

Pilot Activity on Plastic Waste Management in Padang City, Indonesia

Building a Foundation for Collaborative work through **Digital Integration**

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Plastic Waste Crisis in Indonesia

Key Facts:

- **Second-largest contributor** to plastic waste globally
- **10 million tons of plastic** waste generated annually, with **3.2 million tons** ending up in the ocean.

Challenges:

- Inadequate waste management infrastructure.
- Low recycling rates (<10%)
- Heavy reliance on single-use plastics.
- Etc.

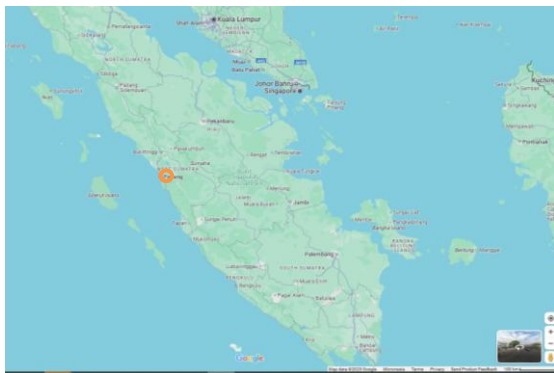
Environmental Impacts:

- Marine life endangered by ingestion and entanglement.
- Microplastics infiltrating food chains and water supplies.
- Harmful economic effects on tourism and fisheries.



The Asean Post: Scavengers collect valuable waste at Sidoarjo garbage dump in East Java, on 5 June, 2018

Waste Management in Padang



Population: 925K

Waste generation: 647 t/d

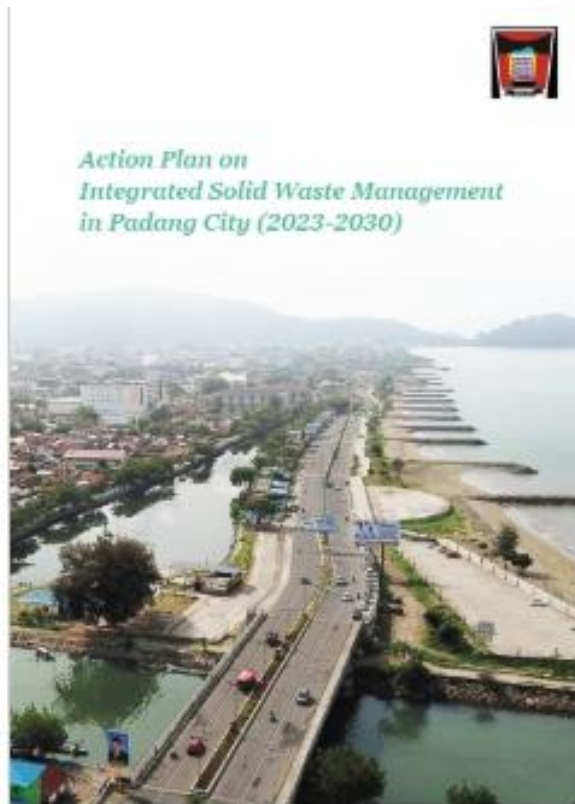
- Food waste: 63%
- Green waste: 6.6%
- Plastic: 12.4%
- Paper/cardboard: 6%

Waste dumped: 74% (478 t/d)

Recycling + Composting : 7% (49 t/d)

Burning: 12% (76 t/d)

- The disposal site is reaching its capacity + No alternative land is available
- Waterways such as river becomes littering points → clog of drainage, plastic pollution,
 - **reduce the amount of waste** that is transported to the final disposal site (TPA)
 - **Increase plastic waste collection** and **reduce plastic litters** through expansion of waste collection coverage



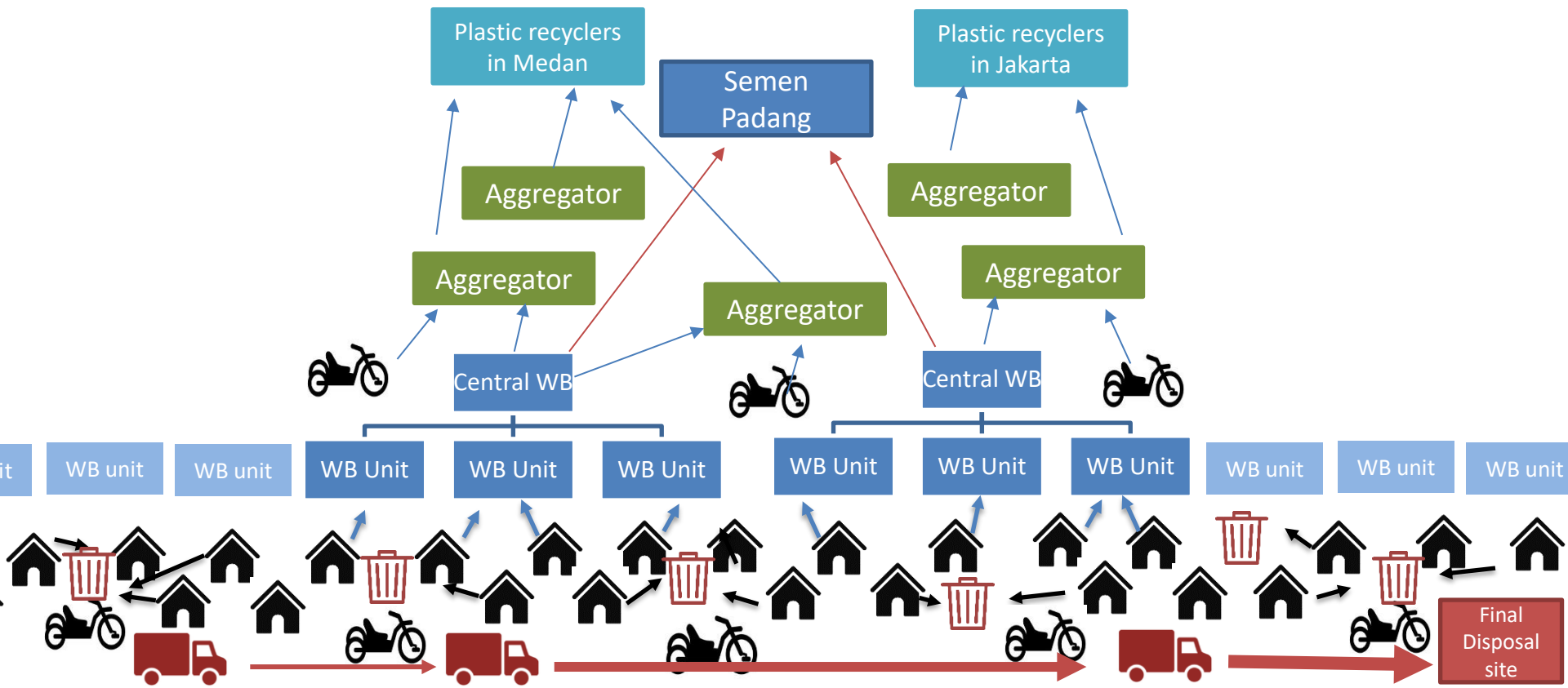
ISWM action plan (2023-2030) developed in 2022

Objectives

1. Enhance waste separation to achieve a 30% waste reduction at the source
2. Increase organic waste reduction to 10% (Baseline in 2021: 0.4%)
3. Increase inorganic waste recycling and recovery to 20% (Baseline in 2021: 7.1%)
4. Reduce unmanaged waste that leaks to the environment to 10% (Baseline in 2021: 20.20%)
5. Enhance institutional capacity for better SWM with the focus on monitoring and evaluation (M&E) and collaboration with other partners

Current Recycling Flow in Padang

→ Recyclable at **High** value
→ Recyclable at **Low** value



Key Actor: Waste Bank (WB)

Waste Bank is a facility where people can deposit sorted valuable waste in exchange for economic value with the 3R principle (Reduce, Reuse, and Recycle), as a means of education, change behavior, **circular economy**

Purpose of Waste Bank

- Reducing Waste Generation
- Increasing Environmental Awareness
- Providing Economic Benefits for Community



Key Actor: Waste Aggregator (1)



Eco Tuah Sakato (Ecoahto)

Key Actor: Waste Aggregator (2)



NO RECYCLING FACILITY in
Pandang



Transport to Recyclers in
Medan (770km, 17h30m) or
Jakarta (1,300km, 27h)

We want more plastic waste!



Key Actor: RDF Off-taker

Machine Translated by Google

Construction of RDF Facilities

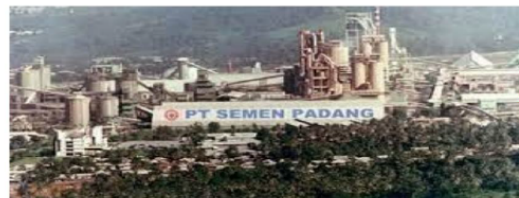
Coal Requirement : 4,500 Tons/Day

Co-Firing Demands: 5%
(225-250 Tons/Day)

Already Obtain 60 Tons

There are still opportunities for RDF
Products (± 165 Tons/Day)
Caloric Requirements : 3000

± 15 KM



SEMEN PADANG FACTORY

**Off Taker
RDF**

We want more plastic waste!

**We want more biomass
waste!**

ELECTRICAL COMPANY

Coal Requirement: 3,000 – 3,600 Tons/Day

Co-Firing Demands : 30%
(900-960 Tons/Day)

Already Obtain 30 Tons

There are still opportunities for RDF
Products (± 930 Tons/Day)
Caloric requirements : 4000

Final disposal site

± 48.6 KM



PLTU TELUK SIRIH
sumatera barat

Eco Tuah Sakato
(Ecoahto)

PT Semen
Padang

Sakina &
Panchadaya
(Central WB)

Aggregator
want more
plastic waste

Off-taker of
RDF wants
more plastic
waste

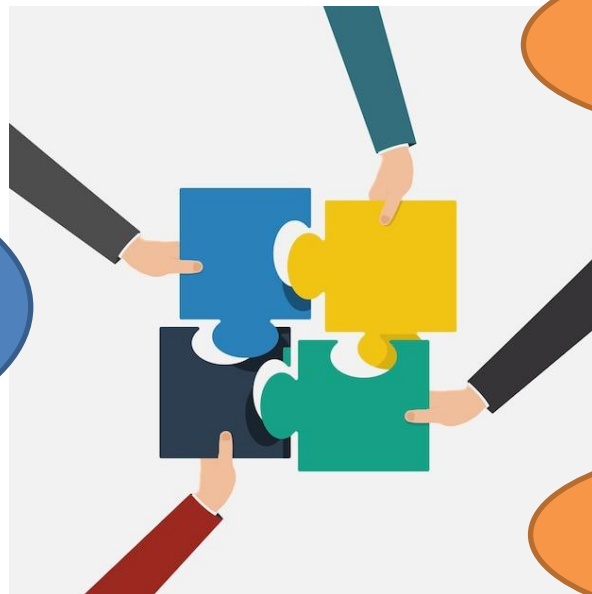
Waste banks
want more
plastic waste

City wants to reduce
plastic waste from
waterways and
disposal sites

Padang city

SUPPLY

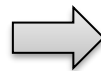
DEMAND



Match making!

Enhancement of Institutional Capacity of WB

Garbage becomes a problem



Waste becomes **BUSINESS OPPORTUNITIES!**

182 waste banks registered, BUT only 82 are active

Challenges

- slow manual recording
- risk of data loss
- a lack of transparency that reduces public trust
- Absence of collection vehicles
- Lack of business mind
- Lack of awareness about source separation

**1. Digital Tool by
Griya Luhu Gianyar
Bali**

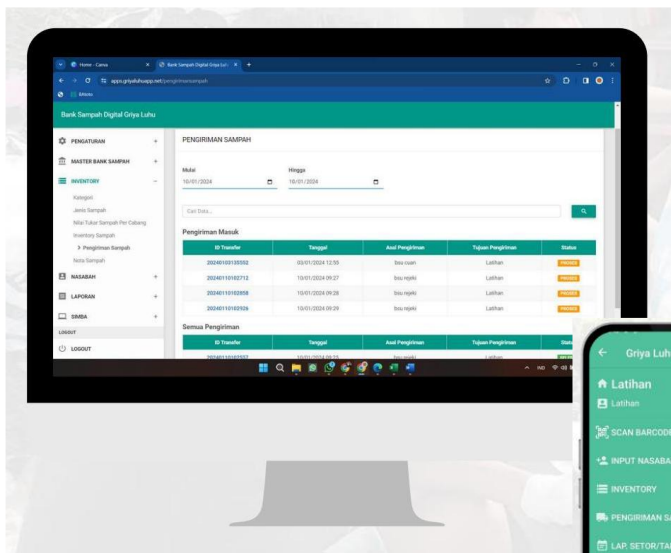
2. Coordination by Andalas University

3. Education through Waste Banks

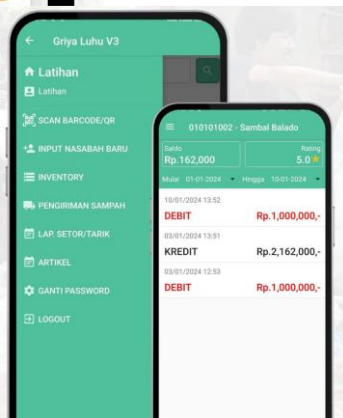
Time efficiency ↑
Data transparency ↑
Data security ↑
Motivation ↑
Monitoring ↑

Feature of Digital Apps

For admin (central waste bank)



For waste bank unit



MASTER BANK SAMPAH

Feature to set up, edit and delete unit waste bank accounts.



INVENTORY

Features to manage categories and types of waste, incoming goods inventory, and sales notes.



CUSTOMERS

A feature that shows all customers registered at all unit waste banks.



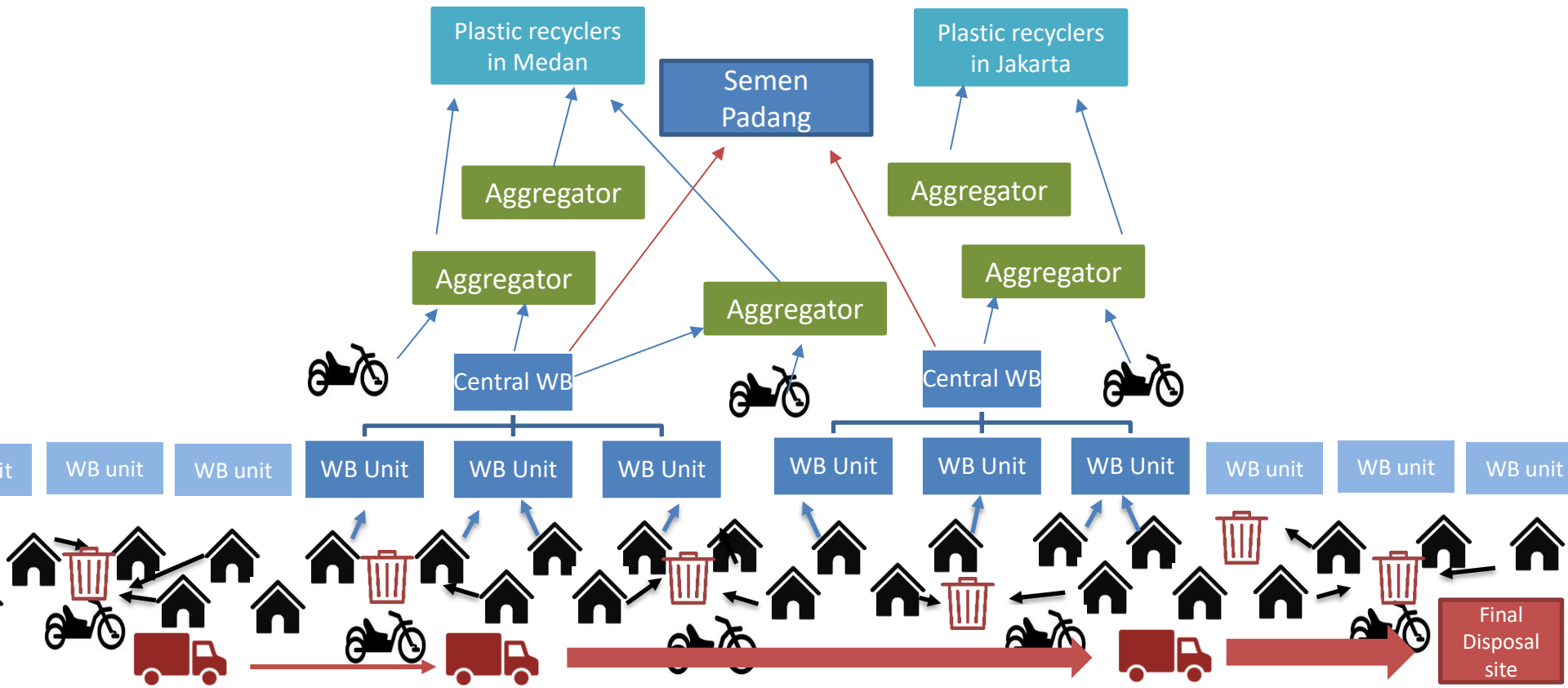
REPORTS A

feature that provides all reports needed by a waste bank.

Current Plastic Recycling in Padang

→ Recyclable at **High** value

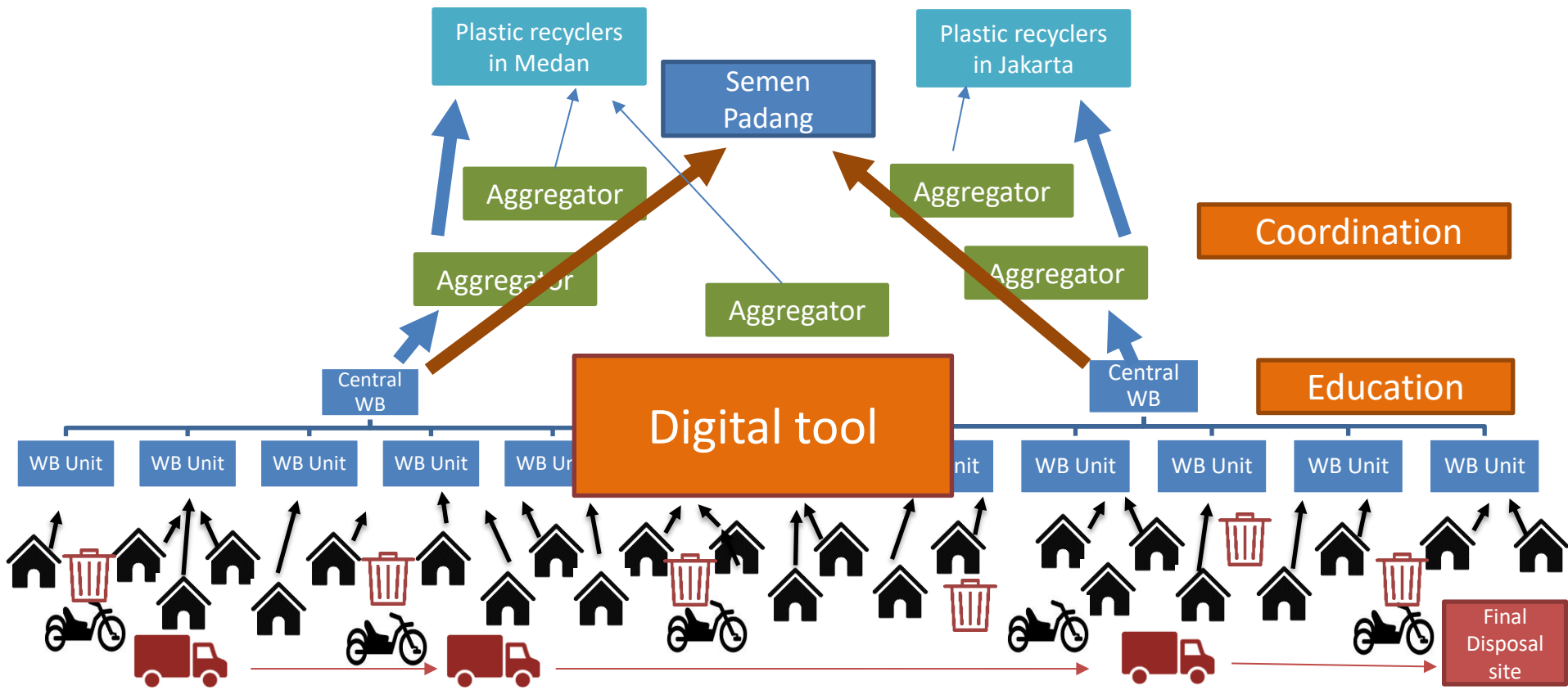
→ Recyclable at **Low** value



Concept of Pilot Activity

→ Recyclable at **High** value

→ Recyclable at **Low** value



Stay Tuned!

We will report the result of pilot activity around the end of the year 2025

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Any other questions, please contact miho.hayashi@iges.or.jp