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EMPOWERING CASUAL WORKERS IN WASTE MANAGEMENT TOWARDS A GREEN CAMPUS AT UIN JURAI SIWO LAMPUNG

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ABSTRACT

This community service program aims to strengthen the implementation of *the green campus* at UIN Jurai Siwo Lampung through training and assistance for Freelance Daily Workers (THL) in the movement of waste sorting and processing organic waste. The main problems faced are the waste that is still mixed, the increasing volume of waste thrown out of the campus, and the lack of uniform work procedures for sorting and processing organic waste. The activity was carried out through four stages, namely: (1) socialization and initial measurement (pretest) of the understanding of waste management; (2) technical training on organic-inorganic waste sorting and preparation of simple SOPs for collection flows; (3) the practice of processing organic waste using a simple composter (material preparation, humidity regulation, aeration/reversal, and odor monitoring); and (4) regular assistance and monitoring to ensure consistency of sorting, reduce organic waste contamination, and improve the success of the composting process. Evaluation was carried out using posttests, observation sheets for sorting compliance at the collection point, and recording the volume/weight of organic waste that entered the processing process. The results of the program show an increase in THL understanding and skills, the formation of sorting habits in the work area, and the process of processing organic waste into compost that can be used for campus park maintenance. This program is recommended to be continued through strengthening internal policies, adding sorting facilities, and expanding education to the academic community so that the impact of *green campuses* is more sustainable.

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INTRODUCTION

Waste management in the campus environment is a strategic issue because office activities, lectures, canteens, and student activities produce a variety of daily waste generation (Budihardjo et al., 2021; Dahlawi & Sharkawy, 2021). When waste is not sorted from the source, organic waste mixed with inorganic waste will accelerate decay, cause odor, increase the risk of disease vectors, and increase the cost and frequency of transportation to the landfill (Kawai & Huong, 2017; Vardanyan, 2023). In the context of sustainable development, the campus is also required to show a real commitment through measurable environmentally friendly operational practices, one of which is in the aspect of waste management in *green campus initiatives* such as UI GreenMetric (Nolasco et al., 2020; Ugwu et al., 2020).

Regulatively, waste management in Indonesia emphasizes a paradigm shift from gathering transportation and disposal to more responsible waste reduction and handling, including sorting at sources and processing according to waste characteristics (Hao et al., 2020). Law Number 18 of 2008 emphasizes the importance of systematic, comprehensive, and sustainable waste management, so that institutions such as universities have a strong basis for developing waste management based on reduction and treatment at the work unit level (Prakasa et al., 2025).

However, in practice, the implementation of waste sorting on campus is often constrained by habit factors, limited facilities, and the lack of uniformity of work procedures for field officers. Freelance Daily Workers (THL) as the main implementers of cleanliness operations have a key role: they are at the critical point of collection, removal, and conditioning of daily waste. Therefore, strengthening THL capacity through training and mentoring is a relevant approach to ensure that sorting runs consistently, reduce organic waste contamination, and increase the success of processing organic waste into compost (Filho et al., 2018; Irawan et al., 2025; Nsimbe et al., 2018). This community service program is designed in the form of a movement to sort waste and process organic waste at UIN Jurai Siwo Lampung through four main stages: (1) socialization and initial mapping of waste management practices (Izquierdo et al., 2016); (2) waste sorting training (organic–inorganic) along with simple workflows (Tangwanichagapong et al., 2017); (3) the practice of processing organic waste using composters/composting techniques that are in accordance with campus conditions (Yaser et al., 2022); and (4) assistance and monitoring to maintain sorting compliance, control humidity/aeration, and minimize odors in the composting process (Al-Aomar et al., 2021). Theoretically, this program refers to the principle of sustainable material/waste management that places prevention/reduction, reuse, recycling, and composting as a strategy that takes precedence over disposal (Kombe & Shemsanga, 2023).

The objectives of this activity are: (1) increasing THL's knowledge and skills in waste sorting at the source; (2) building work habits and sorting operational flows that are easy to implement in the campus area; (3) optimizing the processing of organic waste into compost to support the needs of green open spaces/campus parks; and (4) strengthening *the Green Campus* through a reduction in mixed waste thrown off campus and increasing the reuse of organic waste. The next section of the article will describe the method of implementing the program, the results achieved (changes in understanding, sorting compliance, and compost output), as well as a discussion of its relationship with strengthening *green campus governance*.

IMPLEMENTATION METHOD

The service activity was carried out in the UIN Jurai Siwo Lampung environment with the main target of Freelance Daily Workers (THL) who are in charge of cleaning and managing daily waste. The methods used are practice-based training and structured mentoring to build habits of sorting waste from sources and optimizing the processing of organic waste into compost. The program is designed in one core training session, followed by regular field assistance for four weeks at campus waste collection points (Ratnasari et al., 2023).

The first stage is initial coordination and mapping with partners (cleaning coordinator/field manager) to identify the ongoing waste flow, the dominant generation location (office, classroom, park, canteen), and the need for sorting facilities. At this stage, initial observation of sorting practices (presence/none, mixed level) and initial measurement of THL knowledge through a brief pretest on the type of waste, the principle of sorting, and the basis of organic waste processing (Bahers & Giacchè, 2019).

The second stage is hands-on training and practice. The training materials include (1) the sorting of organic and inorganic waste and examples of contaminants that often appear, (2) the workflow of sorting in the field, and (3) the preparation of simple SOPs (who does what, when, where the waste is placed, and how to move). Furthermore, organic waste processing practices are carried out using composters/composting techniques that are in accordance with campus conditions, including the preparation of materials (enumeration if necessary), determination of material composition, humidity regulation, aeration/reversal, and odor and pest prevention measures. The output of this stage is in the form of operational SOPs, sorting work schedules, and ready-to-use organic processing units/areas.

The third stage is mentoring and monitoring to ensure that the implementation runs consistently. Assistance is carried out through regular visits and field communication to evaluate sorting compliance, reduce organic waste contamination, and maintain the stability of the composting process (humidity, aeration, and area cleanliness). Program evaluation is carried out by posttest (compared to pretest), observation sheets for sorting compliance at the collection point, recording the volume/weight of organic waste that enters the processing process, and documentation of activities (Chairunisa et al., 2025; Kesuma et al., 2025). Data were analyzed descriptively (percentage increase in knowledge score, contamination trends, and organic processing achievements) to assess the program's contribution to strengthening *the green campus* at UIN Jurai Siwo Lampung.

RESULTS AND DISCUSSION

The implementation of service activities in the form of training and assistance in waste management is carried out through workshops and field practices with participants (THL and representatives of the campus community). The activity began with an explanation of the Green Campus concept, the principles of waste sorting at the source, and a more effective waste collection operational flow (Samukange et al., 2025; Yanthi et al., 2019). The situation of the implementation of the workshop and discussion with the participants is shown in Figure 1 and Figure 2.

The results of the initial evaluation showed that participants still equated several types of organic and inorganic waste, and did not have uniform standards regarding collection points and waste removal. After the training, participants were able to identify the main types of waste in the work area (leaves/litter, food waste, paper, plastic packaging, bottles) and understand the consequences of contamination (organic mixed plastics) on the success of the treatment (Diab & Al-Qadi, 2024). The improvement in understanding can also be seen from case discussions, questions and answers, and sorting simulations that run faster and more precisely than before the training (Thushari & Senevirathna, 2020).

At the mentoring stage, the team and partners agreed on a simple workflow: (1) sorting at the source/work area; (2) collection at the nearest collection point; (3) the transfer of organic waste to the treatment area; and (4) hygiene monitoring of collection points to suppress waste mixtures. Concise SOPs and role sharing help with consistency of implementation, especially during peak hours and areas with high waste generation. Qualitatively, the organic waste that enters the processing process becomes cleaner (less plastic mixed) so that the decay/composting process is more stable and does not cause excessive odors (Passmore et al., 2024).

Organic waste processing is carried out by demonstrating the use of a simple composter based on a closed container. Practical demonstrations (material preparation, humidity regulation, and odor control) are shown in Figure 3 and Figure 4. Organic matter in the form of food scraps and litter is processed by cutting it into smaller pieces, mixing dry materials (e.g. dried leaves/husks), and then gradually put into the composter. Participants were trained to carry out routine checks: humid conditions (not too wet), aeration/reversal, as well as identification of problems (strong odor, maggots, too wet/dry) and corrective actions (Shafique et al., 2021).

These findings show that strengthening THL capacity has a direct impact on improving the quality of sorting and the sustainability of organic waste processing, as THL is in the most decisive daily operational chain. The program also has the potential to support Green Campus indicators through the reduction of mixed waste leaving the campus and the use of compost products for the maintenance of green open spaces (Risner et al., 2020). Thus, training needs to be combined with the support of facilities (sorted containers, labels, means of transportation) and internal policies (schedules, person in charge, and monitoring) so that behavior changes persist (Herzanita et al., 2024).

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Table 1. Program outputs and observed changes.

Components	Indicator	Verification
Sorting training	Participants are able to distinguish between organic and inorganic; Understanding Contamination	Results of sorting simulation and case discussion
Operational SOP	Waste sorting and removal workflow agreed	Brief SOP documents; Role Distribution
Titik kumpul terpilah	Collection points with minimal organic and inorganic separation	Field observation in the work area
Pengolahan organik	A composter is used; The process is more stable and has less odor	Humidity/aeration monitoring records; Observation of the Condition of the Composter
Organic processing	Compost is directed for campus green parks/open spaces	Utilization plan and application trials on plants

Table 1 indicates that the program produced not only administrative outputs (a simplified SOP and task distribution) but also operational improvements through the initiation of sorting points and the implementation of organic waste processing. More consistent segregation reduces contamination of organic feedstock, thereby supporting a more stable composting process and enabling compost utilization for campus green-space maintenance.

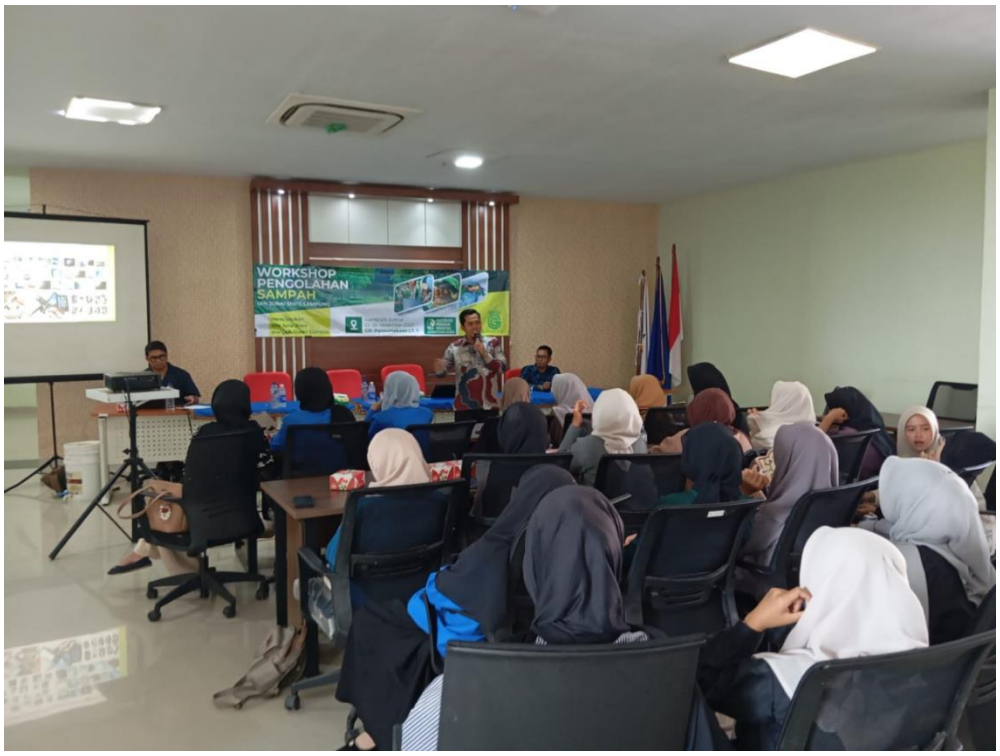

Figure 1. The atmosphere of the waste processing workshop and material delivery session.

Figure 1, documents the core training session introducing the green campus rationale, the importance of source segregation, and the operational roles required to maintain consistent waste handling on campus. It represents the initial awareness-building stage as a prerequisite for improving daily waste management practices.

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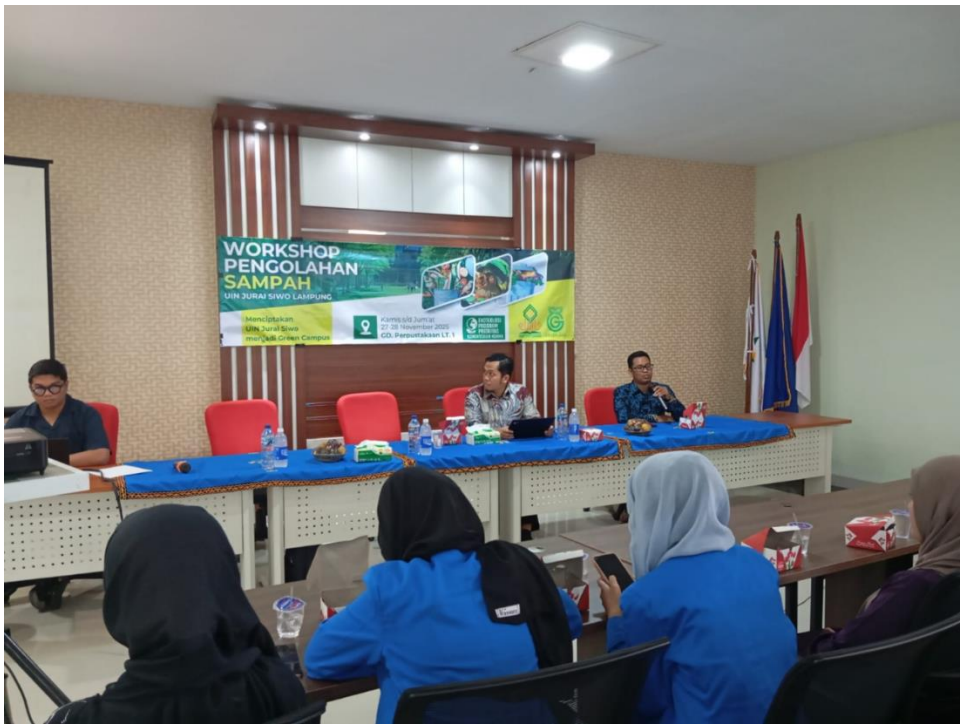

Figure 2. Panel discussion and coordination of the implementation of the campus waste management program.

Figure 2 shows the coordination process between the service team and participants to identify key waste-management constraints, agree on role distribution, and formulate follow-up actions (e.g., establishing sorting points, defining organic-waste transfer flows, and strengthening operational procedures). This stage is essential to ensure that the intervention matches field conditions and can be institutionalized.

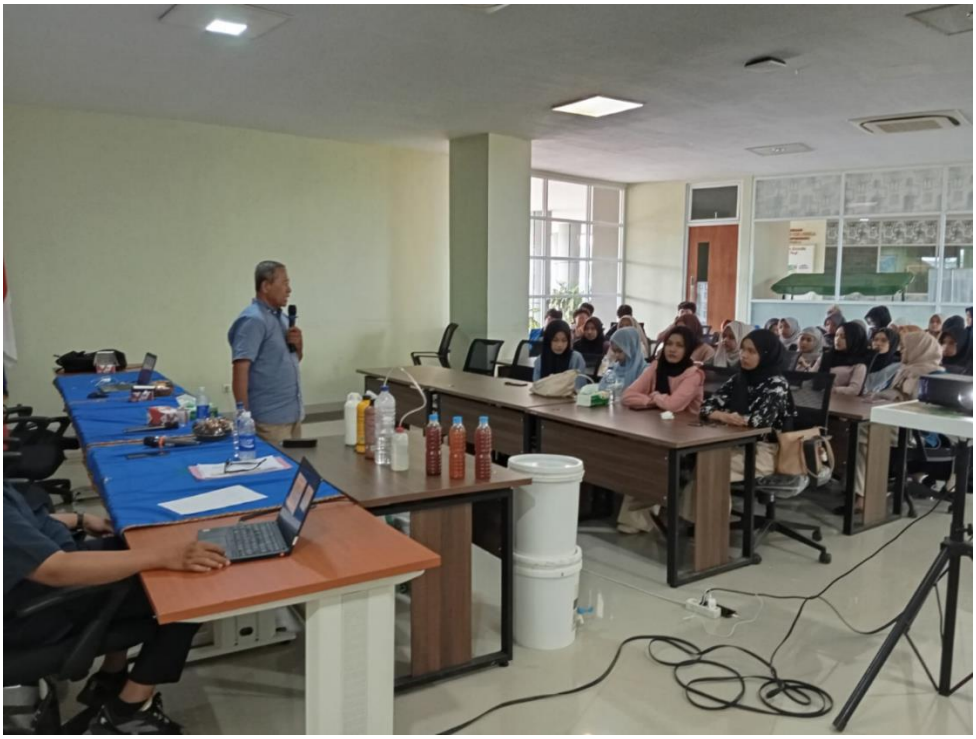

Figure 3. Demonstration of organic waste processing using a simple composter.

Figure 3 illustrates practical training on organic waste processing through a simple composter system, including introduction of input materials, step-by-step loading, and explanation of basic composting principles. The documentation indicates that the program emphasized skill-based, applied learning rather than purely conceptual instruction.

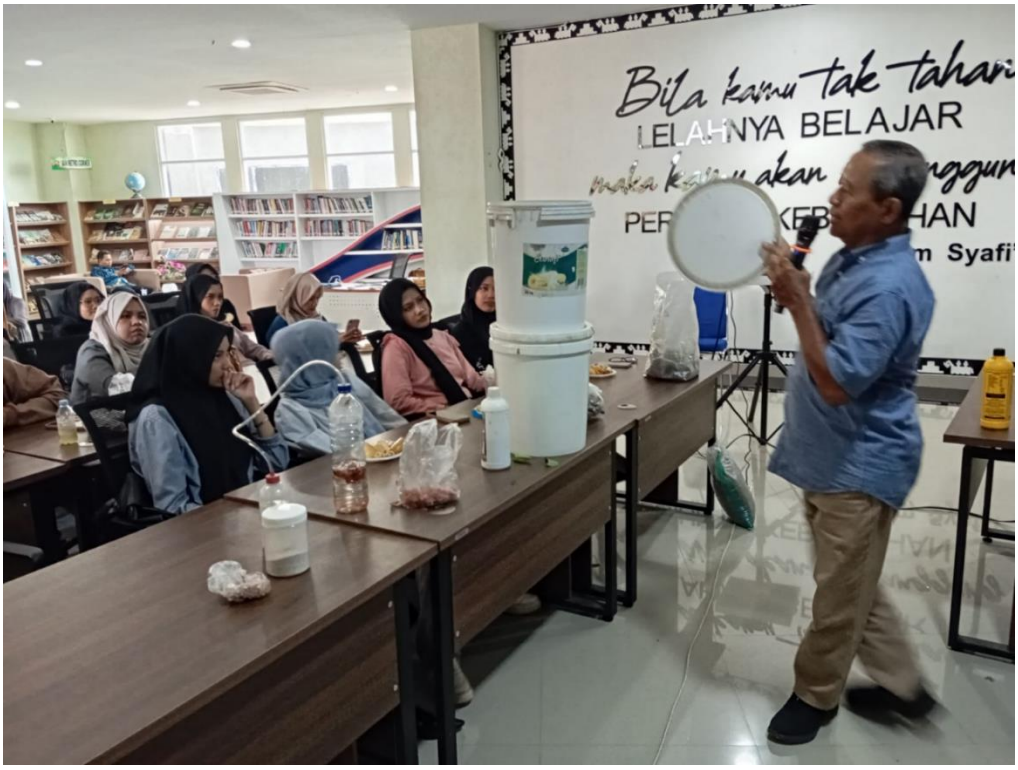

Figure 4. Practices and questions and answers for the use of composters and composting process control

Figure 4 captures the practice and Q&A session focused on composting process control (moisture management, aeration, odor prevention, and troubleshooting common issues). This session highlights the importance of technical mentoring to improve process stability and compost quality.

CONCLUSIONS AND SUGGESTIONS

THL's training and mentoring program in the movement of waste sorting and organic waste processing at UIN Jurai Siwo Lampung is going well and shows positive changes in understanding and operational practices in the field. More consistent sorting improves the quality of organic waste that enters the processing process, so that composting can take place more stable and support the use of compost for the needs of campus green parks/open spaces.

Inputs for the sustainability of the program: (1) adding segregated bins and clear labels at key landfill points; (2) establish internal policies and those in charge of monitoring so that SOPs run consistently; (3) expanding sorting education to students, canteens, and other work units so that contamination is reduced; and (4) apply simple recording (volume/weight of processed organic and compost produced) as the basis for the evaluation of the Green Campus.

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