



The Women Empowerment in Tanjung Rejo Village through Honey Bee Cultivation on Mangrove Forest Area

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ABSTRACT

Honey bee cultivation in mangrove forests has the potential to increase the income of local communities and support ecosystem sustainability. The results of honey production are not only processed and marketed, but also contribute to improving the household economy in Tanjung Rejo village. In addition, honey bees also have an important role in the process of pollinating plants that support the sustainability of mangrove plant ecosystems. However, this business also has challenges both risks from predators to the health of honey bees. This study uses a qualitative method with a case study approach to understand in depth the process of women's empowerment in honey bee cultivation and the resulting economic impact.

Keywords: Honey bee, Mangrove, Women empowerment

ABSTRAK

Budidaya lebah madu di hutan mangrove memiliki potensi dalam meningkatkan pendapatan masyarakat lokal dan mendukung keberlanjutan ekosistem. Hasil produksi madu tidak hanya diolah dan dipasarkan, tetapi juga berkontribusi terhadap peningkatan ekonomi rumah tangga di desa Tanjung Rejo. Selain itu, lebah madu juga memiliki peran penting dalam proses penyerbukan tanaman yang mendukung keberlanjutan ekosistem tanaman mangrove. Namun, usaha ini juga memiliki tantangan baik itu resiko dari predator hingga kesehatan lebah madu. Penelitian ini menggunakan metode kualitatif dengan pendekatan studi kasus untuk memahami secara mendalam proses pemberdayaan perempuan dalam budidaya lebah madu serta dampak ekonomi yang dihasilkan.

Kata kunci: Lebah madu, Mangrove, Pemberdayaan perempuan

1. Introduction

Women's empowerment is an important issue in efforts to improve the welfare of society, especially in developing countries such as Indonesia. Women are often trapped in traditional roles that limit their access to economic resources and employment opportunities. The empowerment of women in honey cultivation is an initiative that is increasingly being carried out in Indonesia, with the aim of improving economic well-being and empowering local communities. The Program helps women to earn additional income through the production and sale of honey, which can improve the standard of living of the family.

Research conducted by [1], explains that empowering women, especially in economic activities, helps reduce poverty and unemployment among women, which significantly contributes to their overall well-being. Programs targeting women's empowerment are especially important because women make up a large proportion of the poor and unemployed.

Women's empowerment can be seen from the potential that exists in the surrounding environment, such as honey cultivation. Honey cultivation is one of the increasingly popular activities among people, especially in rural areas, as an alternative source of sustainable income. Honey not only has a high economic value, but

also provides significant health benefits. In this context, honey cultivation, especially kelulut honey, has become the focus of attention of many research and community empowerment programs. Trigona Sp honey, which is produced by bees without stings, is known to have a higher nutritional content than ordinary honey, and has various health benefits, such as increasing endurance and having antibacterial properties [2].

The cultivation of Trigona SP honey, or better known as kelulut Bee, has become a significant concern in the context of sustainable agriculture and Community Empowerment. Trigona sp Bee is a type of stingless bee that has a unique ability to produce high quality honey. Honey produced by Trigona sp is known to have better nutritional content compared to honey from other types of bees, such as Apis spp. This is due to the chemical composition of Trigona honey, which is rich in phenolic compounds and flavonoids, which contribute to its antimicrobial and antioxidant properties [3] [4].

Furthermore, Trigona SP honey cultivation can contribute to the empowerment of women in the community. Research by Suryani et al. studies show that women engaged in honey cultivation can improve their position in decision-making within the household, as well as increase family income [5] [2]. By giving women access to training and resources, we not only improve their well-being, but also contribute to gender equality in society.

One of the main reasons why honey cultivation is such an attractive option is its economic potential. this activity can also be carried out with relatively low capital and does not require large areas of land, making it suitable for people living in areas with limited agricultural land. Honey cultivation in mangrove forests is an innovative approach that combines the use of natural resources with environmental conservation efforts. Mangrove forests, known as coastal ecosystems rich in biodiversity, have an important role in maintaining ecological balance, protecting coastlines from erosion, as well as providing habitat for various species, including honey bees. Honey cultivation in this area not only provides economic benefits to the community, but also contributes to the preservation of mangrove ecosystems that are increasingly threatened by human activities. One of the main reasons why honey cultivation in mangrove forests has become attractive is the economic potential it offers. Honey produced from bees that utilize mangrove flora has a unique quality and can be marketed at a higher price high compared to honey from other sources.

Some experts define the term "mangrove " differently, but it basically refers to the same thing. Tomlinson in rignolda Djameluddi's book entitled mangroves: Biology, Ecology, rehabilitation, and conservation defines mangroves both as plants found in tidal areas and as communities. Mangroves are also defined as typical littoral regional plant formations on the coast of protected tropical and sub-tropical regions (6). Mangrove forest as a forest that mainly grows on alluvial mud soils in coastal areas and river estuaries influenced by sea tides, and consists of tree species Aicennia, Sonneratia, Rhizophora, Bruguiera, Ceriops, Lumnitzera, Excoecaria, Xylocarpus, Aegiceras, Scyphyphora and Nypa [7]

Tanjung Rejo village located in Percut Sei Tuan District, Deli Serdang regency, North Sumatra province, is one of the villages located in the coastal area of East Sumatra with an area of 4,114 hectares. Tanjung rejo village consists of 14 Hamlets with the largest landscape is agricultural land and mangrove forests. With an area of 704 hectares of agricultural land, tanjung rejo village is one of the sources of food barns in Deli Serdang regency. With great agricultural potential every year the tanjung rejo village government holds a celebration of seed flour before the rice planting period with a local farmer group.

Tanjung Rejo Mangrove Tourism Village is the only mangrove tourism village in Deli Serdang regency, North Sumatra. Tanjung Rejo has a stretch of mangrove forest that is still beautiful covering 602,181 Ha. With a vast mangrove forest, Tanjung Rejo Village appears as one of the tourist villages in Indonesia that presents the charm of mangrove forests with all the local wisdom. Tanjung Rejo Mangrove Tourism Village was inaugurated as a tourist village by the Regent of Deli Serdang on April 05, 2022.



Figure 1. Researchers with village head and Hamlet head

In utilizing natural resources in a sustainable manner, honey bee cultivation in mangrove forests is one of the initiatives that can be done. Honey bee cultivation in mangrove forests not only aims to produce quality honey to be marketed to the community, but also to increase public awareness of the importance of Environmental Conservation. Along with increasing public awareness of the importance of sustainability and conservation of mangrove forests, honey bee cultivation in the mangrove forest can be an effective model of community empowerment with support from various parties. The purpose of the research conducted in Tanjung Rejo village located in Percut Sei Tuan District, Deli Serdang regency, North Sumatra province, to see the empowerment of women in managing honey bee cultivation in Mangrove forest areas. To see the various processes in producing honey bees that have a million benefits and then sold and the results obtained from these sales as income to multiply the resulting beekeeping.

2. Method

This study uses qualitative research methods, qualitative research collects data independently through documentation management, observing behavior, or interviewing participants [8]. This study uses a qualitative method with a case study approach to understand in depth the process of women's empowerment in honey bee cultivation and the resulting economic impact. The research design used is a case study. This research will focus on Tanjung Rejo village as a study location to explore and analyze the empowerment of women in honey bee cultivation and the resulting impact. The study was conducted in Tanjung Rejo Village, Percut Sei Tuan District, Deli Serdang regency, North Sumatra province, which is a village with the potential of honey bee cultivation in mangrove forest areas.



Figure 2. Map of research location

3. Result and Discussion

Mangrove is a type of plant that can grow and develop in intertidal habitats, located between land and sea in the tropics and sub-tropics. Currently there are 48 types of mangroves in Indonesia, mangroves themselves have many benefits such as ingredients for medicines, food, building materials, preservatives, and dyes [6]. Mangrove forest in Tanjung Rejo Village is one of the ideal habitats for honey bee cultivation. Not only that, Tanjung Rejo with a stretch of mangrove forest that is still beautiful covering 602,181 Ha is managed and used as one of the tourist attractions in Deli Serdang.

Honey bee cultivation in mangrove forests has several advantages to improve women's empowerment in Tanjung Rejo village. Mangroves provide a source of nectar and pollen so that bees can use them as feed. Previous studies have shown that when foraging, the behavior of bees visiting flowers is influenced by the amount and quality of nectar. If the nectar in the flowers is abundant, then the visits of bees from one flower to another will increase. However, if the amount of nectar is low, the frequency of visits tends to decrease, and bees will prefer one type of flower until the supply is reduced [9].



Figure 3. First honey box



Figure 4. Second honey box

The presence of bees in mangrove forests also contributes to environmental conservation. Residents involved in beekeeping are automatically encouraged to keep mangrove forests sustainable. Thus, beekeeping not only

provides economic benefits for women in Tanjung Rejo village, but also supports the sustainability of the mangrove ecosystem itself.

In the cultivation of honey bees, clear and precise practices are needed to ensure the success and production of the business. Here are some stages in the cultivation of honey bees:

a) Training

In this case, the training is aimed at PKK (Pemberdayaan Kesejahteraan Keluarga) mothers to teach proper honey bee breeding techniques, so that bee colonies do not become extinct or leave their nests after the harvest process. The training is aimed at benefiting not only the beekeepers, but also the ecosystem as a whole. Thus, the survival of honey bee colonies can be guaranteed, making a positive contribution to honey production, and the preservation of Natural Resources [10].

b) Stup making

Making honey bee stup is made using forest wood that has fine fibers, the stup is well placed to be protected from rain and direct sunlight. Guarding the stup from other potentially destructive animals such as lizards, geckos, ants and larvae is also done by one of them placing the legs of the stup into a container filled with water [11].

c) Colony transfer

The removal of bee colonies is carried out at night, when the colony returns to the hive after searching for food. This time was chosen because the bees tend to be calmer and less active. After all the colonies have been removed, it is important to leave the new stup at rest and undisturbed for 2-4 weeks. This process aims to allow time for the colony to adapt to their new environment.

d) Honey harvesting and honey marketing

Before harvesting, beekeepers first make sure that the honey bees are ripe and ready for harvest. When honey bees have been collected, the honey extraction process, it aims to separate bee wax and honey. Furthermore, honey is well packaged to be marketed, in this context, an understanding of the market value chain of honey production is also very important. Effective marketing strategies are also the focus of this training. Marketing honey products requires an understanding of consumer preferences and appropriate distribution channels. Research shows that factors such as breeder experience, colony size, and selection of marketing channels can influence the marketing success of honey products [12].



Figure 5. Interview with PKK mother

The cultivation of honey bees in the mangrove forests of Tanjung Rejo Village not only contributes to environmental sustainability but also plays a significant role in empowering women within the community. This empowerment manifests in several key areas, such as:

a) Economic Development

By engaging in honey bee cultivation, women in Tanjung Rejo can generate their own income. The sale of honey provides a financial resource that can improve their families' welfare and reduce dependency on traditional agricultural practices, which may be less reliable due to seasonal variations.

b) Skill Development

Training programs aimed at women, particularly the PKK (Pemberdayaan Kesejahteraan Keluarga) mothers, equip them with essential skills in beekeeping. These skills include proper breeding techniques, hive management, and honey extraction processes. As women gain expertise, they become more confident in their abilities, fostering a sense of self-worth and capability.

c) Leadership Opportunities

As women take on roles in beekeeping, they often find themselves in leadership positions within their communities. This shift can lead to increased participation in local decision-making processes, allowing women to voice their opinions and influence community development initiatives.

d) Community Cohesion

The collaborative nature of beekeeping fosters a sense of community among women. They often work together, share knowledge, and support one another in their beekeeping endeavors. This solidarity can strengthen social ties and create a supportive network that enhances overall community resilience.

e) Environmental Stewardship

Women involved in beekeeping are more likely to advocate for the sustainable management of mangrove forests. Their direct involvement in the ecosystem encourages a deeper understanding of environmental issues and the importance of conservation, leading to a more active role in protecting their natural resources.

f) Health and Nutrition

Women involved in beekeeping are more likely to advocate for the sustainable management of mangrove forests. Their direct involvement in the ecosystem encourages a deeper understanding of environmental issues and the importance of conservation, leading to a more active role in protecting their natural resources.

g) Resilience Against Economic Shocks

The production of honey not only provides a source of income but also contributes to improved nutrition for families. Honey is a natural sweetener and has various health benefits, which can enhance the overall well-being of the community.

Radivoj Prodanović [13] said that economic resilience from beekeeping could improve household resilience and reduce the risk of income shocks, contributing to poverty reduction and sustainable development in rural areas. With the cultivation of honey bees, PKK (Pemberdayaan Kesejahteraan Keluarga) mothers are required to routinely check and monitor the development of honey bees. This routine check is done so that honey bee colonies do not shrink due to external predators such as ants, geckos, and lizards [11].

3. Conclusion

Honey bee cultivation in mangrove forests can be a source of economic potential for local communities, honey produced can be processed and marketed to boost the household economy in the village. In addition, bees play an important role in pollinating plants that support the sustainability of mangrove ecosystems. However, in bee farming challenges such as the risk of predators can be an obstacle and need to be considered for the success of this business.

The development of supporting infrastructure such as access to markets and storage facilities will be very helpful in marketing their products well. There is also a need for further research on environmentally friendly beekeeping techniques and management of bee diseases to increase productivity and sustainability.

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