ENTREPRENEURIAL EMPOWERMENT THROUGH HYDROPONIC CULTIVATION IN SOUTH MERUYA

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ABSTRACT

This community service program in South Meruya Village, West Jakarta, addresses key challenges faced by the urban community, particularly in hydroponic vegetable farming and marketing. The primary issues include the lack of public awareness about promoting hydroponic products and utilizing internet-based marketing strategies. However, the presence of entrepreneurial housewives in the PKK and the growing demand for hydroponic vegetables present promising opportunities. The program offers two main solutions: (1) developing space-efficient hydroponic systems and (2) implementing effective methods to cultivate high-quality vegetables for consumption and sale. By empowering the community with hydroponic farming skills. Under the MBKM program, teachers and students collaborated with the community to establish hydroponic gardens, enhancing both food security and economic independence. The program's goals include promoting hydroponic entrepreneurship and providing the community with knowledge about hydroponic cultivation, cost analysis, and product pricing. Participants received hydroponic tools and training, which increased their yields and improved their income. Most participants found the program valuable, citing the tools and techniques as instrumental in expanding their scientific knowledge and practical skills in hydroponic farming. This empowerment initiative aims to promote food security and economic independence in South Meruya, with the potential for future replication.

Keywords: empowerment, hydroponic, entrepreneurship, economic independence

INTRODUCTION

At 2.80 km², South Meruya is the second-smallest hamlet in Kembangan District, home to 34,361 inhabitants. It has mixed zones, public and social service areas, and is mostly residential. This village is smaller than others in terms of public areas. The West Jakarta Department of Food Security, Maritime Affairs and Agriculture (KPKP) office provided hydroponic instruction and empowerment to the community. But because they charge a poor price for their vegetables, they are unable to maintain their business. The meruya selatan community sells this hydroponically grown vegetable for a low price because of its poor quality, even though it should be sold as an organic product and be priced accordingly. This low selling price puts an end to farming. Due to this circumstance, the community service team and the general public are working to assist the underproductive community in producing hydroponically grown veggies at a premium cost.

In line with the MBKM program, instructors and students enable partner communities to establish hydroponic vegetable farming for family consumption within the framework of food security, and subsequently to turn into hydroponic entrepreneurs for the financial autonomy of South Meruyan urban communities. Encouraging community collaborations demonstrates how the training contributes to quality improvement, problem solving, and increased yields of hydroponic aquaculture products, all of which can raise community income. In order to attain food security and economic independence for South Meruya Village, the majority of participants felt that the tools and techniques utilised during implementation were beneficial for advancing science and educating the community hydroponic agriculture. This belief encouraged them to repeat the process in the future.

The main consequence of global warming on the social system is adversely affecting human well-being (Darmawan, 2018). Climate change has adverse impacts on humans, including: a decrease in access to clean water, an increase in malnutrition cases, and an overall negative impact on human health. Reduced land area leads to reduced cultivation of food crops, resulting in a decline in world agricultural production, which ultimately leads to the loss of global gross domestic product (Utami, 2024).

The limited space in urban areas is caused by unplanned development that leads to the growth of urban slums. The limitation of public space, and the small circulation of the road so that the community takes the initiative to widen the road above the roadside river, the strategic location greatly affects the pattern of use of open space or corridors, open spaces, especially corridors (Darmawan, 2018). In addition to the issue of limited open land, urban areas are also

confronted with environmental challenges in the form of air pollution and inadequate food security. Agriculture and consumption continue to pose challenges, despite the implementation of environmental transparency regulations. Waste pollution and pollution that impede the agricultural sector in urban areas are additional environmental issues. (Suhardjanto, 2018)

Hydroponic cultivation can be developed on narrow land, and is useful for overcoming food security and improving the economic capacity of the community. (Setiany, 2023) Onestudy shows the role of ecological, economic, and social aspects, new technologies in urban agriculture research that need to be adopted for urban areas to improve efficiency and productivity in the future. (Eigenbrod, 2015) One of the efforts to strengthen the welfare of the community by fostering the characteristics of future social entrepreneurs. The obstacle that people often face when developing their business is the weakness of their knowledge about finance. Financial management assistance needs to be carried out in the most easy-to-understand form. (Dirman, 2022) This is what encourages the provision of financial assistance and training in order to increase knowledge and understanding in managing finances, especially as a beginner with limited funds, conveyed simply to be able to try simple financial management applications.

Urban agriculture has great potential to become an EcoCity towards a humane food system that respects the important role food plays in all cultures and is powerful enough to have a significant impact on the availability of fresh, healthy, local, and affordable food for all. (Boswell, 2013) Consumers who are increasingly informed about health have a tendency to buy eco-friendly products, and a willingness to pay more for eco-friendly products. Eco-friendly products gain recognition in the market by enhancing the public image as a premium product. (Manurung, 2022) In the next stage, this activity helps the community record costs and calculate selling prices, one of which is with the help of an application. The public understands accounting recording and is able to use accounting software applications. The software has been widely used in financial recording and reporting so that the public is equipped with adequate skills (Dwi Wahyuni) (Zamzami, 2022)

Assisting the community's financial management must still be continued by assisting in digital marketing management. Digital media has the advantage of sending messages that can be sent with a large enough data capacity and unlimited storage media because it uses the internet network. (Mahmudah, 2020) Therefore, it is necessary to develop attractive marketing content in various formats and information presented through the media, especially new media, in the form of writing, images, sound (audio), or video. (Mahmudah, 2020)

Basically, this activity is an empowerment process, because it is carried out as a series of training and assistance in hydroponic cultivation, and continues with training and assistance activities in financial management. This financial assistance is important so that people who feel that they have consumed enough and are interested in selling their hydroponic vegetable products have knowledge about the calculation of the right cost and selling price, and are further able to sell their products sustainably and become organic vegetable product entrepreneurs.

METHOD

The community partnership empowerment program carried out in South Meruya Village is carried out in 5 stages. The stages of implementing this service activity are:

The Initial Stage, includes:

- Formation and consolidation of the implementation team
- Survey the location and find information on community problems
- Socialization to the community who will be given training as training participants Partners of South Meruya Village, the mu'min silahul council and other communities provided information on community problems and appropriate locations for this PKM activity.

Implementation Stage, including:

Hydroponic planting technique training. Hydroponic farming has two main techniques, namely:
Using the mineral solution, this method uses a mineral solution and does not require a hard medium for root growth, just a nutrient mineral solution is sufficient. Checking the PH level contained in water, namely normal PH ranges from 5.5 to 7.5. This check is carried out every week continuously until the fruit or vegetable is ready to be harvested to get maximum results.
Using media, this method depends on the type of medium used, it can be in the form of coconut fiber, mineral fiber, sand, brick fragments, wood powder, and others as a substitute for soil media. Creation of the necessary devices, the devices needed can be paralon or used goods, such as used bottles or cans. If using a paralon, the paralon must be perforated as a container for hydroponic plants. If using materials from used bottles, they must be cut into two parts.

Cut the rockwool into small pieces, soaked and hollowed out in the middle using a toothpick or other, to put the vegetable seeds to be planted. Wait for approximately 4 to 7 days or after the vegetable seeds grow four petioles, the plants are ready to be moved to a netpot which is then placed into a paralon or bottle that has been hollowed out.

Harvest and post-harvest stages, including:

- Harvest
- The devices needed can be in the form of plastic wrap and a brand design is needed so that it looks representative and is suitable for sale.
- Calculation of cost and selling price.
- Accounting training regarding the calculation of cost and selling price. This activity begins with the identification of all costs, and careful calculations, including seeds, water, shrinkage of hydroponic equipment, electricity, packaging, and hydroonic nutrients, as well as other materials.

Digital marketing

Training on creating digital promotional content and marketing it through various digital media

Evaluation Stage

This evaluation stage is conducted following the completion of the complete series of stages. It is primarily overseen by LPPM Mercu Buana University and South Meruya village. This must be completed in order to enhance the quality of the subsequent activities. It is anticipated that this activity will be conducted on an ongoing basis using non-governmental funds. The community responded to inquiries and completed a questionnaire, which was distributed by the implementation team.

Reporting Stage

This Reporting Stage includes the fulfillment of all outputs required by DRTPM in accordance with the PKM grant scheme.

RESULTS AND DISCUSSION

Implementation of Activities

Community service activities, especially the Kampung Bangkit Activity, are carried out offline, namely: (1) Submission of Materials; (2) The practice of the hiroponic method starting from the design and assembly of hydroponic tools, seeding to harvesting hydroponic vegetables and calculating the cost and selling price of products.

Hydroponic training and direct practice activities are divided into 3 sessions and carried out offline, namely:

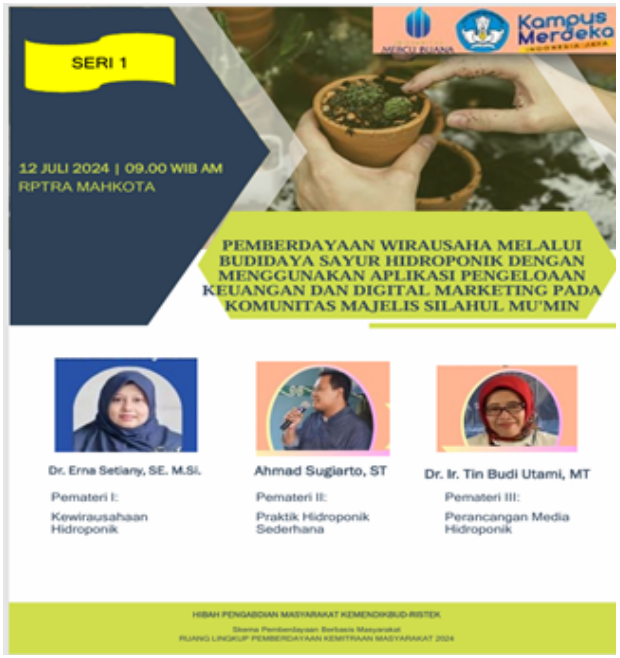

Figure 1. Session 1 training flyer

Figure 2. Participants practice preparing simple hydroponic media

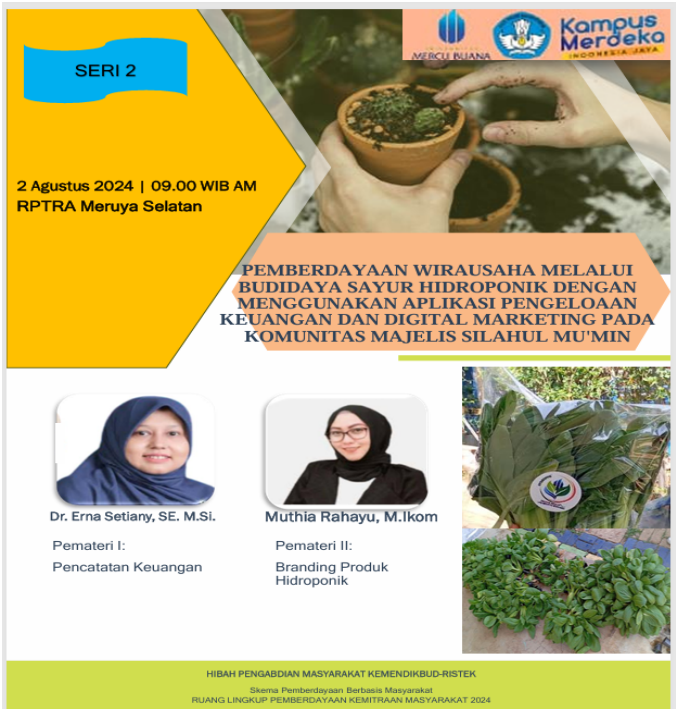

Figure 3. Session 2 Training Flyer

Figure 4. Resource persons and training participants session 2

Installation of Hydroponic Equipment Assistance Installation and Hydroponic Vegetable Seed Provision

In addition to training and hands-on practice activities, the Community Service Activity team provided hydroponic equipment (kit) assistance to the residents of South Meruya Village in the form of hydroponic installations along with hydroponic vegetable seeds. The installation of this installation was carried out directly after the Session 2 Training activity, namely on Friday, August 25, 2023 in the green alley area of South Meruya Village. This hydroponic installation was then used by residents to plant hydroponic vegetable seedlings that had been handed over by the UMB Community Service Team.

Figure 5. Hydroponic equipment assembly activities

Figure 6. Hydroponic media installation activities

Figure 7. Harvest activities

Figure 8. Packing activities

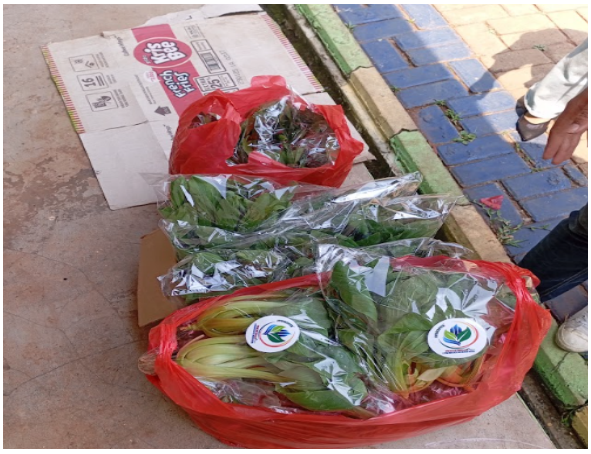

Figure 9. Examples of hydroponic vegetables ready to be distributed

Figure 10. Product logo

Technologies handed over to partners include

- Small hydroponic kits were handed over to community partners and PKK mothers in Rptra.
- Large hydroponic equipment is placed in RPTRA to continue to be developed sustainably
- Hydroponic Entrepreneurship Module (not yet submitted)
- Simple Catalog and financial recording website (in the process of development)

Partner Participation

In this service activity, the target partner is the Ta'lim Silahul Mu'min Council recitation community located in the South Meruya sub-district area. The participation of partners in supporting this activity includes

a. The role of South Meruya Village is to provide permits, and support, as well as provide directions on which locations are in accordance with this activity program
b. The role of RPTRA is to free up room for hydroponic training, financial training, and digital media marketing content creation training
c. The role of the community of the Ta'lim Silahul mu'min recitation community includes:
    - Providing land for cultivation,
    - Providing community members who are willing to obey and participate in all training and activity programs.
    - Provides electricity and water to ensure the hydroponic device continues to operate
    - Providing time and effort to take care of hydroponic plant growth

The training offered is beneficial in addressing a variety of societal issues and enhancing the quality of life.

The majority of the participants believed that the materials and practices used during the implementation were highly beneficial in the improvement and development of science, as well as in the instruction of the community in the practice of hydroponic cultivation. This, in turn, would increase the participants' enthusiasm to engage in the activity again in the future, thereby facilitating the community's economic independence and entrepreneurial spirit.

In the interim, the team presented awards to the RPTRA and the community in recognition of their efforts in evaluating the crop produce. The village and the South Meruya PKK team, who were also present during the harvest, conveyed their satisfaction with the harvest's yield, as evidenced by the quality of the lush and high-quality vegetables. This implies that the quality of hydroponic administration is in good condition and exceeds the average.

In this instance, productivity can be attributed to the program's sustainability following the completion of the PKM activities. Assessment of Program Sustainability and Program Implementation in the Field Following the Completion of Activities

- The first formal evaluation was carried out by LPPM Mercu Buana University, which is scheduled to send reviewers to assess the achievement of this community service program, and the suitability of its outputs, as well as financial responsibility based on existing transaction evidence.
- The evaluation was carried out involving all parties, South Meruya Village, the participating communities, and the implementation team in the form of FGD activities.

- The evaluation aims to examine the constraints, the level of public understanding and the level of success of this PKM activity.
- This evaluation is expected to formulate important things that are guidelines for duplicating similar activity patterns in other locations, in the future.
- The evaluation is expected to be the closing of the activity, as well as the beginning of further cooperation for assistance through the PKM program by Mercu Buana University.

CONCLUSION

The target community, namely the Silahul Mu'min Ta'lim Council and the PKK mother of South Meruya Village, currently has characteristics as an urban community that faces the problem of unsustainable hydroponic vegetable cultivation, financial management problems, and marketing problems, lack of public knowledge on how to create marketing content and market hydroponic products online.

The results of this community partnership empowerment activity demonstrate that the training provided is beneficial in resolving a variety of community issues, thereby enhancing the quality of the community and promoting the production of hydroponic cultivation products that have the potential to increase community income. The majority of the participants believed that the materials and practices used during the implementation were highly beneficial in the improvement and development of science, as well as in the instruction of the community in the practice of hydroponic cultivation. This, in turn, would increase the participants' enthusiasm to engage in the practice again in the future, thereby achieving food security and economic independence for the residents of South Meruya Village.

Financial Management Problems, as well as Marketing Problems, because the lack of public knowledge is overcome by training on how to record and how to create marketing content and market hydroponic products online. Not only that, the PkM team also developed a website that will be used for digital sales media as well as a medium for recording finances simply. Thus, the goal that the target community is able to become hydroponic entrepreneurs for the economic independence of urban communities in the South Meruya area, including the Silahul Mu'min Assembly Community, can be achieved.

The next suggestion for community partnership empowerment programs is consistency and assistance to the community which can be implemented through PkM activities carried out with internal funding from the University. This also requires the support of commitment from the community and their seriousness in implementing the training results, utilizing hydroponic tools and websites that have been provided.

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