



Pioneering Plastic Chemical Recycling in Singapore

Waste Plastics to NewOil

Understanding Chemical Plastic Recycling
Opportunities in Singapore

a presentation for
SCIC
Apr 2021

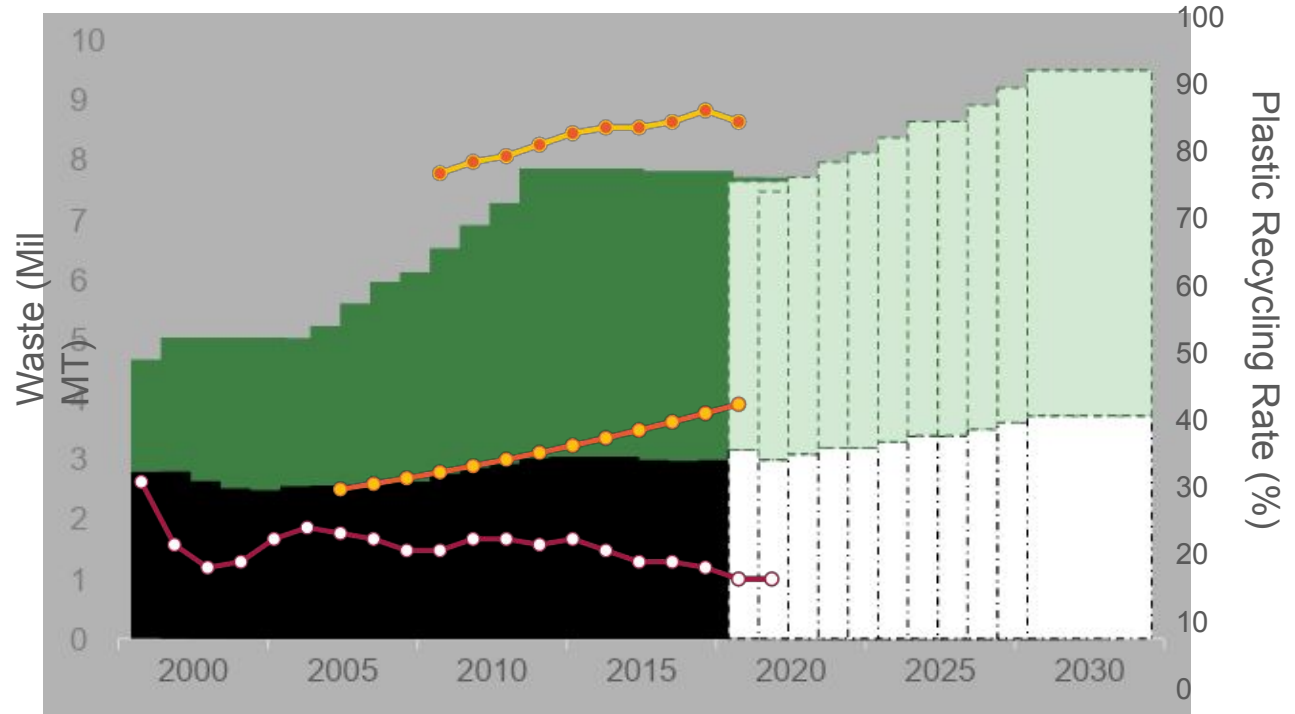


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Waste plastics will continue to be a rising challenge for Singapore

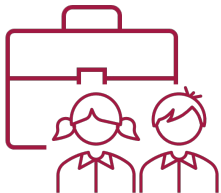
LEGEND

- Waste Disposed (Mil MT)
- Waste Recycled (Mil MT)
- SG Plastic Recycling Rate
- EU Plastic Recycling Rate
- Japan Plastic Recycling Rate



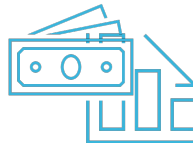
SOURCE: Straits Times, NEA, OECD, Business Insider, Statista, Plastics Europe, Grand View Research

The plastic circular economy could be the solution



4000
Green Jobs in SG

18 million
Worldwide



\$800 million
Economic Loss in SG
per year due to lack of
Plastic Circularity

\$120 billion
Worldwide



426 million
Tonnes CO₂eq savings
per year from
Recycling Plastics

SOURCE: Ellen MacArthur Foundation, Accenture Strategy, International Labour Organisation, World Bank

However, specific challenges in Singapore need to be addressed to make it possible

Domestic Waste Plastics



40% of Blue Bin plastics cannot be recycled

Sorted Waste Plastics

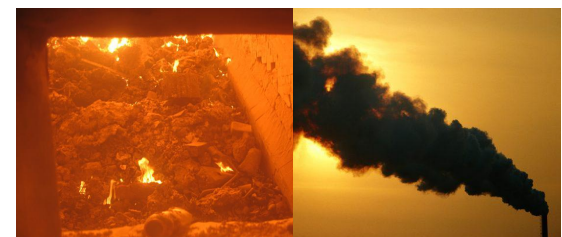
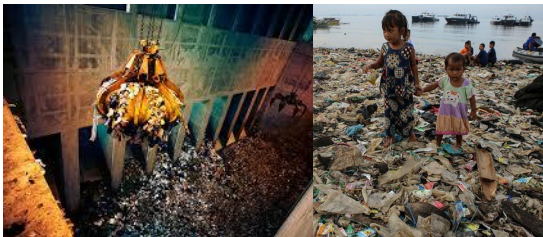


Decreased Plastic Export Options

Industrial Waste Plastics



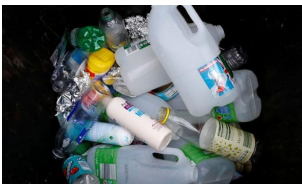
Contaminated & Hard-to-Sort Plastics



We can increase waste plastic management capacity through chemical or advanced recycling

Mechanical Recycling

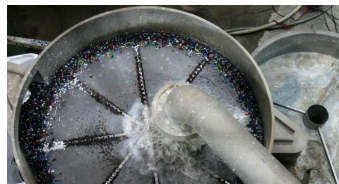
Waste Plastics Collection



Preliminary Sorting



Shredding & Washing



Fine Sorting



Processing into Recycled Plastic



Chemical Recycling

Waste Plastics Collection



Preliminary Sorting



Pyrolysis into NewOil



Processing into Recycled Plastic



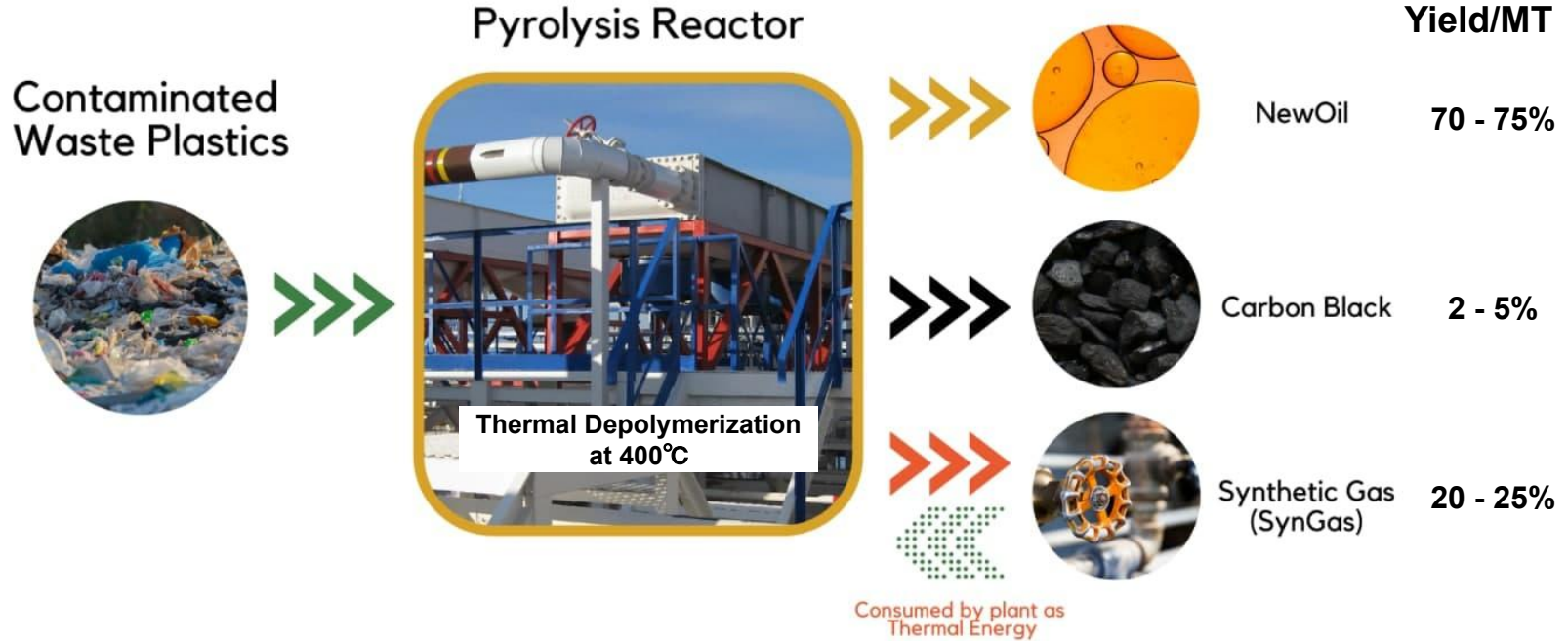
Processing Hard-to-sort, Contaminated Plastics

SOURCE: Eco Baltia, Plastic Today, Infinite 3D Ltd, Today Online, Guardian, Environmental Solutions Asia





We aim to double Singapore's plastic recycling capacity by 2024



> We are accelerating our ambition

2019 - 2020

Market Feasibility
Prototyping
Feedstock Lab Trials
Proof of Concept



2020 - 2021

Partnerships
10KTA Capacity Industrial
Scale build up
Targeted Pyrolysis Oil
Production
ISCC Plus Certification



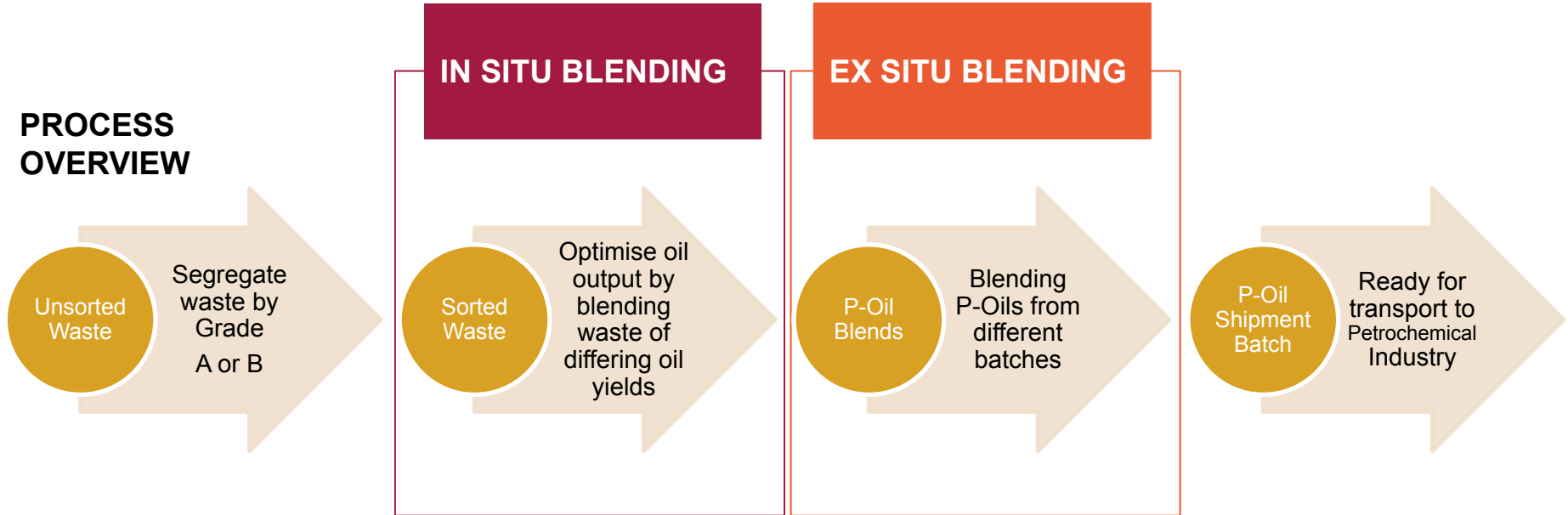
2022 - 2023

20KTA Capacity Industrial
Scale
Expansion into other sites
(domestic and regional)

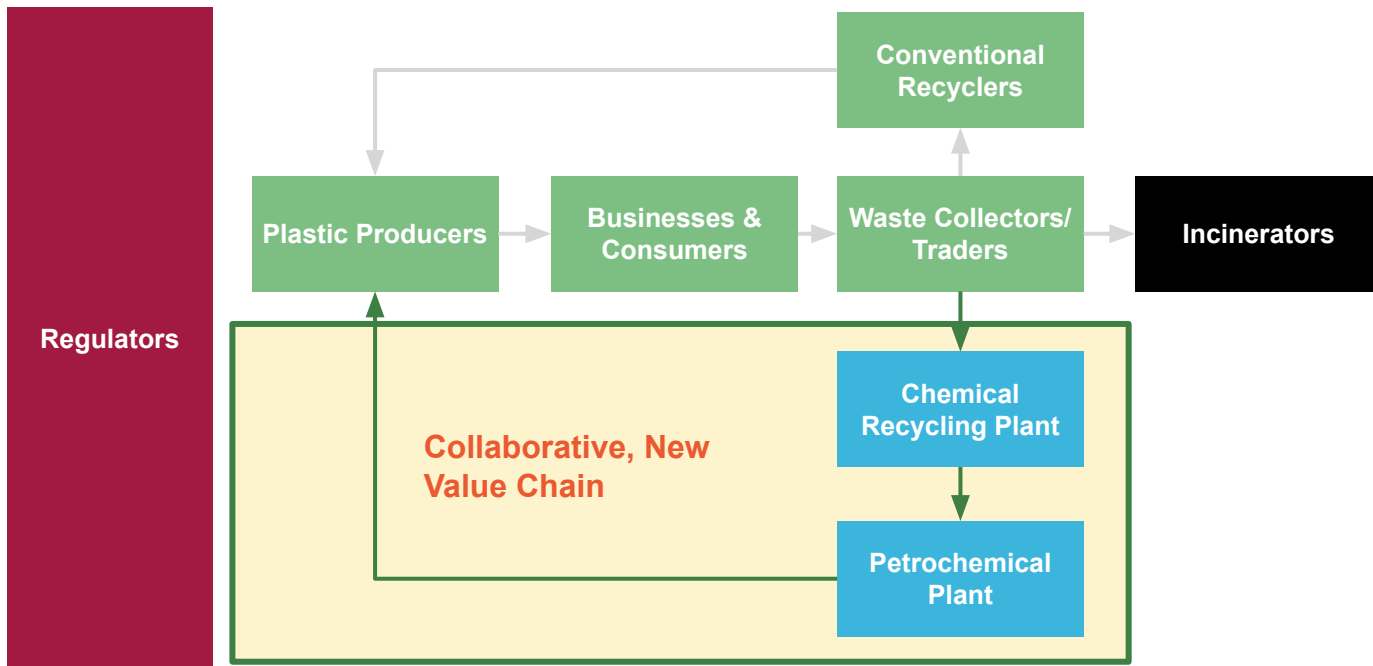


Industry partnerships was key to optimise our production capability

PROCESS OVERVIEW



This is made possible with a collaborative, new value chain

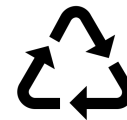
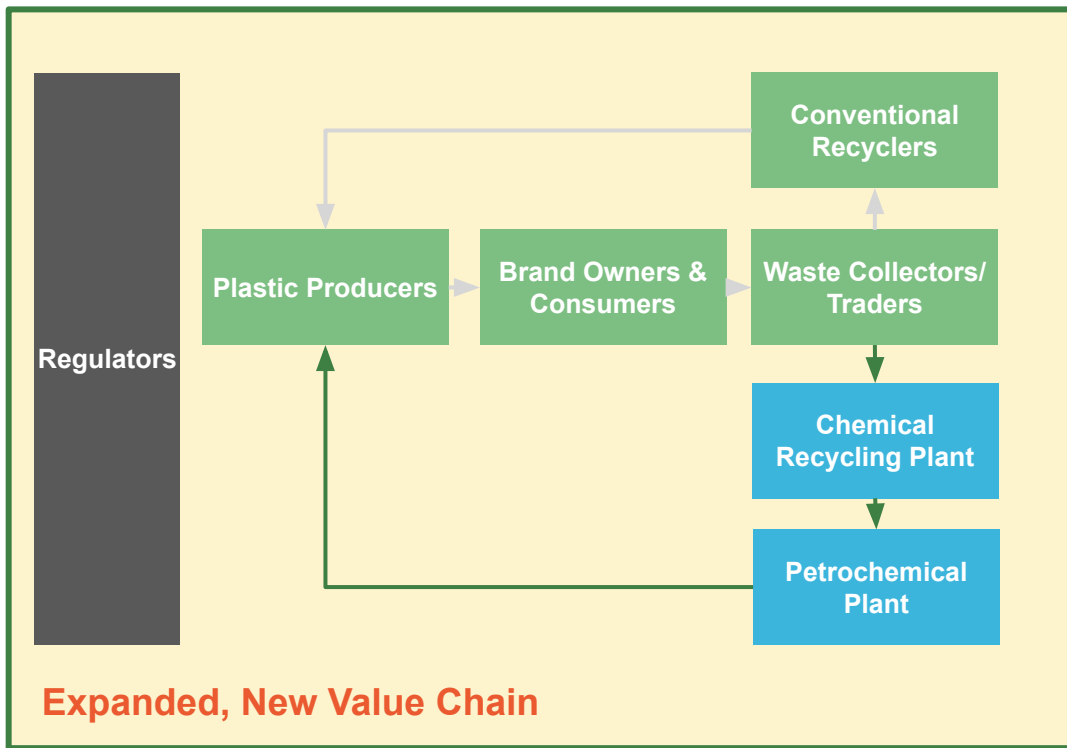


Chemical recycling process for plastics



SOURCE: Straits Times

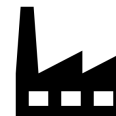
To truly succeed, the collaboration needs to extend beyond our usual partners



Traditional Waste Collectors
& Recyclers



Brand Owners & Consumers



Plastic Manufacturers &
Petrochemical Industry

SOURCE: Straits Times



> In summary, we need these critical success factors to realise the plastics circular economy...



Education & Awareness

Industry, Regulators & Consumers



Collaboration

Across the value chain



Investment

Across the value chain





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