



## UI GreenMetric Questionnaire

University : West Sumatra Maritime Polytechnic

Country : Indonesia

Web Address : <https://poltekpelsumbar.ac.id/>

### [3] Waste (WS)

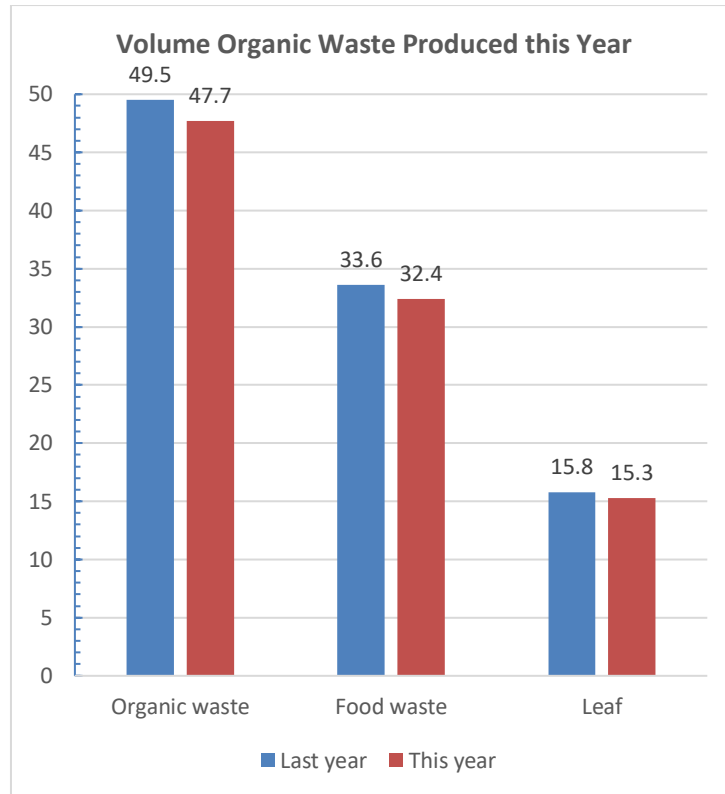
#### [3.5] Total volume organic waste produced this year

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
organic	49,5	47,7	1,8		4,2	43,5
- food waste	33,6	32,4	1,2		4,2	28,2
- leaf	15,8	15,3	0,5			15,3

#### Description:

Organic waste is a type of natural waste that decomposes easily and accounts for the majority of daily waste at the West Sumatra Maritime Polytechnic. The primary source of this organic material comes from food scraps generated by the entire campus community, including the daily consumption of active students, cadet officers undergoing training, and all officers on duty on campus. In addition to consumption, the volume of organic waste continues to increase due to fallen leaves from the lush trees scattered throughout the campus.

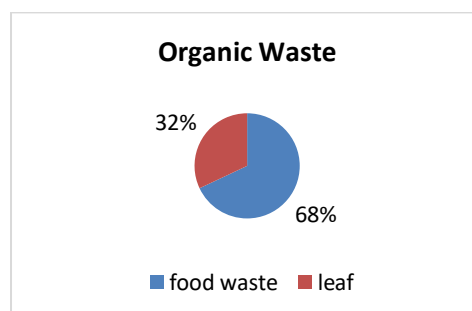
Good news comes from our environmental management efforts this year, as the volume of organic waste has shown a significant decrease. Total organic waste production now stands at 47.7 metric tons a positive achievement compared to last year, when it reached 49.5 metric tons. This figure is not an isolated number but rather a combination of kitchen waste and yard maintenance residues. Overall, this total includes food waste, as well as fallen leaves and dry grass that have been successfully collected.



The Poltekel Sumbar campus has demonstrated an extraordinary commitment to environmental sustainability by significantly reducing the amount of organic waste. The total volume of organic waste on campus was successfully reduced to 1.8 metric tons compared to the previous year. This impressive achievement was driven by a reduction of 1.2 metric tons in food waste, thanks to the growing environmental awareness of the entire campus community. Complementing these green initiatives, the accumulation of leaf litter was also successfully reduced by 0.5 metric tons to create a cleaner and more sustainable campus ecosystem.

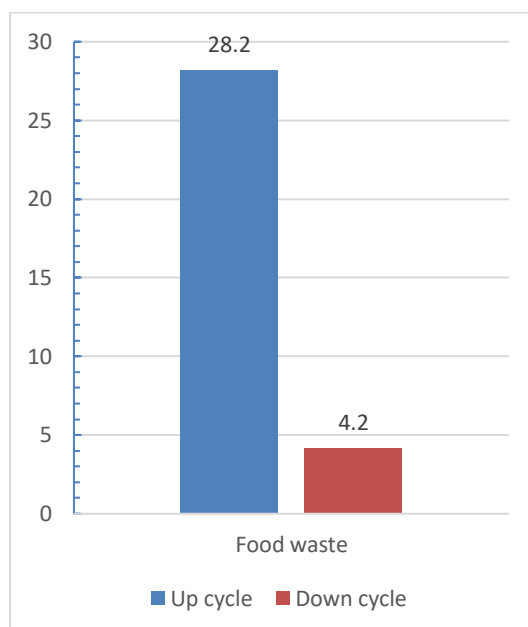
As shown in the graph, the campus has demonstrably succeeded in significantly reducing the rate of organic waste production. This tangible progress is evident in the consistent decline in food waste disposal from last year to this year. This environmental improvement was further supported by a reduction in the volume of leaf litter, which was effectively curbed. This success serves as strong evidence that the campus's commitment to reducing excessive organic waste accumulation has been highly effective.

If we take a closer look, this 47.7-metric-ton waste stream is still dominated by household and commercial consumption waste. In fact, the largest contribution comes from food waste, which amounted to 32.4 metric tons over the past year. Meanwhile, the remaining 15.3 metric tons consists of green waste, such as leaves and dry grass clippings.





Poltekel Sumbar has not stood idly by in the face of this accumulation of natural materials. The campus has consistently managed its organic waste independently. Various modern and creative innovations have been implemented to preserve the surrounding environment. These concrete steps demonstrate the institution's commitment to the concept of a green campus.



Through adaptive maggot farming innovations, the West Sumatra Maritime Polytechnic (Poltekel Sumbar) campus has successfully broken down food waste optimally, managing to upcycle 28.2 metric tons out of a total of 32.4 metric tons of organic waste over the course of one year. Although 4.2 metric tons of waste remained undecomposed by the maggots during that period, this organic residue is guaranteed to pose no pollution risk to the surrounding environment. All undecomposed waste is managed effectively and disposed of responsibly in accordance with applicable waste management regulations and guidelines. This progressive initiative demonstrates that the integration of biological technology can serve as a smart solution for preserving the sustainability and cleanliness of the campus ecosystem.

Interestingly, through this controlled cultivation process, the colony of decomposing larvae was successfully upcycled into a new commodity with significantly higher functional value. Food scraps that were once worthless have been transformed into a premium, protein-rich product ready to be reused as high-quality alternative feed for chickens and livestock. This smart initiative proves that organic waste processing can turn the stigma of disgusting trash into a new opportunity that is both environmentally friendly and of high economic value.

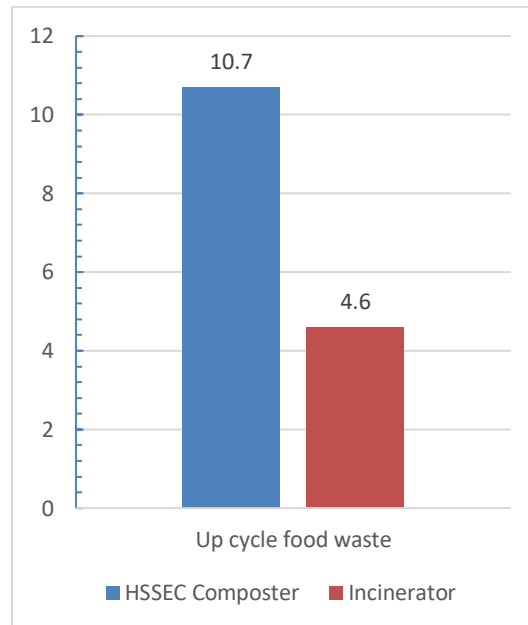
Through a natural process, this colony of maggots successfully reduces the volume of kitchen waste significantly and efficiently. The larvae work quickly to devour food scraps, thereby reducing the pile of waste in a short amount of time. This biological approach is also effective at eliminating unpleasant odors without the need for hazardous chemicals. As a result, this method has become a cutting-edge, highly eco-friendly solution to the surge in organic waste.

Meanwhile, out of a total of 47.7 metric tons of organic waste, 15.3 metric tons consisted of green waste, such as leaves and dry grass. To prevent accumulation that pollutes the environment, two modern technologies have now been officially implemented to address this type of waste. The first step involves optimizing the use of the



innovative HHSEC composter on-site. This cutting-edge technology has proven capable of accelerating the transformation of dry fallen leaves into nutrient-rich compost.

On the other hand, the disposal of hard twigs or piles of grass that are difficult to decompose is now handled using environmentally friendly incinerator technology. This modern incineration system was chosen as the final solution to reduce waste volume instantly and quickly. The machine's rigorous filtration system also ensures that the waste disposal process is safe and does not pollute the surrounding air. The combination of these two innovations has successfully created a highly effective, clean, and measurable yard waste management system.

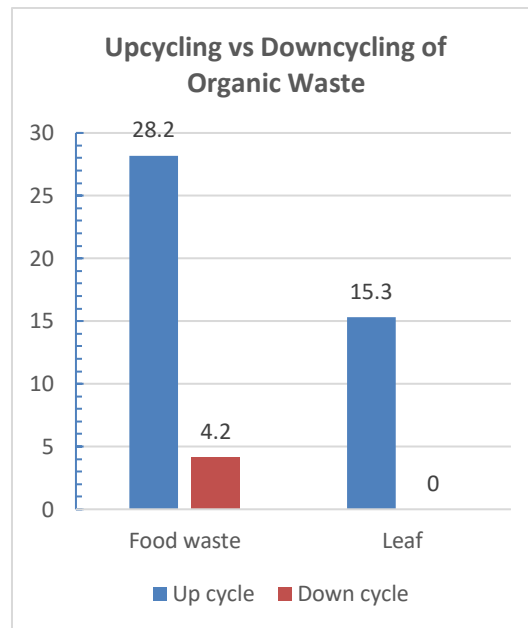


Of the total 15.3 metric tons of dry leaves and grass clippings, 10.7 metric tons were successfully processed this year using the innovative HSSEC composter. The implementation of this cutting-edge technology is a tangible example of efforts to upcycle green waste that was initially considered worthless. Through a controlled decomposition process, this transformation successfully produced a high-quality organic compost as the end product. This natural fertilizer can now be widely reused to enrich the soil and support the greening of the surrounding environment.

Meanwhile, the remaining 4.6 metric tons of yard waste can now be effectively managed thanks to the innovative incinerator technology. The use of this modern incineration system provides a very quick, definitive solution for disposing of accumulated hard twigs or grass clippings. The machine efficiently reduces the volume of organic waste, leaving minimal ash in a short amount of time. Supported by a safe filtration system, this breakthrough successfully eliminates solid waste without causing air pollution in the surrounding area.

The process doesn't stop at waste disposal, the ash left over from the incinerator is then repurposed as a high-quality raw material for making charcoal briquettes. Through this recycling innovation, waste that was originally worthless has been successfully transformed into an alternative fuel product that is far more effective, useful, and environmentally friendly.

Of the total 47.7 metric tons of organic waste generated this year, 43.5 metric tons were successfully incorporated into the upcycling process. This waste was optimally recycled into various new products with significantly higher utility value. Most of it was allocated as a culture medium for maggots, and the remainder was transformed into organic fertilizer to enrich plants. This creative approach successfully turned piles of waste into an ecological asset that is highly beneficial to the campus environment.



The data in this chart shows significant improvements compared to last year, proving that the innovations implemented by the campus have functioned optimally and play a major role in the environmental management system. In the food waste sector, upcycling achievements were successfully increased to 28.2 metric tons, while leaf waste management successfully diverted all 15.3 metric tons of waste to the upcycling stream without placing any burden on the downcycling method. This positive trend confirms that the institution's circular management program is highly effective, ensuring that all organic materials are no longer wasted or pollute the environment but are successfully transformed into productive new products.

Meanwhile, the remaining 4.2 metric tons of organic waste was also effectively managed through a well-established mechanism. All of this remaining waste is hygienically disposed of using modern technology without producing even the slightest bit of smoke pollution. Through a combination of these two methods, the West Sumatra Maritime Polytechnic has proven that all organic waste can now be managed perfectly. This success serves as tangible evidence of the achievement of a clean, comprehensive, and pollution-free environmental management system.

Through this remarkable achievement, the West Sumatra Maritime Polytechnic has proven that zero-waste waste management can be effectively implemented. The success in processing all organic waste without leaving any residue not only preserves the beauty of the campus but also creates a much healthier, cleaner, and more sustainable environmental ecosystem for the future.