

EMPOWERMENT OF COASTAL WOMEN IN MEDAN CITY IN SUSTAINABLE NIPAH (*NYPA FRUTICANS*) MANAGEMENT

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Abstract: The city of Medan has coastal areas located in three districts, one of which is Medan Marelan District. These coastal areas are abundant with Nypa palm (*Nypa fruticans*) plants, which offer numerous benefits and hold great potential as a source of income for the local community. However, this potential has not been optimally utilized, despite the fact that the fishermen's families in this area are generally classified as poor. This research was conducted in Paya Pasir Village, Medan Marelan District, specifically in the fishermen's settlement of Danau Siombak, which is home to approximately 70 fishing families. The research subjects are the wives of these fishermen. They do not have permanent jobs and lack sufficient knowledge and skills to utilize the Nypa palm. The purpose of this study is to examine the current utilization of the Nypa palm as a source of income and efforts to empower women in the sustainable management of this plant. The research employs a descriptive qualitative approach, involving field surveys and document studies. The research findings reveal that: a) Women in the Danau Siombak village currently utilize Nypa palm primarily for extracting midrib sticks from its young leaves, and this activity is not conducted regularly but rather based on orders from Nypa stick exporters, making income from Nypa palm only incidental. b) Efforts to empower women in the sustainable management of Nypa palm can be achieved by processing it into various food products and other items, maximizing its utilization while reducing waste. This requires training, as well as support in the form of equipment and capital, from various parties, including the government, community organizations, companies, and higher education institutions.

Keywords: Women empowerment, coastal area, sustainable nipah management

Introduction

Coastal areas are zones where terrestrial and marine ecosystems meet, influencing and impacting each other. These areas are characterized by distinctive vegetation at the land-sea interface, such as mangrove vegetation, which includes various types of plants, including Nypa palm (*Nypa fruticans*). Coastal regions in Indonesia are generally inhabited by communities whose livelihoods depend on fishing, and these communities often face relatively low socio-economic conditions despite considerable economic potential the coastal areas have.

Medan City is one of the 33 regencies/cities in the North Sumatra province. It has an area of 265 km², consisting of 21 districts and 151 villages. Medan City has coastal area located in three districts: Medan Marelan, Medan Labuhan, and Medan Belawan (Research and Development Agency of North Sumatra Province, 2021). The coastal area is heavily populated with Nypa palm, a type of palm that grows in mangrove forests or tidal coastal areas. Nypa palms have numerous benefits as food, medicine, and other products, all of which hold economic value.

One of the fishing villages located in the coastal area of Medan City is Danau Siombak village which is located in Paya Pasir Urban Village, Medan Marelan District. This village is surrounded by Nypa palms, but they have not been optimally utilized. The fishing families in this village are generally considered poor, and the women typically do not have permanent jobs. Therefore, women's empowerment in this coastal area of Medan City is necessary. Empowering women to utilize the economic potential of the coastal area is part of achieving the Sustainable Development Goals (SDGs), which aim to eradicate poverty, ensure a prosperous life, promote gender equality, provide decent work, and foster economic growth. It also serves as an implementation of the Blue Economy.

One of the local economic potentials in this area is the Nypa palm (*Nypa fruticans*). However, in Danau Siombak village, only the young leaves of the Nypa palms are utilized to make *lidi* sticks. The process of making *lidi* is simple and easy, the midrib is separated from the Nypa leaves, then the leaves are discarded as waste. Ideally, the utilization of resources for economic purposes should not harm the environment, so it is necessary to maximize resource use without creating waste that could become a problem. This means that waste needs to be managed and processed according to the principles of circular economy and sustainable development. Khoffifah *et al* (2024) state that utilizing Nypa palms waste can have significant benefits in supporting environmental sustainability by recycling organic waste into value-added products, along with boosting the local economy through new business opportunities and increased community income. Therefore, to make the most of the local economic potential in Danau Siombak village, empowering women in the sustainable management of Nypa palms is essential.

Literature Review

1. Women's Empowerment

Women's empowerment is the process of enabling women to gain access to and control over resources in economic, political, social, and cultural spheres, allowing them to manage their own lives and build self-confidence. This enables women to actively participate in problem solving, thereby enhancing their skills and sense of self-worth. Women's empowerment is both a process and a goal. Therefore, empowerment of women is closely linked to community empowerment. The goal of community empowerment is to create an independent society, capable of identifying and utilizing the potential in its area, and helping the community break free from backwardness or poverty (Bappeda DI Yogyakarta, 2024).

Empowering women is crucial to continually enhancing women's self-capacity, enabling them to gain confidence and participate in development (Nur, 2019).

2. Coastal Area

According to Law No. 1 of 2014, coastal areas are transitional zones between terrestrial and marine ecosystems that are influenced by changes on both land and sea. Meanwhile, according to Poernomosidhi (2007), coastal areas are interfaces between marine and terrestrial regions, which influence each other both biogeophysically and socioeconomically.

3. Nypa palm (*Nypa fruticans*)

Nypa palm is a type of palm that grows in mangrove forests or tidal areas near the coastline (Heyne, 1987). The trunk creeps above the ground and the rhizomes are submerged in mud. Only the leaf cluster (rosette) emerges above the ground or water's surface. The Nypa palm leaf is a

compound leaf with a pinnate structure. Its flowers emerge from the axils of the leaves, and flower clusters are often cut to extract the sap. The fruit of the Nypa palm is arranged in dense clusters. The outer part of the fruit consists of fibers, shells, and white inner fruit (Khoffifah et al., 2024).

The leaves of Nypa palm can reach up to 7 meters in length, and the flower stalks can grow up to 1 meter long. The outer skin of Nypa palm is very hard and green in color, which turns brown as the plant matures. Nypa palms typically grow abundantly in the rear parts of mangrove forests. They are commonly found along riverbanks or coastal areas that supply mud to the shore. However, some studies suggest that Nypa palms grow better in swampy areas with soils rich in organic material (Sardjono, 1992).

The mature Nypa leaves are traditionally used to make roofing materials, which can last 3 to 5 years. The young Nipah leaves, which resemble coconut fronds, can be woven to make house walls called *kajang*. Nypa leaves can also be woven to create mats, bags, hats, and baskets. Historically, in Sumatra, young Nypa leaves (known as *pucuk*) were used to create cigarette wrappers. The thin outer skin was peeled off and the leaves were dried in the sun, bleached, and then cut into pieces according to the size needed for rolling tobacco (Heyne, 1987).

4. Previous Research on the Benefits of Nypa palm

- a. Rida Agustina (2024): Processing Nypa palm fruit into various food products, such as Nypa fruit juice, candied fruit, pudding, crackers, and compote.
- b. Gelen Pranata (2023): The production of bioethanol from Nypa palm fruit can be done through extraction by adding alpha-amylase enzyme, followed by fermentation.
- c. Taufiq Dalming (2018): Nypa contains carbohydrates and can be developed as a food source. The fiber content in Nypa fruit can bind cholesterol in vitro.
- d. Fadya Adillah Malik et al. (2024): The Nypa leaf is an effective natural remedy for acne, containing flavonoid compounds that act as antibacterial agents.
- e. Ulyarti et al. (2021): Using Nypa flour at 40% concentration to make biscuits high in fiber and with the best characteristics.

5. Sustainable Development

Sustainable development is a process of development based on the principle of meeting present needs without compromising the ability of future generations to meet their own needs (Brundtland Report, UN, 1987). Sustainable development encompasses three pillars: economic, environmental, and social (Regional Development Planning Agency of Buleleng Regency, 2013).

Method

This research adopts a descriptive qualitative approach, involving field surveys and data collection through Focus Group Discussions (FGD), interviews with key persons, observations, and documentation studies. The collected data and information are then analyzed by processing and interpreting the data, exploring and thoroughly capturing the situation, and integrating it with the researcher's knowledge and insights, which are then described according to the research objectives.

The objectives of this study are: a) to understand the utilization of Nypa palms as a source of income for women in the research location, and; b) to explore efforts for the empowerment of coastal women in the sustainable management of Nypa plants.

The research is conducted in Paya Pasir Urban Village, Medan Marelan District, Medan City, specifically in the fishing village of Danau Siombak that is located within the Nypa palm forest area. This village is inhabited by around 70 fishing families. The research subjects are the wives of the fishermen.

Result and Discussion

Economic Utilization of the Nypa Palm as a Source of Income for Women

The Nypa palm, which is abundant and surrounds the fishing community of Danau Siombak village, is hardly utilized commercially. The Nypa palm has many benefits, both as food and medicinal materials, and almost all parts of the plant can be used, making it highly potential as a source of community income. Meanwhile, the women or wives of fishermen in this village do not have steady jobs as sources of income that they can contribute to their families. They perform various activities daily that do not provide consistent income, such as selling food, collecting shellfish, scavenging garbage, or making broomsticks from Nypa leaflets when there is a demand or order from broomstick exporters. The women in this village have relatively much free time but lack the knowledge, skills, and opportunities to utilize their time and the economic potential of local coastal resources to improve family welfare, including utilizing the Nypa palm.

Although the Nypa palm is abundant around their homes, the women in Danau Siombak village lack the knowledge and skills to utilize it. Additionally, they lack access to or networks for marketing and face significant challenges in securing capital. Therefore, efforts to empower women in this area to utilize the economic potential of the Nypa palm are necessary.

The utilization of the Nypa palm by women in this village is limited to making broomsticks from the leaflets, which is neither regular nor a permanent job, as it depends on orders from exporters. Thus, the income generated from the utilization of the Nypa palm is incidental. The leftover leaves from broomstick production are discarded as waste. Furthermore, the Nypa palm continues to grow abundantly due to its natural growth rate exceeding its utilization rate. This growth also restricts the residents' space, forcing them to cut down the plants without deriving economic benefits. Occasionally, the harvested trunks are used to fill potholes on village roads or for personal consumption of the fruit. The leftover materials from cutting or using the Nypa palm are also discarded as waste.

From the explanation above, it can be said that the utilization of the Nypa palm in Danau Siombak village is limited to taking the leaflets for making broomsticks. This utilization is not optimal in generating income for the local community and does not adequately address environmental concerns.

Empowering Women in Sustainable Nypa Management

Sustainable Nypa management must consider the balance of economic, environmental, and social aspects. This means that Nypa management activities should generate economic benefits, preserve the environment, and be acceptable and beneficial for the community. Thus, the Nypa management activities designed here adhere to the principle of sustainability to ensure continuous utilization over time, along with the application of circular economy principles that integrate waste processing into the economic cycle. In this context, sustainable Nypa management must be economically profitable, ecologically sustainable, and socially beneficial.

Sustainable Nypa management in Danau Siombak village is carried out through the following methods:

- a. Cutting Nypa palms as optimally as possible without exceeding the plant's natural regeneration capacity and the size/volume of the open market.
- b. Processing Nypa into various food products, especially traditional foods and other products, such as:
 - 1) Fruit: Dodol, sweet stew (*kolak*), juice, beverage mixes, candied fruit, flour, biscuits, cakes, puddings, crackers, bioethanol, cholesterol medicine, and briquettes (from fruit shells/husks).
 - 2) Flower clusters: Nira sap (liquid from flower clusters) processed into drinks and sugar.
 - 3) Leaves: Broomsticks, mats, bags, hats, baskets, woven products, roofing, acne medicine, salt (from leaf sheaths).
 - 4) Stems: Poles, walls, and materials for filling road potholes.
- c. Utilizing and processing waste: Nypa waste, including leftover leaves, stems, and fruits, can be processed into various products such as fertilizers, briquettes, and animal feed.

Conclusions

The results of the research found that:

1. Women in the Danau Siombak village only utilize the Nypa palm to harvest sticks from its young leaves. This is not done continuously but only based on orders from Nypa stick exporters, making income from the Nypa palm incidental and unpredictable, even periodically. The leftover leaves after extracting the sticks are discarded as waste without further processing or utilization.
2. Efforts to empower women in the sustainable management of Nypa include: i) Cutting Nypa palms without exceeding the plant's natural regeneration capacity and market demand; ii) Processing Nypa palms into various foods and other products derived from its parts, such as fruits, flower stalks, leaves, and stems; iii) Recycling waste into economically valuable products.

Recommendations

Considering the limitations of local women in terms of knowledge, skills, capital, and market access, sustainable Nypa management requires training, provision of tools and capital, and marketing assistance.

These activities can be carried out by various parties, including government and community organizations through their programs and initiatives, companies through their CSR activities, and universities through community service programs.

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