Strengthening the Family Resilience of Jamaah Aisyiyah Tamantirto Tengah through Urban Farming

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1 Introduction

Massive development in urban areas causes the displacement of green open spaces. The loss of green open space greatly affects the stability of the environmental ecosystem, while increasing pollution which adversely affects the health of the city community. One of the reasons for this problem is the urbanization process which causes a high rate of development to eliminate the existence of agricultural land in urban areas. The city is no longer able to meet its food needs independently. Insufficient demand for food will lead to price inflation. This condition encourages the government and the community in urban areas to start trying

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to meet food needs independently [1] and improve environmental conditions to create a healthy and quality environment.

Yogyakarta City is one of the main tourist destinations for domestic and foreign tourists as well as an educational city in Indonesia. This will have an impact on environmental issues that must be immediately addressed by all elements of society and the Yogyakarta City Government. Tamantirto Village is a suburban area on the outskirts of Yogyakarta City that is growing rapidly along with the development of industry, education services and housing. Two private campuses have been established in this area, namely the Universitas Muhammadiyah Yogyakarta with 20,000 students and the Universitas Alma Ata. Meanwhile, based on observational surveys, Brajan is one of the villages in Tamantirto village which is already dense with settlements both boarding houses and housing. There are seven housing complexes in Brajan, namely Pondok Permai Tamantirto, Alam Brajan Housing, Tamantirto Village, Green Park, Alam Brajan Residence, Griya Brajan Asri, and Griya Brajan Permai. The growing population certainly has an impact on increasing the number of food needs in the region. One solution is to implement urban agriculture.

Urban agriculture is a common practice in many cities by engaging communities in ways that vary between countries and between cities [2]. Urban agriculture has several advantages over conventional farming: higher productivity, better sustainability, and the ability to provide fresh food year-round [3]. Urban agriculture is currently considered as one of the solutions to overcoming air pollution in urban areas as well as a solution for climate change adaptation, as well as an effort to mitigate the effects of climate change [4]. Cities are also very beneficial for environmental sustainability, reducing air pollution, and creating beauty and coolness in people's homes [5].

Limited green open space (RTH) and the scarcity of agricultural practices make real examples of urban agriculture a special attraction for people to travel as well as an educational means for children. However, the role of the community is crucial in the implementation of urban farming activities in urbanized areas in line with the increasing demand for green development. Knowledge is needed to promote stronger community interdependence to create a sustainable urban environment [6].

One form of community empowerment in urban farming is the empowerment of the congregation. Empowerment of the congregation with Urban farming is one of the urban agriculture programs involving the participation of the congregation in managing agricultural businesses by utilizing resources and the environment available in the environment such as land and household waste. Vacant land around the house can be used for plant and fish farming activities. Besides being used for the fulfillment of nutrition and food for the congregation, abundant agricultural can also be a source of income to fund social and religious activities. In this case, the implementation of urban farming requires active participation from all elements of society, especially the Aisyiyah congregation. Aisyiyah is an autonomous organization of the women of the Muhammadiyah organization, the largest modern Islamic organization in Indonesia.

2 Methodology

The concept of people-centred development views people's initiative as the most important development resource and views material and spiritual well-being as the goal to be achieved. Efforts to implement people-centred development are carried out through empowerment. Community empowerment is principally an effort to change society to be more independent, productive, and prosperous. The community empowerment process aims: 1) to allow the community to identify and analyze their problems, 2) to facilitate the community to formulate several alternative solutions to their problems, and 3) to encourage the community to explore their potential while developing it. Communities empowerment aims to "educate people to be able to educate themselves" or "help people to be able to help
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The goal to be achieved through community empowerment is a community that is independent, self-sufficient, able to adopt innovation, and that has a cosmopolitan mindset.

In this case, the practice of community empowerment was implemented through the introduction of community-based monitoring as a means to improve community resilience and welfare. Community-based monitoring is designed to play an important role in addressing environmental sustainability issues by involving the public, where communities take the lead in the environmental monitoring process for urban planning and decision-making. This conceptual framework is expected to be an approach to encouraging urban communities to achieve a more inclusive, safe, resilient, and sustainable environment.

Following the problem of environmental management through urban farming in Tamantirto Village, this program was implemented through several stages, namely:

2.1 Initial assessment of the problem
Identification of problems was carried out through FGD both with the Aisyiyah administrators, congregation and leaders, as well as the community. The output of this activity was mapping environmental management problems through urban farming in the congregation's environment.

2.2 Increasing awareness and knowledge based on religious values
Increasing awareness and knowledge about environmental problems need to be promoted to both administrators and the congregation so that awareness and knowledge about household waste management arises. Increasing awareness and knowledge was carried out through counseling and recitation. The output of this stage is an increase in understanding and awareness of environmental management through urban farming by utilizing household waste and organic vegetable cultivation.

2.3 Assistance and empowerment of environmental management through urban farming
Assistance and empowerment were carried out so that the values of environmental awareness for the congregation can be instilled through various religious activities which are then applied in their daily life. Assistance and empowerment were carried out by training on household waste management and organic vegetable crop production.

As evaluation material and follow-up plans, training was carried out on the formation of environmental cadres and the creation of online/social-media-based environmental tourism educational content for managers and the Tamantirto Village Community.

3 Result and Discussion
In its implementation, the service carried out coordination with the management of Aisyiyah Tamantirto Tengah taking place on Sunday, December 25, 2022, at the Baitunnafi mosque. Furthermore, the agreement on the details of the program design and service activities was approved on December 31, 2022, at the residence of the Head of the Branch Leader Aisyiyah Tamantirto Tengah, Mrs. Umi Kulsum, at Gonjen Jl. Lingkar Selatan Tamantirto Kasihan Bantul, Yogyakarta.

The realization of activities has begun on Sunday, February 5, 2023, at the Alhikmah Wiworojati Tlukan Mosque, RT 08, Tamantirto, Kasihan, Bantul, Yogyakarta. The activities were in the form of studies and counseling on family resilience through the management of healthy and productive environmental management in the perspective of Health and Islamic values. The promotion of healthy environmental management was carried out by processing organic waste into fertilizer so that the environment is clean and disease-free and produces processed fertilizers beneficial for urban farming. Another productivity was the use of organic fertilizers for the cultivation of vegetable crops and ornamental plants which are expected to save food expenditures and improve nutrition and family income. The resource person for this activity was Dr. Triyono S.P., M.P., a lecturer at the Faculty of Agriculture,
Universitas Muhammadiyah Yogyakarta as well as a member of the Environmental Council of the Central Board of Muhammadiyah. The accompanying resource person in this activity was Dr. Ns. Mamnuah, S.Kep. M.Kep. Sp.Kep.J., a lecturer at the Faculty of Health Sciences, Universitas Aisyiyah, Yogyakarta as well as the administrator of the Health Council of the Aisyiyah Regional Leadership of the Special Region of Yogyakarta. Present in the activities were all administrators and congregation of Aisyiyah Tamanitro Tengah along with KKN students of Universitas Muhammadiyah Yogyakarta.

The follow-up of counseling activities was urban farming training consisting of materials, namely composting household waste and organic vegetable cultivation. The training resource person was Dr. Triyono, S.P., M.P., accompanied by agribusiness entrepreneurial students from Inofarm organic vegetable and hydroponic businesses. The training participants were 25 administrators and the congregation of Aisyiyah Branch Tamanitro Tengah.

3.1 Making organic fertilizer for household waste

The process of making organic fertilizer from household waste is quite simple. Tools and materials are quite cheap because they only utilize used goods and food scraps from household waste. The main tool used is a composter bucket made from 25 liters of used paint buckets with a capacity of 25 liters. The two buckets are stacked together; top and bottom. The bottom of the top bucket is hollowed out as a filter, while the bottom of the bottom bucket is being installed with a faucet to accommodate liquid organic fertilizer.

By simply putting the remaining household organic waste every day in the composter bucket, in one to two months, the organic waste will decompose into solid and liquid organic fertilizer. This activity supports the production of urban waste compost, continuing efforts in nutrient recycling [10]. The fertilizer can be harvested and applied to vegetables, fruit, and ornamental plants that are cultivated in the yard around the house. Additionally, all utilization of liquid organic fertilizer increases the growth and yield of eggplant and Bok Choy vegetables [11].

3.2 Organic vegetable cultivation

In this training, the organic vegetable cultivation system was planted verticulturally. The tool used was a PVC pipe measuring 4 to 6 inches with holes on the sides along the pipe as plant holes that were placed vertically.

The planting medium used to grow chilies in the verticulture technique was PVC pipe containing a mixture of soil, charcoal, husks, and manure. The planting media mixture was prepared with a ratio of soil 2: charcoal husk 2: manure/compost 2. All of them were mixed well, and placed in the planting medium in an open-air but protected from rain and direct sunlight. One week later, the planting medium was stored in the PVC pipe. When the planting medium and chili seedlings were ready, planting could be done immediately. The seedlings were then planted in the planting hole of the verticulture pot. Afterwards, the seedlings should be watered to avoid withering. Sunlight should be given little by little until they were finally fully illuminated.

Maintenance of verticulture chili plants included watering, fertilizing, and controlling pests and diseases. Watering was carried out according to the needs and weather conditions. For verticulture pepper plants to thrive, fertilizers should be given at the age of 15 days after the planting. Fertilizing verticulture chili plants was carried out 1 or 2 times a week through a casting. The fertilizer used could either be AB Mix nutrients or NPK 16 fertilizer. The proper method was by dissolving 1 tablespoon of NPK fertilizer with 2 liters of water and then smearing 100 ml of verticulture chili plant solution. Casting should be done carefully to avoid hitting the chili leaves. To meet the needs of micronutrients, foliar fertilizer should be sprayed once a week. Organically, the fertilizer could be replaced with liquid organic fertilizer from fermented organic waste from the stacking bucket composter. The composition of liquid fertilizer was 5 ml plus 1 liter of water.
Urban vertical farming can perform many functions and bring diverse benefits to city dwellers. In multi-scale systems, it allows the creation of patchwork connections which stabilize a particular city biome in vertical space [12]. The dominance of vegetables, ornamental plants, and food crops in urban farming offers high recreational potential [13], as it can present an attractive and aesthetic cityscape [14].

This urban farming training is a form of implementation of fiqh/Islamic law related to environmental conservation that discusses environmental themes such as *Ihyā' al-Maut* (utilizing dead land), *al-'At'imah* (food law), and so on [15]. Thus, the preparation of SOPs is required so that the Ecopesantren Program has the potential to build an attitude of care for the environment so that environmental sustainability can be maintained continuously [16].

The results of the assessment of trainees showed an increase in average knowledge from 15 to 15.5. Although the increase is still relatively small, the motivation and interest of participants are quite high. They realize the importance of multifunctional urban farming, namely food production, environmental preservation, and social inclusion which can be identified as Ecosystem Services (ES) [17];[13];[18]. The importance of healthy food production in urban areas anticipates production problems that occur in rural and urban fairies [19]. Additionally, local food production in urban areas will reduce transportation costs and exhaust pollution of food logistics vehicles from villages to cities [20]; [21]; [22]. Even local organic food is quite in demand in European countries such as Spain, Italy and Germany [23].

A positive response is also shown by Oslo residents who are willing to increase their tax payments to contribute to the further development of urban agriculture in Oslo [24]. So too is the willingness of Africans to engage in this technology in local economies and food production [25]. This will support food allocation policies in local markets through agri-urban projects [26]. Thus, multifunctional and sustainability-based agriculture is the most resilient in suburban areas, able to take advantage of the proximity of cities [27].

**Figure. 1.** Preparation for verticulture training of vegetable crops

The direct influence of urban farming improves people's welfare [28]. The advantages of urban agriculture are mainly to improve the economic status of urban residents [29]. Even if agriculture can be adapted to city conditions, the economic situation of agriculture will be better [30]. Therefore, people use organic farming to increase the income and quality status.
of soil [31]. It needs to be applied and practiced in our daily lives for consumption, food security, human safety, and health [32]. Physical and mental health as well as the environment are the motivations with the highest scores among urban farming practitioners [33]; [34]. It is proven that urban farming activities can significantly improve participants' health (SRH) and mental health (MH). Their improved health is due not only to increased physical activity but also to social interaction among participants [35]. Urban agriculture (UA) strategies have been adopted by communities to reduce poverty and food insecurity, and have been seen performing other functions, such as environmental, social, and cultural development [36]. Another study found that urban agriculture can contribute to people's resilience to feeding potential and nutritional adequacy, especially for target populations at the highest risk during emergencies such as COVID-19 cases [37]. Urban Farming can also provide good results for economic empowerment and community income if managed optimally [38]; [21]. The economic aspect of the cost of living proves to be very significant in people's desire to produce food for their own consumption and save costs in food expenditure [39]. It demonstrates civic participation and food access for low-income populations and strives to create socially inclusive spaces [40]. Therefore, urban agriculture is one solution to accessing food, and their concerns over food security and food prices. Stimulating the local economy, however, is the main reason [41]. Community empowerment through urban farming activities is quite attractive to community groups, especially women. Hence, the active participants are dominated by women farmers [38]. Therefore, the empowerment of community organizations and women's groups such as the Aisyiyah congregation will create a conducive environment for urban farming development [36]. This of course must be developed in a comprehensive system to create an alternative food network sustainably [42] with urban farming planning based on social network support to more effectively address a healthy food supply [43]. A study shows that business motivation, human resource capacity, community participation, and economic business management have a significant effect on economic empowerment [28]. Therefore, the integration of local and organic food production can be developed in social agricultural businesses. Moreover, the integration of local food production and agroecology can be developed in family farming [44].

4 Conclusion
The Aisyiyah congregation empowerment activities through urban farming can provide insight and awareness of the importance of family resilience through healthy, productive, and aesthetically sustainable environmental management activities. The empowerment of women's community groups needs to be developed in a comprehensive system in creating resilient families in terms of food, health, physical, social, and economic environment in a sustainable manner. In this case, motivation, and physical and mental health can be considered as important factors in the implementation of empowerment programs.

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