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Bioentrepreunership for orphanages by making kokedama and capillary system plant cultivation.

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Abstract. Bumi Nusantara Medan Orphanage is an orphanage located in Medan Sunggal District, Medan City. The location of the orphanage is quite close to the location of shops, schools and residential areas, so it is very strategic to be developed into a place of business considering that access to markets and buyers is very close. The purpose of this community service is to increase the empowerment of the orphanage community through urban farming-based bioentrepreneurship by making kokedama and capillary system plant cultivation, so that it becomes a business opportunity that can improve the welfare of the orphanage. The implementation method that will be carried out to solve this problem is through introduction, training and manufacture of kokedama and capillary system plant cultivation accompanied by direct practice and mentoring, and business management training. The results of the service that have been achieved are training and assistance in making kokedama and capillary system cultivation, training and hands-on practice on how to make kokedama, training and direct practice, namely training and mentoring in making kokedama and capillary system cultivation.

Keyword: Orphanage, kokedama, capillary system plant cultivation

Abstrak. *Panti Asuhan Bumi Nusantara Medan merupakan panti asuhan yang terletak di Kecamatan Medan Sunggal, Kota Medan. Letak panti asuhan tersebut cukup dekat dengan lokasi pertokoan, sekolah dan pemukiman penduduk, sehingga sangat strategis untuk dikembangkan menjadi tempat usaha mengingat akses terhadap pasar dan pembeli sangat dekat. Tujuan pengabdian kepada masyarakat ini yaitu untuk meningkatkan pemberdayaan masyarakat panti asuhan melalui bioentrepreneurship berbasis urban farming dengan pembuatan kokedama dan budidaya tanaman sistem kapiler, sehingga menjadi peluang usaha yang dapat meningkatkan kesejahteraan panti asuhan. Metode pelaksanaan yang akan dilakukan untuk memecahkan masalah tersebut yaitu melalui pengenalan, pelatihan dan pembuatan kokedama dan bubidaya tanaman sistem kapiler disertai praktek langsung dan pendampingan, dan pelatihan manajemen usaha. Hasil pengabdian yang telah dicapai yaitu pelatihan dan pendampingan dalam pembuatan kokedama dan budidaya sistem kapiler, pelatihan dan praktek langsung cara pembuatan kokedama, pelatihan dan praktek langsung yaitu pelatihan dan pendampingan dalam pembuatan kokedama dan budidaya sistem kapiler.*

Kata Kunci: *panti asuhan, kokedama, budidaya tanaman sistem kapiler*

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1. Introduction

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Orphanage is a social welfare institution established by the government or the community, which is responsible for providing services, sponsorship and alleviation of neglected children. The function of the orphanage is to replace the role of parents in meeting the mental and social needs of foster children so that they have broad opportunities to experience physical growth and develop their minds to reach a mature level of maturity and are able to carry out their roles as individuals and citizens in social life.

Bumi Nusantara Medan Orphanage is an orphanage located in Medan Sunggal District, Medan City. The location of the orphanage is quite close to the location of shops, schools and residential areas, so it is very strategic to be developed into a place of business considering that access to markets and buyers is very close. In addition, the opportunity to create a business is also very large, because there are many foster children (27 people) and orphanage caregivers who can manage businesses outside of learning.

However, until now the orphanage does not have a productive business due to limited skills and capital, so to carry out all its activities the orphanage receives support from the orphanage's operational funds, zakat, infaq and alms as well as donations from halal and non-binding donors.

In an effort to increase the empowerment of orphanages, efforts are needed to improve their welfare by creating business opportunities that generate income. The orphanage wishes to have a productive business by utilizing its limited yard for urban agricultural activities, so it is hoped that the orphanage will have economic independence to reduce dependence on donors and at the same time provide skills for orphanage children in entrepreneurship (entrepreneurship).

Along with the increasing public attention to plants today, urban farming-based business opportunities have very good prospects to be developed. One of the plant cultivation businesses that can be developed is bio-entrepreneurship, by making kokedama and capillary system plant cultivation.

Kokedama is a technique and art of planting from Japan, derived from the words koke meaning ball and dama meaning moss. Linguistically, Kokedama means "moss ball" or "moss ball". This planting technique places the plant in a ball of soil and then wraps it with moss (moss) then tie it with ropes. The aims are to beautify the shape of the plant and minimize the level of plant watering, so there is no need to water the plants every day. Generally, these plants are placed on plates/mats or hung [1] [2].

Until now kokedama has undergone many changes and currently kokedama is used as an ornamental plant in the house (indoor). The kokedama method using moss as a substitute for moss also helps the utilization of coco fiber (coco fiber). The technique of planting kokedama is not widely known by the Indonesian people, thus becomes a business opportunity in empowering the orphanage community and improving their welfare.

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In utilizing the limited land in the orphanage, kokodema can uses capillary system, which cultivates plants in polybags/containers with capillary system continuous water access made of flannel. This system is similar to the Wick hydroponic system, where plants are grown on media with an axis [3].

The principle of the capillary on the piece of cloth that is placed into the pot is used to absorb water from small gaps to drain the water as a water reservoir. The capillary wick system has many benefits for reducing water loss, achieving uniform production per pot and increasing water use efficiency. The wick system with the working principle of capillarity can use a variety of growing media, such as sand gravel, roasted husks and coconut fiber [4]. The axis acts as a capillary, namely propagation through capillary fibers in the form of narrow axis gaps. There are several types of wicks, namely the fabric axis, the bond knitting axis, and the stove axis (fiber rope). This wick rope is made of cotton wrapped in nylon. The advantage of the axis rope is that it is flexible (high elastic level). Therefore, the wick rope was chosen as the capillary in underground irrigation. It is intended as a capillary for underground irrigation to save water needs of plants [5] [6] [7].

The problems faced by the orphanage were the limited yards that could be used for agricultural activities, the lack of skills in bioentrepreneurship in agriculture to utilize the limited yards and the lack of small business management skills in agriculture as well as techniques for managing small businesses in agriculture. techniques to develop it into a business. The orphanage has a yard of 5 x 16 meters which can be used for making kokedama and capillary system cultivation. Orphanages that have as many as 27 foster children can be empowered to manage capillary and kokedama system cultivation, in between their learning activities

Based on the analysis of the situation and problems of the partners mentioned above, the priority matters to be addressed include the making of kokedama and the cultivation of capillary systems, accompanied by hands-on practice.

2. Method

Based on the problems faced by partners, empowerment efforts that can be done are orphanage bioentrepreneurship through the making of kokedama and capillary system plant cultivation. Making of kokedama and the cultivation of capillary systems is expected to solve partner problems in increasing orphanage empowerment, utilizing limited land and improving orphanage welfare.

The approach method that will be used to support the realization of community service programs for partners is participatory empowerment, which includes lectures and discussions (training), mentoring, monitoring evaluation and assistance with materials and tools. The method used in this program is in the form of :

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2.1 Lectures and Discussions (training) and mentoring

Lectures and discussion materials are socialization to partners about kokedama: characteristics, benefits, advantages, manufacturing methods and maintenance methods. Lecture materials are:

- Creation and maintenance of kokedama. Lecturer : Yaya Hasanah.
- Capillary system plant cultivation. Lecturer : Lisa Mawarni.
- Application of fertilizers in capillary system crop cultivation. Lecturer : Hamidah Hanum.
- Skill management. Lecturer : Yaya Hasanah, Lisa Mawarni

The community service team also provides assistance in direct practice of making kokedama and capillary system plant cultivation. Considering, still in the Covid-19 pandemic condition which requires social and physical distancing, the lecture and discussion meetings (training) that are carried out refer to the procedures recommended by the Government, that the meeting is not more than 30 people, so that it is carried out in stages and is also used by other interactive media such as Youtube and articles and brochures about kokedama and capillary system cultivation. The community service activities were directly attended by 23 orphanage children and 2 orphanage administrators. Information dissemination is also carried out through Youtube on the https://www.youtube.com/watch?v=upU7xfiD8Vg&t=49s

2.2 Live Practice:

- Kokedama manufacture and maintenance
- The practice of capillary system plant cultivation by utilizing limited land in the orphanage.

This community service activity really requires active participation from both parties. Universities (USU) play an active role in empowering partners by carrying out the process of technology transfer from universities to partners. Likewise, partners play an active role in the implementation of community service in providing a place for training locations, training sites in the manufacture of kokedama and capillary system plant cultivation, plant care and maintenance.

Partners are expected to have high enthusiasm and actively participate in understanding the manufacture of kokedama and capillary system plant cultivation. Close cooperation and active participation of the Higher Education community service team (USU) and partners are the keys to the success of the community service program that will be carried out.

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The realization of this community service program is also expected to be able to foster an entrepreneurial spirit among partners and provide innovation (technology transfer) from universities (USU) to partners through partner empowerment (orphanage) through making kokedama and capillary system plant cultivation. After the activity is carried out, the community service team and partners must evaluate activities to measure the success of the activities that have been carried out.

3. Results and Discussion

3.1. Lectures and Discussions

a. Preparation phase

- Hold a team discussion about the training plan and training materials to be provided.
- Re-contact the management of the Bina Nusantara Orphanage to determine the time and place for the implementation of community service.

b**. Implementation Stage**

At this stage the training is carried out in the following sequence of events:

Lectures and discussion materials are socialization to partners about kokedama: characteristics, benefits, advantages, manufacturing methods and maintenance methods. Lecture materials are:

a. Kokedama manufacture and maintenance. Lecturer : Dr. Ir. Yaya Hasanah.

b. Capillary system plant cultivation. Lecturer : Dr. Ir. Lisa Mawarni.

c. Application of fertilizers in capillary system crop cultivation. Lecturer : Dr. Ir. Hamidah Hanum, MP.

- Discussion and question and answer with the training participants.

3.2. Hands-on practice of making kokedama and capillary system cultivation

The direct practice of making kokedama and cultivating a capillary system is carried out at the Bumi Nusantara Orphanage, covering stages including the preparation stage for activities and the implementation stage for activities.

a. Activity Preparation Stage

- Hold team discussions to discuss plans for preparing kokedama production and capillary system cultivation

- Contacting, holding discussions with the management of the Bumi Nusantara Orphanage regarding the location of the practice of making kokedama and capillary system cultivation
- Determine the location of kokedama making activities and capillary system cultivation
- Prepare practical tools and materials in the form of cayenne pepper seeds, buckets, baskets, flannel, cocopeat, top soil, roasted husks, coconut fiber, plants for kokedama, sewing thread, hemp rope, scissors and rock wool.

3.3. Activity Implementation Stage

a. Making kokedama at the Bumi Nusantara Orphanage

Stages of making kokedama activities:

1) Preparation of tools and materials for making kokedama

Required tools are the plate as a container to form the planting medium, plastic or bowl to help shape the soil into a ball shape, nylon thread for tying, forming balls and hanging balls, hemp rope. Materials needed are dried coconut coir/sphagnum moss, coco peat, husk charcoal, manure, selected plants (according to taste), water

2) Ways of making :

1. Form a ball. Soil: mix top soil: coco peat: husk charcoal = 1:1:1, add a little manure until well mixed. The function of the bowl or plastic is to form the soil mixture. Add water to the soil so that the soil feels soft like dough. Soil ball dough should be kept as good as possible, shape the ball as desired, neither too big nor too small. Make sure that the ball of soil can hold the water in the roots of the plant.

2. Take dry sphagnum moss/coconut coir and carefully wrap the earthen ball. Then, tie the plant with colorful threads according to the place. Once tied, don't forget to drill holes in the soil ball so the roots can breathe. To beautify, it can be wrapped with hemp rope with a certain motif and leave a thread to hang the plant on the garden wall.

3) Maintenance :

- For treatment, it is enough to be watered (sprayed) using water as well as fertilizer.
- Fertilization is done two weeks to once a month.

The need for plants for sunlight needs to be considered. If the plant is placed indoors, then every two weeks the plant can be removed to get sunlight and the leaves do not become dull and pale. If the media is too dry, the media can be soaked in water and then removed to drain.

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b. Capillary system cultivation practice

Tools needed are paint bucket size 4.6 L, basket, scissors, flannel, rock wool, measuring cup. Material needed are cayenne pepper seeds, burnt husk, topsoil, AB mix nutrition liquid.

Ways of making :

1. Cut the flannel fabric measuring 4 cm x 35 cm
2. The basket is perforated, then put flannel in the hole
3. Place the rock wool between the holes where the flannel has been placed

How to make AB mix solution:

- Seedling period: 3 ml concentration A + 3 ml concentration B per 1 liter of water
- Growth period: 5 ml concentration A + 5 ml concentration B per 1 liter of water
- Fertilization period: 7 ml concentration A + 7 ml concentration B per 1 liter of water, increase gradually to 10 ml per 1 liter of water so that the flowers don't fall out

How to treat : Nutrition is added once a week if it rains a lot, and every 2 days if it rains

C. Handover of technology transfer goods

In this community service activity, the transfer of technology transfer goods has been carried out in the form of materials and tools for making kokedama and capillary system

Fig. 1. Kokedama making training

Fig 2. Capillary system plant cultivation training

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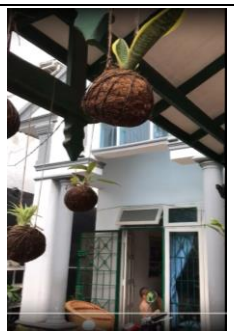

Fig 3. The resulting kokedama product

Fig. 4. USU community service team and participants

Fig. 5. Community service posters to facilitate understanding in making kokedama

Fig 6. Community service posters to facilitate understanding in making and maintenance capillary system cultivation

cultivation (bucket, filter, rock wool, flannel, cayenne pepper seeds, coconut fiber, roasted husks, top soil). , coco peat, sewing thread, hemp rope and plants for kokedama)

The realization of this community service program is also expected to be able to foster an entrepreneurial spirit among partners and provide innovation (technology transfer) from universities (USU) to partners through partner empowerment (orphanage) through making kokedama and capillary system plant cultivation. The results show that as many as 80% of the dedication understands the procedure for making kkedama and capillary

cultivation, and the orphanage administrators are very enthusiastic to continue the next activity.

4. Conclusions

Training on making kokedama and capillary system cultivation improves the understanding of caretakers and orphanage children in the form of limited land use based on urban farming. Kokedama products and capillary system plant cultivation products are worth selling so that they can increase the empowerment of orphanages and have very good prospects for being marketed so as to increase the orphanage's income.

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