



## May Pagkain sa Basura: Addressing Policy Gaps in Solid Waste Management

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Food and food-related waste generated at PNU South Luzon in four separate days. a. biodegradable wrapping of food; b. used paper plates; c. single-use plastic containers, cups, and utensils; d. kitchen waste from the canteen; e. leftover finger food; and f. plate waste from Hulyuhan. Photos taken by Erwin Umali, used with permission.

This policy brief looks at PNU South Luzon's waste generation and solid waste management through the conduct of Waste Analysis and Characterization Study (WACS) on campus. We have three key findings: 1) University events balloon waste generation by as much as 700%; 2) the largest waste generations were paper, food waste, and residuals; and 3) residuals are mostly single-use plastics and containers, related to food consumption. Moreover, we find that there is a policy gap - with food waste constituting a quarter of total waste generation, yet no clear mechanism to address it in RA 9003, nor in the PNU Plastic Reduction and CLAYGO Policy. We recommend revisiting national and local policies to align with events planning, review the use of MRF and the possibility of an in-house infrastructure to process food wastes; and continuously monitor waste generation.

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## Introduction

More than two decades after the promulgation of Republic Act 9003 or the Ecological Solid Waste Management Act of 2000, the Philippines still grapples with increasing waste generation and ineffective solid waste management - both at the local and national levels (Commission on Audit, 2023). As a system, Philippine Normal University has enacted its own guidelines to reduce waste generation, the PNU Plastic Reduction and CLAYGO Policy (Montealegre, 2018). This system-wide policy has been reinforced at the local level in January 2025 through OEDP 03, s. 2025 (L.A.S. Cortez, local memo, January 8, 2025).

Six years after the PNU Plastic Reduction and CLAYGO system-wide implementation, and 25 years after the enactment of RA 9003, we look into the status of solid waste management of PNU South Luzon.

Students (2 BMSEE B) of Integrated Science for Elementary Grades 2 (IS2) conducted a Waste Analysis and Characterization Study (WACS) as part of their course requirement. This was done in four days: May 15 - regular class day; July 2 and 3 - Wednesday and Thursday (University Event); and on the night of July 2 for the Hulyuhan. Waste analysis targeted waste bins in areas with high student traffic - gymnasium (1); Nantes Building (4); canteen (2); and guard house (2). Waste bins from Comfort rooms have been excluded as a measure of health and safety, while trash bins from the Administration Building were not included as these are trash generated from Administrative functions.

## Key Issues

**Solid Waste Management and Single-Use Plastic.** Solid waste management is a continuing problem in many municipalities in the country. The implementation of RA 9003 since 2001 has been unsuccessful except for the closure of several open dumpsites in 2021 (Commission on Audit, 2023). Waste generation remains high and increasing, while management remains problematic. According to the report, limited infrastructures, such as materials recovery facilities (MRF) and other disposal facilities, as well as improper segregation, prevent the diversion of solid waste.

The prevalence of single-use plastic, especially unwashed containers contaminated with spoiled food, contributes significantly to methane emissions and climate change. Mixing these containers with recyclable plastic and other materials may affect the recoverability, ultimately ending as residuals. The increased use of single-use plastics has impacted our ecosystems and has contaminated our food systems. The regulation of single-use plastics remains a challenge.

**Food Waste.** United Nations Environment Programme (2024) estimates that, at the household level, every Filipino throw away 26 kg of food every year or a total of 2,954,580 tonnes of food thrown away each year. This is about 8,000 tonnes or 8 million kg of food thrown away daily.

Food waste poses another challenge. It cannot be stored like nonbiodegradable waste or left out to decompose like biodegradable waste. Storing it until the municipal collectors pick up can breed pests and diseases. Leachate from food waste is also undesirable and smelly. Disposing of food, in one way or another, harms the environment – except when used as animal feed (Barrion, Calayag, Nguyen-Orca, & Melo-Rijik, 2023). However, precaution should be observed to avoid further food wastage due to this conversion.

## Key Findings

**Events increase waste generation** from less than seven (7) kilograms to 19-23 kg during day events, to as much as 51 kg during potluck events such as Hulyuhan (Figure 1). This is an increase of 300% to as much as 700% waste generated.

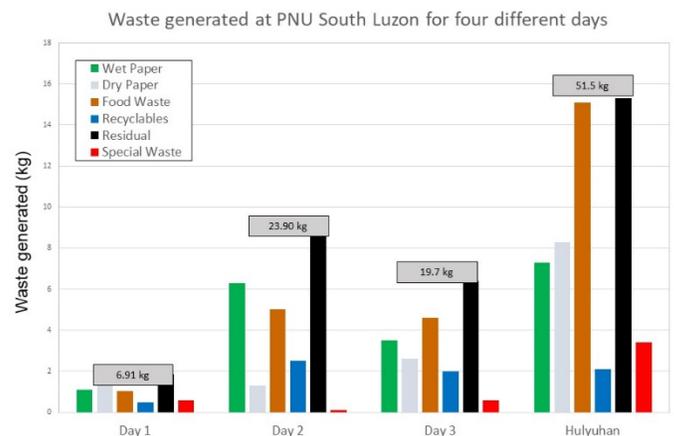


Figure 1. Total waste generated at PNU South Luzon on four different days: Day 1 - regular class day; Day 2 and 3 – university event; and night of Day 2 – potluck student event. Waste generated include wet paper; dry paper; food waste; recyclables; residuals; and special/mixed waste. Total waste generated per day indicated by the gray box.

**The largest waste contributors are paper, food waste, and residuals.** The percent volume of dry paper was highest during regular classes. This is mostly academic-related waste. During school events, dry paper wastes were mostly discarded decorative materials - confirming student commitment to the university policy on Plastic Reduction and CLAYGO (Montealegre, 2018). However, wet paper is consistently high in the four days of observation. In the three events sampled, wet paper wastes consist of paper cups, paper plates, and wet boxes used as packaging for water bottles during the Hulyuhan. The large volume of wet paper waste can also be attributed to



wet weather, as well as fluids from water bottles and food containers.

Food waste, specifically plate waste, is leftover food, usually thrown into the biodegradable bin. During WACS, it was observed that plate waste was usually thrown as part of the single-use container it was bought in. During the Hulyuhan, some plate wastes were mixed in with some single-use utensils such as plastic spoons, paper plates, and paper cups.

In total, food waste constitutes about one-third of all generated waste in the four days of WACS. In separate days, the percent composition of food waste is at most a quarter of the total waste generation (Figure 2).

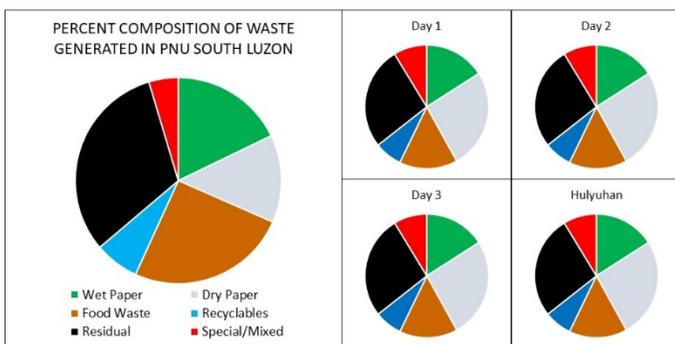


Figure 2. Percent composition of waste generated in PNU South Luzon. Residuals, constitute a quarter to a third of waste generated throughout the sampling period. Recyclables, on the other hand, constitute at most a tenth of waste generated. Food waste, though not as much as residuals in the four sampling days, constitute a quarter of the total generated waste.

Residual wastes, which constitute a third of total waste generated, were mostly food-related: single-use plastics which have not been washed nor rinsed and are usually from take-outs or food deliveries. Since these residuals are contaminated by food waste, they may end up unwashed in the landfill and contribute to methane emissions.

**Recyclables are low, residuals are high.** The low percent-volume of recyclables shows that implementation of Plastic Reduction and CLAYGO Policy (Montealegre, 2018) may be successful and needed only to be reinforced to minimize total waste generation. In contrast, the high volume of residuals indicates that there is a leak in the CLAYGO Policy – single-use plastics in the form of plastic utensils and packaging had become invisible, not only to users but also to implementers.

### Policy Gap

Events tend to increase waste generation by up to 300%, to as much as 700%. These are paper and residuals. While paper may be diverted to compost and may be a better alternative to

plastic, the nonseparation of wax/plastic lining from paper prior to disposal could turn these eco-friendly alternatives into residuals. Residuals, on the other hand, which are mainly single-use plastics such as food container and disposable utensils, tend to accumulate during potluck events. While the use of single-use plastics is under the scope of the PNU Plastic Reduction and CLAYGO Policy (Montealegre, 2018), alternatives and a regulatory mechanism is currently not in place.

Moreover, food waste is not explicitly tackled in current legislations in the country. While RA 9003 (2001) specifies composting as a means to process biodegradable waste and assigns this task to the local government unit (LGU), there is no mention of how food/plate waste should be managed. This deficiency is partially addressed by the Organic Agriculture Act of 2010 (RA 10068) by classifying kitchen waste and leftover food as biodegradable waste. While it promotes the use of biodegradable waste as organic fertilizer (Section 20, b), it limits such to farm waste, effectively excluding management of food waste.

At present, only the Food Donation Act of 2009 (RA 9803), which encourages donation of unsold wholesome food for charitable purposes, directly addresses food waste by providing an alternative pathway to surplus food. Moreover, two bills are currently proposed in the 19<sup>th</sup> Congress: Zero Food Waste Act of 2022 authored by Loren Legarda filed in 2022, and Food Surplus Reduction Act authored by Jinggoy Estrada filed in 2023 (Food Waste, n.d.).

### Impact on Education

RA 9003 (2001) mandates the Department of Education and Commission on Higher Education (CHED) to incorporate waste management in the curriculum. Such incorporation is evident in the Matatag Curriculum for Basic Education and in the National Service Training Program (NSTP) for Higher Education.

Apart from integration into the curricular program, RA 9003 (2001) demands the incorporation of ecological waste management into school systems across all levels. The data on-hand forces us to look at schools not merely as implementers of curricula, but as waste generators. While policies are in place (RA 9003, 2001; Montealegre, 2018), their impact and effectivity remains unmeasured. Revisiting our policies and taking a closer look at our waste management systems provide an important learning opportunity for both the students and the community.



## Policy Recommendations

1. Data show that large-scale University Activities (such as the Hulyuhan) generate the largest waste volume. We recommend revisiting event policies to integrate waste management in event planning and implementation. Event organizers may be required to include a Waste Management Plan in their proposals. Event policies and proposals should align with the University's Plastic Reduction and CLAYGO Policy (Montealegre, 2018) and should include guidelines on utensil-use, potluck volume, and food waste pathways.
2. Reduce waste generation
  - a. Paper – Dry Paper should be diverted, i.e. dry paper may be reused or sold to junk shops. Dry papers may be temporarily placed in an MRF. Wet Paper, on the other hand, should be minimized. This can be done by placing dry papers at the MRF and placing garbage bins in roofed areas. If inevitable, wet paper may be placed in compost as brown matter.
  - b. Food waste – food management systems should be in place to reduce food waste. Refer to Policy Number 4.
  - c. Residuals - residuals are composed largely of unwashed food containers, plastic utensils, single-serve food packaging, and used wet tissue, among others. A considerable percentage of residuals is food-related waste. To minimize residual waste, student attitudes and behavior toward food consumption and utensil usage should be studied.
3. Craft a policy specifically addressing food waste on campus. This policy may include two crucial steps. One, create a mechanism to reduce food waste e.g. institutionalize take-home food containers. Two, create an in-house infrastructure to address inevitable food waste.
4. Regularly monitor waste generation per category. The WACS conducted by IS2 students is the first comprehensive waste analysis and characterization study done on campus. Although it spans four days, data is still lacking. Moreover, we can only truly divert our waste if we know what and how much we are generating.

## Conclusion

Waste generated in PNU South Luzon considerably balloons during events. Overall, waste generated is primarily paper, food waste, and residuals. Recyclables are minimal both in volume and percent volume, and this may be due to the strict observance of Plastic Reduction and CLAYGO Policy (Montealegre, 2018)

of PNU. However, single-use plastics, as well as paper cups and plates, are still widely used within the university.

Policies on events planning and use of utensils in relation to food consumption should be reinforced in the PNU CLAYGO Policy. Moreover, the possible use of MRFs and in-house infrastructure for food waste should be reviewed to minimize waste generation.

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### **Declaration**

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