AMMA : Jurnal Pengabdian Masyarakat
Volume 4, No. 1 Februari (2025)
ISSN 2828-6634 (media online)
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Environmentally Friendly Household Organic Waste Treatment For The Community Of Majelis Taklim Annisa Swadaya-89 Gunung Terang Bandar Lampung

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Abstract - Household organic waste is all organic waste generated at home from daily activities. Household organic waste has been a problem because it causes unpleasant odors if it decomposes and is not treated, its presence left unattended in the home environment also triggers the growth of microorganisms and insects such as flies. Household waste comes from various sources, especially food waste, unnecessary purchases. Household waste can cause illness, air pollution and environmental contamination. Household waste treatment options include landfill, burning for energy, recycling, and composting. This community service activity aims to introduce organic household waste composting methods to the congregation of majelis taklim Annisa Swadaya-89, Gunung Terang, Bandar Lampung through the method of making eco-enzyme, making compost with the help of composting microbes, and introducing composting with maggot, so that people are familiar with composting and recycling activities. The results showed an increase in the participants' knowledge level as measured by the pre-test and post-test. The participants' knowledge increased by 32% from the average final score of the respondents. The positive results of this service activity can be used by the community as a basis for changing household waste treatment patterns, so that waste is no longer a problem that reduces the quality of household environmental health of the congregation of Majelis Taklim Annisa Swadaya-89 Gunung Terang.

Keywords: Organic Waste, Eco-Enzyme, Compost, Environmental Health

Abstrak *– Limbah organik rumah tangga adalah segala sampah organik yang dihasilkan di rumah dari aktivitas sehari-hari. Limbah organik rumah tangga selama ini menjadi permasalahan karena menimbulkan bau tak sedap jika membusuk dan tidak dilakukan pengolahan, keberadaannya yang dibiarkan begitu saja di lingkungan rumah juga memicu tumbuhnya mikroorganisme dan serangga seperti lalat. Sampah rumah tangga berasal dari berbagai sumber, terutama sisa makanan, pembelian yang tidak perlu. Sampah rumah tangga dapat menyebabkan penyakit, polusi udara, dan kontaminasi lingkungan. Pilihan pengolahan limbah rumah tangga meliputi tempat pembuangan akhir (TPA), pembakaran untuk energi, daur ulang, dan pengomposan. Kegiatan pengabdian ini bertujuan untuk memperkenalkan metode pengomposan limbah rumah tangga organik kepada para jamaah majelis taklim Annisa Swadaya-89, Gunung Terang, Bandar Lampung melalui metode pembuatan eco-enzyme, pembuatan kompos dengan bantuan mikroba pengompos, dan pengenalan composting dengan maggot, sehingga masyarakat terbiasa dengan kegiatan pengomposan dan daur ulang. Hasil menunjukkan adanya kenaikan tingkat pengetahuan peserta yang diukur dengan pre-test dan post-test. Pengetahuan peserta meningkat sebesar 32% dari rerata nilai akhir para responden. Hasil yang positif dari kegiatan pengabdian ini dapat digunakan oleh masyarakat sebagai dasar perubahan pola pengolahan limbah rumah tangga, sehingga limbah tidak lagi menjadi masalah yang menurunkan kualitas kesehatan lingkungan rumah tangga jamaah Majelis Taklim Annisa Swadaya-89 Gunung Terang.*

Kata Kunci: *Sampah Organik, Eco-Enzyme, Kompos, Kesehatan Lingkungan*

1. INTRODUCTION

Poor waste management - from non-existent collection systems to ineffective disposal - leads to air pollution, water and soil contamination (Kadir et al, 2016). Open and unsanitary landfills contribute to drinking water contamination and can cause infections and transmit diseases (Sharmat et al, 2017). Waste can spread throughout the world's rivers and oceans, accumulating on beaches and in sewers. It damages physical habitats, transports chemical pollutants, threatens aquatic life, and interferes with human use of river, marine and coastal environments. Household waste comes from various sources, mainly food waste, unnecessary purchases, and disposable packaging. Examples of household waste include glass bottles, cardboard boxes, newspapers, diapers, and food waste. Household waste can cause illness, air pollution, and environmental contamination.

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Household waste treatment options include landfill, burning for energy, recycling, and composting. Wasted food has environmental, economic and social impacts (Bangani et al, 2023).

In general, waste management in the community is still handled conventionally such as: burning, dumping into the river, or collecting in the nearest trash can which is then transported by officers to the nearest final landfill (TPA). This management practice is carried out with consideration of the value of practicality and waste immediately disappears from sight (Agustrina et al., 2022). As a residential complex area, waste management in Swadaya 8-9 Gunung Terang Bandar Lampung is already good. The janitor picks up waste periodically from each house and takes it to a temporary waste storage area, then takes it to the landfill. However, food waste and other organic materials are a particular problem in landfills because when they decompose, they release harmful greenhouse gases. Household waste can cause environmental contamination and health problems. Wasted food that ends up in the trash, and ultimately in landfills, produces the greenhouse gas methane which is 21 times more potent than carbon dioxide (Seberini, 2020). This only solves the waste problem temporarily, as the waste that accumulates in landfills worsens the quality of environmental hygiene. The accumulation of waste in landfills also makes it uneconomical in terms of transportation costs, even though this waste can be sorted and processed because it still has high economic value, one of which is by turning it into eco-enzyme and maggot-based compost. Eco-enzyme products can be commercialized so that they can improve the economy of the local community (Agustrina et al., 2022; Mumtazah et al., 2021).

From these problems, a community service activity will be carried out in the form of environmentally friendly household organic waste processing practices to the Annisa SWADAYA-89 majelis taklim community, Gunung Terang Village, Bandar Lampung, as one of the first steps in community empowerment in reducing the risks that occur from waste management errors, and increasing the utilization of organic waste into products that are more useful for the community.

General Description Of The Community, Problems And Target Solutions

General description

The Swadaya 8-9 community, Gunung Terang Village, Bandar Lampung as a service partner does not yet have an organic waste management program, and only a few residents are educated in this waste management activity even though organic waste management is as important as recycling plastic waste and other physical waste. Therefore, pengabdi conducted socialization activities, demonstrations, and also training in organic waste management to reduce the risk of environmental pollution and also increase the utilization of organic waste, especially in partner locations.

Problem

Tabel 1.Problem and Solution

No	Problem	Solution	Indicators of goal
1	There is a lack of information and expertise from the community of Majelis Taklim Annisa Swadaya 8-9 Gunung Terang Rajabasa in the importance of processing household organic waste.	Knowledge transfer Mentoring empowerment	The community understands the importance of processing household organic waste and the number of human resources in the community of Majelis Taklim Annisa Swadaya 8-9 Gunung Terang Rajabasa who are skilled in managing household organic waste has increased.
2	There is no household organic waste processing	Initiation of household organic waste treatment	Commencement of household organic waste

activity in the community of Majelis Taklim Annisa Swadaya 8-9 Gunung Terang Rajabasa, the community still donates organic waste along with other waste to the landfill through the garbage collector.	activities in the community of Majelis Taklim Annisa Swadaya congregation 8-9 Gunung Terang Rajabasa in an independent installation of each household.	treatment activities in each household of Majelis Taklim Annisa Swadaya 8-9 Gunung Terang Rajabasa worshipers

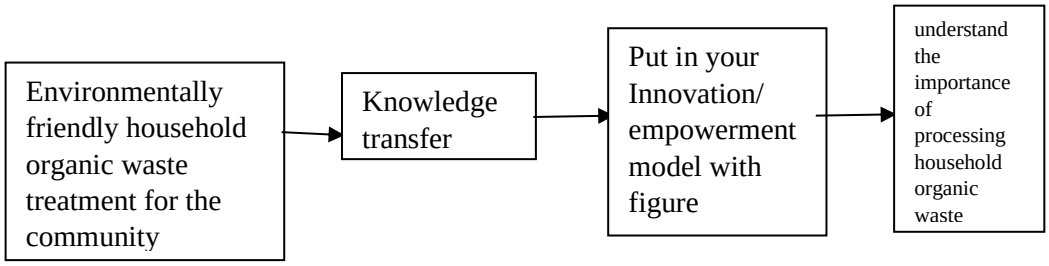


Figure 1 : Flow of Innovation

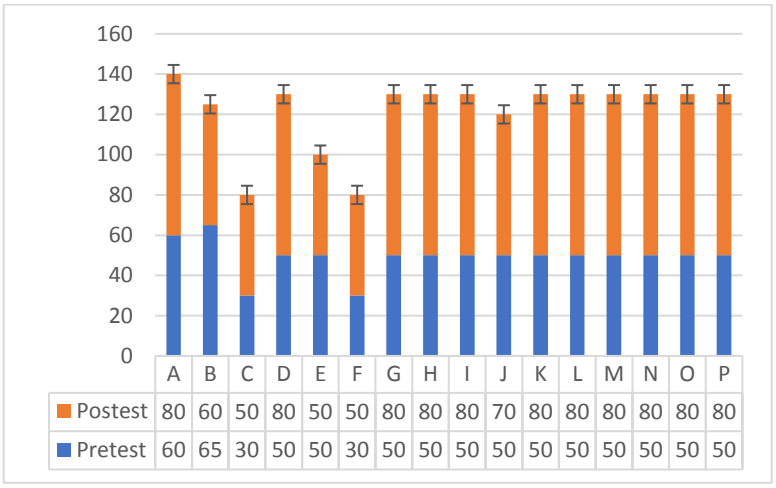
2. METHODS

This activity is a research implementation entitled "**ENVIRONMENTALLY FRIENDLY HOUSEHOLD ORGANIC WASTE TREATMENT FOR THE COMMUNITY OF MAJELIS TAKLIM ANNISA SWADAYA-89 GUNUNG TERANG BANDAR LAMPUNG".** In the community service activities, the methods used were lectures, discussions, and demonstrations. The service was carried out in two stages, the first stage was the delivery of material on household organic waste processing, then the next stage was the demonstration stage to provide an overview of eco-enzyme making, composting, and maggot cultivation**.** The tools used in this service activity include household organic waste processing demonstration tools, namely plastic buckets, plastic dippers, stirrers, knives, tape, label paper, digital scales, glass bakers, electric stoves, exposure materials for composting and maggot cultivation. Lectures and discussions were conducted and evaluated for success through pretests and post tests. In the demonstration process of processing household organic waste, eco-enzyme making, composting, and maggot cultivation videos were practiced. The parties involved in this service activity are a team of service lecturers and students of the Department of Biology FMIPA University of Lampung, members of Majelis Taklim Swadaya 8-9 Gunung Terang, Rajabasa Bandar Lampung. Data were statistically analyzed by t-test, using SPSS ver.21

3. RESULT AND DISCUSSION

The enthusiasm of residents in participating in waste management service activities appears to be the main driver of the success of this program. Seen from the high participation from the start, residents enthusiastically signed up and committed to actively take part in every stage of the program. The high level of engagement was reflected in the participants' activities during the activities, where they were not only passive listeners, but also actively contributed through discussions, questions, and hands-on practice in waste management. The positive feedback received from the residents indicated their satisfaction with the program, which was not only perceived as an obligation, but also as an opportunity to improve their understanding and skills in managing waste.

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Postest	80	60	50	80	50	50	80	80	80	70	80	80	80	80	80	80
Pretest	60	65	30	50	50	30	50	50	50	50	50	50	50	50	50	50

Figure 2. Graph Of The Increase In Community Understanding In Community Service Activities (Pre-Test And Post-Test Data Results), A-P Indicates The Initials Of The Community Service Participant's Name

The importance of this enthusiasm is also reflected in tangible changes at the household level, where residents have started to implement responsible waste management practices. By engaging residents as active partners, the program not only achieved its goal of effectively managing waste but also created sustainable positive impacts at the individual and community levels. The pretest and post-test results of this activity can be seen in Fig.2.

The results of statistical analysis (t-test) show that the value data before the implementation of the service activity shows a significant difference (p-value: 0,000; mean: 60,78±2,80), and shows an increase. This shows that there is a significant difference in the understanding of participants in community service activities before and after the service activities are held. Thus, the 'Environmentally Friendly Household Organic Waste Treatment For The Community Of Majelis Taklim Annisa Swadaya-89 Gunung Terang Bandar Lampung' activity shows significant meaning.



Figure 3. Participants Of The Community Service Activities And Discussions Between The Community Service Participants And The Devotees



Figure 4. Material Delivery And Demonstration

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Figure 5. Demonstration



Figure 6. Tools and Materials Used



Figure 7. Service Participants Take The Pretest/Post-Test



Figure 8. Demonstration And Participation Of Residents In The Manufacture Of Waste Processing Materials

Residents' participation in waste management service activities not only creates physical changes in the environment, but also has a significant impact on improving their understanding of waste management (Basuki et al, 2023; Daulay et al., 2023). Through various training and interactive sessions, residents were not only provided with basic information on waste management, but also gained an in-depth understanding of concepts such as recycling, composting, and waste reduction (Mulyati et al, 2023).

With great enthusiasm, residents actively engaged in discussions, exchanged experiences, and understood the environmental impact of their decisions in managing household waste. As a result, there was a paradigm shift from simply disposing of waste to understanding the importance of the waste lifecycle and individual contributions to environmental sustainability. This understanding extended to the practical level, where residents began to apply the concepts they learned in their daily lives, designing a more efficient and environmentally friendly household waste management system (Juliawan et al., 2023). With this increased understanding, the service activity not only achieved its goal of empowering the community to manage waste wisely, but also formed a community that is more aware of their role in environmental conservation. The community shows that they have a strong desire to improve and maintain environmental conditions. The community has an awareness of keeping their home environment clean, but this awareness has not yet become a collective awareness for the entire community, so the waste management process still uses a conventional paradigm. Collective awareness stated that in society, individuals share several factors in their unconscious. These factors include ideas and behaviors that have been passed down through generations (Sekarningrum et al., 2017). At first, the community still sees waste as something that

cannot be reused, so they have not done waste segregation. This view can more or less be changed by conducting socialization and demonstration of household organic waste processing in the community as in this community service activity. This activity is expected to be one of the first steps to build an eco-community in this community. Eco-community uses the concept of waste management from an area into eco-enzyme which will be used as organic fertilizer on agricultural lands in the area (Nurhamidah et al, 2021). Waste acts as one of the elements that contribute to environmental degradation. Waste is the consequence of industrial production and household activities, and is material that no longer has value or primary function after being disposed of, either by humans or by natural processes. Every human activity inherently generates waste (Daulay et al., 2021). Sources of waste can vary, including households, farms, offices, companies, hospitals, markets, and so on. This makes increasing public awareness must continue to be improved.

4. CONCLUSION

This activity reflects the high level of environmental awareness among the Majelis Taklim Annisa Swadaya-89 community. By focusing on organic waste treatment, they play a role in reducing the negative impact of waste on the environment. The community focuses on processing household organic waste. This reflects the concern for the daily waste generated by the community, by providing solutions to manage organic waste effectively. The organic waste treatment activities carried out by this community demonstrate an environmentally friendly approach. In this way, they participate in reducing the amount of waste that goes to landfills, while minimizing its adverse impact on the ecosystem. This community not only focuses on waste treatment measures, but also plays a role in providing education to the surrounding community. This includes environmentally-friendly methods of treating organic waste and how to reduce carbon footprint. By identifying itself as Majelis Taklim Annisa Swadaya-89, the conclusion can be drawn that this activity also reflects the positive role of religious communities in supporting environmental conservation. This activity illustrates the collaboration and active involvement of community members in efforts to maintain environmental sustainability. By jointly conducting waste treatment, they create synergies that can have a greater positive impact.

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