

Community empowerment through education, socialisation and application of losida technology in Gesikan iv sub-village

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Abstract.

Organic household waste remains a major problem in Gesikan IV Sub-village, Wijirejo, Pandak, Bantul, where residents generally burn or dispose of waste in open areas. To address this issue, students from the Community Service Program (KKN) of Universitas 'Aisyiyah Yogyakarta introduced the Losida (Lodong Sisa Dapur) method through socialisation, education, and practical installation with community participation. The program successfully increased residents' knowledge and awareness of organic waste management and encouraged active involvement in practicing Losida. This simple and easy-to-apply method not only reduces household waste but also produces compost that enhances soil fertility and supports a cleaner, greener environment.

Keyword : Losida, Waste Management, Education, Gesikan IV Sub-Village, community empowerment

1. Introduction

The Law No. 18 of 2008 concerning Waste Management, waste is defined as residues produced from human activities or natural processes that have no economic value. An example of this is household waste, which is often produced as a result of human activities. Household waste is waste generated from daily activities or routines within a household, excluding human excrement or special types of waste (Budiyanto, 2021). The impact of household waste is a decline in water quality, which can affect human health. Regulations governing the management of household waste are stipulated in Government Regulation of the Republic of Indonesia No. 81 of 2012 on the Management of Household Waste and Similar Household Waste (Haliza et al., 2023).

Based on the discussion explained in the previous paragraph, household waste is waste generated from daily human activities carried out inside the home, such as food scraps, vegetables, and fruits (Rozi et al., 2021). Household waste management that is not carried out optimally can cause environmental problems, such as air pollution caused by strong odours and the potential for disease in the community. Challenges in household waste management, especially organic waste, remain an obstacle in various regions in Indonesia (Kumaat et al., 2022)).

Gesikan IV sub-village is one of the sub-villages located in Wijirejo Village, Pandak, Bantul, Special Region of Yogyakarta. Administratively, Gesikan IV sub-village is divided into 7 RTs, with a geographical condition that is mostly lowland with land use predominantly for agricultural activities such as various

horticultural crops. Based on a survey conducted by students from the University of 'Aisyiyah Yogyakarta's Community Service Program (Kuliah Kerja Nyata, KKN) among the residents of Gesikan IV sub-village, the community generally still manages waste independently by burning it or disposing of it in open areas.

Further interviews and observations revealed that the management of organic waste, particularly from household activities, has not been optimally implemented. This is attributed to the lack of education and knowledge among the community regarding proper methods for managing organic waste generated from household activities in Gesikan IV sub-village.

A method that can be used to address the issue of organic waste in Gesikan IV sub-village is the losida (Lodong Sisa Dapur) or kitchen waste composting method. Losida is a method that utilises household waste, specifically organic waste, to produce compost that is beneficial for plants and soil fertility (Haliza et al., 2023). This waste management is carried out using composting techniques that not only reduce waste but also produce compost that is more beneficial for agriculture and environmental greening, which has economic value (Margery & Suryani, 2023).

The losida method is a simple waste management method, both in terms of production and preparation of tools and materials, requiring only pipes or PVC pipes. In addition to being used as fertiliser, losida is beneficial for reducing odours from food waste. The use of losida is relatively easy, as it can be placed in open fields or in pots of various (Armstrong Fransiskus Sompotan et al., 2024). The mechanism of the losida involves filling the pipe or container with organic waste such as vegetable scraps, rice, fruit peels, and vegetable peels until full, then leaving it to decompose for 2–3 months (Susilawati et al., 2022). The result of the degradation of organic waste that has decomposed for 2-3 months is solid compost, which can be used as organic fertiliser for the soil and plants in the surrounding area (Haliza et al., 2023).

Considering the issues faced in Gesikan IV sub-village and the potential application of the losida method as a solution for organic waste management, targeted efforts for implementation and education are needed to enable the community to utilise household waste into useful products. Through the application of the losida method, it is hoped that not only will the volume of organic waste disposed of be reduced, but also that economically valuable organic fertiliser will be produced and environmental greening will be supported. Therefore, students from the University of 'Aisyiyah Yogyakarta took the initiative to apply the losida method as an alternative for managing household organic waste in Gesikan IV sub-village, while also educating the community about the importance of sustainable waste management.

2. Research Methods

The implementation of the work programme on the practice of planting losida as a method of managing kitchen organic waste to make it more useful and beneficial was carried out by students from the 'Aisyiyah University of Yogyakarta KKN Group 43 in Gesikan IV sub-village, Wijirejo Village, Pandak Subdistrict, Bantul Regency, Special Region of Yogyakarta Province through several stages or methods, as follows:

2.1. Preparation Stage

2.1.1. Losida Preparation Stage

At this stage, materials are purchased and the process begins by drilling small holes evenly into the side of the PVC pipe using a small diameter drill bit.

2.1.2. Socialisation Stage

The socialisation was carried out together with the PKK women from each neighbourhood unit in Gesikan IV sub-village. The activity began with a presentation on household organic waste issues and their impact on the environment. Next, the 43rd group of KKN students from University 'Aisyiyah Yogyakarta introduced the concept of kitchen waste bins (Losida) as an alternative solution for organic waste management.

2.1.3. Location Permitting Stage

During this stage, surveys and observations were conducted. The survey was conducted to identify the locations of each RT in Gesikan IV sub-village, consisting of 7 RTs, which will serve as sites for the Losida planting practice. These sites are located on community garden land situated behind the residents' housing area. Additionally, permission for access to the sites was obtained from the landowners after coordinating with the RT Chairperson in Gesikan IV sub-village.

2.2. Implementation Stage

The losida planting practice was conducted from 14 to 28 August 2025 at each RT in Gesikan IV sub-village, with each RT receiving 1 unit of losida. The implementation of the losida planting practice was attended by local residents and all KKN students.

3. Result

3.1. Results

The practice of managing organic waste in the form of household waste using the losida method, there are three stages, namely preparation, socialisation, and losida planting. The description of the implementation of this community service activity is as follows:

3.1.1. Preparation Stage

- 1) Purchase the tools that will be used for the process of making losida and drilling holes in the side of the PVC pipe.
- 2) Consult and discuss with the Head of Gesikan IV sub-village so that a place can be provided for the activity to be carried out.
- 3) Invite community representatives from the neighbourhood associations in Gesikan IV sub-village to attend the socialisation and education activities related to losida.



Fig. 1. Losida Preparation Stage

3.1.2. Socialisation and Education Stage

Socialisation and education were conducted by students from the KKN of University of 'Aisyiyah Yogyakarta. The socialisation activity took place at the residence of the Head of Gesikan IV sub-village, Wijirejo, Pandak, Bantul, on Monday, 18 August 2025. The socialisation was attended by representatives from each RT in Gesikan sub-village. The activity took place from 4:00 PM to 5:00 PM. During the event, there was a question-and-answer session between the students and the attendees regarding the ongoing project, which lasted for 15 minutes.



Fig. 2. Socialisation Losida

3.1.3. Practical Stage of Losida Installation

Losida installation was carried out from 14 to 28 August 2025 on community land that had been agreed upon by each neighbourhood association (RT) in Gesikan IV sub-village, with each receiving one losida unit. During the losida installation process, students did not carry out activities on their own, but were accompanied by the community in their activities. The losida is planted to a depth of 40 cm. If organic waste is already prepared, it can be inserted, and once inserted, it should be covered with a pipe cover. Organic waste planted inside the losida can become compost that has decomposed over a two-month period.



Fig. 3. Practice of Installing Losida (from left RT 1, RT 2, RT 3)



Fig. 4. Practice of Installing Losida (from left RT 4, RT 5, RT 6, RT 7)

4. Discussion

Population growth and ongoing development in an area have a significant impact on environmental conditions, one of which is an increase in waste accumulation. According to a statement from the Head of the Environmental Agency (DLH) of Sleman Regency, the dominant type of waste in the area comes from household waste, with a total of 738.71 tonnes (Syarifudin, 2023).

Gesikan IV Sub-village is one of the sub-villages located in Wijirejo Village, Pandak, Bantul, Special Region of Yogyakarta. Administratively, Gesikan IV Sub-village is divided into 7 RTs, with a geographical landscape predominantly consisting of lowlands, where land use is primarily for agricultural activities such as various types of horticultural crops. Based on a survey conducted by students from the University of 'Aisyiyah Yogyakarta's KKN among the residents of Gesikan IV Sub-village, the community generally still manages waste independently by burning it or disposing of it in open areas.

According to Sleman Regency Regulation No. 4 of 2015 on the Management of Household Waste and Similar Household Waste, every individual has the obligation to carry out waste management activities through waste reduction or waste handling efforts (Haliza et al., 2023). However, organic waste management in Gesikan 4 sub-village is still considered suboptimal.

The line with these provisions, students from the University of 'Aisyiyah Yogyakarta's KKN implemented a work program consisting of socialisation and education on the utilisation of organic waste in the form of household waste through the application of losida technology. This activity aims to optimise organic waste management so that it can be utilised for the benefit of plants and the surrounding environment (Yusran et al., 2024).

The losida education and awareness-raising activity took place at the residence of the Head of Gesikan IV Village on 18 August 2025, attended by representatives from each RT. The material presented in this educational and socialisation activity was related to the utilisation of organic waste in the form of household waste to be converted into losida, with the output being organic fertiliser (compost) (Pranata et al., 2021).

Students chose the losida method of organic waste management because the production process is relatively simple and requires easily obtainable equipment and materials. In addition to producing fertiliser, the application of losida also aims to reduce household waste that can cause unpleasant odours. The use of losida is very easy to implement, as it can be placed in open areas of land and can be done in pots, whether large or small (Arbiatun et al., 2025). The process of using losida involves filling a pipe (lodong) with household waste, such as vegetables, rice leftovers, and fruit peels, until it is full, then leaving it for approximately two months (Susilawati et al., 2022).

Composting is a biological process involving microorganisms in the natural breakdown of organic materials. Generally, composting takes about six months, but by adding a decomposer such as Effective Microorganism 4 (EM 4), the decomposition time can be shortened to two to three months, although it may take longer if the volume of waste being processed is large (Hayati et al., 2022).

This principle aligns with the operation of the losida system, which utilises household waste over a specific period to produce compost fertiliser that enhances soil fertility (Haliza et al., 2023). This compost fertiliser serves to add nutrients required by plants for optimal growth and to maintain the sustainability of soil organisms and biota so they can thrive and develop (Rondi & Ardiatma, 2022).

The socialisation and education activities on losida ran smoothly and were very well received by the RT representatives. Their enthusiasm was evident in their active participation in the discussion session on losida, as demonstrated by the various questions they asked during the activity.

Table 1. Results of Discussions with Participants

No	Question	Answer
1.	Can dried leaves be used as an ingredient in losida?	Dry leaves can be used as a material in compost because they are organic waste that can decompose naturally. However, to speed up the decomposition process, it is recommended that dry leaves be mixed with wet organic waste, such as vegetable or fruit scraps, so that the balance of organic materials is maintained.
2.	How deep should Losida be planted?	Losida pipes are generally installed at a depth of around 40–60 cm in the ground. This depth is intended to maintain the stability of the pipes and maximise the absorption of liquid fertiliser into the surrounding soil.
3.	Does losida cause an unpleasant odour?	When managed with the correct procedures, losida does not produce a strong odour. This can be achieved by adding decomposer solutions such as EM4 or molasses, and ensuring that the pipes are tightly sealed. This process helps to maintain optimal fermentation and is environmentally friendly.
4.	Are losida pipes perforated or not?	Losida pipes need to be equipped with small holes on the sides. These holes serve to facilitate air circulation, accelerate the decomposition of organic waste, and facilitate the absorption of liquid fertiliser into the soil.

Household waste is a common problem faced by every household. This socialisation and losida planting programme is expected to provide an alternative solution to this problem. Through this method, household waste can be processed into compost that is beneficial for plants (Pramiarsih et al., 2023).

The Gesikan 4 sub-village, Wijirejo, Pandak, Bantul, an awareness campaign on the utilisation and reduction of household waste through the losida method has been conducted. The processing is done based on the principles of recycle and reuse, which involves planting pipes (lodong), putting in organic waste from households, sealing it tightly, and letting it sit for a certain amount of time to make compost (Adzani et al., 2023).

This activity has had a positive impact by increasing community knowledge regarding household waste management through the use of losida. Additionally, the activity serves as motivation to transform waste into something beneficial for both individuals and the surrounding environment (Alpandari et al., 2024).

5. Conclusions

The socialisation and implementation of losida in Gesikan IV sub-village, Wijirejo, Pandak, Bantul successfully increased community knowledge regarding household waste management. This method has proven to be simple, easy to implement, and capable of processing organic waste into compost and liquid fertiliser that are beneficial for soil fertility. In addition to providing a solution to waste management issues, this activity also promotes community awareness of the importance of sustainable waste management to create a cleaner and healthier environment.

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