strengthen support for fisherman groups in these tourist destinations. Tourists and fisherman groups also emphasize the importance of a tourist security and safety approach, structuring access to adequate infrastructure, and providing tourist objects and attractions based on environmental conservation principles. Sidhi Turker (2021) mentions for fisherman groups, the process of organizing conservation, and environmental activities, and all forms of administrative-technical links require special preparations starting from tourist arrivals, health protocols standards, use of digital technology, community participation, policy on limiting activities in the wild, cultural activities, the environment, and socialization with the community. All forms of these new restrictions are a concern for all stakeholders because these activities in the Covid-19 Pandemic era must be able to describe the combination of forms of education, contributions of tourists and the community, holiday activities, and community empowerment in new normal. Conservation and environment programs as part of education tourism in this new era are able to integrate quality tourism which emphasizes safety and security, hygiene, accessibility, transparency, authenticity, and harmony.

Conservation and environmental activities provide real and positive benefits to the community and the green of mangrove forests. The experiences of the fisherman group show that activities have a positive value not only for the fisherman and community but also for strong support for advancing and developing the tourism industry in Bali. The experience of fisherman groups as motivators and communicators in building relationships between the community and tourists makes tourists have confidence that social work activities in the mangrove forest will be successful and efficient for the benefit of the green environment. The multi-effect benefits that people get from the activities are not only in the form of activity but a variety of benefits in the economic, social, and cultural fields, cultural exchange experiences, and communication.

In the long term, the benefits of the conservation and environmental program will add better value to the quality of the sustainable development of the Bali tourism industry. The results of the discussion show that activities in the mangrove forest can be developed as an option and a potential opportunity to be held in Bali. There are several steps that were recommended by fishing groups and tourism stakeholders. Coordination was done with the management of the fishing group regarding the steps for implementing the activities with the administrators and members of the fishing group. Observations were made to determine the area where the activities will carry out according to the time of the tides considering the vast area of mangrove forest. To overcome the impact of waste especially plastic waste, community service activities are carried out with the aim of (1) supporting fishing groups to overcome the problem of plastic waste in mangrove forest areas; (2) supporting the expansion of mangrove forest areas through mangrove tree planting activities; (3) environmental education learning that can be applied by educational institutions as a form of sustainable tourism development activities in the mangrove forest area of South Denpasar. Maximizing the implementation of these activities is carried out by (1) discussing with the management of the fishing group to discuss the problems they are facing; (2) conducting field observations and planting the steps for field activities starting from the preparation of equipment, implementation time, coordination of implementation, the process of handling plastic waste storage; (3)

delivery of educational lectures by the head of the fishermen's group to students about the conservation of mangrove forest waters in the work environment of the "Segara Guna Batu Lumbang Fishermen Group" Denpasar; (4) carry out field activities directly by using the equipment and facilities prepared by the fishermen group management under the guidance of the fishermen who serve as companions; (5) Conduct environmental clean-up campaigns through mass media, and petition the government to handle the handling of household and industrial waste more optimally, as well as applicable legal sanctions.

The program can be used as a new strategy to complement the Bali tourism industry development strategy in supporting quality improvement and providing added value for the sustainable development of Bali's tourism industry. This strategy is further strengthened by the findings of the above guidelines which can

be used as a reference and further developed by stakeholders, especially the fisherman groups.



Images 3. Students of the Dhyana Pura University Bali support fisherman group to work together to clean the mangrove area from plastic rubbish.

5.2 Field Implementation

In several trials of the implementation based on the above guidelines with D4 Hospitality Management students of the Dhyana Pura University, some achievements were obtained. During the trial field implementation, there are no serious accidents and all went according to plan and guidelines. Of all the plastic waste collected, about eight to ten plastic bags were collected, with a total of about one hundred and eighty-five kilograms consisting of various types of plastic, starting from the most plastic bags, food boxes, ropes, cork, and foam. All the garbage was obtained from mangrove trees, either stuck in branches or trapped in tree trunks. The collected

waste is tamped in the main container box which is then taken by the Denpasar City DKP to be taken to the Denpasar city waste bank for further processing.

The evaluation results show that students are increasingly understanding the serious field situation regarding the dangers of plastic waste for the growth of mangrove trees and the impact on the conservation process, especially the impact on the waters because the mangrove forest area is an important place for the growth process of various types of fish, a destination for birds migration, local birds, monitor lizards, snakes and certain types of monkeys. By minimizing the impact of waste, especially plastic, the water quality in the waters of the mangrove forest area will also be better and allow all conservation processes to be even better. For students, this field activity gave a deep impression because during the collection of garbage into the mangrove tree paths they could see firsthand several types of birds, monitor lizards, snakes, and fish. Community service activities with students in mangrove coastal areas provide a new experience for students and are very useful to support community service activities with fishermen groups in a sustainable manner because activities such as taking plastic waste can be carried out continuously at any time, especially for study programs with a large number of students so that they can be shared into small groups. Service activities in mangrove waters are very useful in providing educational learning about the environment in theory and practice which will increase the awareness of students or students to understand the importance of protecting the environment as a form of environmental campaign, especially in tourism destinations in support of sustainable tourism development.

Community service activities in the area do not require large costs because the equipment used can be used many times and can be entrusted to the fisherman's post which can also be used by students or students from other educational institutions. Moreover, the support from fishing groups is very good and encouraging. Therefore, activities like this can be carried out more frequently in each semester of learning.

6. Simpulan

The implications of community service carried out in the waters of the Denpasar mangrove forest park can be used as a permanent activity by the University through existing study programs and outlined in a collaboration that can also be followed by lecturer research by their respective fields related to environmental conservation. And most importantly, this activity can provide a direct answer to the problem of plastic waste through a direct collection of plastic waste at the location so that it has a positive impact on the health of mangrove forests and waters in the area.

The results of this service have described an exploration of the form of service activities in seeing the phenomenon of waste problems in the mangrove forest waters in the form of activities that are profitable and provide benefits to the community, in this case, the fishermen's group through an activity that applies the principles of sustainable environmental activities through real activities that are the needs of the community in that place although there are still limitations due to limited time and resources in these activities. These service activities provide strength as an activity that is beneficial to the community and provides new experiences for students.

The implications for the world of education provide space to support planning and development in tourist destinations that put forward the principles of sustainable

tourism development with a focus on environmental activities by providing tangible benefits for the community and increasing the quality of mangrove waters in supporting tourist destinations as a whole. And educational institutions can continue various integrated activities to strengthen conservation planning and development in various forms of research and activities that can provide economic and environmental benefits for local fishing communities.

Efforts to make mangrove forest areas a place for tourism activities, especially through conservation and environmental programs with the community, are a good opportunity to improve the quality of tourist destinations but are still accompanied by various restrictions to maintain the beauty of the mangrove forest area. Simpulan adalah ringkasan dari hasil dan pembahasan yang menjawab tujuan penelitian. Simpulan disajikan dalam bentuk paragraf.

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