

Eco Lindi Without Odors for Organic Waste Management, Training in Various Organic Waste Crafts, and Digital Marketing for Improving the Family Economy

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Introduction

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ABSTRAK

The Thai government has realized the serious problem of environmental pollution due to plastic waste. In everyday life, plastic has become an important and integral part of societies around the world due to its various uses, such as packaging, agriculture, auto parts, electronic applications and medical devices. This results in approximately 2 million tons of plastic waste being generated per year. Managing organic waste in the form of stacked buckets does not require large areas of land and equipment is easy to obtain. This activity includes: a. training and practice in making stacked buckets, b. training in making crafts from inorganic waste, and c. digital marketing training for product sales. The expected output of this activity is that Muhammadiyah residents in Thailand have an understanding regarding making stacking buckets independently so that organic waste management is more optimal. The next output is increasing the community's skills in making crafts by utilizing inorganic waste and turning it into a product to be marketed and can increase family income and well-being.

INTRODUCTION

Increasing public consumption is not in line with the optimal waste management capacity of either the government or the community itself. Wastemanagement that is less than optimal will result in environmental pollution and public health. Therefore, strategic efforts are needed, empowering sustainable waste management to reduce the volume of waste with awareness of implementing the 5M concepts: reducing, sorting, utilizing, recycling and saving waste, increasing the role of waste banks, and focusing on self-sufficiency. The ever-increasing volume of waste and limited provision of final disposal land and inadequate waste processing is not a new problem in Indonesia. The production of household waste in the form of organic and inorganic is increasing every day, this condition is increasingly worrying if it is not addressed. This is due to changes in people's consumption patterns (Rachmawati and Susilawati 2020), activity patterns, socio-economic life patterns and technological development (Setyowati & Mulasari, 2013). The phenomenon of waste volume is an indication of people's habits that tend to ignore waste, but in managing waste there has been no real massive movement and has not had an impact on the volume of waste which continues to increase, in fact, independence in waste management has not yet become a massive movement so it has not had an impact on reducing the volume of waste produced. In fact, in 2015 there was a spike reaching 450 tons/day or around 164,250 tons/year (Sulistiyani & Wulandari, 2017). Most people have the habit of simply burning rubbish because it is considered more practical so that it does not pile up in the house. This can endanger respiratory health and damage the environment and be a source of disease. Plastic waste is a problem faced by people not only in urban areas, but has also spread to rural areas. Maintaining a clean environment is the responsibility of all community members. The public does not fully understand the economic value of waste management, especially plastic waste that is difficult to decompose. Waste and its problems will never end, it is synonymous with smell, dirty and a source of various diseases, but if managed well it can become a product of high economic value and become a source of additional income.

In everyday life, plastic has become an important and integral part of societies around the world due to its various uses, such as packaging, agriculture, auto parts, electronic applications and medical devices. The plastic fabrication process can be modified into various shapes, colors and specifications according to customer

requirements. As a result, the amount of plastic waste is increasing due to increasing plastic consumption due to increasing population (Wichai-Utcha, Chavalparit, & Management, 2019). It is estimated that around 12% of the total amount of waste produced in Thailand is plastic waste. This results in around 2

million tons of plastic waste being generated per year. It is also estimated that plastic waste in Thailand is recycled at a rate of around 0.5 million tonnes per year, while the remaining 1.5 million tonnes is mostly single-use plastic (SUP) such as hot bags, cold bags, handle bags, plastic cups, plastic straws, foam boxes, and food containers. Stacked buckets are a way of processing organic waste into compost using a composter. Organic waste such as kitchen waste, leftover vegetables and fruit, can be used as a source of compost and liquid organic fertilizer.

Stacked buckets can be used by individuals but also This can be done in groups for Muhammadiyah citizens in Thailand. What is a stacked bucket reactor? It is an organic waste processing reactor using 2 stacked buckets. Buckets can be leftover paint buckets that are no longer used. Buckets can also be replaced with gallons of mineral drinks that are no longer used. The organic waste processing process is assisted by Hi larvae (*Hermetia illucens*). On a household scale, *Hermetia Illucens* is also known as BSF or black soldier fly. Hi larvae can help the aerobic composting process and speed up the process of decomposing organic waste in stacked reactors. Stacked bucket reactors also allow separate flows of leachate and solid material thereby producing liquid fertilizer. The stacked bucket method uses simple and inexpensive equipment. This technology is very easy to apply at home. Stacked buckets are able to process organic waste into environmentally friendly organic fertilizer. With a stacked bucket, anyone can make cheap organic fertilizer and support agricultural land that is starting to lose its fertility. Stacked Buckets are used on the basis that land is increasingly limited for traditional waste processing and the need for compost for plant nutrition and the large amount of organic waste that is wasted and becomes waste that piles up and smells bad. Therefore, the aim of this community service activity is to provide education to residents so they can process household waste into compost which is expected to be much more beneficial for surrounding plants. Crafts using inorganic waste can strengthen the role of waste banks as an entrepreneurship-based educational facility. Educational means to provide awareness of the importance of waste management for the environment along with the creative entrepreneurial spirit of individuals are able to create business opportunities by managing organic waste (Winarso, 2011). Residents are also the ones who determine the sustainability of community-based waste management programs (Kristina, 2014)

Methodology

The service program is implemented through the following steps:

Target Selection The service team first conducted observations and interviews with the team from PCIM Thailand regarding implementation. The member had discussion with potential partners to dig up information related to the potential of the hamlet and the potential of natural resources. After the observation was carried out, and through various considerations of problems and feasibility, the proposed solution or program was presented to partners through program socialization activities.

- A. **Implementation Methods** The group targeted in this service activity was Muhammadiyah citizens from Thailand. Implementation of this service went through several stages, including:
1. **Preparation.** This activity begins with the socialization of the service team's work plan.
 2. **Implementation** According to the agreed activity plan, there are 3 types of activities carried out, namely training and practice in making stacked buckets, training and practice in making various crafts from inorganic waste and digital marketing instructors to market handicraft products.
 3. **Evaluation** The evaluation stage was carried out to measure the level of understanding and success of an activity that has been carried out in the form of distributing pre-tests and post-tests.

The science and technology that were transferred to partners is the result of research by the proposing team, and is in accordance with the priority problems with the aim of implementing this science and technology to provide solutions.

The science and technology that will be applied in society includes, First, building awareness to manage waste, especially household organic waste, to make it economically valuable. The second is the application of technology to utilize organic waste in the form of unprocessed vegetable waste into liquid fertilizer. Training and hands-on practice in making crafts in the form of flowers as home decoration from plastic waste and flowers from unused towels. The third is applying technological developments to carry out digital marketing. The science and technology overview plan is as follows:

1. **Identifying potential organic waste problems that have not been utilized by the community** Everyone is an organic and inorganic waste producer. Accordingly, every household is also a waste producer. The average waste produced by each person in a day is 0.67 kg. If five family members are in one house, you can calculate how much waste is produced. Therefore,

outreach will be carried out to increase public awareness to manage organic waste properly.

2. Application of simple technology in the practice of making stacked buckets Mixed waste is recycled. It takes a lot of money and time to recycle mixed waste. Therefore, the right step is to sort household waste. Communities are required to manage household organic waste so that it does not fill landfills. Organic waste that has been sorted can be managed with very simple and easy technology. Namely stacked buckets, used paint buckets are stacked into a single unit and a tap is attached to the bottom which is used to remove leachate as liquid fertilizer. The organic waste processing process is assisted by Hi larvae (*Hermetia Illucens*).

On a household scale, *Hermetia Illucens* is also known as BSF (Black Soldier Fly) or black soldier fly. The Hi larvae can help the aerobic composting process and speed up the process of decomposing organic waste in stacked reactors. Stacked bucket reactors also allow separate flows of leachate and solid material, thereby producing liquid fertilizer.

3. Identifying the benefits of liquid fertilizer produced from the decomposition of organic waste can make the soil loose and plants grow well
4. Training on crafts from plastic waste can be marketed online and offline
5. Digital Marketing for selling craft products The activity begins with exposing brand awareness to the public. Brand awareness is the ability of consumers to recognize or remember a brand, including names, images, logos, and also certain slogans that have been used by the brand in promoting partner products and assisting in standardized bottle packaging. Program dissemination
 - a. Creating online promotional media for Facebook, Instagram, Website, YouTube
 - b. Training on the use of online promotional media
 - c. Making marketing videos
 - d. Preparation of event marketing conceptsMeasuring results/public response to products

RESULT And DISCUSSION

Partner Problems

are:

- a. Knowledge of how to manage organic waste is not yet optimal, only a few have managed household organic waste independently.
- b. Procurement of organic waste management equipment is hampered by lack of costs.
- c. Residents have not optimally managed inorganic waste, especially plastic waste which is difficult to decompose.

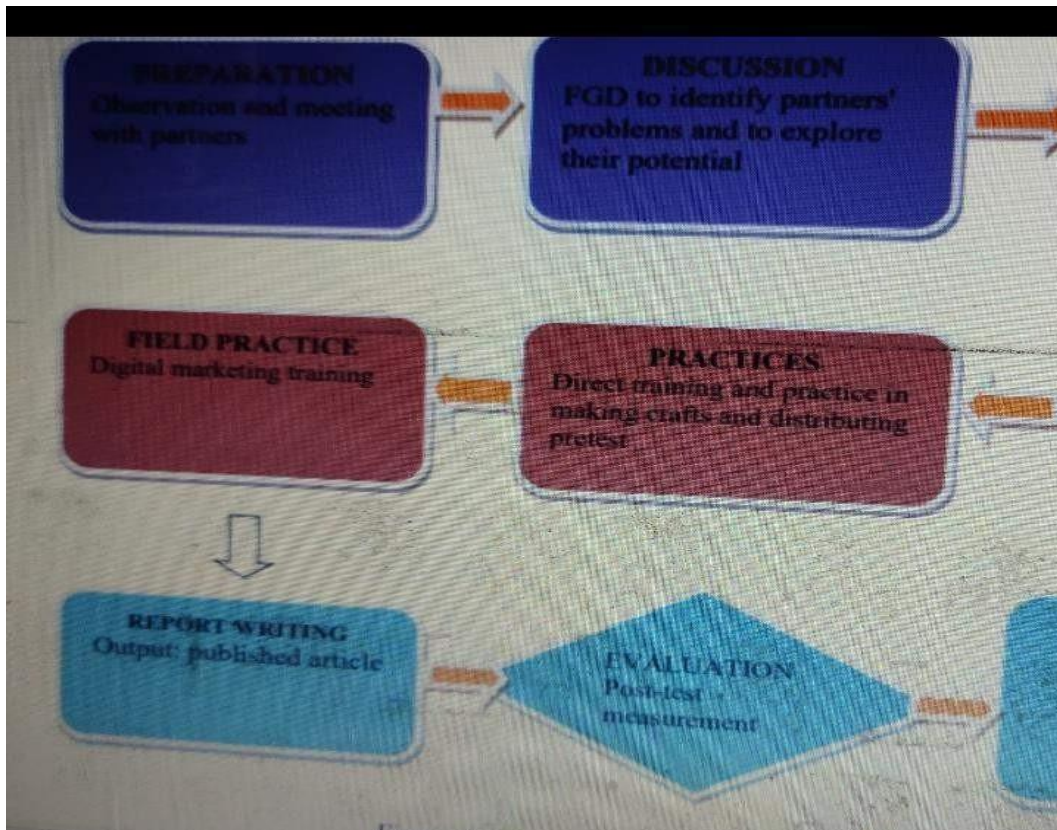
This service program has the following objectives and solutions: a. Knowledge of how to manage organic waste is not yet optimal, only a few have managed household organic waste independently. The solution offered will be training in the use of household organic waste and direct practice in the process of making stacked buckets so that each household has 1 unit of stacked buckets. b. Procurement of organic waste management equipment is hampered by lack of costs. The solution offered is the procurement of all the equipment and supplies needed to make stacked buckets. Management of inorganic waste is not yet optimal because knowledge is still minimal. The solution offered is providing training to utilize inorganic waste into products for sale. Digital marketing training to sell handicraft products thereby increasing family income.

Outputs

This program expects several outcomes, including:

- b. Community service publication manuscript.
- c. Equipment for making stacking buckets and every resident's house has it.
- d. Equipment for making crafts from inorganic waste.
- e. Understanding of digital marketing to market products.
- f. Application of science related to organic waste management mechanisms.
- g. News Releases in Mass Media and other social media, YouTube, Instagram, and Facebook.
- h. Presentation at a seminar or scientific meeting.

Figure 1. Flowchart of Implementation of Community Service



FOLLOW-UP PLAN

After attending the training, the partners are expected to develop their own self-made stacking buckets and use them for liquid fertilizer and handicraft products that can be sold and increase household income. Measuring the results/response of the community/partners to the implementation of activities was also a part of evaluation.

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