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Empowering Self-Reliance for Food Security with Aisyiyah Sidoarjo in Limited Land Utilization

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ABSTRACT

Objective: *This study aims to enhance food security by empowering the members of Pimpinan Daerah Aisyiyah (PDA) Sidoarjo through the utilization of narrow land for sustainable agriculture. Many Aisyiyah members possess home yards or small plots of land that remain underutilized, necessitating an intervention to promote efficient land use practices.* ***Method:*** *The program involved a series of activities, including socialization, training, and mentoring on various urban farming techniques such as polybag cultivation, hydroponics, and verticulture. These approaches were introduced to facilitate knowledge transfer and ensure the proper cultivation of organic crops through hands-on learning.* ***Results:*** *The implementation of hydroponic and organic farming methods was successfully adopted by Aisyiyah members, leading to an increase in household-scale agricultural productivity. Participants were able to cultivate crops until harvest, demonstrating the effectiveness of the provided training. Moreover, they developed the capability to create planting media and produce liquid organic fertilizers independently, reinforcing sustainable agricultural practices.* ***Novelty:*** *This initiative integrates community-based empowerment with technological advancements in urban farming, specifically targeting women-led organizations in the context of food security. The combination of hydroponic cultivation, organic farming, and independent fertilizer production offers a replicable model for optimizing land use in urban and peri-urban settings.*

INTRODUCTION

The Regional Leadership of Aisyiyah Sidoarjo is a regional leadership organization located in Sidoarjo, consisting of 18 branches and 185 sub-branches. The partners in this community service initiative are community groups that are members of the branches and sub-branches of Aisyiyah Sidoarjo. Aisyiyah, as the women's organization of Muhammadiyah, is established to realize the advancement of women in all aspects of life [1]. Progressive women refer to a mindset and living conditions where women can progress in all aspects without experiencing structural or cultural barriers and discrimination. Aisyiyah carries the mission of *dakwah* (Islamic propagation) and *tajdid* (renewal), with a vision that must be realized in response to contemporary life dynamics, aiming for the establishment of a true Islamic society that brings blessings to the entire universe. Aisyiyah is present to ensure the advancement of women in all aspects of life. Therefore, Aisyiyah's role in supporting self-sufficient food provision is highly necessary [2].

The Aisyiyah community has potential that can be developed, especially in the field of agriculture, because some of its members are housewives. One of the efforts to achieve food self-sufficiency is the optimal utilization of yard land in rural and urban areas by cultivating agricultural plants such as vegetables, fruits, medicinal herbs, and food crops. Relatively large yard areas can be utilized for aquaculture and livestock. The optimization of yard land utilization is aimed at meeting the family's food needs independently [3] .

The utilization of limited land includes organic planting with polybags and hydroponic planting as examples of solutions in the form of community service through training for Aisyiyah branch and sub-branch groups as an effort to create food security through maximum assistance. It is hoped that food self-sufficiency from agricultural production will increase, which will automatically improve the economy of the community. The main goal is not only to enhance food independence and increase community income but also to create a pioneer Organic Village that has never existed in Sidoarjo Regency, while simultaneously improving community Food Security amidst the Covid-19 pandemic. Covid-19 pandemic. Land use can beautify the environment [4].

Empowerment in the agricultural sector is one of the indicators of increased welfare and independence of the community [5]. We strive to change the mindset of Aisyiyah community members who initially left the land empty and unused, tending to neglect the environment and being consumptive towards food [6]. The utilization of narrow land as a wise step, a precise solution to improve the quality and quantity of food supply, especially vegetables, indirectly contributes significantly to food security efforts and plays a major role in poverty alleviation activities through the empowerment of Aisyiyah group members. The outcome we hope for in food independence can realize the improvement of the welfare of Aisyiyah families. Some of the problems faced by the Aisyiah branch group include the general use of yards for public facilities, the plants cultivated in the yards having low economic value, and the limited knowledge, insight, and skills of Aisyiah members in utilizing yards and plant cultivation techniques. Some of the problems faced by the Aisyiah branch group require handling to make their yards more productive. The solution is to enhance the knowledge and skills of Aisyiah members in yard management through the application of productive plant cultivation technologies, such as vertical gardening, hydroponics, wick pots, and growing vegetables and fruits in pots. The utilization of narrow land for urban farming, such as hydroponics, makes the environment clean and comfortable. Food independence is realized through the stimulus of urban farming training accompanied by continuous evaluation and mentoring.

The program themed around urban farming can make a real contribution to society by encouraging the cultivation of beneficial plants at home, utilizing the limited space available in urban areas [7]. Empowerment of independence Creating food security for areas affected by Covid-19 currently with the availability of fish and vegetables for families [8]

RESEARCH METHOD

The methods used include counseling, training, technology application practice, as well as mentoring and evaluation monitoring. Extension activities were conducted by gathering branch and Ranting 'Aisyiyah members to participate in an extension on narrow land management. Some of the materials provided include the importance of food resilience and self-sufficiency, management of limited land, and technology in managing limited land [9].

To facilitate training and practice in managing narrow land, technology transfer was carried out by providing organic farming equipment, hydroponics, media and nutrients, as well as other facilities that support these activities. Training and practice were conducted with simulations of organic farming, hydroponics, media and nutrition, as well as planting vegetables and fruits in pots using the equipment and materials prepared by the program implementation team. The training was conducted by the program implementation team, with participation from the members of the 'Aisyiyah Sidoarjo Branch and Branches [10]. After the counseling, training, and practice, all members of 'Aisyiyah engaged in cultivation practices using organic farming technology, hydroponics, media and nutrition, as well as planting fruit in pots under the guidance of the program implementation team [11].

The mentoring and evaluation monitoring activities are carried out periodically to guide and accompany partners until they successfully implement plant cultivation technology practices, and Ranting Aisyiyah members can consult on program implementation until optimal results are achieved.

Implementation Stages

The implementation of the program is carried out through several stages, the description of the implementation methods to address the main issues of the partner is explained as follows,

1. The training is divided into 3 (three) stages, namely:

a. Stage I Training: is an enhancement of knowledge and insights for Aisyiyah Branches and Branches, namely counseling and knowledge provision about utilizing narrow land through organic farming in pots (polybags).
b. Stage II Training: Providing information on media training, nutrition, and hydroponic systems.
c. Stage III Training: Training on the production of organic media and hydroponic nutrients.
d. Establishing New Business Opportunities is the final part of the method implementation in solving problems for partners, which is expected to improve the welfare of Aisyiyah residents. The new entrepreneurship to be established as follow-up output becomes an appropriate community empowerment to maintain the sustainability and existence of the Aisyiyah community group. Problem-solving is expected to make a significant contribution to the surrounding community.

e. The mentoring aims to improve production management, marketing, and financial aspects. Focused on strengthening skills in production (plant cultivation) while encouraging partners to manage plant cultivation activities in limited land and their impact on Aisyiyah residents. After the products and systems are developed according to the implementation methods, the program will then be socialized to highlight its role as a positive output for partners and the Aisyiyah community through publications in print media. The data obtained throughout the entire activity will be used as material for the final report and outputs in the form of journal articles. The method of system implementation carried out systematically is expected to produce the planned outputs and serve as a positive stimulus for the community in general.

RESULTS AND DISCUSSION

Program Socialization

The Aisyiyah Regional Leadership of Sidoarjo recommends that activities can be participated in by two branches, namely the Sidoarjo branch and the Candi branch, which are located in the Sidoarjo Regency area.

Identification of Program Participants

Participants are obtained from the branches by identifying together with regional and branch leaders to identify and select Aisyiyah members who participate in the program. The identified program participants are Aisyiyah members who are willing to participate by providing small plots of land and are committed to increasing the consumption of vegetables grown in their home gardens.

Counseling and Training

The provision of knowledge about the utilization of narrow land was first conducted through hydroponic training. During the implementation of the activities, the Aisyiyah mothers were very responsive and showed high enthusiasm towards the extension materials provided [12]. Moreover, the activities carried out included something new (organic vegetable cultivation through the independent production of organic nutrients). The seriousness they showed was evident from the numerous questions posed to the community service team. To their knowledge, the technique of hydroponic vegetable cultivation generally still uses chemical nutrients (AB mix), while in this community service activity, liquid organic fertilizer enriched with microbes is used as a biofertilizer and biological agent [13].

In this counseling session, the material provided is about the history of the four healthy five perfect concept until it evolved into the general guideline for balanced nutrition. The hope is that the public's perception of the four healthy five perfect will change and shift towards a balanced nutrition diet. After that, it continued with an explanation of the current health conditions in Indonesia, where the country is starting to experience a double burden of malnutrition, namely undernutrition and overnutrition. The last material is about the benefits of consuming fruits and vegetables and the impact

of low fruit and vegetable consumption. The purpose of this outreach is to motivate and commit the community to live a healthy life by consuming fruits and vegetables [14]. In addition, so that the community can be more confident that vegetables can be grown themselves without having to buy them. After being given counseling, it was followed by training on how to practice tiered farming. Participants were explained what tiered planting is and the practice of how to do tiered planting. The initial practice in this activity is the seedling process [15]. Seedling cultivation is taught using limited tools, namely PVC pipes and used bottles. After the seeding, the next step is to create multi-layered planting media. After the media is ready, the planting process continues. Participants are taught how to manage soil and fertilizer composition as well as the maintenance process. During the training, children are also involved with parental supervision. The hope is that from an early age, a spirit of farming and healthy living will emerge in children.

Program participant mentoring

After being taught how to farm, participants are still given guidance. The goal is for the participants to be disciplined and committed to taking care of the plants. Assistance is provided through periodic visits to the participants' homes. Visits are conducted periodically for 3 months, 3-4 times a month after planting. In addition to receiving assistance, participants are also promised rewards for achieving the highest harvest. Providing assistance is very effective and efficient for food independence activities [6].

Overall, this community service activity was successfully carried out. This can be seen from some participants successfully harvesting vegetables from their farming efforts. In addition, some participants have become more fond of farming. This is evident as some participants tried various types of plants to grow, such as chili peppers, tomatoes, and eggplants. The vegetables were successfully harvested at the end of the activity. The activity was successful despite facing many obstacles. The challenges faced included being eaten by rat pests, causing many plants to die. Suggestion for the next activity is to create a way to anticipate rat infestations by using a repellent spray made from the extract of the bintaro fruit. The next challenge is the harvest period, which is quite long, around 2 to 4 weeks. Some participants got bored and their motivation decreased. In this event, participants were offered that those who successfully planted in large quantities would be given a reward. This offer successfully boosted the participants' motivation again. In the next community service activity, deeper motivation needs to be instilled so that participants can engage in farming without any incentives. The hope is that this farming activity can continue sustainably even without supervision.

CONCLUSION

Fundamental Finding : This study demonstrates that food self-sufficiency can be effectively promoted through targeted training, seed and seedling distribution, and continuous mentoring, enabling community members to engage in sustainable vegetable cultivation. The successful implementation of hydroponic and organic farming

techniques highlights the potential of small-scale agriculture in enhancing household food security. **Implication :** The findings suggest that integrating structured agricultural training with resource provision and technical support can significantly improve community engagement in food production. This approach not only contributes to household nutrition but also fosters economic resilience by reducing dependency on external food sources. Policymakers and community organizations can adopt this model to enhance food security initiatives, particularly in urban and peri-urban areas. **Limitation :** The study was limited to a specific community group within the Pimpinan Daerah Aisyiyah (PDA) Sidoarjo, which may affect the generalizability of the findings to broader populations. Additionally, external factors such as climate variations and access to water resources were not extensively examined, which could influence the long-term sustainability of the implemented agricultural practices. **Future Research :** Further studies should explore the scalability of this model across different socio-economic contexts and geographic regions. Additionally, research should focus on the long-term impact of urban farming interventions on food security, economic empowerment, and environmental sustainability, incorporating advanced agricultural technologies and digital monitoring tools to optimize outcomes.

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