

The image shows the entrance to the TPPAS Regional Legok Nangka. A large, grey metal gate structure spans across the top of the frame. On the left side of the gate, there is a small, light-colored guardhouse with a blue roof and a window. Above the gate, the text "TPPAS REGIONAL LEGOK NANGKA" is displayed in large, white, capital letters. Below the gate, a black metal fence with decorative elements is visible. The background consists of green trees and a clear blue sky with some clouds. A dark blue diagonal shape is overlaid on the bottom left corner of the image.

TPPAS REGIONAL LEGOK NANGKA

PEMERINTAH PROVINSI JAWA BARAT

Solutions for Waste Treatment: Finding Better Technologies & Perception and Facts


15th Jan 2021

Contents

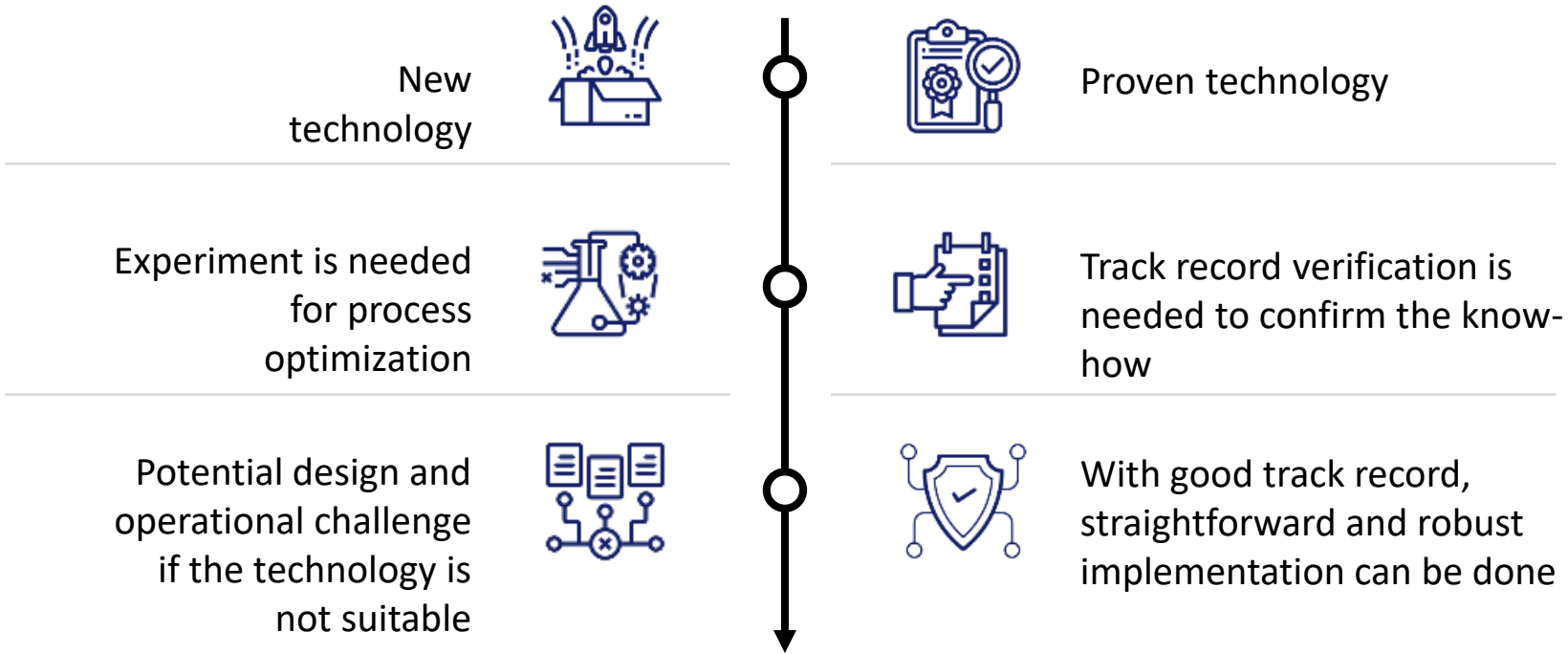
Perception and Facts

1. Technology
2. Landfill
3. 3R / Segregation
4. RDF
5. Waste to Energy
6. Environment
7. PPP in Waste Management Sector

Technology

 Perception → In showcase project of Waste Management, new technologies and innovative ideas should be explored.

 Fact → Application of new technology needs careful process (i.e. starting from small scale experiment.) Overseas failure cases should be studied.

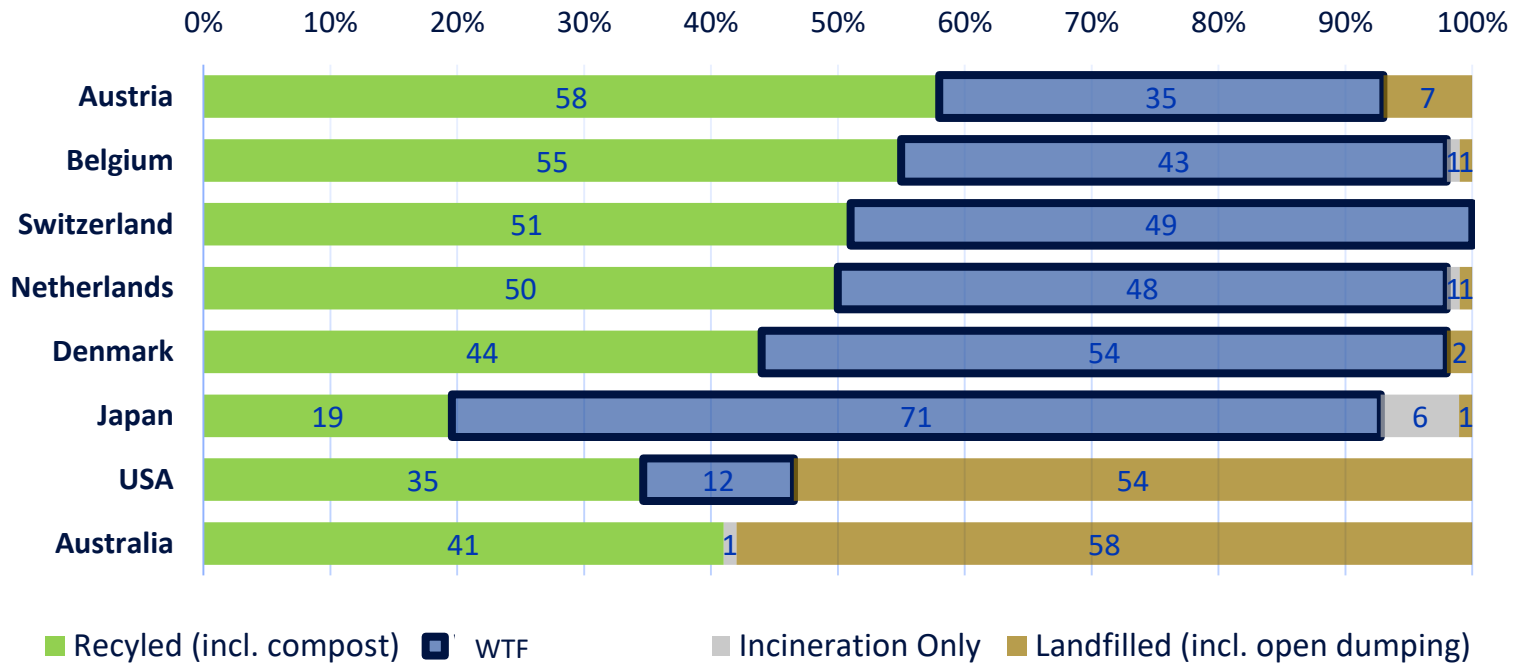


Track record verification will be important to make sure that proposals have the capability to fulfill the project requirement

Landfilling

Perception → Controlled landfill is economically cheaper in comparison with Waste Treatment (WT) facility

Fact → Controlled landfill can be economically cheaper than waste treatment facility in a region with abundant land availability. For a region with land scarcity issue, cost to procure land will not be cheap and WT facility with significant waste volume reduction will be needed.



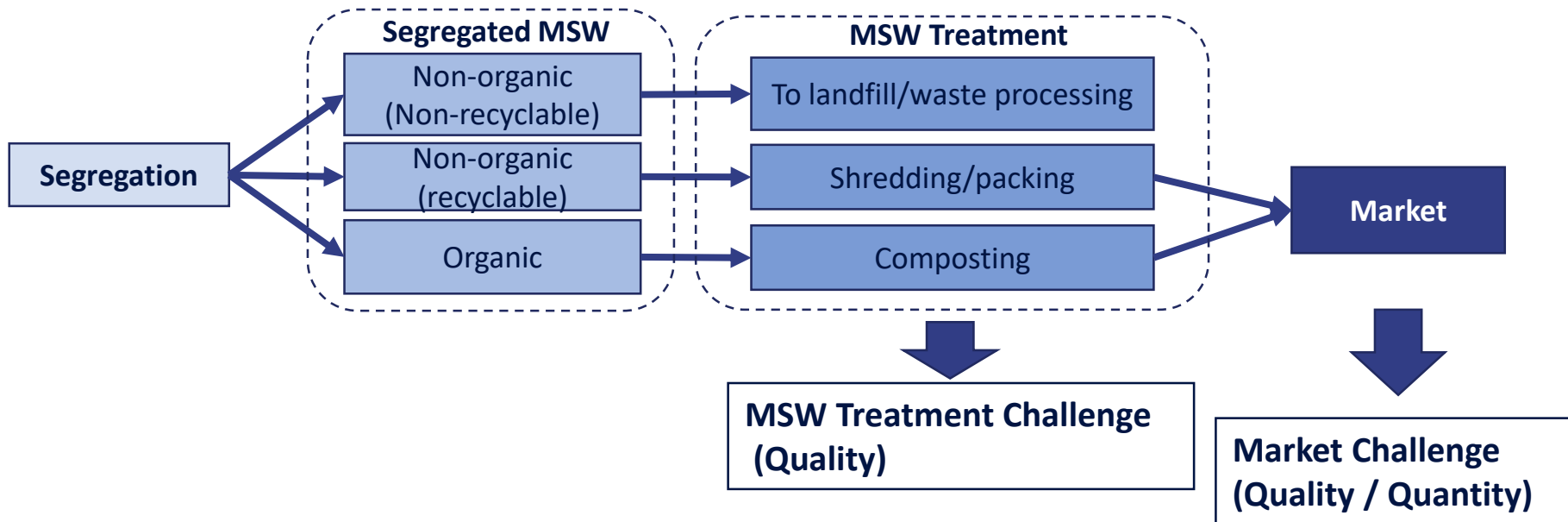
3R / Segregation



Perception → MSW segregation is the ultimate solution for waste management




Fact → MSW segregation needs additional process lines



Those challenges need to be addressed appropriately, otherwise, processed/unprocessed MSW will pile up and introduce new problems

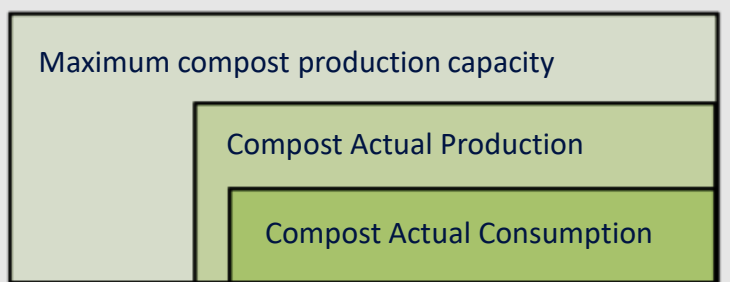
Composting

 Perception → Compost recycling center can significantly reduce amount of waste residue

 Fact → Market acceptance of compost in other country is proven to be modest, creating compost over supply

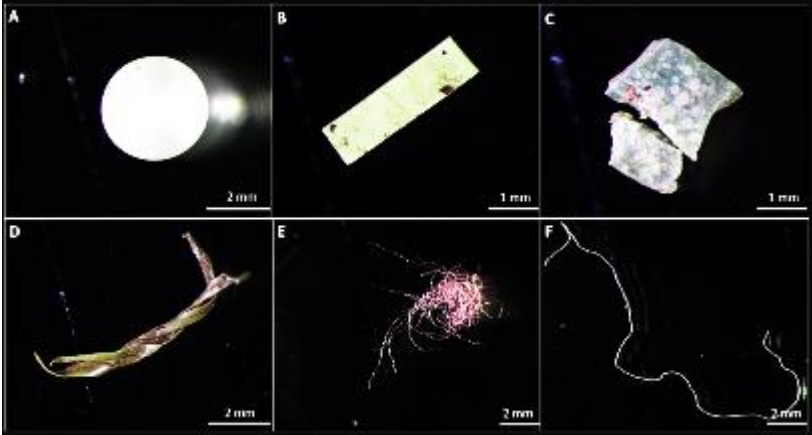
▪ There have been some cases of oversupplying compost (or compost manure) across Japan

▪ There are several factors that cause low compost demand



Shiga prefecture compost supply-demand situation (2010)

Research shows that compost from MSW often contain contaminants e.g. **heavy metal/microplastic** that is not desired for agriculture²⁾



Micro contaminant in composted MSW²⁾

RDF Co-Firing



Perception → Storage and transportation of RDF is easy. Transportation efficiency is high due to compression.



Fact → RDF tends to generate flammable gas during storage and may cause fire. Based on value chain, it is necessary to install strict fire prevention facility in RDF plant and the co-firing power plant.

Case: RDF Power Plant Heat Generation / Ignition / Explosion Accident

- July 20, 2003: A large amount of RDF generated heat in the RDF storage tank of the RDF power plant.
- August 14: The first explosion occurred while August 14: The first explosion occurred while fire extinguishing.
- August 19: Two firefighters died in a second explosion. It took 47 days from the first explosion to completely extinguish the fire.



- The prefectural gov't took the initiative to promote the project.
Prefectural role : RDF power generation plant
Municipality role : RDF producing plant
- The business did not proceed according to the initial business plan, and all the business was finished.
- After this case ended, the concerned municipalities decided to take option to build new waste incineration facilities rather than RDF project.

Waste to Energy (WTE)

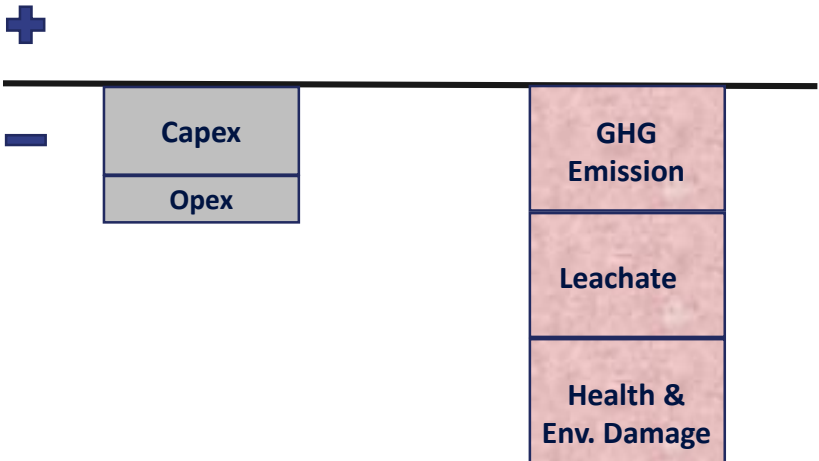
 Perception → Tipping Fee (TF) for WTE is very expensive in comparison with TF for landfill/open dumping

 Fact → Socioeconomic benefit of WTE is significantly higher than open dumping

Open Dumping

Project Cost & Revenue

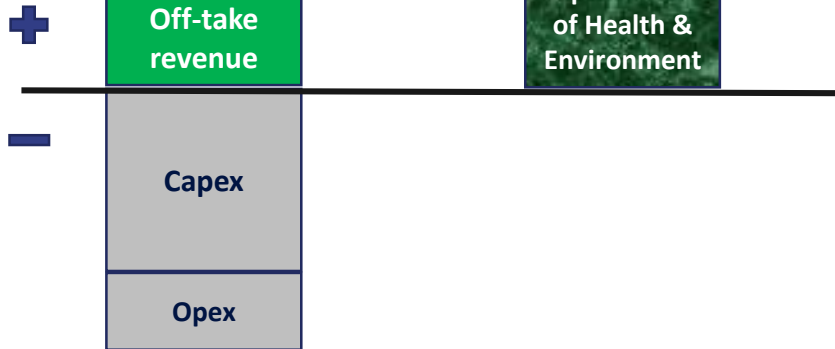
Social Economic Benefit



Waste Treatment Facility

Project Cost & Revenue

Social Economic Benefit



Waste to Energy / Environment



Perception → WtE is not environmentally friendly and is risking people's health (e.g. cancer) due to hazardous chemical substances such as dioxin and furan (DLC)



Fact → It is proven by the other countries that WtE has no environmental and health hazard, as long as international environmental standard is complied.



WtE Tuas, Singapore



Environment

On the other hand, the significant environmental and health issues caused by open dumping are regarded as serious concern internationally.



Waste pickers at risk of infectious disease contagion in open dumping area

Health hazards and potential medical expenditure



TPA Leuwigajah, Cimahi, land slide incident in 2005

Landfill incidents and casualties



Public strike in TPA Sarimukti protesting stench and discomfort

Social upheaval from residents nearby



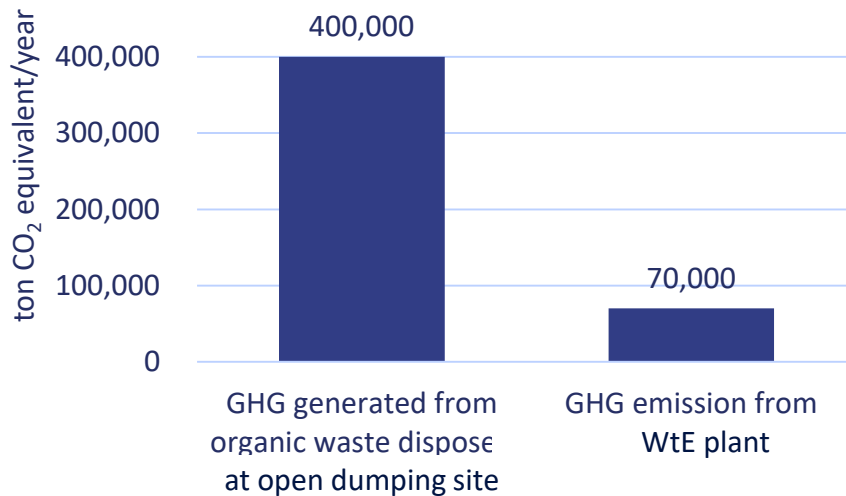
River contamination from open dumping accident in South Tangerang

Polluted river

Environment

Open dumping is no longer recommended from environmental perspective

- Methane is roughly 30 times more potent as a heat-trapping gas, making it one of the worst greenhouse gases.
- The biggest man-made source of methane is from rotting waste in landfills.¹



Collapsed garbage dump in Colombo (Sri Lanka), killed at least 30 people (2019)³

1. <http://apps.sepa.org.uk/spria/Pages/SubstanceInformation.aspx?pid=65>
2. Consultant's analysis using 2,000 tpd of waste
3. <https://www.nytimes.com/2017/04/17/world/asia/sri-lanka-garbage-dump.html>

Waste Treatment Sector



Perception → Waste sector is equipped with regulations and guidelines to fulfill PPP tender



Fact → Waste management sector is in development stage. Not all policies and regulations are fully established

Recent Development

Implementation (do-it):

- Support model case
- Share the lessons to other cities
- Develop material to accelerate the progress in other cities

Transaction Advisory

Policy Advisory

Improvement (fix-it):

- Provide synthesis and regulatory improvement
- Fly Ash / Bottom Ash Regulation
- Regional Cooperation Agreement



To obtain references on best practices, overseas benchmarking are essential

Thank you