

A Study on a Circular Waste Management System between Urban and Rural Areas

Topic : Japan's garbage disposal system

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1. Introduction

Recent Situation

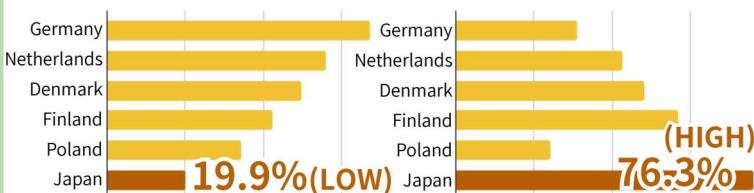


Figure 1 Waste Recycling Rate in Japan and EU Member States (2018)

Japan's recycling rate is much lower **Why** heavy dependence on incineration

2. Aim & Methods

Aim

- Increasing waste recycling rate
- Reducing incineration reliance
- Creating circular waste system to connect regions

Research Process

- Fieldwork of methane fermentation facility
- Interviews with city officials
- Analysis of waste management system effects

3. Results

Precedent case

A garbage disposal system operated by Maniwa city



Figure 3 Our visit to Maniwa city's facility (December 2024)



Findings from Fieldwork

- The facility is kept clean, and odors are controlled.
- Contaminants in garbage are removed manually.
- Liquid fertilizer is concentrated to enable to apply fertilizer efficiently.

4. Discussion

A new circular system we propose

1 Separation & Collection



Household garbage separation in cities

2 Methane Fermentation



Conversion of garbage into liquid fertilizer

Urban

Rural

4 Circulation



Agricultural products supplied back to cities

3 Distribution



Liquid fertilizer provided to citizens and farmers

Original Points

- Urban and Rural Partnership**
Shared facilities and resources across regions
- Promotion**
Awareness raising through SNS campaigns
Environmental education for children

Benefits

- Reduction in agricultural product prices
- Lower dependence on imported chemical fertilizer
- Stronger cooperation between urban and rural areas

Challenges

- High costs of facility construction and operation
- Difficulty in introducing new separation rules
- Hygiene control in cities

Sources

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