

Grassroots Innovations from Youth

REDUCING FOOD WASTE: INSIGHTS FROM STUDENTS AT THE UNIVERSITY OF VICTORIA AND JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

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1. INTRODUCTION

This column explores the strategies students at the University of Victoria (UVic), Canada, and at Jaramogi Oginga Odinga University of Science and Technology (JOOUST), Kenya, are adopting to reduce food waste on their campuses. Through interviews, the research highlights the creative and practical ways students address food waste while identifying systemic changes universities could implement to support these efforts. From grassroots initiatives to institutional suggestions, this analysis highlights the role of students as both agents of change and advocates for sustainability.

1.1 Background on Student-Led Food Waste Solutions

Food waste is a pressing global issue (FAO, 2015), and universities often reflect the complexities of these challenges within their campuses. Functioning as small-scale models of society, campuses are shaped by the interactions of various actors; students, faculty, administrators, and food service providers operating within a network of institutional policies, infrastructures, and external market pressures (Boschini et al., 2018; Marais et al., 2017). These environments face constraints such as limited food options, inefficient dining practices, including poorly prepared meals, and inadequate facilities for food storage and management. Despite these challenges, students actively develop innovative strategies to reduce waste, establishing themselves as vital contributors to sustainability efforts.

Student-led solutions are often rooted in the concept of grassroots innovation—practical, community-driven approaches that are tailored to the immediate needs of their environment (Gutberlet, 2023). These efforts typically involve small-scale, low-resource initiatives that address specific campus challenges while aligning with broader goals of sustainability and waste reduction. For example, students often reimagine traditional practices or adopt creative approaches to food preservation and redistribution, reflecting both their adaptability and their awareness of systemic inefficiencies.

Unlike top-down solutions, these grassroots innovations focus on addressing everyday issues students encounter, such as food spoilage because of the lack of storage facilities. They showcase students' ability to respond proactively to challenges while advocating for longer-term changes, such as improved infrastructure or institutional policies. These efforts demonstrate not only practical action but also critical reflection, as students seek to both mitigate waste in their immediate surroundings and inspire systemic change across their universities.

2. METHODS

The study used a qualitative approach with semi-structured online in-depth interviews involving twenty undergraduate students: ten each from UVic and JOOUST. These sites were selected due to researchers' location and established international connections in Kenya. Semi-structured interviews offered flexibility for in-depth discussions (Dunn, 2021). Data collection occurred between November 2023 and May 2024, with ethics approval from the University of Victoria's Research Ethics Board (Protocol #23-0328). Participants at JOOUST included six females and four males (eight first year and two third year students). At UVic, participants comprised seven females and three males (nine first-year and one third-year student) and one international student.

Interviews were conducted via Zoom, leveraging its ability to overcome challenges related to time, cost, and location (Dunn, 2021; Thunberg & Arnell, 2021). Sessions lasted 30 to 45 minutes, providing students with the opportunity to share detailed insights. While several open-ended questions were posed, the ones most relevant to this grassroots innovation column focused on two key areas: practices students use to reduce food waste and what they believe their universities could do to support these efforts.

Convenience sampling (Acharya et al., 2013) was used to recruit undergraduates aged 18–24 who lived on-campus and regularly ate at residence dining halls. At UVic, recruitment involved posters (Figure 1), direct approaches in common areas, and assistance from professors. At

RESEARCH PARTICIPANT RECRUITMENT

Exploring Food Waste in Universities: A Case Study of the University of Victoria and the Jaramogi Oginga Odinga University of Science and Technology.

UVic students are invited to participate.

What is involved?:

A 30 - 40 minute-long individual in-depth interview with UVic students to share their experiences with food and food waste on the university campus.

Eligible participants:

- Students between the ages of 18 - 24.
- Students who frequently visit eateries on UVic campus at least twice a week.
- Students residing in on-campus dorms.

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Disclaimer: This study has received approval from the UVic Review and Ethics Board (23-0328).

FIGURE 1: Recruitment poster.

JOOUST, a research assistant employed snowball sampling to identify eligible participants (Kirchherr & Charles, 2018).

Participants received interview questions in advance to facilitate thoughtful preparation and reflection. Informed consent was obtained before interviews, with participants briefed on their rights, including the ability to withdraw at any time.

During data collection, we used Zoom’s “View Full Transcripts” function to generate real-time transcripts of each session. These transcripts were reviewed for accuracy by cross-referencing them with audio and video recordings to correct any errors or omissions. Familiarizing ourselves with the material allowed us to efficiently evaluate and extract key information.

Data analysis followed a systematic process: open coding was used to identify and categorize significant concepts relevant to the research objectives (Glaser, 2016). This was followed by focused thematic coding of group related data, and finally, selective coding to develop themes and establish connections between categories.

3. STUDENT INNOVATIONS: INSIGHTS FROM THE UNIVERSITIES

This section explores how students at JOOUST and UVic are tackling food waste through distinct yet impactful strategies. From traditional knowledge to collaborative food recovery initiatives, their approaches highlight the power of adaptability and collective action in addressing one of the most pressing global sustainability challenges.

3.1 Jaramogi Oginga Odinga University of Science and Technology

At JOOUST, students use traditional knowledge to address infrastructural challenges that limit access to refrigeration. Restrictions on personal refrigerators, due to concerns about fire risks, limited space, and high electricity costs, have led students to develop innovative food preservation methods. For example, vegetables are left outdoors overnight to stay fresh through the cooling effect of natural dew. This creative adaptation to environmental conditions leverages local resources to minimize food waste.

This approach demonstrates the competence and adaptability of students in resource-scarce settings, turning constraints into opportunities for sustainability. By relying on traditional practices, students address modern challenges while ensuring food security, providing a compelling example of grassroots innovation in action.

3.2 University of Victoria

At UVic, students employ different strategies rooted in community action and sustainability. The Community Cabbage initiative, a student organization at UVic, exemplifies this, as students engage in food recovery by rescuing surplus produce from local stores and preparing free weekly hot meals at campus from the reclaimed food items, serving students affected by food insecurity. This project raises awareness about food waste, fosters a sense of community, and promotes food security through collective action. By turning food that would otherwise be discarded into nutritious meals, students highlight the potential of collaborative efforts in reducing waste and addressing systemic issues.

UVic students also participate in other grassroots movements like freeganism and dumpster diving, also recovering edible food discarded by grocery stores and restaurants throughout the city. These practices reflect a broader cultural commitment to resourcefulness and sustainability, often shaped by personal values and upbringing in households that emphasize minimizing waste. Through these actions, students not only reduce food waste but also challenge societal norms around consumption, wastefulness and disposal, advocating for a more mindful approach to resource use and avoidance of waste.

3.3 Connecting Local Solutions to Global Challenges

The initiatives at JOOUST and UVic illustrate the power of student-led, grassroots innovations in addressing food waste. Whether through the application of traditional knowledge to preserve food or creative community-based recovery strategies, these efforts demonstrate how students can lead in developing sustainable, locally relevant solutions. By blending resourcefulness, adaptability, and critical reflection, these practices offer valuable lessons for tackling food waste at both institutional and societal levels in institutions both in the global North and in the global South.

4. INSTITUTIONAL SUGGESTIONS FROM STUDENTS

While students actively use innovative ways to reduce food waste within their campus and local communities, certain systemic issues remain beyond their direct control. Factors such as large portion sizes, poorly prepared meals, limited food variety, and inadequate infrastructure often lead to unnecessary waste. Recognizing these challenges, students at JOOUST and UVic have proposed several actionable measures their universities could adopt to foster a more sustainable and waste-conscious dining environment. Promoting this dialogue at the institutions further pushes for necessary change and adaptation. The following sections outline their key recommendations.

4.1 Community Fridges

Students at both universities identified communal fridges as a practical solution to reduce food waste and address storage challenges. At JOOUST, where students are not permitted to have personal refrigerators due to high electricity costs, limited space, and fire safety concerns, communal fridges could offer a centralized alternative. By reducing the need for individual appliances, this approach could lower energy consumption and alleviate space constraints in student housing.

At UVic, while students are allowed to bring personal fridges, not all of them do, and those who have them often underutilize the storage capacity. Communal fridges could help optimize food storage, prevent waste from forgotten or spoiled items, and save electricity costs across residences.

To succeed, communal fridges would require shared responsibility. Universities could implement clear usage guidelines with weekly cleaning schedules, and oversight to ensure these resources remain hygienic and effective. By promoting collective ownership, these fridges could serve as a cost-effective, sustainable solution to address food waste on campuses.

4.2 Portion Control

Fixed portion sizes in campus dining facilities, like those at UVic, often result in over-serving and unnecessary waste. With a “one-size-fits-all” approach to meal portions, students frequently end up with more food than they can consume. To address this, students at UVic proposed introducing sliding scales and customizable portion options, allowing individuals to select the quantity that best suits their appetite.

Implementing plate size choices or a “build-your-own-portion” system could significantly reduce waste while enhancing student satisfaction by catering to diverse needs. Universities could also pair this initiative with awareness campaigns promoting mindful consumption, encouraging students to take only what they need and fostering a culture of sustainability.

4.3 Fair Treatment in Food Service

At JOOUST, students highlighted concerns about favoritism in food distribution, noting that this practice not only causes dissatisfaction but also leads to unnecessary food waste. Unlike UVic, where fixed portion sizes are standard, JOOUST operates a pay-as-you-eat system, allowing students to buy food based on their individual needs. However, some food vendors develop close relationships with certain students, giving them extra food they may not finish, contributing to waste.

To address this, students suggested introducing measures to promote fairness in food service. Universities could establish clear guidelines for portion sizes within the pay-as-you-eat model to ensure all students receive equitable treatment. An easy and fair approach would involve weighing plates with food servings and charging a per-kilo price, allowing students to pay based on the exact quantity they choose. Additionally, training food vendors on impartiality

and accountability could help eliminate favoritism, while regular monitoring and anonymous feedback systems would encourage transparency. Specific support programs targeted at food insecure students could make the difference for low and middle-income students. By addressing these issues, universities can foster a more inclusive and sustainable dining environment.

4.4 Food Quality and Variety

Students at both UVic and JOOUST emphasized the need for better food quality and greater menu variety as key measures to reduce dissatisfaction and associated food waste. Poorly prepared meals, such as undercooked meat or bland dishes, and repetitive menu options often result in students discarding uneaten food. At JOOUST, the limited options in the campus mess—mostly rice, beans, cabbage, ugali (cooked maize meal) and occasionally chapati—leave students feeling bored and unsatisfied. Similarly, at UVic, repetitive vegan options and a lack of variety during dinner hours were frequently cited as issues.

To address these concerns, universities could invest in sourcing higher-quality ingredients and providing diverse menu options tailored to different dietary needs, such as vegan, gluten-free, and allergen-free meals. Rotating menus could reduce monotony, while partnerships with local suppliers would ensure fresh, high-quality produce to be used in meal preparation. Expanding dining hours, particularly for dinner, could also cater to students with busy schedules, offering them more opportunities to access fresh and appealing meals.

4.5 Food Labeling

Students at UVic identified the lack of clear food labeling as a significant factor contributing to food waste on campus. Without clear expiration dates or indicators of freshness, students often discard food prematurely, unsure whether it is still safe to consume. This is especially true for items like fresh produce such as dairy products, fruits and vegetables that might look fine but have already passed an undefined storage period.

To address this issue, universities could implement standardized and consistent labeling practices across all dining and retail outlets. Clear “use by” and “best before” dates would provide students with confidence in food quality. Adding freshness indicators, such as color-changing labels or packaging seals, could further help students assess the usability of food items. However, the effectiveness of these labels depends on students understanding their meaning. Educational initiatives could accompany these labeling efforts, clarifying the differences between “use by” (indicating a health safety threshold) and “best before” (relating to quality). Additionally, universities could provide general guidelines, such as how many days certain foods remain safe to consume past their labeled date, to help students make informed decisions. Pairing this with signage in dining halls could reduce confusion and empower students to better manage their food, minimizing unnecessary waste.

Collaboration with suppliers is equally important to ensure food items arriving on campus are properly labeled

and meet these standards. Such measures would not only reduce waste caused by uncertainty but also foster a culture of sustainability, empowering students to take more responsibility for their food choices while minimizing unnecessary waste.

4.6 Feedback Mechanism

Students at both UVic and JOOUST expressed concerns about the effectiveness of feedback mechanisms in addressing issues with campus food services. At UVic, the smiley-face system, where students select their level of satisfaction from options ranging from happy to angry, was criticized for being too simplistic to capture detailed concerns. While a dedicated email channel (eat@uvic.ca) exists for submitting more specific feedback, many students were unaware of its availability, highlighting the need for better communication about existing tools.

At JOOUST, feedback mechanisms, while present in the form of quarterly questionnaires, are not frequent or comprehensive enough to consistently capture student input on food quality, service, or variety. This limited approach can hinder efforts to address recurring concerns effectively or identify broader trends in student satisfaction.

To address these challenges, both universities could improve their feedback systems by making them more accessible and user-friendly. At UVic, increasing awareness of existing options, such as the feedback email channel, would encourage greater participation and ensure more students to feel heard. At JOOUST, complementing the quarterly questionnaires with additional tools like suggestion boxes or digital platforms could provide students with more frequent and flexible opportunities to share their input. Strengthening these systems would enable both universities to gather more detailed and actionable feedback, fostering a responsive and inclusive approach to improving dining services.

5. FINAL CONSIDERATIONS AND NEXT STEPS

The strategies and suggestions presented in this study illustrate the vital role students play in addressing food waste on university campuses. Their grassroots innovations and practical solutions not only tackle immediate challenges but also highlight opportunities for institutions to adopt more sustainable and equitable food systems. By integrating student-led efforts with institutional support, universities can make meaningful progress toward reducing food waste while fostering a culture of sustainability and collective responsibility. To build on these findings, the following steps could be taken:

- *Enhance Institutional Commitment*
Universities should formalize their commitment to sustainability by implementing the student-suggested measures, such as introducing communal fridges, improving food quality and variety, charging for food by weight, and adopting clear food labeling practices. These steps can reduce waste while improving the overall campus dining experience.

- *Strengthen Collaboration*
Partnerships between students, faculty, food service providers, and local suppliers are essential for the success of these initiatives. Universities could create advisory committees or task forces that include student representatives to ensure their voices remain central in shaping policies that reduce food waste.
- *Expand Awareness Campaigns*
Universities should invest in educational initiatives to promote mindful consumption and sustainability. Workshops, campaigns, and informational sessions can help students better understand food labeling, portion control, and storage practices, empowering them to make more informed decisions and be informed to avoid food waste.
- *Monitor and Evaluate Progress*
Regular assessments of implemented changes, supported by enhanced feedback mechanisms, will help universities measure the effectiveness of these efforts. Transparent reporting of outcomes can build trust and encourage further participation from the campus community.
- *Expand the Research*
Future research could investigate the long-term impacts of these student-led and institutional initiatives, assessing how they influence food waste reduction and overall campus sustainability. Comparative studies across other institutions could provide broader insights into best practices and scalability.

By prioritizing these next steps, universities can align themselves with global sustainability goals while directly addressing the concerns and contributions of their students. These efforts not only enhance the campus experience but also position universities as leaders in combating food waste at both local and global levels.

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