COMMUNITY EMPOWERMENT IN MANAGING WASTE THROUGH TAKAKURA TRAINING

Suzi Soliati

IKIP Siliwangi

suzisoliati@gmail.com

ABSTRACT

Household waste from approximately three million residents of the city of Bandung, every day reaches approximately 2000 tons or reaches 6195 cubic meters consisting of 65% organic waste, 10% paper, 2% plastic, 1% glass, 1% cloth, 8% metal and other 13%. In terms of waste management, each region has the potential that if managed and utilized properly will help improve their quality of life. Society has an important role in efforts to empower the community, because society is the subject of empowerment. The RT.04 RW 011 administrator at Kompleks Pasirjati Bandung was moved to empower the community in managing household waste through Takakura / composting training. This training aims to empower the community in reducing household waste and in maintaining environmental cleanliness through environmentally friendly waste management. The training participants were residents in the Kompleks Pasirjati neighborhood RT.04, RW. 011 Bandung City, 22 people.

Keywords: *Trash, Takakura*

INTRODUCTION

Garbage is a big problem faced by people in the world today including in Indonesia. One of the environmental pollution is caused by organic waste mixed with inorganic waste so that it releases carbon from waste into the air which adds to global warming. Waste management in major cities in Indonesia generally uses open dumping methods. Stockpiled waste is left open or not closed daily with soil, and leachate collection and processing systems (waste water) are not optimal. Methane gas arising from biochemical reactions of waste is not controlled so that fires often occur in landfills (TPA). This type of landfill (TPA) is very damaging to the environment and is a source of various diseases and other problems such as landslides

Household waste from approximately three million residents of the city of Bandung, every day reaches approximately 2000 tons or reaches 6195 cubic meters consisting of 65% organic waste, 10% paper, 2% plastic, 1% glass, 1% cloth, 8% metals and other 13% (Data taken from Sahdu waste bank). If each community member actively manages household waste as a manifestation of his responsibility, then the amount of garbage load in the final disposal site will be greatly reduced. Every day we produce waste whose type depends on its activities. Each type has a different processing method. Mixed waste causes expensive processing costs. Therefore, the key to waste management is segregation, or the separation between one type of waste and another type of waste.

Waste management that can be carried out by the community to reduce the amount of waste entering the landfill includes the method of processing organic waste through controlled decay known as composting or composting. Another benefit of waste management techniques

by composting is that it can make fertilizers that can fertilize plants. Compost is organic materials (organic waste) that have undergone a weathering process because of the interaction between microorganisms (decomposing bacteria) that work in it. These organic materials such as leaves, grass, straw, the remnants of twigs and branches, animal droppings, flower fall, urine, etc. are stated by Murbandono in (Suhastyo, 2017). Takakura is known as a compost basket, which is one of the models of household-scale wet waste treatment equipment. This processing system is suitable to be placed indoors, because it does not require large rooms and also does not smell based on PPLH and Widyawati in (Handaratri & Yuniati, 2015).. Takakura method can be done easily because of its aerobic nature where air can be passed naturally through basket holes so that the growth of microorganisms can take place well in decomposing waste into compost according to W.Kurniati dalam (Handaratri & Yuniati, 2015).

Waste issues must be handled jointly between the government, non-governmental organizations and the community itself. In terms of waste management, each region has the potential that if managed and utilized properly will help improve their quality of life. Society has an important role in efforts to empower the community, because society is the subject of empowerment. So community empowerment is not fully the responsibility of the government. Therefore it requires shared awareness and commitment towards changing attitudes, behaviors and ethics that are culturally environmentally sound. Praising Islam about protecting the environment, 'Do not damage the earth after God has fixed it. But he exclaimed with fear and longing. Indeed, Allah's mercy is near to those who do good "(QS Al A'raf, 56). Based on Ayat Qauniah and the above problems, the management of RT.04 RW 011 in Kompleks Pasirjati Bandung was moved to empower the community in managing household waste through Takakura / composting training.

METHOD

Community education activities are provided through training in the form of takakura training to manage organic waste into compost, this training is held on Saturday, September 15, 2018, located in Kompleks Pasirjati. Street. Jatiluhur IV City of Bandung. Participants were residents in the Kompleks Pasirjati neighborhood RT.04, RW. 011 Bandung City, 22 people.

The method used in this training activity is the provision of material and demonstrations. Participants listened to the presentation from the speaker followed by the Takakura making demonstration. The tools used in the training are forage / leaves, kitchen waste rice husk, granulated sugar, water, machetes / knives, trash baskets, boxes, basket cover cloths and small shovels.

RESULTS AND DISCUSSION

Results

At first the garbage in the community has not been well managed so training needs to be carried out in managing waste properly. This training aims to empower the community in reducing household waste and in maintaining environmental cleanliness in Kompleks Pasirjati RT.04 RW.011 Bandung City through environmentally friendly waste management. All training costs are borne by the collaborating party, namely Bandung Eco Town with the RT management. 04 and RW.011 in Kompleks Pasirjati.

The speakers in this training were Ir. Mohamad Satori, MT, who lives in Puri Cipageran Indah 2 Blok D2 No. 15 West Bandung Regency. His daily activities are as a lecturer in the

Industrial Engineering Study Program, Faculty of Engineering, Unisba, the founder of the Bandung Upcycle Shop (BUS). "BUS is a place to collect various products made from garbage made by craftsmen and garbage banks". M. Satori is a graduate of the ITB Postgraduate Program in the Department of Development Studies, was awarded the West Java Governor and West Java BPLH in 2014 and 2015 for being considered istiqomah in fostering communities in sanitation management, especially waste management in West Java since 2000.

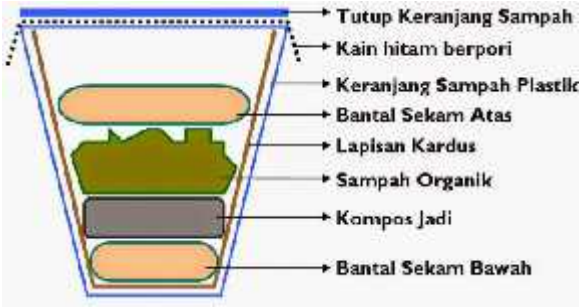
The material provided is about takakura Basket Takakura is a basket of compost makers (composter) that is very concise and practical. As the name implies, this basket is thought by Pak Koji Takakura from Japan. This processing system is suitable to be placed indoors, because it does not require large rooms and also does not smell according to PPLH and Widyawati in (Handaratri & Yuniati, 2015).

Types of waste processed in takakura baskets:

- Remaining vegetables. Ideally the remaining vegetables are not stale.
- But if it's stale, wash the vegetables first, squeeze, then urinate.
- Remaining rice.
- Remaining fish, chicken, eggshells etc.
- Soft fruit waste (grapes, orange peels, apples, and etc). Avoid putting hard fruit peels such as bark

How to use Takakura baskets: (1) Store the basket in the shade. Don't forget to sweep the bottom of the basket periodically so there are not many ants or scattered husks around it. (2) The garbage put in the basket should be in the form of leaves / vegetables / fruit. It is not recommended to dispose of the remains of protein / bone / chicken / fish / meat even though some people try to throw them in the takakura basket with good results. Baskets that function well decay run fast, do not smell, temperature is warm. In fact, in the morning when the basket is opened, it appears warm steam. Slice the trash so the breakdown is fast. (3) Dispose of kitchen organic waste in the filter basin in the sink. Let the garbage wash off the dish water. Cover with a lid. Use so that vegetable waste is washed and eggs are washed away to prevent maggots from growing in takakura baskets. (4) If the garbage in the filter basin is full, enter it into the takakura basket. Cover again with a few new shovels. This makes garbage disposal more practical (for example 2 times a day). The principle in making compost is 'organic bombs', which is to throw large amounts of garbage every time, rather than throwing garbage a little into the basket. After that, just rub the rubbish with water so that decay occurs. It's better if the water is washing rice or sweet water / sugar.(5) Note the comparison of chaff / soil with garbage, must be balanced. If the contents of the basket start full or runny enter the new husk and soil. (6) If the composting process occurs well, the outer side of the basket will feel warm to the touch. The composting process has a very significant effect in reducing the total number of bacteria and coliform bacteria. This happens because of an increase in temperature that occurs during the composting process. The temperature during composting reaches thermoofilic for all reactors. The increase in temperature during composting is a result of reforming organic matter in market waste. This is in line with the opinion of Dalzell et al. 1987 in (Puspa dan Ganjar, 2017) that a certain amount of energy will be released in the form of heat directly in the reform of organic matter, this results in rising temperatures in the compost pile. Because the composting process is 'aerob' or requires oxygen, the contents of the basket should be stirred with hand shovels every day. (7) If the basket is full (long enough, it can take 3-4 months depending on the volume of garbage) just

leave this basket and use another basket to dispose of your trash (so make two takakura baskets). Compost in the first basket will eventually dry up and get stuck. If it is dry, the contents of this basket can be spread around your fruit tree or for ornamental plants after first being chopped (I did not do it, but immediately spread). (8) Another way to fill a full basket is poured over a plastic sack. Waste that has not been decomposed is put into the basket again. Waste that has been decomposed (compost) is aerated on a plastic sack in the shade until it dries (not dried) for about a week. If it's dry it can be spread in the garden.



Picture 1. Takakura Basket

Activities carried out by the community in managing organic waste are shown in the table below:

Table 1. Types of waste management activities prior to Takakura training

Types of organic waste	Management	Information
Kitchen trash	Thrown into the trash	Worthless
Leaves from trees	Burnt	Air pollution

From the table 1 above, the garbage found in the community has not been well managed where people only dispose of garbage to the trash so that the waste does not have any value and benefits while the waste burned will only cause air pollution, the waste management is certainly not environmentally friendly.

Table 2. Types of waste management activities after Takakura training

Types of organic waste	Management	Information
Kitchen trash	Takakura	Compost
Leaves from trees	Takakura	Compost

In table 2 that people who have taken takakura training in managing organic waste are put into takakura baskets, so the waste becomes valuable and has benefits for the environment where the waste that has gone through the composting process will turn into a fertilizer that is useful for plants.

Picture 2. Photos of material presentation about Takakura

Picture 3. Photos of takakura demonstration activities

The participants who were all women were very enthusiastic in participating in the training. This was seen when there was an interactive discussion about the material provided, namely takakura function, type of waste that could be used, method of making, how to manage, and harvest time of takakura basket. Female citizens can mobilize individuals and communities to participate and be active in environmental management according to Blocker and Eckberg in (Asteria Donna dan Heruman Heru, 2016). Women can become agents of change in urban environmental management, even as part of solving environmental conflicts in urban areas according to Asteria in (Asteria Donna dan Heruman Heru, 2016)

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Discussion

The waste produced by the community of Jati Endah village consists of organic and inorganic waste. The source of organic waste is obtained from cooking housewives in the form of kitchen waste and leaves from trees planted around the house, while routine inorganic waste is produced in the form of paper and plastic, although there are also cardboard, glass and metal, but in relatively small amounts .

Preliminary observations that have been made indicate that the community is accustomed to disposing of organic wastes such as leftover vegetables and leaves in trash or burnt places. Waste management in some areas has not been maximized both in urban and rural areas. This is influenced by the behavior of people who are less concerned about the cleanliness of the

environment so that waste is often disposed of on the roadside, sewers, gardens and even on riverbanks. According to Singhirunnusorn et al. 2012 in (Asteria Donna dan Heruman Heru, 2016) that changes in the way people think about managing household waste to reduce waste at source through citizen participation must be integrated into community-based projects

The unavailability of garbage disposal facilities also triggers dumping, burning and littering. Even though these activities have a negative impact on the environment and humans including floods, air, water and soil pollution, disrupt the aesthetics of the environment and sources of disease Conversely, if waste is managed well then the problem of garbage can not only be overcome, but also can be an alternative to improving the economy of the community according to Tobing (2014: 35).

The community empowerment activities of RT 04, RW 011 in Jati Endah Village, which took part in this training program, gained knowledge in the form of technology transfer on composting by takakura as an effort to utilize the potential of the surrounding environment in the form of organic waste. community members especially in Pasirjati Complex RT02, RW 011 Jati Endah sub-district, Cilengkrang sub-district, Bandung City after taking takakura training, the organic waste that was originally not valuable and not useful, with proper handling and management through takakura in the end organic waste becomes valuable and has benefits for the environment where waste that has passed through the composting process turns into compost. Takakura training also teaches the community to sort out waste, fostering community awareness to process waste wisely in order to reduce waste transported to landfills

Takakura training has demonstrated the ability of citizens to mobilize their communities to play an active role in managing waste in their environment while at the same time exercising social control in their communities. Takakura training has become a basic knowledge for the community to manage waste from the source, namely household waste. Community empowerment to shape the knowledge and skills of community members so as to be able to sort out organic and non-organic waste. The benefits of the ability of citizens to manage waste by using takakura have provided direct benefits, not only economically but also the realization of environmental health. Changes that occur in locations that have attended takakura training can be seen in Table 2. Where there is a decrease in the amount of organic waste thrown into the trash because organic waste has changed its function into compost.

So far, the people have not been too familiar with the benefits of compost. Even though compost has benefits including: 1) improving the structure of clay soil so that it becomes lighter; 2) increase the binding capacity of sandy soil so that the soil does not break; 3) increase the binding capacity of the soil to water and soil nutrients; 4) improve drainage and air management in the soil; 5) contains complete nutrients, even though they are few in number (this amount depends on the ingredients of the organic fertilizer); 6) helping the weathering process of mineral materials; 7) provide availability of food for microbes; and 8) reduce harmful microorganism activity according to Yovita-2001 in (Suhastyo, 2017). The pattern of managing the waste management program is also expected to develop programs related to community empowerment, especially in terms of equitable distribution of welfare including women (L Karwati, A Ansori, D Mulyono, 2018: 70).

CONCLUSION

Processing household waste through Takakura training, is one form of activity in an effort to empower the community who can:

(1) Giving birth to an independent society by creating conditions that enable the potential of the community to develop.
(2) The community has increased knowledge and skills about the benefits of organic waste as raw material for making compost using takakura.
(3) The program / activity is believed to be able to solve the problems faced, namely garbage that is of no value becomes valuable.

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