

Community Empowerment In Rumpiang Village: Utilising *Nypa Palm* (*Nypa Fruticans Wurmb*) For Village's Leading Products and Halal Economy

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Abstract.

*Rumpiang Village is located in the northern part of Beruntung Baru District, Banjar Regency, South Kalimantan Province. This area is located in a low-lying plain, so most of the population works in sectors related to water and swamps. The plain of Rumpiang Village is a green area where rice fields are located, and many wild plants grow around the village, such as nipa palms, water mimosa leaves, water jasmine, water spinach, weeds, and other wetland plants. However, this local wisdom has not been utilized to its full potential due to the limited knowledge of rural communities regarding natural ingredient plants. Therefore, there is a need for education on the utilization of *Nypa fruticans Wurmb* plants to become the village's flagship product. The method for implementing this activity uses a participatory approach, namely socialization. Socialization to increase public knowledge, measured by pre-tests and post-tests to assess participants' initial knowledge. PKK cadres also received education regarding the halal product registration process and the siHALAL website. Knowledge regarding marketing strategies is still very limited, with an average score of 60, indicating a need for further education and guidance for PKK cadres.*

Keywords: *Nypa Palm (Nypa Fruticans Wurmb); Village's Leading Products and Community empowerment.*

I. INTRODUCTION

Rumpiang Village is located in the northern part of Beruntung Baru District, Banjar Regency, South Kalimantan Province. This area is located in a low-lying plain, so most of its population works in sectors related to water and swamps, such as farming and fishing. Administratively, this village, which covers an area of 5 km², is led by Juanda, the Village Head, with Yantoni, SE as the Village Secretary. To the north, the village borders Handil Parit II, Sungai Kupang Village, which is part of Gambut District, and Bunipah Village in Aluh-Aluh District. Based on March 2025 data, the population of this village reached 745 people, consisting of 376 males and 369 females, distributed across 4 Neighbourhoods and 2 Community Units [1]. Based on an interview with Mr. Yantoni, SE, Rumpiang Village is the northernmost village in Beruntung Baru District. The terrain of Rumpiang Village is a green area where rice fields are located, and many wild plants grow around the village, such as nipa palms, water mimosa leaves, water jasmine, water spinach, wild grass, and other wetland plants. However, this local wisdom has not been fully utilised due to the limited knowledge of the village community regarding natural plant materials. As a result, Rumpiang Village still does not have a flagship product that should reflect the village's natural wealth and proud characteristics. The village's flagship products also serve as an identity representing the cultural heritage and economic excellence of the local community, thus generating income for both the community and the government. These flagship products will provide benefits in maximising available resources and can offer insights into materials with higher economic value[2].



Fig 1. Rumpiang Village, Banjar Regency

In its implementation, the village government faces various challenges and obstacles. Optimising the potential of natural and human resources is the first step towards advancing the village. The challenge lies in creating and realising innovative ideas in village business and regional development that can drive economic improvement for the community and village progress [3]. Another problem faced is business marketing. Therefore, the community service in the scope of empowering partner communities is highly anticipated by the people of Rumpiang Village for education on utilising the local wisdom available in the village, assistance in producing superior products, and marketing strategies so that the products made can continue to develop and are expected to penetrate local and national markets. However, steps are needed to formulate a marketing strategy, namely market segmentation, target market determination, and market positioning [4]. One innovation that can be developed is by marketing products online. In the 4.0 era, businesses are rapidly growing thanks to online marketing, also known as e-commerce [5]. Rumpiang Village, Banjar Regency is rich in palm trees because it is surrounded by rice fields and rivers. One of the mangrove plants whose leaves are used as roofing material is the Nypa palm (*Nypa fruticans* Wurmb.). Nypa palms (*Nypa fruticans* Wurmb.) grow along riverbanks, but their utilisation is not yet optimal, serving only the personal interests of the local community and lacking economic value. In utilising the components of the nipa palm, there are seven parts of the plant that are used: the roots, fruit stalks, fruits, leaf veins, leaflet veins, leaflets, and leaf tips [6].

Nypa palm leaves (*Nypa fruticans* Wurmb.) contain secondary metabolites with antioxidant properties and are rich in vitamins A and C. Based on research, the ethanol extract of nypa palm leaves showed an IC₅₀ value of 2.379 ppm, indicating very strong antioxidant activity [7]. Another study was conducted using proximate analysis and antioxidant activity testing with the 1,1-diphenyl-2-picrylhydrazyl (DPPH) method. The results show that nypa leaves have high nutritional content, especially carbohydrates, as well as very strong antioxidant activity [8]. In addition to being high in antioxidants, nypa leaves (*Nypa fruticans* Wurmb.) are a natural material with medicinal properties for acne, as they contain flavonoid compounds that act as antibacterial agents [9]. Another study mentioned that the LC₅₀ value of the nypa palm leaf extract obtained was 1140 ppm, which means the nypa palm leaf extract has no toxic effect [10]. Not only can the leaves of this nypa palm be utilised, but also its fruit, which is a source of food with good nutritional content. Nypa fruit can be processed into flour as a substitute for food staples like rice, as this flour contains 51% carbohydrates, 2.27% protein, 2.5% dietary fibre, 30.5 mg/100 g vitamin A, 0.49% fat, 0.32% crude fibre, 89.13% water, and 0.11% ash. Additionally, it also contains various essential minerals such as sodium, calcium, magnesium, iron, and zinc [11]. Nypa fruit plays an important role in supporting food diversification, providing long-term benefits for food and nutrition security, and contributing to increased economic growth and community well-being [12]. Utilising nypa fruit flour as a partial substitute for wheat flour in food processing is believed to increase fibre content, thereby supporting increased fibre consumption in Indonesia [13].

Another function of active compounds such as tannins, flavonoids, polysaccharides, saponins, and terpenoids contained in nypa fruit extract is their ability to inhibit the activity of amylase and glucosidase enzymes mediated by Glucose Transporter-2 (GLUT-2), which is a protein responsible for transporting

glucose into cells, thus helping to maintain blood sugar balance [14]. Other pharmacological aspects of nipah include anticancer, anti-inflammatory, antinociceptive, antihyperglycemic, and analgesic properties [15]. Community empowerment will be carried out in partnership with the PKK mothers by providing education on the utilisation of nipa palm leaves and fruit (*Nypa fruticans* Wurmb.). Nipa palm leaves as an alternative anti-acne skincare product, made into an organic mask product for health benefits and food diversification from nipa palm fruit made into flour with richer nutritional value. This organic mask product and nipa palm flour are then highlighted as the flagship products of Rumpiang Village. Mitra involves PKK cadres in the process of training on making organic mask and flour products so that the cadres can implement a sustainable program to achieve the goals of this PKM SDG, which are to increase community knowledge about natural ingredients that are beneficial for health and to boost economic growth by creating village flagship products that are not yet available in Rumpiang Village.

II. METHODS

The implementation method for this activity uses a participatory (socialization/education) and collaborative (workshop) approach, involving the community as active participants in every stage of the activity. The empowerment strategy is implemented through a series of structured activities including: socialisation, training, technology implementation, mentoring and evaluation, and program sustainability planning. This method aims to build community independence in managing local potential sustainably and competitively.

1) Conducting socialisation activities on the utilisation of local wisdom of herbal plants, particularly the (*Nypa fruticans* Wurmb.) plant, featuring experts in the field of natural product pharmacy. Assessment of participants' (PKK cadres) basic abilities through a pretest administered before the socialisation activity begins. This pretest serves as a baseline for the participants' initial knowledge. The socialisation activity then concludes with a post-test to measure the participants' understanding of knowledge aspects, with the target understanding being that participants can answer questions correctly with a minimum score of 80.

2) Marketing strategy socialisation was conducted as an effort to increase the awareness of the community in Rumpiang Village, especially nipah palm product entrepreneurs, regarding the importance of effective marketing in expanding product reach to a wider market. During this activity, the implementation team presented various marketing approaches, such as utilising social media, digital marketing, product branding, market segmentation, and promotion strategies suitable for the characteristics of local products. Participants were also introduced to practical examples of using online platforms (such as WhatsApp Business, Instagram, and marketplaces) that can be utilised independently by the community.

3) Socialisation regarding the procedures and stages of halal certification registration to partner communities (PKK cadres) to increase understanding of the importance of halal legality in the development of local food products and to introduce the halal certification service system available through official institutions such as BPJPH and LPPOM MUI.

III. RESULT AND DISCUSSION

The implementation of community service activities is carried out in 5 stages: socialisation, training, technology application, mentoring and evaluation, and program sustainability planning. The target for the community service implementation is PKK cadres, totalling 30 people. The Community Service (PKM) activity began with a survey conducted since March 2025, followed by a situation analysis and discussions with the Village Head, Village Secretary, and PKK Chair in Rumpiang Village, Banjar Regency, Beruntung Baru District. During this meeting, the team detailed the community service program to be implemented, including its objectives, activity plans, and expected benefits for the community. Additionally, discussions were held to gather information about local potential and the challenges faced by the surrounding community. As for the results of the activities: The socialisation conducted for this service was done three times. The first was regarding the utilisation of nipa plants (*Nypa Fruticans wurmb*) to become the village's flagship product, the second was about halal and safe local food products, and the third was related to marketing strategies. Each socialisation activity begins with participant registration, followed by a pretest.

Then, the PKK mothers are given socialisation and a closing session. Participants' knowledge levels were evaluated with scores of 76-100 (very good), 56-75 (sufficient), and < 55 (poor). Here are the results of the community service activity data:



Fig 2. Socialisation of Nypa Palm (*Nypa Fruticans wurmb*) Utilisation

The first education session is related to the utilisation of nipa plants, which will be held on June 11, 2025. The material was presented with the aim of introducing the potential and benefits of the nipa palm for the community of Rumpiang Village, as it grows abundantly in that area. Nipa plants can be used as a food source from their fruit, and previously, the community utilised them as raw materials for roof thatching. Through this socialisation, it is hoped that the community of Rumpiang Village will better understand the economic, ecological, and social value of the nipa plant and be able to develop it sustainably. The points presented during the socialisation were: a. Education on the nutritional content and bioactive compounds found in the fruit and leaves of the nipa palm. b. Presentation of effective methods and processing technologies for producing food products based on nipa flour and organic masks from its leaves. c. Education on the potential utilisation of nipa palm fruit and leaves with appropriate and attractive packaging. d. Introduction to the stages of processing old nipa palm fruit into ready-to-use flour and making organic masks. Before the socialisation, the service team conducted a pre-test with PKK cadres to assess their understanding of nipah utilisation and the village's flagship products. The following are the results of the data on the knowledge of PKK cadres, which is still insufficient, as can be seen in Fig. 3.

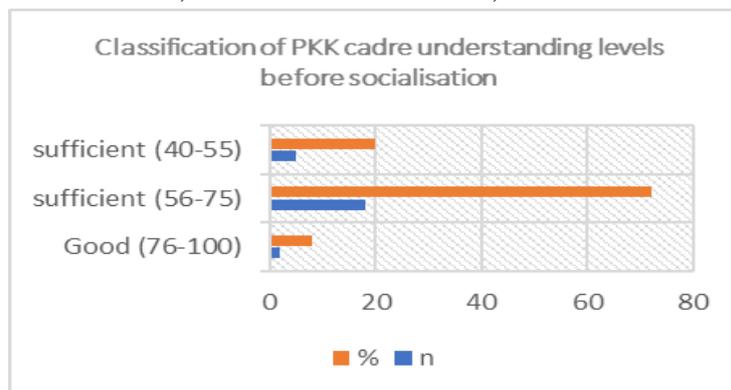


Fig 3. Graph of PKK Cadre Understanding Level Before Socialisation

Cadres with less than 20% knowledge, sufficient knowledge 72%, and good knowledge 8%, due to the public's lack of awareness, resulting in sub-optimal utilisation of nipah plants, limited to use as raw materials but not yet developed as food and herbal cosmetics. Generally speaking, it can be seen that partners face several constraints, including limited knowledge about the nipa palm (*Nypa fruticans*) and a lack of insight, skills, and creativity in processing its products. Through this service activity, it is hoped that the community will further understand that nipah fruit has the potential to be utilised, so it is not left to waste. One product that can be made from mature nipa fruit is flour, and its leaves can be used as an organic mask. After the community was given socialisation, the community service team conducted a post-test again to determine the knowledge of PKK cadres after receiving education. The knowledge results are presented in the following Fig 4:

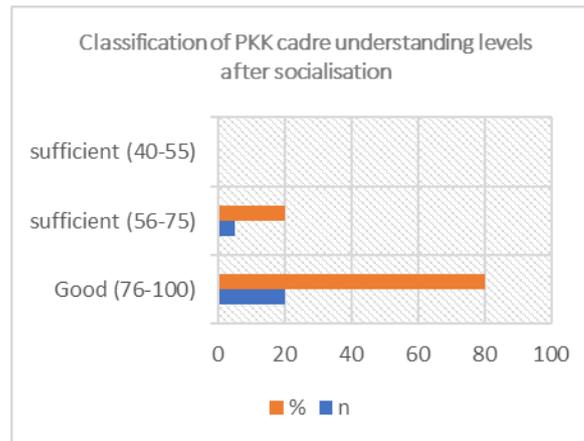


Fig 4. Graph of PKK Cadre Understanding Level After Socialisation

Significant changes in knowledge, with a good 8% increasing to 80%, and PKK cadres, as cooperative service partners, actively participating in socialisation and discussions. Mitra understands that the utilisation of nipa palm fruit has nutritional content including 51% carbohydrates, 2.27% protein, 0.49% fat, 2.5% dietary fibre, 30.5 mg per 100 g of vitamin A, 0.32% crude fibre, 89.13% water, and 0.11% ash. In addition, this fruit also contains various important minerals such as sodium, calcium, magnesium, iron, and zinc [16]. This result is directly proportional to the average pre and post-test scores. The average post-test score was 63.2, and after PKK cadres received education, the average score was 83.6.

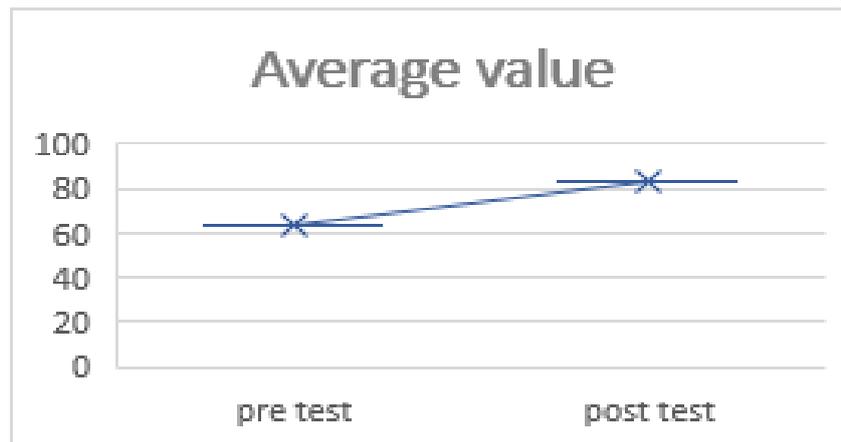


Fig 5. Graph of Pre and Post Test Mean Scores

This aligns with the theory stating that knowledge is the result of the process of recognising or knowing, obtained after a person engages in sensory perception through the five senses: sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge in the cognitive domain is one of the most important aspects because it influences a person's actual actions (overt behaviour) [16]. The knowledge of PKK cadres is better than before the socialisation was conducted. The second socialisation event, which focused on educating participants about halal and safe local food products by a halal-certified pharmacist from BPJPH, was held on September 15, 2025, and was attended by 15 participants.

Information is an important factor influencing knowledge, as the easier it is to access, the faster one acquires new knowledge [17]. PKK cadres who received direct information from BPJPH officers through outreach had the opportunity for two-way communication, allowing them to ask questions and better understand, particularly regarding the P-IRT and halal product process flow and how to register on the SIHALAL website. The aim was to increase the understanding of PKK cadres who will later be given skills training in making nipah flour products and nipah leaf masks, enabling them to develop their local wisdom into a business. The team also provided knowledge about the stages of halal certification, making it easier to access information for self-registration, and encouraging compliance with halal product assurance regulations to ensure safe products in the future. Documentation can be seen in Figure 6 and 7.



Fig 6. Socialization with BPJPH halal companions



Fig 7. Socialization of marketing strategies

The socialization provided to PKK cadres didn't just cover permits; they were also given material on marketing strategies. The marketing strategy for nipa flour and organic nipa leaf masks, as directed by the speaker, targets consumers who are health-conscious, beauty-conscious, and interested in natural products. Nipa flour serves as a healthy food alternative for diabetics and dieters, while nipa masks provide safe and eco-friendly natural skincare. Promotion is done thru educating about benefits, creative content, and collaboration with health and beauty influencers. Sales are focused on marketplaces, social media, and herbal and health food stores, supported by attractive and eco-friendly packaging to highlight the wisdom of healthy and natural local products [19][20]. However, this stage of the marketing strategy needs to be accompanied for the program's sustainability in the future because, based on the evaluation results, PKK cadres still lack understanding with an average score of 60. Limitations in accessing information, minimal digital and technological literacy skills in Rumpiang Village, weak understanding of customer needs, and the considerable distance between the village and the city, led PKK cadres to design appropriate and effective strategies. The understanding graph of PKK cadres can be seen in Figure 8 below:

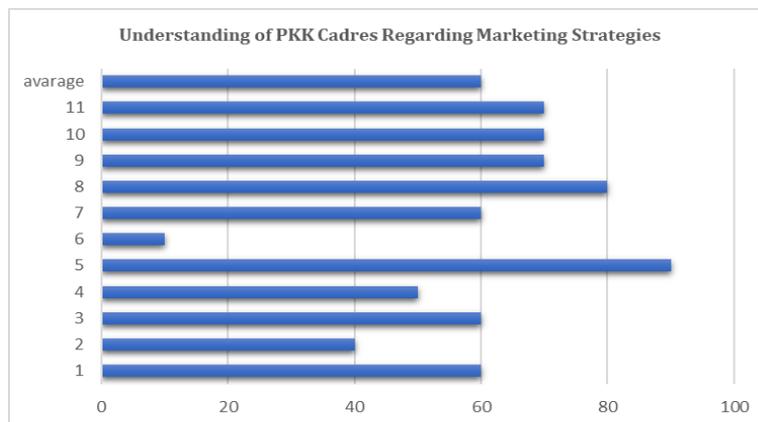


Fig 8. Graph of PKK Cadre Understanding Scores Regarding Marketing Strategies Although the educational activities on marketing strategies have been well- implemented, the evaluation results show that the understanding of PKK cadres regarding the material presented is still not optimal.

Therefore, further efforts are needed, such as ongoing mentoring and training, so that the cadres can truly understand and effectively implement marketing strategies in PKK activities.

IV. CONCLUSION

Community Empowerment in Rumpiang Village: Utilization of Nypa Palm (*Nypa Fruticans Wurmb*) in community service resulted in increased community knowledge regarding the utilization of nypa. The level of understanding of PKK cadres previously averaged 63.2, which increased to 83.6. The percentage of good knowledge was 8% before education and increased to 80% after education. In this community service, PKK cadres learned the halal product registration process and the siHALAL website. In terms of knowledge related to marketing strategies, it is still very lacking, with an average score of 60, indicating a need for further education and guidance for PKK cadres.

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