

Community Assistance in Managing Kitchen Waste to Become Organic Fertilizer

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Abstract

Researchers, together with the manager of the Asri Garbage Bank, formed a collaboration to socialize the habit of selecting waste. This kitchen waste will be made into compost and sold to the surrounding community. This activity aims to familiarize the people in Green Petunia Housing with managing waste to reduce the amount of garbage. The method used in this service is the PAR (Participatory Action Research) method, with stages through training, account creation practices, and mentoring. The training is carried out in three phases: preparation, implementation, and evaluation. The results obtained from this activity are that people are increasingly aware of the importance of selecting waste and getting used to processing waste to reduce the amount of plastic waste around them.

Keywords

composting; environment; household; organic waste.



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1. INTRODUCTION

Conditions in the home environment are one of the things that need to be considered when people are at home. The quality of a clean and healthy living environment will positively impact the body's immunity (Lehtimäki et al., 2021), (Hesti, 2020). The body will become more immune to viruses including the Coronavirus. Because it is at home, the household waste income also increases; if it is not processed correctly, it can cause other diseases seeds. In addition to plastic waste, kitchen waste such as food waste, cooking material waste, and fallen leaves is also quite a lot. Proven by the waste produced from settlements or household waste as much as 75% consists of organic and inorganic waste (Sulistyani & Wulandari, 2017). With that much garbage, if left alone continuously, it will mount and there will be a waste buildup.

The application of the 3R waste management concept in everyday life has yet to be implemented. Prinsip *Reduce, Reuse, Recycle* (3R) is the spearhead in handling waste in the community as if it were just an unfamiliar slogan (Yuwita et al., 2022), (Mirwan, 2021). Garbage is an item or object thrown away because it is no longer used (Sidiq, 2020). This paradigm makes people think that this garbage is an item that must be removed immediately at all costs (Botha, 2019). Therefore, this paradigm needs to be changed so that people have an awareness to manage their respective waste so that environmental problems due to waste can be manipulated.

In accordance with the researcher's work program, namely the technique of making organic fertilizer, the management of kitchen waste to be converted into compost is in line. Together with the Asri Garbage Bank in Green Petunia Housing, Namo Gajah Village, Medan Tuntungan District, Medan City, North Sumatra, researchers carried out this community service by socializing the importance of having a waste sorting culture and processing kitchen waste to be used as compost. This idea has been applied to RT 04 RW 03 Namo Gajah Village, but not all people know the importance of this waste-sorting culture.

The community and village officials' commitment to managing waste can minimize waste income in the Namo Gajah Village environment, especially in Green Petunia Housing itself. The role of the community here is not only to throw garbage but also to manage the waste so that later it can be used again. Therefore, this activity aims to familiarize the community in Green Petunia Housing with sorting waste to reduce the amount of garbage. Implementing this culture little by little it will have a significant impact on society.

Reducing landfill waste by doing 3R (*Reduce, Reuse, and Recycle*) which is then continued with household organic waste composting activities is considered effective to do (Halimah & Machdum, 2023), (Faizah, 2008). The composting method is the process of decomposing organic materials with the help of *microorganisms* with a period of about 3-4 months (Warjoto et al., 2018).

The advantage of the composting method is that the process and materials are straightforward and can even utilize the materials around us. That way, kitchen waste management activities using this composting technique can solve waste problems, especially in the community. The composting method is a technique of producing compost which is used as fertilizer and soil structure reinforcement. Composting accelerates the degradation process of organic matter with the help of microbes (Che et al., 2021), (Widjaja, 2023).

There have been several previous studies on the management of kitchen waste into organic fertilizer that various researchers in Indonesia have carried out. Some of the study's results are: presearch conducted by Leana et al. (2022) shows that community assistance programs in managing kitchen waste into organic fertilizer can improve community knowledge and skills in managing waste. In addition, this program can also increase the production of organic fertilizers that are beneficial for agriculture. Then presearch by Silviyanti et al. (2022) shows that community assistance programs in managing kitchen waste into organic fertilizer can increase public awareness about the importance of waste management. In addition, this program can also help increase agricultural productivity with the use of organic fertilizers produced. Further research by Yunita et al. (2020) shows that community assistance programs in managing kitchen waste into organic fertilizer can help reduce the amount of trash disposed into the environment and increase public awareness about the importance of waste management.

From the results of the study, it can be concluded that community assistance programs in managing kitchen waste into organic fertilizer are very important to increase public awareness about the importance of waste management and can also increase agricultural productivity with the use of organic fertilizers produced. This program can also help reduce the amount of organic waste produced and its negative impact on the environment. In this case the novelty of this article, namely from the new contributions brought by this research to the relevant field of study. In this case, if this journal article provides a new solution or a different approach from previous writings in overcoming the problem of kitchen waste management and organic fertilizer development, then it can be considered a unique contribution that can benefit

society and the environment. In addition, the novelty of journal articles can also be seen from the research methods used or research results that reveal new findings that have never been published before.

The objectives of this activity are: (1) to improve community knowledge and skills regarding waste management and (2) to familiarize the community to manage waste. While the benefits obtained from this activity are: (1) the creation of a clean and healthy environment, (2) reducing the amount of waste in the environment, (3) adding economic value by selling composting results.

2. METHOD

This approach, which is often called PAR (Participatory Action Research), is used in this service. Lewaherilla, Ralahallo, & Loppies (2022) argue that the PAR technique works both as an observer and actively participates. In this situation, the community in this case partners can use PAR as a guideline to direct, advance and evaluate their decisions and actions by logically considering an issue. With this strategy, all partner components can be fully involved in mentoring. By actively participating in the mentoring process, it will run smoothly, so that the waste problem can be resolved by reprocessing it.

Assistance in waste management training: through demonstration methods, presentations, discussions, and direct waste management practices. Community service partners are local leaders, RT Chairmen, RWs, and several residents. The mentoring process includes providing waste management training support to partners to improve their understanding of waste management. Ward Hall is a place where training and mentoring are practiced. The implementation of service began from July 1, 4 to August 15, 2022 community service stages were carried out related to making waste management strategies in residential environments, as follows:

This community service consists of several stages of implementation as a follow-up.

Preparatory Stage

The tools needed are materials around us to carry out this waste management. The tools and materials required are:

1. Small bucket
2. Used bottles
3. Hole in the ground
4. Large barrel



Figure 1. Kitchen Garbage Buckets and Used Oil Bottles



Figure 2. Composter



Figure 3 . Inorganic Waste Cans

Implementation Phase

The steps taken by residents in RT 04 Green Petunia Housing, Namo Gajah Village, are as follows:

1. Residents come with buckets filled with kitchen waste such as food waste, fruit or vegetable waste and yard waste such as dried leaves.
2. Then the waste is put into the composter that has been provided.
3. After putting the waste into the composter, the waste exchanger will get a reward in the form of hand soap, prying laundry soap, or even homemade liquid detergent.
4. After that, leave the garbage in the composter for 3-4 months so that the composting process by *microorganisms* can be carried out.
5. After fermentation, the compost will be black and smell of earth, then take the compost from the composter hole.
6. After that, sift to separate the fertilizer with stones or other impurities that have not been decomposed.
7. Finally, put the finished compost into a sack or plastic for sale.

3. RESULTS AND DISCUSSION

Community service programs in managing kitchen waste into organic fertilizer are very important programs to increase public awareness of the importance of waste management and can also help reduce the negative impact of waste on the environment. The following is an in-depth analysis of this community service programs:

1. Program benefits:

This program can provide great benefits to the community, such as increasing community knowledge and skills in managing waste, increasing agricultural productivity with the use of organic fertilizers, and helping to reduce the amount of organic waste discharged into the environment.

2. Cost savings:

By managing kitchen waste into organic fertilizer, people can save the costs of buying expensive chemical fertilizers. In addition, composting kitchen waste can also reduce the cost of transporting waste to landfill.

3. Positive impact on the environment:

Composting kitchen waste can reduce methane gas emissions from the decay of kitchen waste wasted on the environment. In addition, composting can also reduce soil and water pollution because no more debris is smashed into the atmosphere.

4. Improvement of skills and knowledge:

This program can help improve people's skills and knowledge about waste management and how to use it sustainably. With this program, people will be able to understand that waste is not only a problem, but also an opportunity to produce something beneficial for the environment and agriculture.

5. Program challenges:

This program's challenge is ensuring adequate and consistent community participation in managing kitchen waste into organic fertilizer. This requires efforts from facilitators or community assistants to continue to provide regular education and assistance so that this program can run sustainably.

This program can also greatly benefit the community in terms of cost savings, increased agricultural productivity, and increased skills and knowledge about sustainable waste management. Therefore, this program needs to be continuously supported and improved to create a community that is more aware of the importance of waste management and a healthy environment.

Assistance of other activities through waste exchange aims to provide education and provide understanding to residents about the importance of sorting waste. Here are some activities in exchanging waste and making compost in the RT 0 3 RW 04 environment of Namo Gajah Village. Community assistance programs to manage kitchen waste into organic fertilizer are very important to reduce the amount of organic waste produced and can also increase agricultural productivity by using organic fertilizer produced. This program can also raise public awareness of the importance of waste management and its positive impact on the environment.

1. Activities are carried out once a month, namely in the first week of the month at 08.00-09.00 WIB at the RT 03 RW 04 composter Namo Gajah Village. After putting the waste into the composter, the waste exchanger will get a reward in the form of hand soap, prying laundry soap, or even homemade liquid detergent.



Figure 4. Trash Exchange Schedule

2. After putting the waste into the composter, the waste exchanger will get a reward in the form of hand soap, prying laundry soap, or even homemade liquid detergent.



Figure 5. Examples of Garbage

3. Then residents who have come put the garbage into the composter that has been provided, except for the used oil.



Figure 6. Residents Put Garbage in Composters

4. After putting the waste into the composter, residents will get prizes or bonuses in the form of hand soap/dish soap/detergent processed by RT 04 residents as a reward.



Figure 7. Residents Exchange Garbage



Figure 8. Sample Soap

5. This activity was widely attended by mothers, especially PKK mothers in the RT 04 RW 03 neighborhood of Namo Gajah Village. But unfortunately, only a

few residents participate in this waste exchange activity because of the lack of public awareness of the importance of sorting waste



Figure 9. Conditions of Waste Exchange Activities



Figure 10. Organic Fertilizer Results

In carrying out this activity, the service team was assisted by Mr. Anggriawan Yuda as the originator of the idea of the Asri Waste Bank. The service team helped record data on residents who exchanged waste; besides that, the author also asked residents several questions to evaluate the work program of this organic fertilizer manufacturing technique.

The response from residents regarding this activity was very positive; they felt happy, especially mothers, because after exchanging garbage, they got hand soap/dish soap/liquid detergent that could save their expenses. In addition, later this finished fertilizer will be sold to the surrounding community, so they do not need to go far to buy fertilizer. Besides that, this organic fertilizer's quality is undoubted because without chemicals only use natural processes.

However, because it is considered troublesome and as a result of not being used to it, many residents are still indifferent to this activity; they feel that sorting waste will only make their work take a long time. This is the focus of the birth of the Asri Waste Bank in the RT 04 RW 03 Green Petunia Housing, Namo Gajah Village.

The activities of the Asri Waste Bank if continued and cultured to the surrounding community continuously will provide a very positive sampak. In addition to reducing waste on earth, it can also make this program as income, namely by selling composted fertilizer.

Community assistance in managing kitchen waste into organic fertilizer is a program that aims to provide understanding and skills to the community in managing kitchen waste into organic fertilizer that is beneficial to the environment and agriculture. Kitchen waste, usually considered useless and just thrown away, can be

used as organic fertilizer with proper composting. This program will help raise public awareness about the importance of managing waste and reducing the amount of waste generated. In the composting process, the kitchen waste produced can be processed into organic fertilizer that can be used to increase agricultural productivity. In addition, composting can also reduce methane gas emissions resulting from the decay of kitchen waste that is thrown into the environment.

In this program, the community will be trained to make composters with simple and easily available materials around the environment. The public will also be given information on how to properly and safely compost and how to utilize organic fertilizers produced for agricultural needs. In addition, this program can help improve people's skills and knowledge about waste management and how to use it sustainably.

With this program, people will be able to understand that waste is not only a problem, but also an opportunity to produce something useful and beneficial for the environment and agriculture. In the long run, the community assistance program in managing kitchen waste into organic fertilizer is expected to help reduce the amount of organic waste produced and sustainably increase agricultural productivity in a sustainable manner. This will help create a society that is more aware of the importance of waste management and a healthy and sustainable environment.

6. CONCLUSION

The application of organic waste management culture as a waste sorting culture in Green Petunia Housing, Namo Gajah Village using the composting method gives a positive response, in addition to increasing residents' insight, this work program also has many advantages such as utilizing used goods to be used as a place for the composter, getting used to sorting organic and inorganic waste and can be a selling business idea.

Community service activities like this are expected to positively impact society, such as increasing awareness about the importance of waste management, reducing the volume of waste disposed of into the environment, and producing organic fertilizer that can be used for agriculture or other purposes. In addition, mentoring activities can also help the community to be more independent in dealing with environmental problems and develop new skills in managing kitchen waste. Thus, this mentoring activity can benefit the community and the environment.

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