

食品ロスを価値あるものに変える：
食品ロス堆肥化プロジェクトにおけるコミュニティ連携の事例研究
Transforming Food Waste into Value:
A Case Study of Community Collaboration in a Food Waste Compost Project

ガブリエル・アロンゾ・ラスク, 宮田 義郎, 浅川 仁都

Gabriel Alonzo Rusk, Yoshiro Miyata, Jinto Asakawa

中京大学

Chukyo University

gabe.lon.rusk@gmail.com

Abstract

In 2022, Miyata Seminar students started a compost project in Toyota City, involving collaboration with the University Co-op Cafeteria, local citizens and groups in Toyota City, Japan. Our goal was to get more people involved in composting their food waste at work and home. This study will illustrate the various interests surrounding composting and analyze what values lead citizens and groups to become involved with compost. The mindsets around food waste, and the contents of food waste, differ between businesses and households. These differences affect the values each of these groups assigned to food, food waste, and compost. This study will analyze the mechanisms and motivations necessary to sustain composting efforts.

Keywords — (Community Design, Compost, Food Waste, Collective Creativity)

1. Introduction

1.1. Food as a Resource

Society values food. Letting food go to waste is generally considered a taboo. The author grew up being told to “finish everything on his plate”, and most readers probably share a similar experience. However, once food spoils, it is generally considered as being a waste and a nuisance. It takes up room in the fridge, and makes the garbage can stink. The sooner it is out of the house, the better. Food waste has such negative connotations that most people want to get it out of their sight as soon as possible. However, food waste can also become an important resource and create a food cycle through composting.

1.2. Food Waste and Compost

Food waste is a problem within everyone's surroundings. Businesses and households in Japan produced an estimated total of 5.22 million tons of food waste in 2020[1]. Food waste has the potential to be turned into a useful resource like compost with relatively simple methods. However, unlike recyclables like PET bottles and aluminum cans, food waste usually ends up being burnt or landfilled with other garbage in most of the world.

The compost referred to in this research is made of food waste which is usually mixed with rice husks, fallen leaves, etc. There are many ways to make compost. Students at Chukyo University and participants in their workshops make most of their compost in handmade wooden compost tumblers. Composting food waste significantly decreases the amount of emissions caused by food waste, and the produced compost can greatly improve soil health in farm fields[2]. Composting food waste also decreases the amount of waste households and businesses produce, decreasing the amount of food waste that needs to be burned as burnable waste. Therefore, reducing food waste decreases the economic burden on businesses and city governments. However, getting people involved in composting comes with a lot of challenges.

1.3. The Challenges of Getting People Involved in Composting Food Waste

There are many preconceived notions people have about making compost. These preconceptions can add to the barrier of starting composting at home. Three of the most common preconceptions the author has heard throughout their involvement in the compost project is that compost attracts bugs, making compost is time consuming, and compost stinks.

The first preconception is not incorrect, compost can attract bugs. However, there are compost systems like cardboard box compost and compost bags which greatly reduce the possibility of bugs getting into the compost system and the amount of bugs attracted to the compost. Also, properly made compost may attract less bugs due to it having less of a stench. Though of course for those that aren't squeamish when it comes to bugs, there are compost systems using worms and other bugs which are very useful in making good compost.

As for the second preconception, adding waste to compost and mixing it takes maybe a few minutes to do with most small and medium sized compost systems. Smaller compost systems like bag and

cardboard box compost require mixing by hand. The compost project's system is designed to be much easier to mix by rotating it.

The last preconception about compost stinking mostly comes from poorly made compost rotting instead of fermenting. Properly made compost should not produce much stench, and in the words of the author and many people who have smelled the compost made by Miyata Seminar, "compost smells like a forest". With a quick lesson or internet search, it is easy to learn how to properly care for compost. However, getting people to make the leap into making compost is no easy effort. From here, this study will analyze the mechanisms and motivations found in participating groups that are necessary to begin and sustain composting efforts.

2. Methods

The groups this study will analyze include Chukyo University Toyota Campus's University Co-op Cafeteria, families who participated in the wooden compost turner workshops, visitors of the compost projects displays at community events, as well as the community gardens Seseragi Noen in Hino City, Tokyo and Edible Kayabaen near Tokyo Station. The methods of study include; interviews with the University Co-op staff, observations of participants in the compost turners workshops and the messages on a Line group they all joined after the workshop, observations of visitors at community events, and a study trip by Miyata Seminar to the community gardens in Tokyo.

3. Getting Groups Involved in and Continuing Composting

3.1. Why Groups get Involved

Some of the primary factors that lead people and groups to involve themselves with composting observed throughout the compost project include; wanting to decrease the amount of waste they create due to cost or environmental concerns, stench of food waste, wanting to use created compost. The University Co-op likely has a direct benefit in reducing food waste disposal costs. However, for individuals that won't use compost at home, even if the compost they make is taken up by farmers, without understanding the monetary benefits or how the compost is actually useful, they might not continue the labor-intensive process of composting.

3.2. Cafeteria Compost

The relationship employees of the University Co-op staff and households have with their food waste differs, as do the contents of their food waste. Food waste in the cafeteria is often unsold bento boxes and sometimes leftovers. Cafeteria employees

need to produce and sell food. If that food is not bought, then it becomes waste. Some of the cafeteria staff mentioned in an interview that they felt stressed by throwing away the food that they prepared. However, once students started collaborating with the cafeteria, they were happy that the students could make use of it[3].

The University Co-op Cafeteria's involvement in composting is somewhat unique in this study, because their involvement is mostly due to the request by students to use the cafeteria food waste. The composting of their food waste is carried out by students and up to this point the cafeteria employees have almost no interaction with the creation or use of the compost. Regardless, this study found interesting changes in the staff of Chukyo's school cafeteria and shop when the students proposed the plan to compost their food waste. Although their initial reaction was that sorting out food waste would make their work schedule more difficult, they discussed and came up with a new workflow integrating sorting with minimal work. Interestingly, after a month or two the cafeteria on the 2nd floor and the shop on the 1st floor which had been working separately started cooperating with each other in the new workflow.

This study observes that University Co-op staff had a dilemma that they had to suppress their wish not to waste food because of the pressure to do their job efficiently. Then, when they found a potential solution in the students' proposal, they became motivated to realize it by changing their workflow.

This study proposes that the value of food by individuals can foster changes within a workplace. While their first priority is still the fulfillment of their work, the cafeteria workers pushed to fulfill their individual want to tackle food waste through collaboration with the students. They then went further and collaborated with other parts of the University Co-op to widen the amount of food being composted.

3.3. Household Compost

Household food waste is usually scraps from cooking, spoiled leftovers, and spoiled food. Getting households involved in composting at home is particularly difficult, because the households need to have a desire and a will to do composting. Many of these families don't see personal benefits in composting since they won't be using the compost themselves or have the aforementioned preconceived notions about compost.

The initial process of introducing households to compost is an important first step. Having compost

in one's surroundings creates an awareness of compost. Community farms like Seseragi Noen[4], which provide composting and hold many fun community events can create an all important first initial contact with compost. However, there are some individuals that already have initial interest in composting, so they reach out for possible initiatives to do so.

3.4. Community Workshop

With funding from Toyota City, Miyata Seminar held two workshops in which local citizens made wood compost turners which they could use to compost their food waste at home. Ten families total participated in the workshops, five in the first one and five in the second.

Collective creativity between workshop members was observed on the Line group created after the first workshop. Members of the line group have shared their own personal designs and changes to their compost systems, thoughts on their experience with the compost system, spread information about community events, and even once shared information about usable farmland. This engagement in the group line kept members motivated in their composting activities, and created opportunities for them to show off their compost efforts. The new designs and insights also provided Miyata Seminar students with important information on how they could improve future compost systems and workshops.

3.5. Event Displays

There is a particular example the author would like to share from the events they have displayed the compost project at. A mother and three children came to the tent where the author was presenting the compost project. As the author explained the process of composting to the children, he gave them the opportunity to see and smell the compost in a compost bag. As soon as the children smelled the compost, they said it smelled like a rhinoceros beetle (most likely referring to the terrarium in which they kept the bug). The mother was surprised by this and went in to smell the compost herself. She agreed with the children, and said that if compost smells like this then she sees no point in not trying to make compost at home. She had thought about making it before, but her preconception about the smell of making compost kept her away from making it. Educational outreach such as this may help increase future engagement in composting.

4. Discussion

4.1. Importance of Educational Outreach

Workshops and community events play a crucial role in educating the public about composting and dispelling common myths. Places like Seseragi Noen also provide the important role of attracting people through fun events, providing an initial contact point by which groups and individuals may become later involved in composting. Direct engagement and hands-on experiences are effective in breaking down barriers and encouraging participation.

4.2. Role of Collaboration

Collaborative efforts within communities foster a sense of collective responsibility as particularly seen in the University Co-op, and innovation as seen in the collective creativity of workshop members in the Line group.

4.3. Continuous Support Systems

Platforms for ongoing support and communication, such as Line groups, can provide useful tools for sustaining interest and commitment to composting. These platforms facilitate the sharing of experiences, solutions, and information, thereby reinforcing the practice of composting.

5. Conclusion

Transforming food waste into valuable compost through community collaboration not only mitigates environmental issues but also nurtures a culture of sustainability. Understanding the varied preconceptions and motivations of different groups, and providing opportunities and tools by which these groups may get involved in composting and connect with each other are essential for engaging and sustaining groups and individuals composting practices. This study highlights the potential for cognitive and behavioral change regarding compost through collective action.

References

- [1] Japan's Ministry of the Environment, (2022) "MOE Japan discloses the estimated amount of Japan's food loss and waste generated in FY2020"
- [2] United States Environmental Protection Agency, (2023) "Reducing the Impact of Wasted Food by Feeding the Soil and Composting"
- [3] ラスクガブリエル・宮田義郎・浅川仁都 (2023) "Local People and Resources Community Food Waste Compost Project: Thailand and Japan Online Collaboration", Japanese Cognitive Science Society 2023 Conference
- [4] Naomi Shimpo (2024) "Community garden management for resilient cities: A case study in suburban Tokyo during the COVID-19 pandemic", *Landscape and Urban Planning*, Volume 251, 105148, ISSN 0169-2046

- [5] 宮田義郎・三野宮定理・原田泰(2021) “共創から立ち現れる創造性:現場の文脈に埋め込まれたデザイン”、日本認知科学会第38回大会発表論文集, 867-872