

Initiatives to Achieve Clean Cities in Kenya -Technology for Promoting Circular Economy-

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Self Introduction

Ryota Okiguchi (Mr.)

- Associate Expert (Waste Management)
- Environmental Management and Climate Change Group, Global Environment Department
- To be assigned as waste management expert in Kenya from March 2024

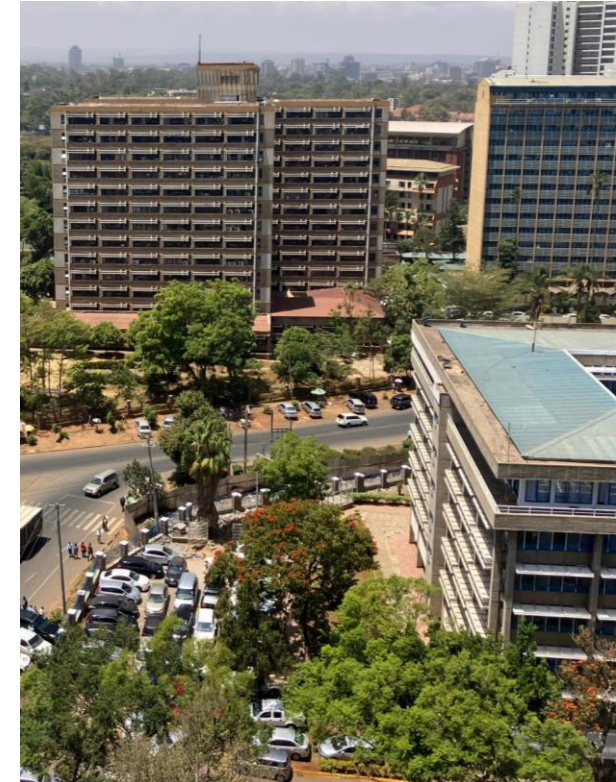


Outline

1. Overview of waste management in Kenya
2. Introduction of upcoming project in Kenya
3. Expected technology for promoting circular model

1. Overview of waste management in Kenya

Picture in Kenya



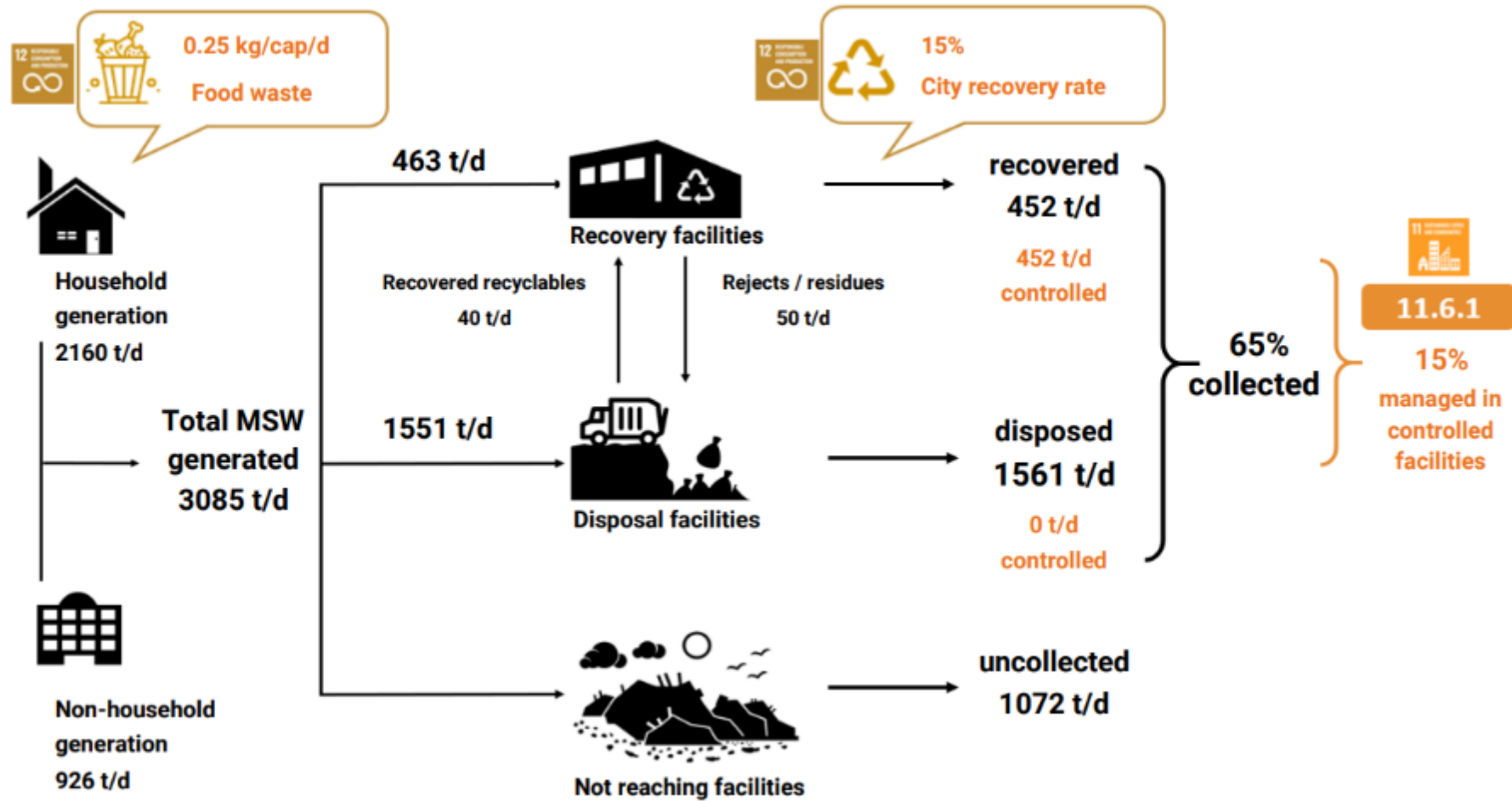
Unmanaged leachate
in landfill site of Kiambu

Waste picker in Kiambu

Waste collection of market
in Nairobi

Urbanization in Nairobi

Waste Flow (Case of Nairobi)



Source : UN-HABITAT. (2019). Waste Wise Cities Tool in Nairobi City County, Kenya. (<https://unh.rwm.global/factsheet/open/5>)

New regime of waste management

- Sustainable Waste Management Act was promulgated in July 2022
- The Act promotes waste recycling through EPR principles and developing MRF
- EPR Regulation was also drafted, gazette date undecided
- After promulgation of the EPR Regulation, the Law will be fully enforced
- In advance of the implementation, the private sector is becoming more active

Kenya Vision 2030

- National Goal

Sustainable Waste Management Act, 2022

- Promotion of appropriate waste management and recycling

Extended Producer Responsibility Regulation

- Financial mechanism to bear the cost with producers

What are the characteristics in Kenya?

Collection and landfill issues are still marked



- The collection rate is only about 60%
- Illegal dumping is prominent
- No sanitary landfill exists

Growth of private sector recycling



- Private sector develops recycling markets
- Informal sectors play a significant role to collect recyclable materials

Players to structure circular economy are coming up



- EPR regulation is drafted
- Private recyclers, PRO* (Producer Recycle Organization), CBO (Community Based Organizations) collaborate with informal sector

* Producer Responsibility Organizations. The form of their activities varies from country to country. They engage in activities to collect valuable materials, on behalf of manufacturers, subsidize recycling companies, etc. PRO activities will be formalized after EPR regulations are approved in Kenya. Currently, two organizations are active on voluntary basis.

Material Recovery by private sector

- Self-recovery by private recyclers is increasing, but it is difficult to secure the volumes.
- Establish “Buy-back center” in the city and collect valuable materials from informal sector.
- Some companies install registration system with IT technology such as mobile App and QR codes.
- Challenges remain in disposal of residues. Residues are inevitably generated.



Material recovery by informal sector

- Collection at transfer stations



Material recovery by waste pickers



Valuable materials collected by waste pickers



Plastics left uncollected

- Collection at landfill sites



Material recovery by waste pickers



Valuable materials collected by waste pickers



Plastics left uncollected



- ✓ Some items with the potential to be recycled are left untouched. **Unifying information between collectors and recyclers is a challenge.**
- ✓ It is an important point to note that manual work is place of employment.

2.Introduction of upcoming project in Kenya

Project description

Project Title

“The project for promoting circular model of environmentally sound solid waste management in urban areas”

Project Period

2024 – 2029 (5 years)

Counterpart organizations

MoECCF (Ministry of Environment, Climate Change and Forestry)/ NEMA (National Environment Management Authority)

Relevant organizations

County governments/ PRO(Producer Responsibility Organization)/ Private Recycler/ CBO(Community Based Organization)

Project sites

Nairobi city, Kiambu County, Mombasa County

Project design

Overall goal

Material recovery society is established in Kenya

Project Purpose

A material recovery system in the urban areas of Kenya is established

Output 4

Experiences for environmentally sound waste disposal and material recovery in the pilot cities are **shared among urban cities of Kenya**

Output 1

Most appropriate method for **promoting material recovery in Nairobi city** is evaluated and established through pilot project

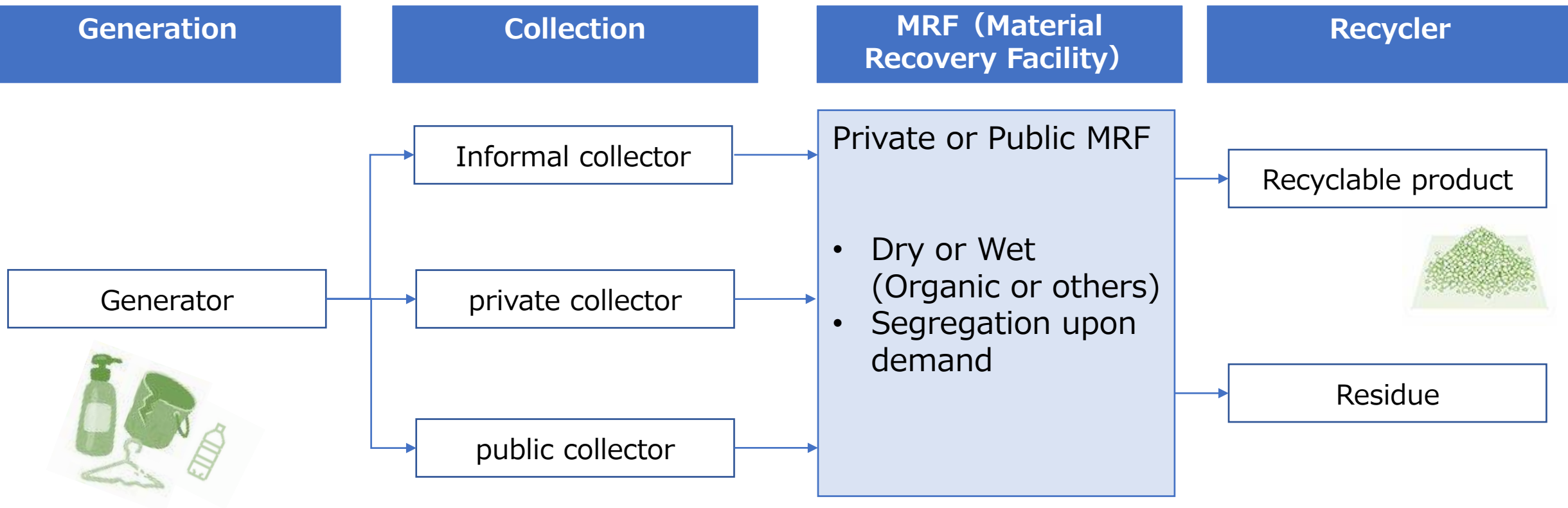
Output 2

Most appropriate method to utilize **Material Recovery Facility (MRF) in Mombasa county** is evaluated and established through pilot project

Output 3

Most appropriate method for material recovery from **landfill is promoted in Kiambu County** through pilot project

Establish model cases of material recovery



3. Expected technology for promoting circular model

Dialogue with private recycler

Private recycler wants to know...



Possible ideas to improve existing recycling plants



Latest material recycling technology and equipment

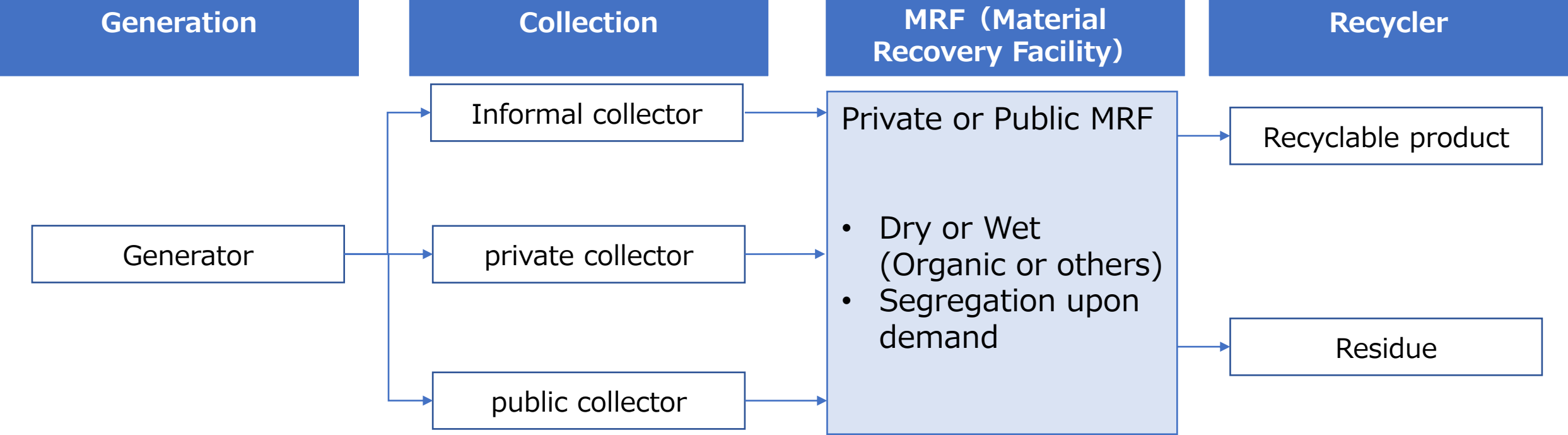


Technology to improve product's quality

Keyword for promoting circular model in Kenya

① Information sharing (DX technology might solve?)

- Which is recyclable items?
- How to apply source segregation?
- What is preferable condition of recyclable product?
- What is preferable amount?

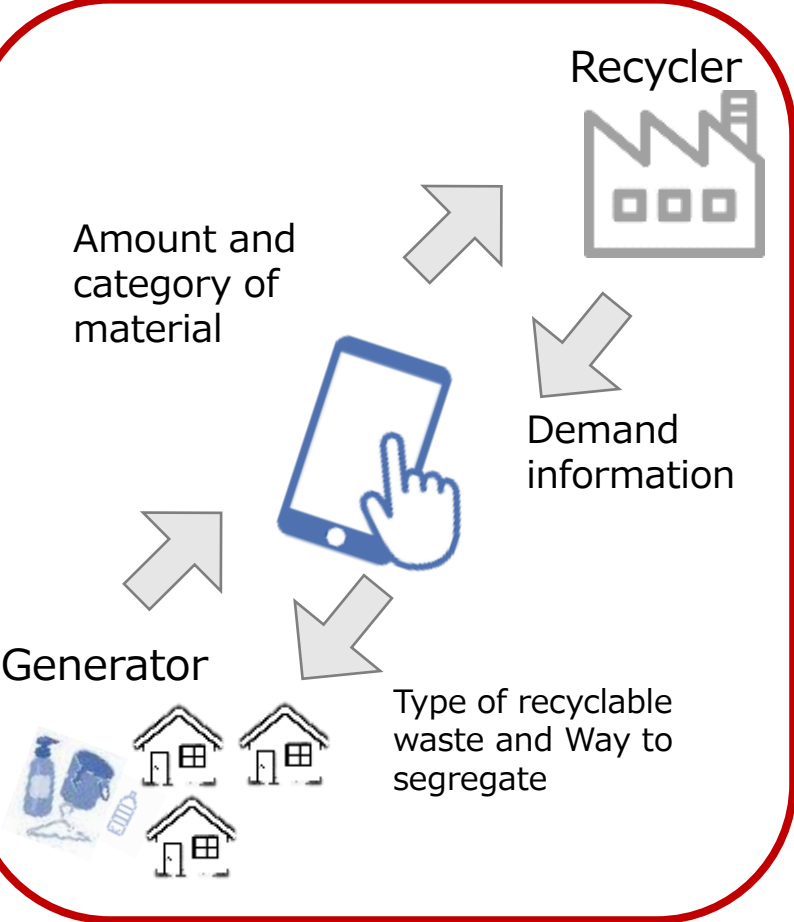


② Data management system for recording the amount of input and output of MRF

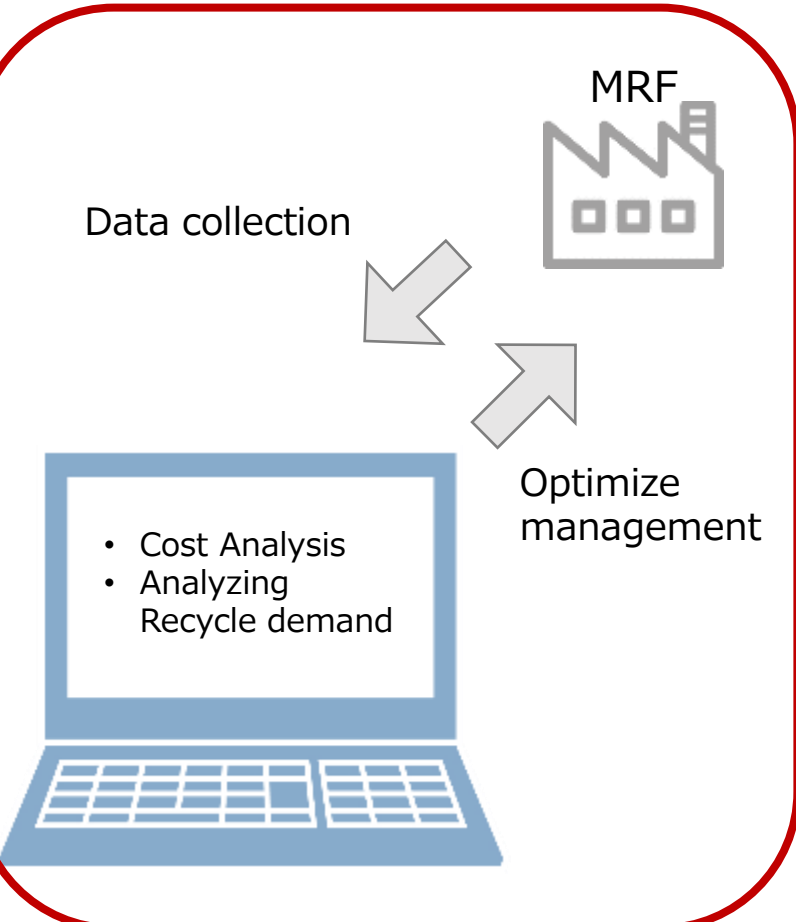
③ Recycling technology for improving material recycling

Necessary technology for promoting circular model

① Information sharing (DX technology might solve?)



② Data management system for recording the amount of input and output of MRF



③ Recycling technology for improving material recycling



Practical cases

① Information sharing (DX technology might solve?)



Mombasa, Kenya
Establish the online platform to buy and sell plastic waste



Selling plastic through App

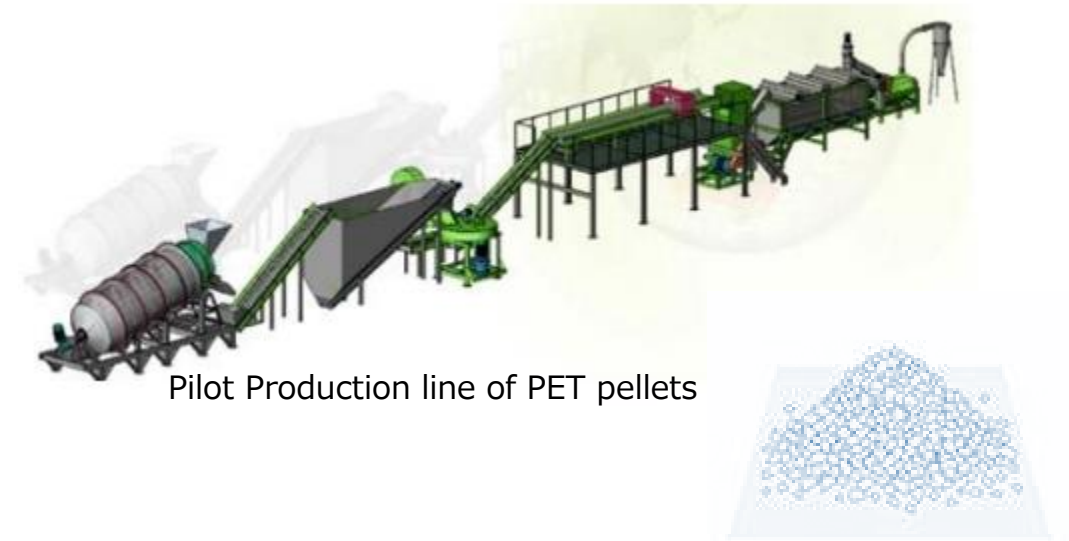


Segregation at source

Source: Baus Taka Enterprise (<https://www.dw.com/en/high-tech-meets-tradition-recycling-kenyan-style/video-68088475?fbclid=IwAR0BdotSSJnSJD050w4q6Sn7qOYkoGlXwoFAj1qXVxSu1joRwnEFLDVE4Io>)

③ Recycling technology for improving material recycling

SDGs business verification survey (JICA)
Tobe Shoji Co. Ltd.



Pilot Production line of PET pellets

Produce PET pellets as raw material

Source: JICA (https://www2.jica.go.jp/ja/priv_sme_partner/document/1368/Fc201508_summary.pdf)

Thank you very much for your kind attention!

JICA project potentially provide opportunities to exchange information between companies or organization who possess a variety of technologies and Kenyan recycling industry.

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