

Singapore's initiatives for managing e-waste and packaging waste (including plastics)

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Asian Network Workshop 2022

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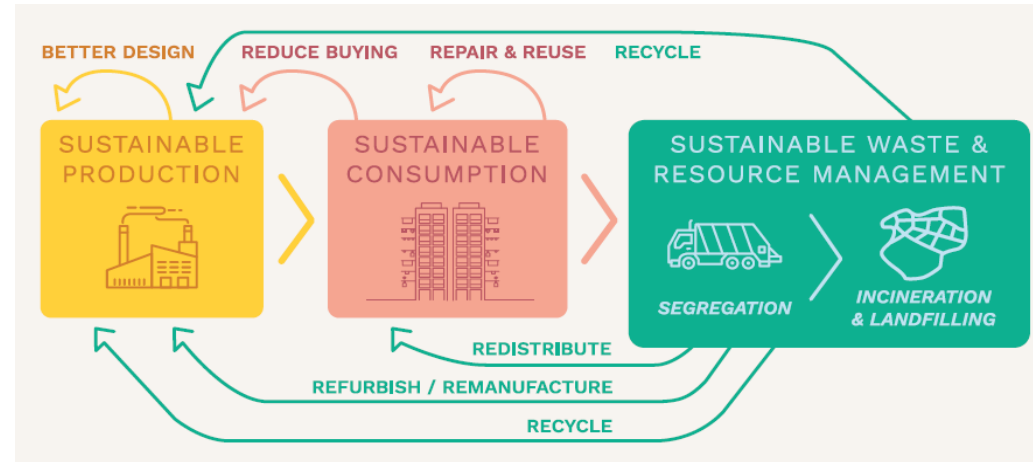
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Overview of Zero Waste Masterplan and Singapore Green Plan 2030

Zero Waste Masterplan



Launched in 2019, the Masterplan lays out Singapore's key strategies towards a Zero Waste Nation, with important roles by Government, Businesses and the Community



Targets

- 1 Extend Semakau Landfill's lifespan **beyond 2035**
- 2 Reduce amount of **waste sent to landfill per capita per day by 30%** by 2030
- 3 By 2030, achieve a **70% overall recycling rate**

SG Green Plan 2030



A **national sustainability movement**, with concrete sectoral plans and targets over the next ten years that will position Singapore to **achieve net zero emissions as soon as viable**



5 Pillars of the SG Green Plan



City in Nature



Sustainable Living



Energy Reset



Green Economy



Resilient Future

For more information, visit www.GreenPlan.gov.sg

SG Green Plan 2030



Initiative

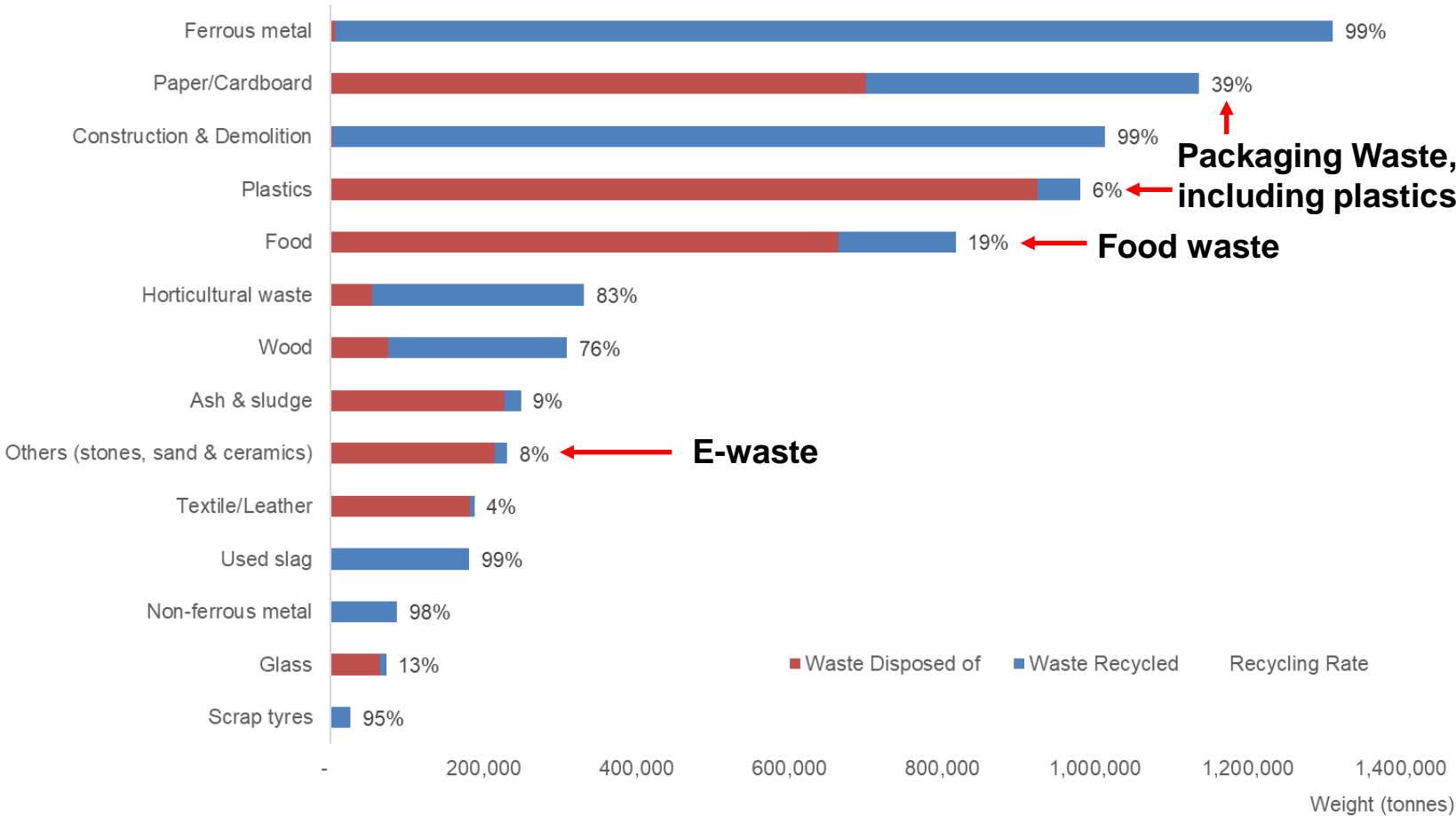
“Reduce, Reuse and Recycle” as a norm for citizens and businesses, with a national strategy to **address e-waste, packaging waste and food waste**

Target

To reduce the amount of waste (per capita) sent to landfill by **20% by 2026**; and subsequently by **30% by 2030**

For more information, visit www.GreenPlan.gov.sg

Resource Sustainability Act (RSA) to close Three Priority Resource Loops



2021 Waste Generation Data

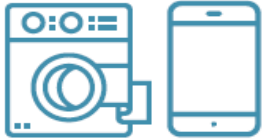
Upstream regulations on three key waste streams through the Resource Sustainability Act (RSA)

Packaging Waste, Including Plastics

Food Waste



E-waste



2

Extended Producer Responsibility (EPR)
scheme for e-waste

Before E-Waste EPR – National Voluntary Partnership Program

- Formed in 2016, the program aimed to incentivize interested stakeholders from the entire e-waste value chain to partner NEA in promoting the recycling of e-waste
 - Voluntary
 - Stakeholders determined the type of e-waste to be recycled
 - Stakeholders were funded by the NEA if KPIs were met
- 25 members and 9 e-waste programs
- Collected over 4,000 tonnes of e-waste from 2016 - 2020



Project Homecoming



Regulated E-waste Management System by 2021

- Extended Producer Responsibility (EPR) framework for e-waste implemented in Singapore on 1 Jul 2021.
- The Resource Sustainability Act 2019 (RSA), gazetted on 4 Oct 2019, gives legislative effect to the regulatory framework. Subsidiary legislations include:
 - i. Resource Sustainability (Prescribed Regulated Product)
 - ii. Resource Sustainability (E-waste Recycler)
 - iii. Resource Sustainability (Producer Responsibility Scheme)
 - iv. Resource Sustainability (In-store Collection of E-Waste)
- Under the EPR framework, producers will bear the physical and financial responsibility for the collection and proper treatment of discarded regulated electrical and electronic equipment (EEE).
- One Producer Responsibility Scheme (PRS) Operator has been appointed by NEA to coordinate the collection and proper treatment of consumer e-waste on behalf of producers.



Treasure raw materials.

EPR Scheme for E-waste and Obligated Stakeholders

Five Product Categories



Solar PV Panel



ICT Equipment



Battery



Lamps



Large Appliances

Four Obligated Stakeholders

Producers



Retailers



Harvey Norman

豐城
GAIN CITY

E-Waste Recyclers



PRS Operator



E-Waste Disposal Avenues

1. E-waste Bins

Near 600 e-waste bins deployed to public premises (shopping malls, Community Centres, Resident Committee Centres, government buildings, commercial buildings)



2. In-store Collection by Large Retailers (>300m²)

Over 300 retail outlets provided with in-store e-waste bins
Over 100 retail outlets offer in-store manned over-the counter collection services



3. Free 1-for-1 Takeback

All retailers of regulated consumer products must provide free 1-for-1 take-back services upon delivery



4. E-waste Collection Drives

Over 200 e-drives to be conducted in Town Councils



E-Waste Disposal Avenues



5. Town Council Bulky Waste Disposal
Town Council to continue providing bulky e-waste removal service for HDB residents, conservancy contractors to pass regulated products collected to ALBA
(Not all TCs currently pass regulated products to ALBA)

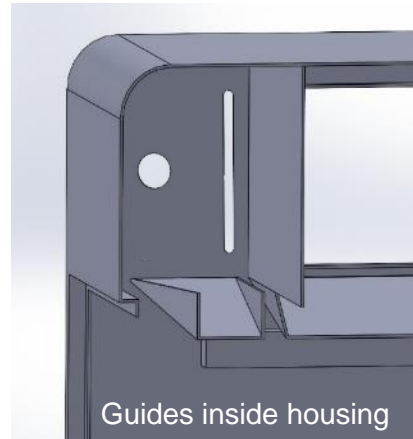
6. On-demand Doorstep Collection for Residential Premises
Chargeable service, rates are fixed and were submitted as 'Schedule of Rates' under the tender. Consumers request the pick-up through ALBA's app.

7. Ad-hoc Collection for Non-Residential Premises
On-demand, free service for e-waste with cumulative volume of more than 1m³

8. Drop-Off at ALBA's Depot
Businesses, waste collectors (e.g. that service corporates) and informal sector can drop off e-waste at ALBA's depot



E-waste Bin Design



Above: 3-in-1 bin, for ICT equipment, bulbs and batteries



Above: Battery and Bulb bin



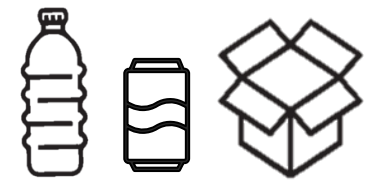
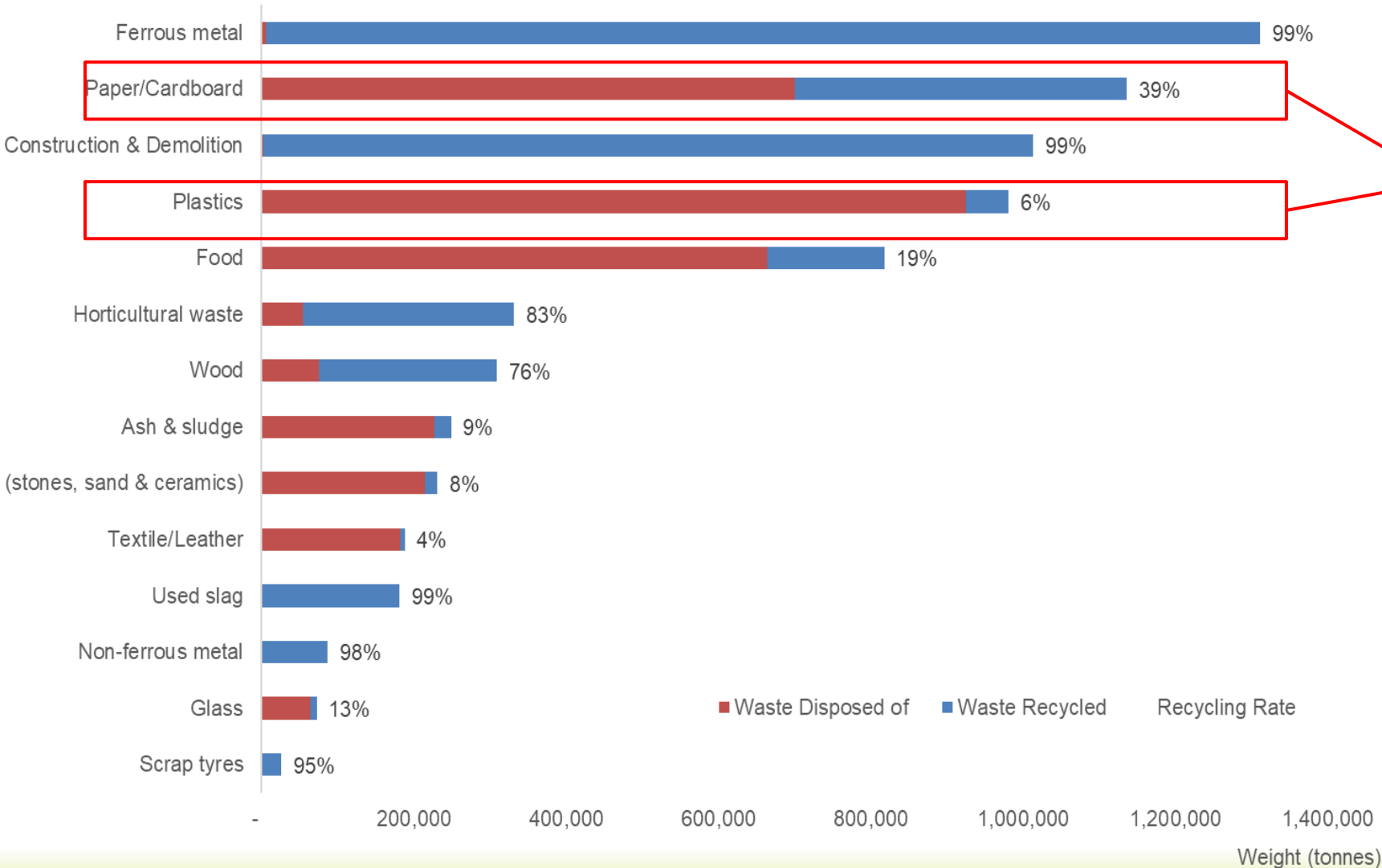
Above: Battery only bin

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Initiatives for managing packaging waste (including plastics)

Our current packaging waste situation

Waste Generation (2021)



Packaging waste, including plastics has **high generation volumes** and **low recycling rates**

- About **1/3** of domestic waste disposed of is packaging waste
- **Plastic waste is 60%** of domestic packaging waste disposed of
- Only **6%** of plastic waste was **recycled**

NEA's Plans and Initiatives for Packaging Waste



Packaging Partnership Programme

Partnership between Singapore Manufacturing Federation (SMF) and National Environment Agency (NEA)

Industry-led programme to support companies in their journey towards sustainable packaging waste management including fulfilling their new obligations under the Mandatory Packaging Reporting

From 2021:

Mandatory reporting of packaging data and plans to reduce, reuse or recycle packaging

Started with producers of packaged products and retailers such as supermarkets with annual turnover of more than \$10 million

By 2025:

Extended Producer Responsibility (EPR) for packaging waste management

Start with **Beverage Container Return Scheme** as Phase 1 of EPR for packaging waste management

Extended Producer Responsibility (EPR)



EPR policies aim to apply the polluter-pays principle by ensuring that **producers, rather than municipalities and taxpayers**, bear the financial burden of end-of-life waste treatment for their products

Organisation for Economic Co-operation and Development (OECD), 2016

What will an EPR for packaging waste in Singapore do?



Significantly raises recycling rates for packaging, reduce waste sent to landfill



Economically incentivises producers to factor environmental considerations when using packaging

This is not the first EPR for Singapore



Existing framework for e-waste has been implemented since Jul 2021

Moving towards EPR for packaging waste management

Foundational step of EPR for packaging



2021: Mandatory Packaging Reporting (MPR)

- Report packaging introduced into Singapore, and plans to reduce, reuse or recycle packaging

EPR schemes



(Proposed) Mid-2024: Beverage Container Return Scheme

- 1st phase of EPR for packaging
- Includes pre-packaged beverages (e.g., metal cans, plastic bottles)



Expansion of EPR to cover more types packaging waste



Oct 2019: Recycle N Save launched

- Joint initiative by F&N, NEA
- Deployed Reverse Vending Machines for beverage container recycling

Nov 2019: #RecycleRight Citizens Workgroup

- Recommended beverage container return scheme to increase household recycling, reduce contamination

Beverage Container Return Scheme

- A deposit is applied to beverage containers when consumers buy a pre-packaged beverage
- Consumers claim a refund of their deposit by returning their empty beverage container to a return point

SINGAPORE

S'pore could charge 10 to 20 cents more per canned or bottled drink under proposed recycling scheme

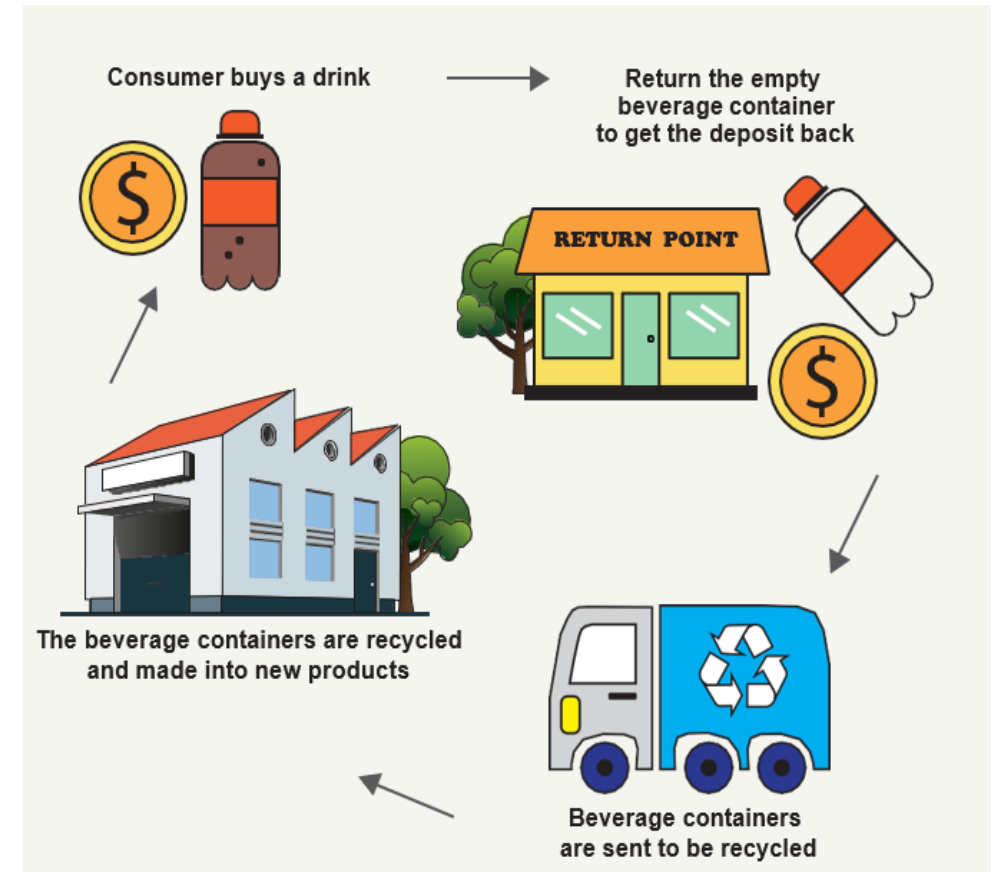


Gena Soh
The Straits Times

UPDATED: Sep 21, 2022, 2:38pm



SINGAPORE - By mid-2024, consumers seeking to quench their thirst from a canned or bottled drink will likely have to fork out 10 to 20 cents more.



Packaging Partnership Programme (PPP)

Launch of the PPP in 2021

- Partnership between Singapore Manufacturing Federation and NEA
- Industry-led programme to support companies in their journey towards sustainable packaging waste management



Aims & Objectives of the PPP

- Build industry capability in sustainable packaging waste management
- Support companies in fulfilling current and future regulatory requirements, starting with the Mandatory Packaging Reporting and progressing to EPR for packaging.



15

Workshops &
Trainings
Completed



700

Companies
Engaged

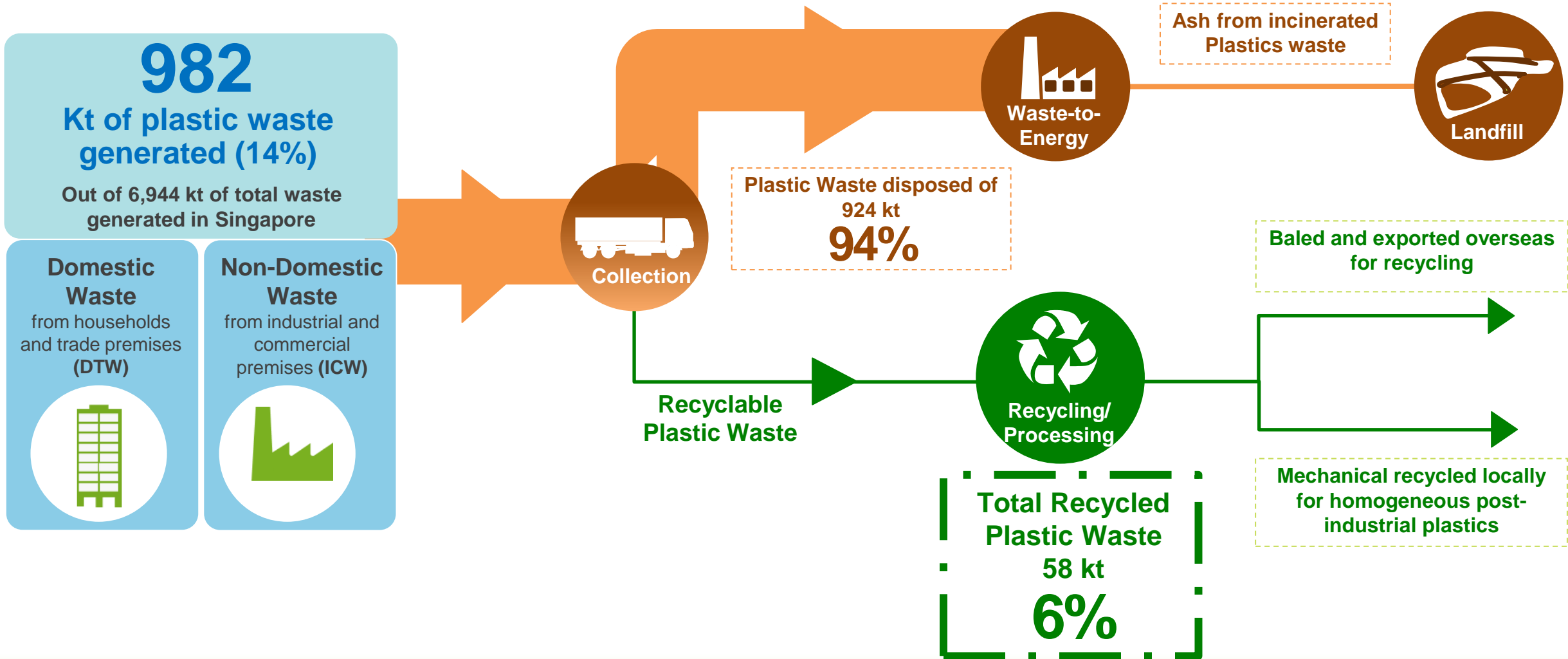
Disposable Carrier Bag Charge

To encourage a shift towards more sustainable and environmentally friendly habits, including the practice of shoppers bringing their own bags and reducing the use of disposable carrier bags

- Supermarket operators must from mid-2023:
 - Charge a minimum of five cents for each disposable carrier bag (regardless of material it is made of) provided for purchases at physical stores
 - Publish information on number of bags issued, amount of proceeds received from bag charge, and how proceeds are used
- Covered large supermarket operators with annual turnover of more than S\$100 million

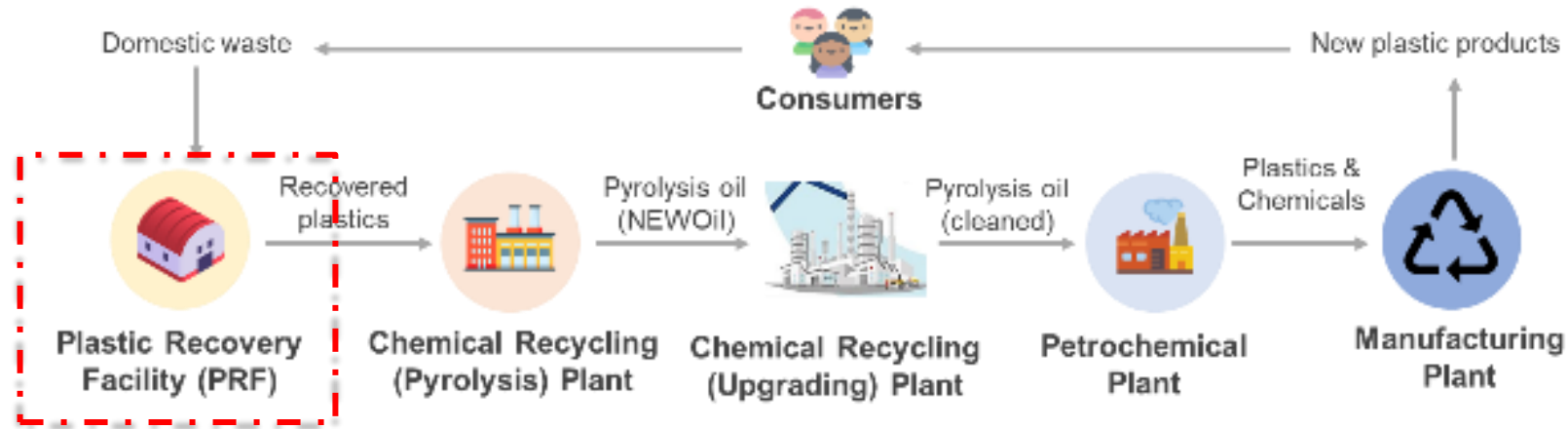


Plastic Recycling Landscape in Singapore



NEA's Plastic Recovery Facility Feasibility Study

Envisioned Chemical Recycling Value Chain

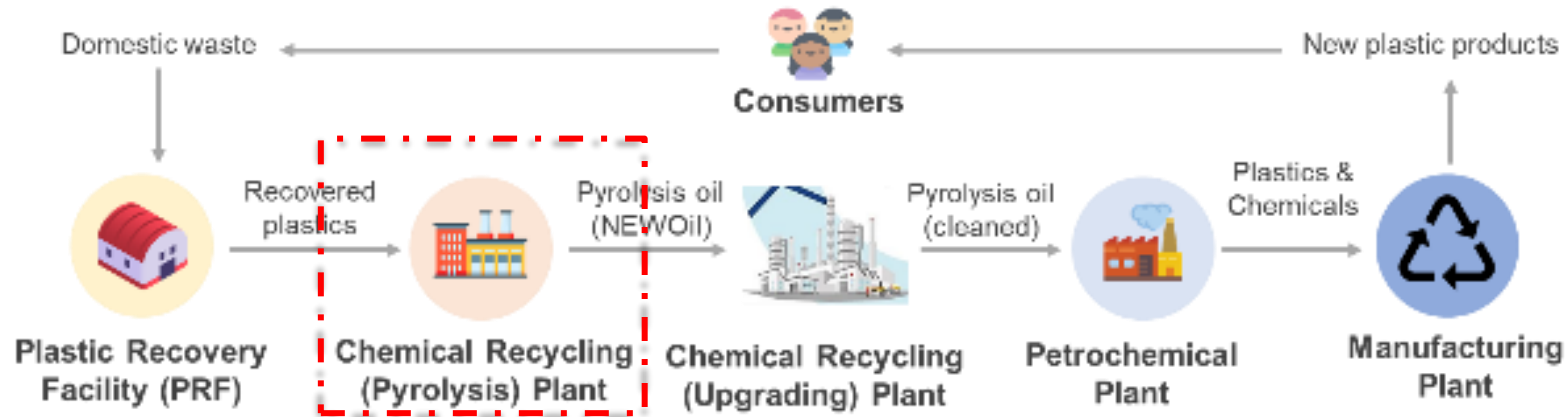


Plastic Recovery Facility (PRF) Feasibility Study *(completed in 2021)*

- PRF is a key infrastructure to provide sufficient local plastic feedstock to unlock chemical recycling
 - PRF will sort and recover plastic polymer types such as polypropylene (PP) and polyethylene (PE) from domestic waste which are suitable for chemical recycling
 - PRF will also recover small quantities of PET plastics and metals
- Study covered suitable waste management technologies and sorting equipment for the PRF, land and site requirements, measures to mitigate disamenities and potential for scalability
- Study showed that it is technically feasible to recover PP and PE for chemical recycling

Shell-NEA Joint Feasibility Study on Chemical Recycling

Envisioned Chemical Recycling Value Chain



Shell-NEA Joint Feasibility Study

(Oct 2020 – Dec 2021)

- To identify capabilities and infrastructure required for chemical recycling
- Study with Shell, together with NEA's PRF study, provided a better understanding of the technical and commercial aspects of anchoring the chemical recycling value chain in Singapore
- Study showed that chemical recycling is technically feasible based on plastic waste composition profile of domestic waste

Our Environment
Safeguard • Nurture • Cherish