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Cultivation of Sapodilla Harvest 'Zapota Chips' Through Participatory Action Research Approach in Sampung Village, Rembang District

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ABSTRACT

The COVID-19 pandemic significantly impacted the economy of rural communities in Indonesia, including Sampung Village, Sarang District, Rembang Regency. This research aims to enhance the economic value and shelf life of the sapodilla harvest by transforming it into Zapota Chips. Using a Participatory Action Research (PAR) approach, the study involved community members in the process. Key strategies included trial production of sapodilla products, branding and packaging of Zapota Chips, launching the product, establishing the UMKM Guyub Berkarya organizational structure, and conducting seminars with the Dinas DAGKOPUKM Rembang Regency. Additionally, marketing relationships were cultivated, and mentoring was provided for UMKM members. Financial planning discussions and coordination for distribution were also conducted. The initiative engaged local resources, particularly young women and housewives, to enhance economic empowerment. The results indicate that these efforts successfully increased the economic value of the sapodilla harvest, fostering local development. This program exemplifies how community involvement and strategic planning can harness local potential for broader economic benefits.

1. Introduction

The COVID-19 pandemic that has struck Indonesia in recent years has had an impact on the economy of rural communities. One of the most crucial actions that the government can do right away to help the Indonesian economy recover from the pandemic is to empower village communities. In addition to the government, several stakeholders have to take action to carry out empowerment through a community-based strategy. Participatory Action Research (PAR) is an effective technique for addressing economic issues that often lead to post-pandemic poverty. Empowerment through the PAR technique has already been demonstrated to reduce poverty in Banyudono Village, Boyolali Regency, Central Java (Prakosa, 2016). The advantages of applying the PAR approach involve educating the community so that stakeholders are viewed as capable of empowering the community (Jacobs, 2016). The way to apply this approach is to perform participatory research first, followed by action.

The PAR approach can then be applied to other villages, one of the service villages in Central Java is Sampung Village in Sarang District, Rembang Regency. Several service programs that have been carried out in Rembang Regency include targeting the development of a batik tourism village in Babagan Village, Lasem District (Muarifuddin, 2017), 2017), the application of the concept of

sustainable villages in zoning residential areas in Sulang District (Wungo, 2020), the feasibility of agro-tourism business De Kampoeng Rembang (Nurmalina, 2021), community empowerment through packaging and marketing of local products (cashew and kawis) in Sembungin Village, Bancar District (Ummah; Amalia, 2021). Based on the previous service program, it shows that Rembang Regency is able to become a strategic area that is starting to be looked at in community empowerment. In addition, there has been no sustainable service program implemented in the community of Sampung Village, Sarang District, Rembang Regency.

Based on data from the Village Sustainable Development Goals (SDGs) in 2021, Sampung Village has 11 Neighborhood Associations (RT) and 3 Community Associations (RW). Sampung Village has 536 families and the total number of people in Sampung Village is 1,692. The people of Sampung Village have a diversity in terms of livelihoods. The majority of people in Sampung Village work in the agriculture, plantation, and livestock sectors. A small number work in the formal and non-formal sectors, such as civil servants, laborers, employees, fishermen, and others. The following diagram shows the various types of livelihoods of Sampung Village residents.

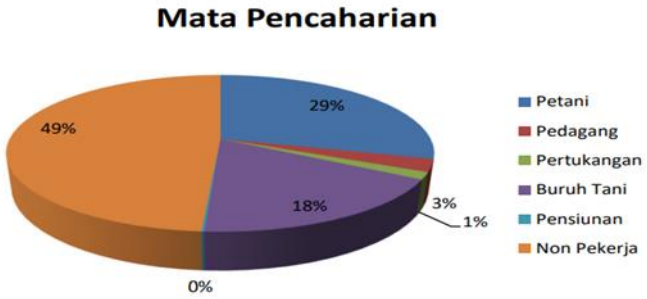

Diagram 1. Number of Livelihoods in Sampung Village

Diagram 1 represents the collection of data carried out by the KKN Team of STAI Al-Anwar Sarang Rembang from January 2021. According to this diagram, the majority of Sampung Village's residents work as farmers, with the largest number being unemployed. According to Dinas Pertanian dan Pangan Kabupaten Rembang (2019), the residents of Rembang Regency continue to rely on agriculture, plantations, and livestock. However, the facts on the ground reveal that the agricultural and livestock industries fail to adequately promote Sampung Village's well-being. According to the Agriculture and Food Service Office of Rembang District (2019: 48), the influencing factor is that business actors in the agricultural sector have not registered or applied for agricultural business licenses at the DPMPTSP (One-Stop Integrated Investment and Licensing Service) due to the small scale of most agricultural businesses.

Furthermore, Sampung Village has a lot of agricultural potential. Sampung Village contains a substantial amount of rice fields and plantations, making it an agricultural area. In Sampung Village, corn and sapodilla had the highest harvest rates in the agricultural sector in July and August. Agribusiness development and raising agricultural productivity through an action program to increase agricultural production of food crops and horticulture are two of the policies of the Agriculture and Food Service Office of Rembang Regency. In 2019, the Rembang Regency's Agriculture and Food Service program aims to increase the productivity of rice, corn, soybeans, shallots, chili, sugarcane, and coconut. The Rembang Regency Agriculture and Food Service Office hasn't taken into consideration the potential yield of sapodilla in Sampung Village when managing its policies and programs.

Sapodilla fruits, which are huge and tasty, are a specialty of Sampung Village. At first, it was thought that the sapodilla did not originate in Sampung Village because the fruit was still being harvested by individuals from outside the village. Ultimately, to increase the village's income, one of the activists from Sampung Village started the "One House One Sapodilla Tree" initiative. It should come as no surprise that sapodilla trees are found in Sampung Village in most homes. The residents of Sampung Village are unaware of all the benefits of eating sapodilla fruit. One plant that can be grown in tropical climates, like Indonesia, is mustard (Baso, 2014; Khanifah, 2019; Purwanti, 2013). At room temperature, mustard fruits are kept for five to ten days and are rich in vitamin C. According to earlier studies, the amount of vitamin C contained varies depending on how long it is stored (Khanifah, 2019). After being stored for five days, sapodilla fruit—which has a vitamin C value of 3.2 mg/100 grams—is safe for consumption by humans. Although the amount of vitamin C

in mustard fruit reduces with extended storage, this decline is not directly correlated with the fruit's water content, which remains constant (Kusumiyati, 2017).

The large number of sapodilla plants has an impact on the abundant amount of sapodilla harvest in Sampung Village. However, the people of Sampung Village still sell the sapodilla and corn products raw. The role of the Sampung Village community is still passive in processing crops, especially sapodilla. With the potential and problems in Sampung Village related to crops, processing innovations are needed to increase the selling value of crops while increasing the storage time of mustard fruits.

Figure 1. Sapodilla Harvest in Sampung Village

Since 2008, Sampung Village has initiated a program to plant sapodilla trees in every house. In 2015, the people of Sampung Village were able to harvest 80 kg every two days with a raw selling price of Rp2,500 per kilogram (kg). The potential of sapodilla in Sampung Village is not matched by optimal processing. Sapodilla fruit can be transformed into more attractive processed foods or drinks to increase the selling value. In processing the sapodilla harvest, there is a need for community empowerment activities to produce and organize product sales more systematically. Based on the existing problems and considering the potential of Sampung Village, the community service program carried out is The Cultivation of Sapodilla Harvest 'Zapota Chips' through Participatory Action Research Approach in Sampung Village, Rembang Regency. The program can be implemented to increase the selling value and length of storage of the harvest of sapodilla commodities in Sampung Village into processed products.

2. Method

Sampung Village's community service program uses the community empowerment theory. To put this empowerment into practice, an exercise program needs to be designed using certain approaches and procedures. The goal of Participatory Action Research, or PAR for essence, is to develop problem-solving skills and address the practical requirements of the community, scientific research, and socioreligious processes. In Sampung Village, the processes and strategies are employed to carry out empowerment in the process of community transformation. The social movement cycle for community transformation based on the PAR approach (Zainuddin MZ, 2010) used in Sampung Village is as follows:

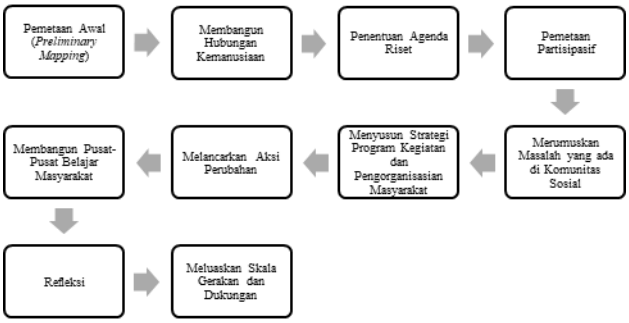

Chart 1. The Social Movement Cycle of the PAR Approach in Sampung Village

For thirty-two days, Sampung Village participated in a community service initiative. In Sampung Village, the service topics typically included every member of the village in each RW. This is because, for example, to map the number of sapodilla trees in Sampung Village, informants from farmer

groups and village officials are needed at the beginning of activity implementation. In addition, the Sampung Village concerns were cataloged by the KKN Team. Some of these issues may lead to the determination of cadres and support aimed at social communities, such as Sampung Village youth groups, Fatayat organizations, and PKK. The harvest of sapodilla was agreed to be made into chips using the PAR approach method at Sampung Village since the cadres could readily gather the necessary supplies and equipment.

The steps of service that have been carried out can be described in Chart 1 and described as follows:

a. A preliminary mapping exercise was carried out two days before the implementation. Furthermore, in the first week following deployment, preliminary mapping was also completed in Sampung Village. The majority of the villagers are farmers, thus the KKN Team spotted potential in the hamlet and had the chance to map out farmer groupings to build human interactions through cooperating with social groups in Sampung Village;

b. Human relations were built by coordinating with social groups in Sampung Village. The social groups in question are residents, youth organizations, village officials in charge of agriculture and animal husbandry, and livestock groups;

c. The KKN Team then created many research agendas about the management of sapodilla harvests, including gathering data on sapodilla quantity, quality, and harvest management;

d. The Service Team also conducted participatory mapping such as interviews with residents regarding the marketing of sapodilla commodities and the topography of the distribution of sapodilla trees in Sampung Village;

e. In determining the problems in Sampung Village, the KKN Team used problem tree analysis and goal tree analysis techniques to increase the selling value of sapodilla harvest into processed products;

f. The KKN Team developed a strategy together with village officials and social groups such as the PKK and Fatayat groups in Sampung Village to carry out the movement;

g. The KKN Team then launched the action of change through several activities that had been previously designed with social groups;

h. During the service activities, the learning centers of the Sampung Village community also began to be mobilized. The learning center in question includes tutoring, training, mentoring, counseling, discussion, and regeneration activities;

i. Reflection activities are needed to evaluate the results of research, the learning process, and the implementation of the change action program. The forms of reflection carried out include joint evaluations with youth organizations, village officials, and the KKN Team;

j. The form of expanding the scale of the movement and support was also carried out by the KKNTeam in collaboration with the Agriculture and Food Service Office of Rembang Regency.

3. Results and Discussion

The KKN Team in Sampung Village has conducted surveys, data collection, and interviews before implementing the activity program. The results of the data collection activities are in the form of land data and the number of sapodillas in Sampung Village which are spread across 3 RW. Sampung Village is a village that has abundant sapodilla commodities. Almost every house has a sapodilla tree, on average ranging from 1-3 sapodilla trees located in the yard of the house, besides that some residents have sapodilla trees in the fields. On August 5, 2021, the KKN Team began observing the sapodilla trees located on the side of the road along the Sampung Village road and one field owned by Mr. Nasir in RT 01 RW 01, totaling 40 trees.

After observing the sapodilla trees, on August 8, 2021, the KKN Team mapped the distribution of sapodilla trees manually. The KKN Team asked Mr. Saipul for help, he is a collector or buyer of sapodilla harvest in Sampung Village. Almost all the people in Sampung Village sell sapodilla fruit to

Mr. Saipul wholesale. Mr. Saipul cuts down the sapodilla fruit that is still on the tree and then ripens it by tamping it. As a collector of Sampung sapodilla, he knows who the residents are who have sapodilla trees.

Figure 2. Manual Mapping of Sapodilla Trees in Sampung Village

To find out more clearly how many sapodilla trees are in Sampung Village, an interview was conducted with Mr. Supriyadi on August 14, 2021. Mr. Supriyadi is the driving force behind the distribution and planting of sapodilla trees in the yards of Sampung Village residents. The interview asked about who owns sapodilla trees, the location of sapodilla tree planting, and the number of sapodilla trees owned. When collecting data in Cangaan Hamlet, interviews related to sapodilla trees were conducted with Mr. Rowi as the village official in Cangaan Hamlet because Cangaan Hamlet is located quite far from the scope of Sampung Village. Mr. Rowi only provided data on the names of residents of Cangaan Hamlet who have sapodilla trees and, more clearly how many sapodilla trees each person he did not know. Mr. Rowi's lack of knowledge about the number of sapodilla trees owned by residents made the KKN Team conduct in-depth interviews with related parties, namely people who have sapodilla trees in Cangaan Hamlet. Data on sapodilla trees in Sampung Village currently totals 478 trees. This number is the accumulated amount of the ability of residents who can do grafting to plant sapodilla trees independently. The number of sapodilla trees in Sampung Village can be known through its distribution as follows.

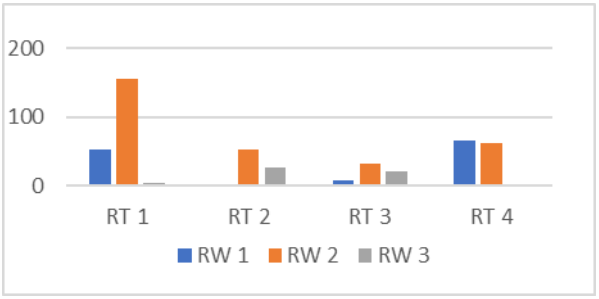

Diagram 2. The number of Sapodilla Trees in Sampung Village

The results of the interview showed that the location of sapodilla trees in Sampung Village is mostly in the yard of the house, besides that sapodilla trees are also planted in the fields. After the interview data was collected, the KKN Team made a digital map of the distribution of mustard trees in Sampung Village using the ArcGIS application. ArcGis application is one of the software developed by ESRI (Environment Science and Research Institute). The application is used to determine the location of planting and distribution of mustard trees in Sampung Village. The application can produce spatial data whose geometric arrangement is close to the actual situation. The steps of using ArcGIS application in seeing the distribution of mustard trees in Sampung Village are:

a. Search for the SHP (Shapefile) of Rembang District. SHP is a data format used to store digital map data in geographic information systems;

b. Searching for Sampung Village in the SHP of Rembang Regency;

c. Giving color to each road, rice field, house, mosque, office, and school, to make it easier to determine the sapodilla tree symbol;

d. Providing symbols on the map that show the location of the mustard tree;

e. Determining the scale of the mustard tree distribution map, which is 1:12,000;

f. Determining the legend on the map.

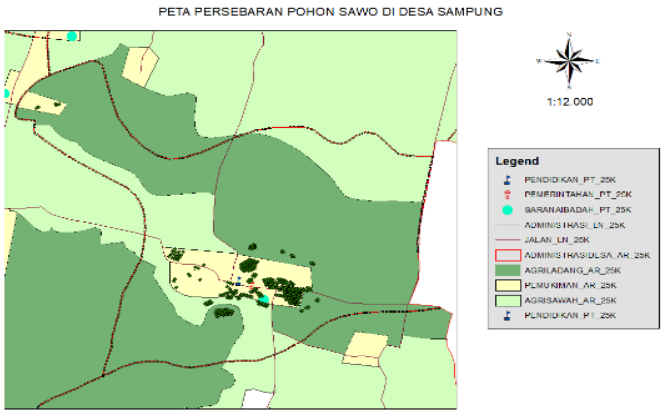

Figure 3. Sapodilla Tree Distribution Map in Sampung Village

Based on the data and map of the distribution of sapodilla, it can be seen that the highest number of sapodilla trees is in RT 01 RW 02 with 155 sapodilla trees and the least number of sapodilla trees is in RT 02 RW 01 with 1 sapodilla tree. Data collection on the number of sapodilla trees in Sampung Village aims to determine the number of sapodilla trees in Sampung Village so that it can be known that Sampung Village has potential in sapodilla fruit harvests. In addition, data collection on the number of sapodilla trees in Sampung Village can also be used as a village archive and utilized for the development of processed sapodilla harvest products by MSMEs and BUMDES. The obstacle faced was when digitizing the distribution of sapodilla using the ArcGIS application because the KKN Team had not been equipped to use the application.

The KKN Team also collected data on the quality of sapodilla. When collecting data on the quality of sapodilla, the KKN Team did so through observation and interviews. The KKN Team conducted interviews with the Head of Sampung Village, Mrs. Fatayat, Sampung Village community members, and Mr. Supriyadi, the Sampung Village Government Section Head. During the interview, the KKN Team asked about the time of harvesting sapodilla fruit in Sampung Village, the amount of sapodilla to be harvested, the type and taste of sapodilla fruit in Sampung Village, the origin of sapodilla planting in Sampung Village where almost every house has it, and coordination of follow-up processing of sapodilla.

Since 2008, Sampung Village began to intensify the mustard tree planting program in every house. Then in 2015, Sampung villagers were able to harvest 80 kg every two days. In Sampung Village, there is also a 100-year-old sapodilla tree located next to the As-Salam Sampung Mosque, which harvests approximately twice a year. Initially, the sapodilla fruit was still cut down by people outside Sampung Village, resulting in the assumption that the sapodilla did not come from Sampung Village. Regarding this phenomenon, the KKN Team took the initiative to distribute questionnaires through the Google form application with respondents from Sampung Village residents and residents outside Sampung Village. The questionnaire asked about the condition of the skin or the outside of the sapodilla fruit from Sampung Village, the shape of the sapodilla fruit from Sampung Village, the texture of the sapodilla fruit skin from Sampung Village, and the taste of the sapodilla fruit from Sampung Village.

The survey results show that first, the skin of the mustard fruit is considered clean, represented by 96%. Second, the size of the mustard fruit, which is mostly large, was rated at 76%. Third, sapodilla fruit from Sampung Village stated that the flavor of sapodilla fruit is sweet with a percentage of 100%. Fourth, the texture of the skin of the sapodilla fruit of Sampung Village is thin, which is expressed in 76%. The survey results became the initial data of the KKN Team in determining the activity program for processing the sapodilla harvest. The survey results show that the sapodilla fruit from Sampung Village has a distinctive texture and taste so it needs to be further developed into a typical product of Sampung Village.

The survey results show that so far the sapodilla fruit is only sold raw because the sapodilla fruit can only last for two days at most. One of the reasons for processing the harvest of sapodilla commodities is to extend the consumption of sapodilla fruit and foster a creative economic spirit in the Sampung Village community. The strategy that has been carried out by the KKN Team in achieving these objectives can be described through the following chart.

Chart 2. Strategy for Processing Sapodilla Commodity Products in Sampung Village

The chart can be further explained through a description of activities such as, *first*, carrying out a trial of making Zapota chips with the Sampung Village community. The activity was carried out by building coordination and socialization with the PKK and Fatayat groups to process sapodilla fruit on August 22, 2021. *Second*, making the Zapota chips brand which was carried out on August 16, 2021. The term 'Zapota' is taken from the name of the mustard fruit in Latin, 'Manilkara zapota'. In addition, the KKN team also made a cinematic video to improve the marketing branding of processed mustard fruit in Sampung Village. The video can be accessed via the following YouTube link https://youtu.be/As1lpp0rqrl. The KKN team also created the jargon 'Ngemil Gayeng' to accompany the naming of the 'Zapota' brand. *Fourth*, making Zapota chips packaging was carried out on August 10, 2021. The Dedication Team made a packaging design that was dominated by intense yellow and maroon colors. The form of packaging used is a plastic standing pouch because the sapodilla chips product is not easily damaged and the chips can last a long time.

Picture 4. Zapota Chips Product Packaging

Fifth, the launching of Zapota chips was carried out on August 22, 2021, was located at the Sampung Village road junction, near the As-Salam Mosque. The Dedication Team determines the price of Zapota Chips The Dedication Team launched sapodilla processed products on August 22, 2021, which was held at the Sampung Village road junction, near the As-Salam Mosque. The selling price of Zapota Chips is IDR 10,000.00 per 1 pack. The selling price is the result of calculating the materials and labor needed during production. Sampung villagers such as children, teenagers, and parents flocked to buy Zapota chips.

Picture 5. Launching Product Zapota Chips

Sixth, creating an MSME organizational structure and coordinating with the Rembang Regency's INDAGKOPUKM Office to host a business seminar. On August 29, 2021, the KKN team established a bridge between MSME cadres and village officials to legalize the Guyub Berkarya Women's MSME group. On August 29, 2021, the KKN Team was able to establish a bridge between village officials and MSME cadres to legalize the Guyub Berkarya Women's MSME group. The head of the village signed the decree that made the UMKM legal. In addition, on August 30, 2021, there will be a business seminar with the theme "Business Management and Modern Market Strategies". Mr. Kuswandi, S.H., the Head of the SME Empowerment and Development Section of the Industry, Trade, Cooperatives, and SMEs Office of Rembang Regency, was invited as a guest speaker for the seminar.

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Picture 6. Business Development Seminar with DAGKOPUKM Office of Rembang Regency

Seventh, building relationships in the marketing flow of Zapota chips which was held on August 28, 2021. The KKN Team established a relationship with Zapota's marketing flow through two channels, namely online and offline. In addition, MSME cadres are also assisted in how to post products on social media so that products can be reached outside the Sampung Village area.

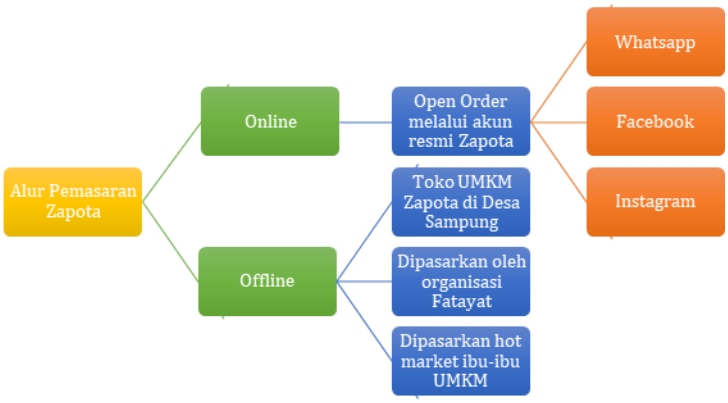

Chart 3. Marketing Flow of Zapota Chips Products

Eighth, on August 18 and 28, 2021, Guyub Berkarya UMKM cadres were mentored. Zapota chips are actively made by 15 MSME members, and numerous members of youth organizations help with the product's promotion. On September 1, 2021, financial planning was completed with Guyub Berkarya MSME cadres. The goal of this action is to grow the Zapota Chips product line. The KKN Team discussed financial plans for growing the Zapota chips product company with MSME cadres on September 1, 2021. The following topics were discussed and decided upon at the meeting: 1) identifying the production site, which is the former shop owned by Mrs. Ida Herlina; 2) raising capital by submitting a proposal to village officials, but obtaining a loan from the youth organization as the most practical alternative to beginning production; 3) using kitchen utensils as inventory for product processing needs, which is borrowed from the personal property of MSME cadres; 4) working with sapodilla suppliers, which is managed by Mrs. Ernawati; 5) dividing up those in charge

of the official Zapota product marketing account; 6) identifying the point of contact for placing online orders for Zapota products. *Tenth*, organizing Zapota chip distribution in collaboration with UMKM Guyub Berkarya's supervisor. The cadres' goal to create more sapodilla fruit-processed products, such as sapodilla coffee, was explained by the coordination's outcomes.

4. Conclusion

By employing the resources possessed by the Sampung Village community, the service activity seeks to raise the selling value of the harvest of sapodilla commodities into processed products. This is a face-to-face activity that involves community subjects such as young ladies and housewives since the COVID-19 spread rate has dropped after the service was implemented. Sampung Village has adopted various strategies to process sapodilla commodity products. These include 1) involving the community in trials of processed sapodilla production; 2) establishing the Zapota chips brand; 3) creating Zapota chips packaging; 4) introducing Zapota chips products; 5) establishing the Guyub Berkarya UMKM organizational structure and organizing a seminar in conjunction with the DAGKOPUKM Office of Rembang Regency; and 6) cultivating marketing relationships for the product of Zapota chips; relationships for Zapota chips; 7) mentoring cadres in processing Zapota chips; 8) discussion about financial planning for Guyub Berkarya UMKM; 9) coordinating with the person in charge of UMKM regarding the distribution of Zapota chips. With the service program in Sampung Village, it is hoped that it can increase the number of people who are empowered and able to develop the potential of Sampung Village in the local and national realms.

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