

Welcome to SBF Global's
Sustainable Financing Awareness Series - Episode 3
Circular Economy Financing

22 July 2021, Thursday | 3.00pm to 4.30pm (GMT +8)

DISCLAIMER

The information in this webinar is intended to provide general information only and does not contain or convey any legal or other advice.

All efforts have been taken to ensure the information provided in this webinar is accurate as of publication date.

The organiser and speakers reserve all rights in the material provided.

This webinar is being recorded and will be posted on SBF's YouTube Channel.

PROGRAMME LINE UP

3.00 pm

Welcome

By SINGAPORE BUSINESS FEDERATION

3.05pm

Singapore's Efforts Towards a Circular Economy

MR CHRISTOPHER TAN

Director, Sustainability Division
NEA



3.20pm

ALBA Singapore - Closing the Loop on E-Waste and Plastics Recycling

MR JAKOB LAMBSDORFF

CEO
Alba Singapore



3.35pm

Trends and Opportunities for Plastics Recycling in the Circular Economy

MR JOSEPH POH

Head of Oil, Gas and Chemicals, Sector
Solutions Group, UOB



3.50pm

E-waste: Trends and Opportunities

MR TERENCE KOH

Head of Technology, Media &
Telecommunications, Sector Solutions
Group, UOB



4.05pm

Q&A / Panel Discussion

4.25pm

**Closing remarks and preview of
what's next by SBF Global**

BUSINESS CONSULTATION SESSION

For companies who may have questions on circular economy financing in Singapore or are interested to look for collaborative partners, sign up for our complimentary Business Consultation Session by emailing:

Contact: **Chan Zhiquan**
 Manager, Infrastructure, SBF Global
Email to: **zhiquan.chan@sbf.org.sg**



Singapore's Efforts Towards a Circular Economy

MR CHRISTOPHER TAN

Director, Sustainability Division, NEA



Christopher Tan is Director (Sustainability Division) at the National Environment Agency. In his current role, Christopher is responsible for strategies and programmes in sustainable waste-to-resource management and energy efficiency. His previous roles include public health operations for vector control and public cleanliness, and policy-making for air quality and waste management. He has also headed a research team in the behavioural sciences and environmental & resource economics. These were in the National Environment Agency and the former Ministry of the Environment and Water Resources. Christopher started his career as an Economist at the Ministry of Trade & Industry.

Singapore's Efforts Towards A Circular Economy

Presented at: SBF Sustainable Financing Awareness Series
- Circular Economy Financing

Date: 22 July 2021

1

Singapore's Zero Waste Masterplan

Our Vision: A Sustainable, Resource-efficient and Climate-resilient Singapore



Climate Resilience

Address **existential threats of climate change** especially rising sea levels

Cope with rising temperatures and changing rainfall patterns to sustain a liveable environment



Resource Resilience

Ensure **safe and secure supply** of critical resources

Overcome global resource constraints by **maximising resource efficiency & closing our resource loops**



Economic Resilience

Ensure the **future Singapore economy remains competitive** by overcoming carbon & resource constraints

Rally stakeholders towards **sustainable economic growth**

Towards a Zero Waste Nation

Our Targets

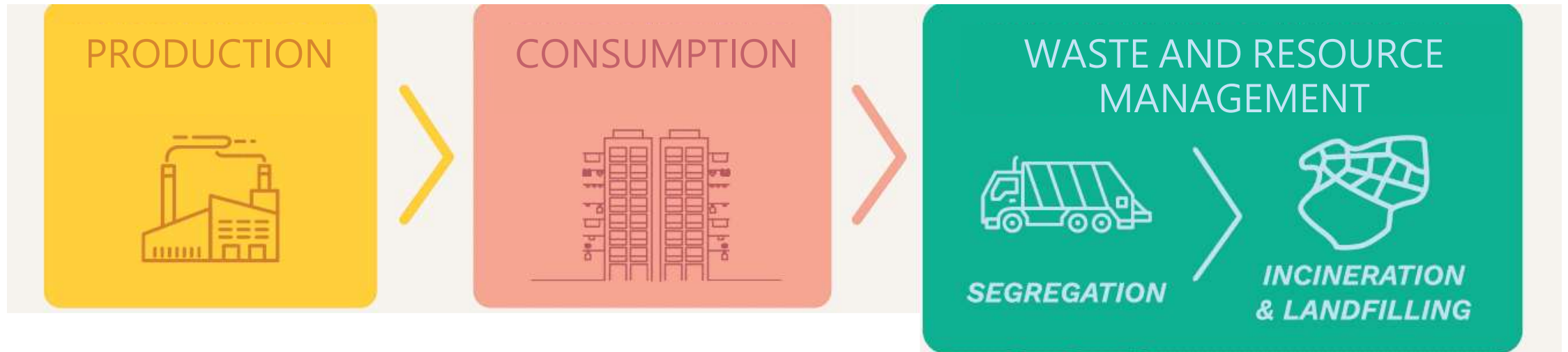
- 1 Extend Semakau Landfill's lifespan **beyond 2035**
- 2 Reduce amount of **waste sent to landfill per capita per day by 20%** by 2026, and **30%** by 2030
- 3 By 2030, achieve a **70% overall recycling rate**:

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

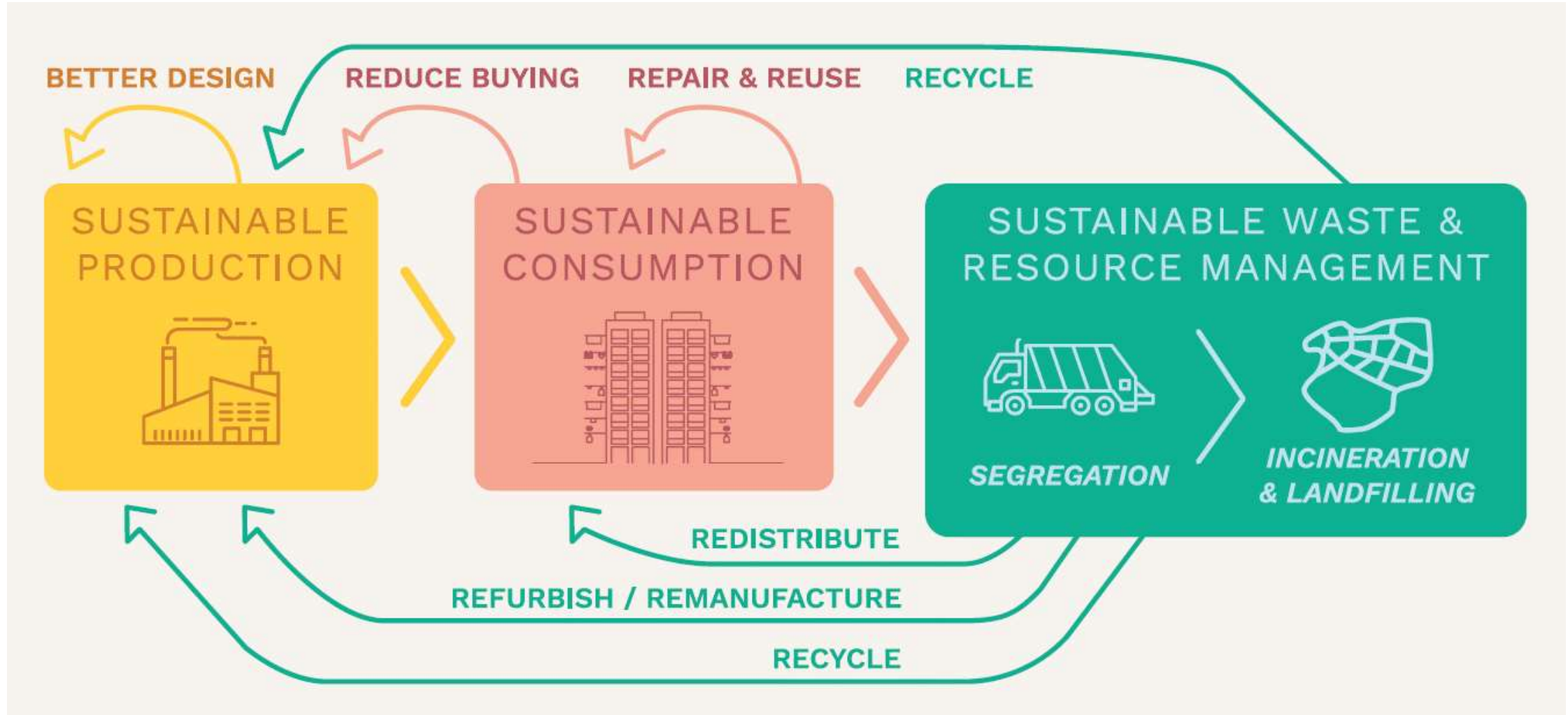


The Linear Economy

For many years, we have taken a linear approach in resource management, which is unsustainable, as it leads to depletion of natural capital i.e. mineral, freshwater, forests (species), etc.



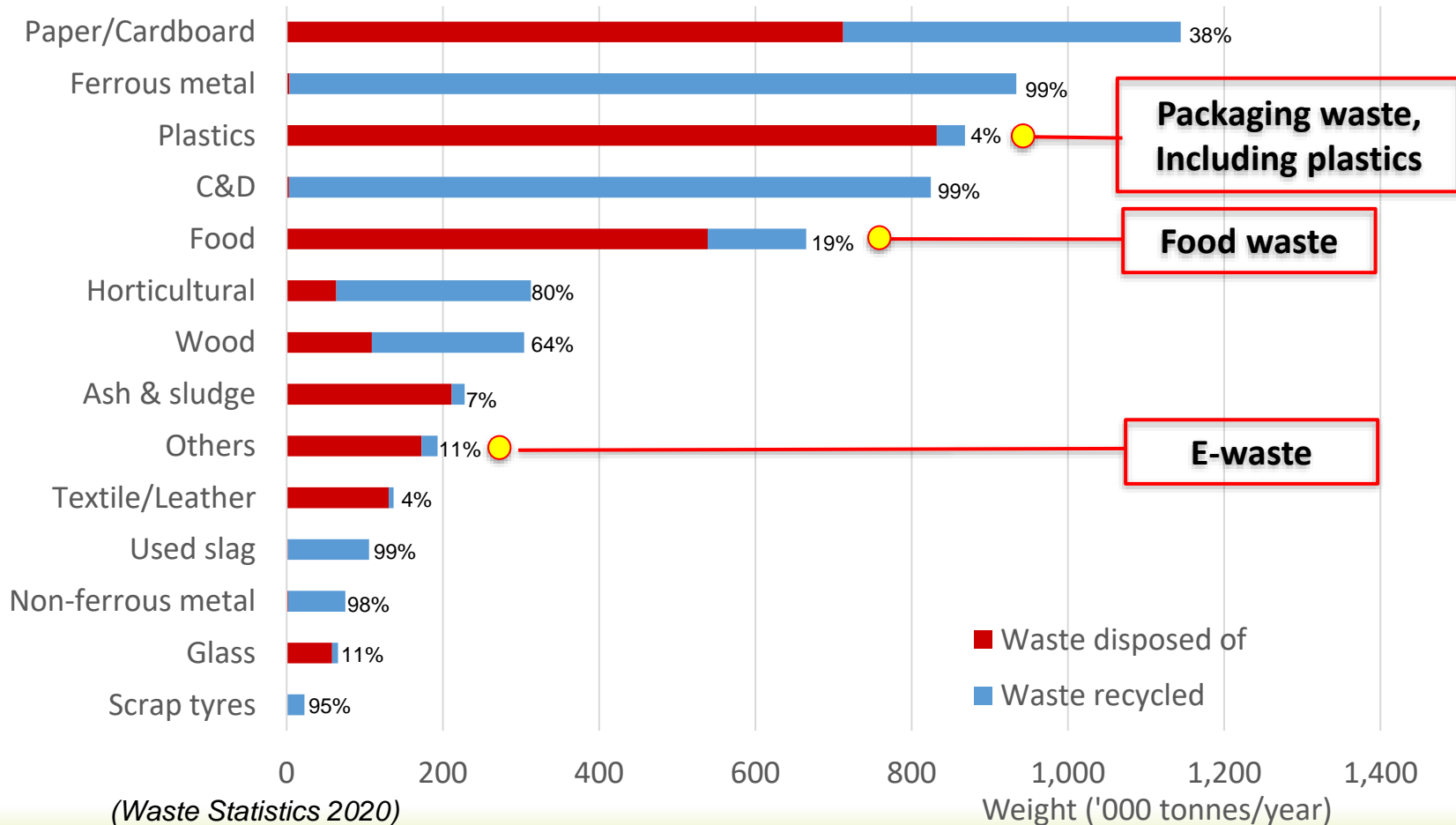
The Circular Economy Approach



2 Closing Resource Loops in Singapore

Resource Sustainability Act to Closing Three Resource Loops

The Resource Sustainability Act was enacted in September 2019, giving legislative effect to new measures to address 3 priority waste streams.

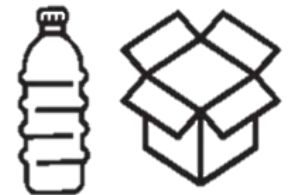


Priority Waste Streams

Food Waste








Packaging Waste, Including Plastics






E-waste



Closing the E-waste Loop

2021: Extended Producer Responsibility (launched on 1 Jul 21) Covering these products:	1) Lamps 	2) Batteries 	3) ICT Equipment 	4) Large Appliances 	5) Solar Photovoltaic Panels 
---	--	--	--	---	--

Producers	Producer Responsibility Scheme (PRS)	Retailers
 <ul style="list-style-type: none"> Consumer EEE: Required to join a PRS Non-consumer EEE: Required to provide free take-back services for all end-of-life equipment from clients upon request 	 <ul style="list-style-type: none"> NEA has licensed ALBA E-Waste Smart Recycling to operate the PRS Develop and implement collection and recycling system for consumer EEE 	 <ul style="list-style-type: none"> Required to provide free one-for-one take-back services upon delivery of new products Large EEE retailers (floor area above 300 m²): Provision of in-store collection points

Closing the Packaging Waste (including Plastics) Loop

From 2021:

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

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

By 2022:

Legislative framework for beverage containers return scheme as first phase of **Extended Producer Responsibility (EPR)** for packaging waste management



Closing the Food Waste Loop

Potential for food waste to be converted into **useful products** such as



Compost /
Liquid Nutrients



Biogas

Food Resource Valorisation Awards

- Seek to encourage more organisations to adopt and develop similar food waste valorisation solutions.
- Recognise companies that engage in the conversion of food waste, such as homogenous by-products, rejects and mixed food waste, into products that contribute to a sustainable economy.

Mandatory food waste segregation and treatment for large food waste generators

From 2021:

Developers of **new** large commercial and industrial premises to **allocate space for on-site food waste treatment systems** in their design plans

From mid-2020s:

Mandate food waste segregation for treatment/recycling by large industrial and commercial food waste generators



Food retail
establishments



Hotels and malls



Industrial premises

3 Join the Journey Towards Zero Waste

3R (Reduce, Reuse, Recycle) Fund

A co-funding scheme to encourage organisations to **reduce waste disposed** of at NEA's incineration plants and disposal facilities through the **implementation of waste minimisation and recycling projects**

Co-fund up to 80%* of Qualifying Costs (cap of \$1 million per project / applicant):

- i. Manpower
- ii. Equipment & consumables
- iii. Professional services
- iv. Training, education & publicity

Calculation of grant quantum

- i. Proportional to actual tonnage reduced, reused or recycled
- ii. Dependent on waste stream



Projects given higher priority

- New or innovative processes
- Target waste streams with low recycling rates

Project duration & tonnage

- Max. 3.5 yrs (0.5 yrs prep, 3 yrs ops)
- Min. duration of operation is 1 year
- Min. tonnage is 100 tons over project duration
- Tonnage must be “additional”



Link:

<https://www.nea.gov.sg/programmes-grants/grants-and-awards/3r-fund>

Packaging Partnership Programme (PPP)

PPP:

- Partnership between the NEA and the Singapore Manufacturing Federation (SMF) to support companies towards adopting sustainable packaging waste management practices
- Sharing of knowledge and best practices
- Familiarise obligated companies with the Mandatory Packaging Reporting requirements effective 1 January 2021.



Link:
<https://www.smfederation.org.sg/media-resources/Packaging-Partnership-Programme>



Benefits:

- ✓ Up to double the funding for NEA's 3R Fund
- ✓ Updated on information related to sustainable packaging waste management
- ✓ Priority for PPP members to register for workshops and trainings
- ✓ Access to the use of the Logo for Products with Reduced Packaging (LPRP)
- ✓ Listing and recognition on PPP website as a member
- ✓ Gain opportunity to build greater networks with the various Industry Groups under SMF.



Link to Towards Zero Waste website:
<https://www.towardszerowaste.gov.sg/>



Our Environment

Safeguard • Nurture • Cherish

ALBA Singapore – Closing the Loop on E-waste and Plastics Recycling

MR JAKOB LAMBSDORFF
CEO, Alba Singapore



Jakob Graf Lambsdorff is the CEO of ALBA Singapore. In this role, he is responsible for the two operating ALBA entities in Singapore: ALBA W&H Smart City and ALBA E-Waste Smart Recycling. ALBA W&H is a Public Waste Collector appointed by the National Environment Agency. ALBA E-Waste is appointed by NEA to operate the first of its kind Producer Responsibility Scheme for electronic waste.

He is also responsible for the development of ALBA Smart City projects in Southeast Asia. The ALBA Smart City business unit is transforming traditional waste management practices with innovative, scalable and highly digitalized solutions aimed at improving environmental standards. Currently ALBA is developing Smart City projects in Indonesia, Vietnam and Thailand.



ALBA Singapore – Closing the Loop on E-Waste and Plastics Recycling

SBF Circular Economy Financing

22 July 2021

Agenda

ALBA Group

ALBA in Singapore and Hong Kong

Sustainability Initiatives

Plastic Recycling Association of Singapore
(PRAS)



ALBA Group

ALBA Group Worldwide



The ALBA Group, one of the leading recycling and environmental services companies as well as raw material providers worldwide, operates with its two brands – ALBA and Interseroh – within Germany, Europe and Asia.



Family-owned
business since 1968



Euro 2.0 billion global
turnover

8,800 global staff



One of the leading
recycling and
environmental services
companies as well as
raw material providers
worldwide



ALBA Group Services



ALBA Group Asia 4 Verticals



Verticals

Hazardous Waste
(HAZ)

Bio Waste
(BIO)

Plastics Recycling
(PET)

Smart City Solutions
(SC)

Strategic Theme

Providing compliant and state-of-the-art hazardous waste treatment solutions to industrial clients

Bio waste collection, treatment and energy generation

Meeting MNC's increasing demand for high-quality recycled plastics with intelligent feedstock management and cutting-edge processing capacity

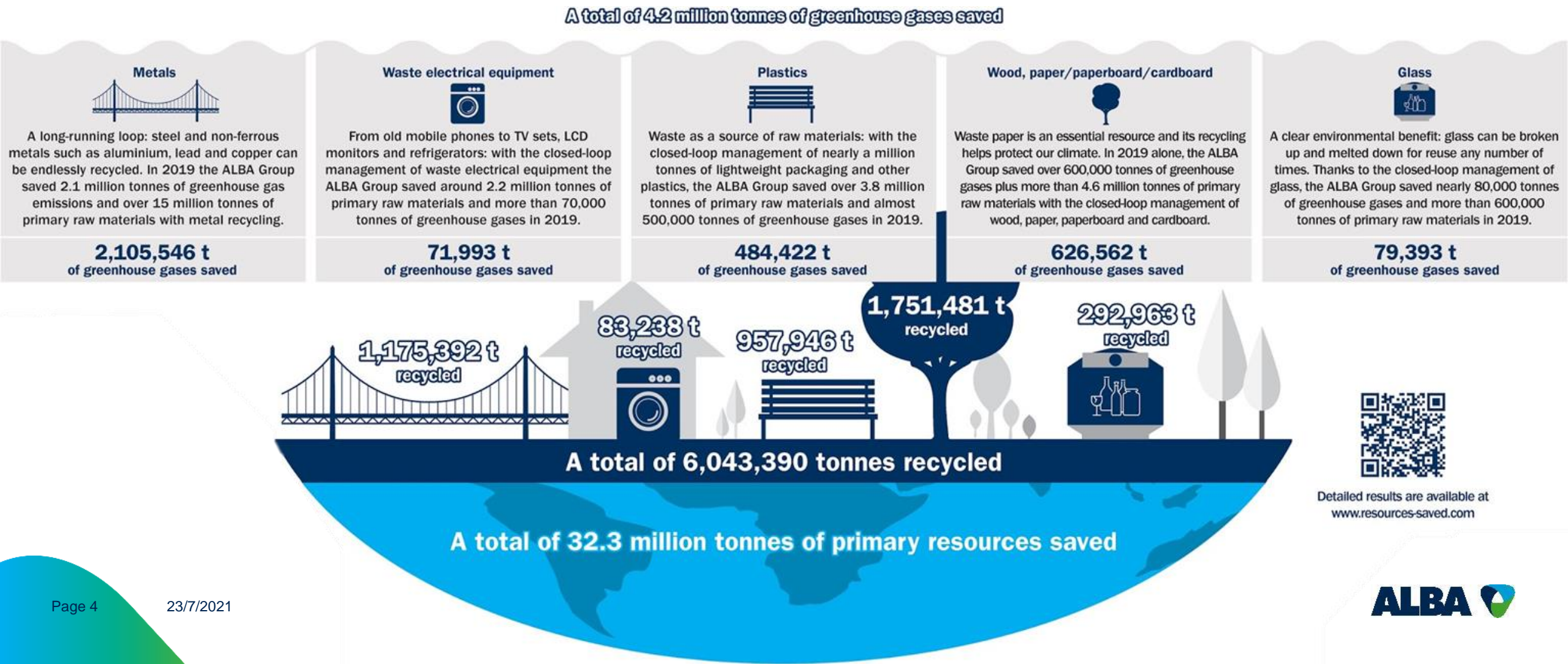
Transforming traditional waste management practices with innovative, scalable and highly digitalized solutions

Site Visual



Achieving a Circular Economy

Eliminating waste and the continual use of resources - Treasure raw materials





ALBA in Asia

Selected projects in Singapore and Hong Kong

ALBA in Singapore

“A new company, ALBA W&H proposes an innovative suite of PWC services, featuring several sustainability, digitalization and productivity initiatives.” – National Environmental Agency, Singapore

Public Waste Collection



E-Waste PRS Operation



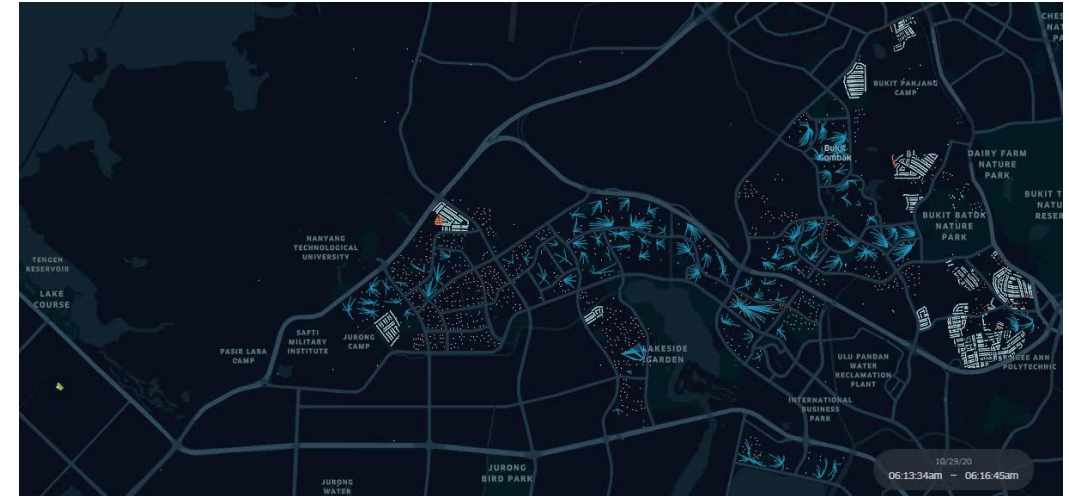
ALBA W&H Smart City

ALBA's first footprint in Singapore



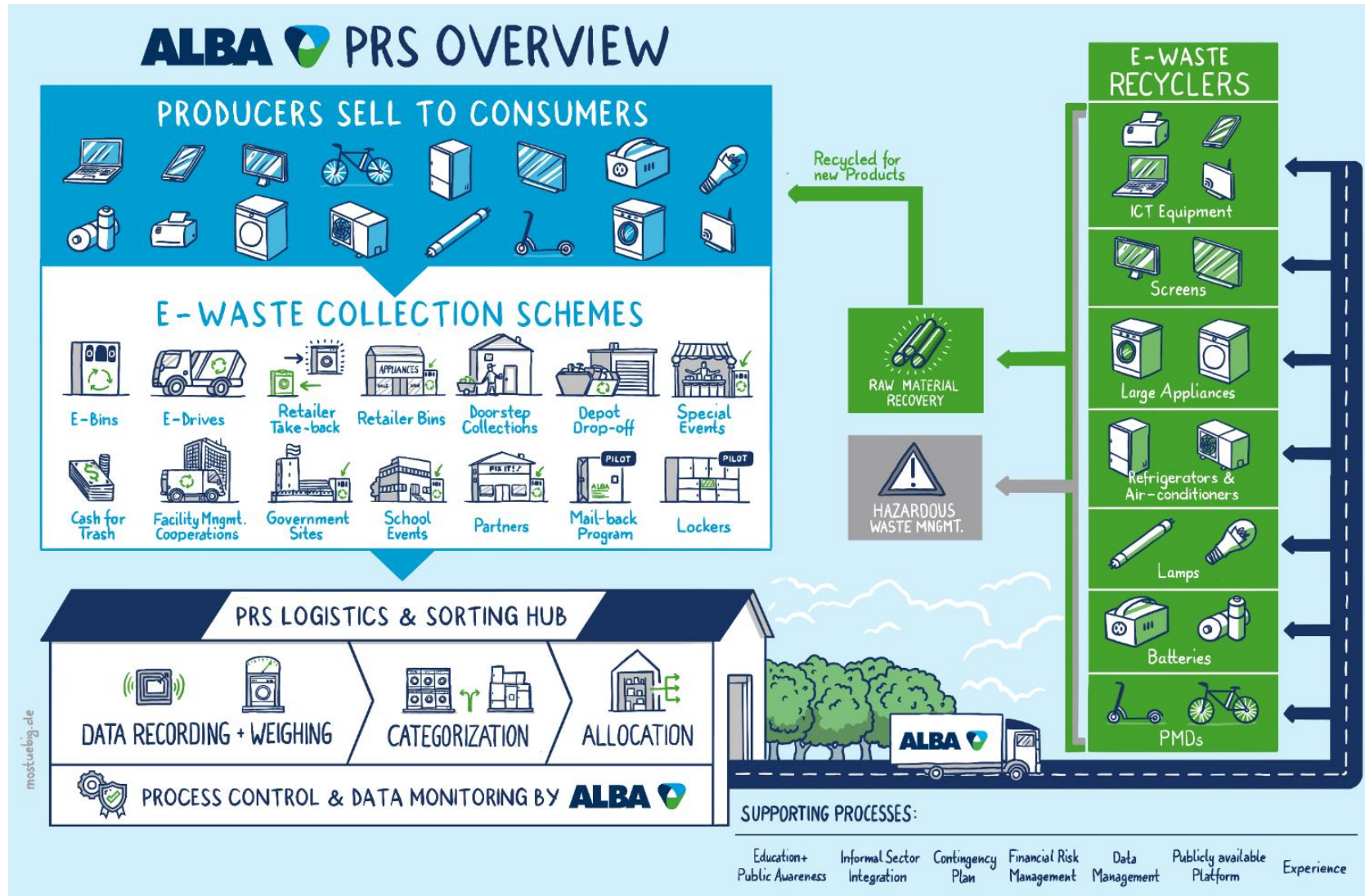
ALBA ventured into Singapore with local partner Wah&Hua Pte Ltd. The Joint-Venture was awarded a **7-year contract** starting from April 1st 2020 until March 31st 2027 for both refuse and recyclables collection.

Serves **156,000 premises** – comprising 151,000 households and 5,000 trade premises, including hawker and market stalls, shops, places of worship, and government buildings.



ALBA E-Waste Smart Recycling

Operator of Singapore's First Producer Responsibility Scheme



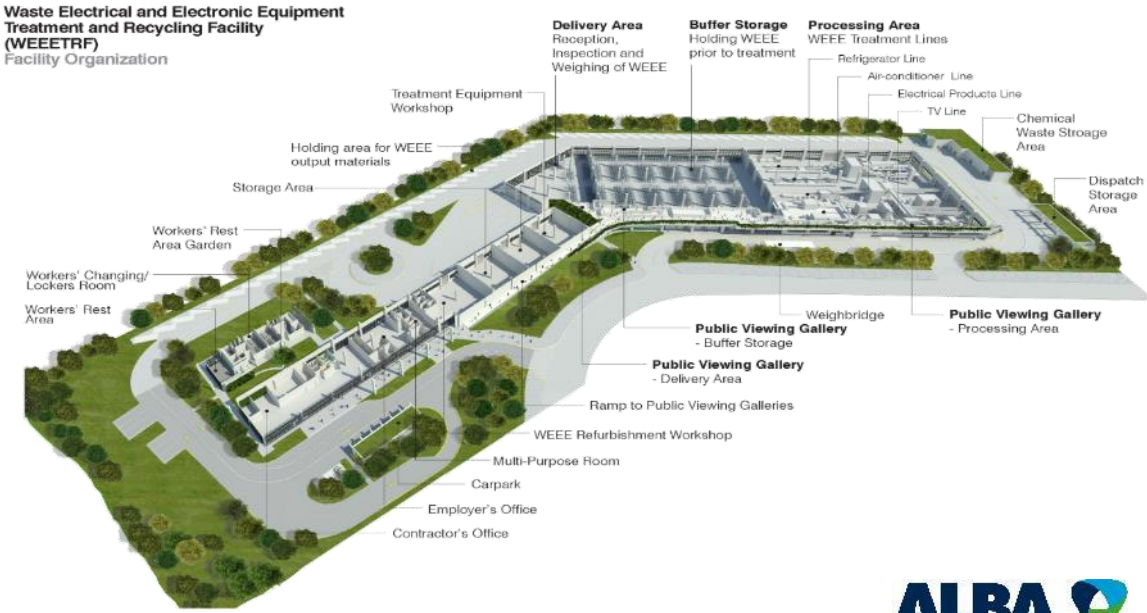
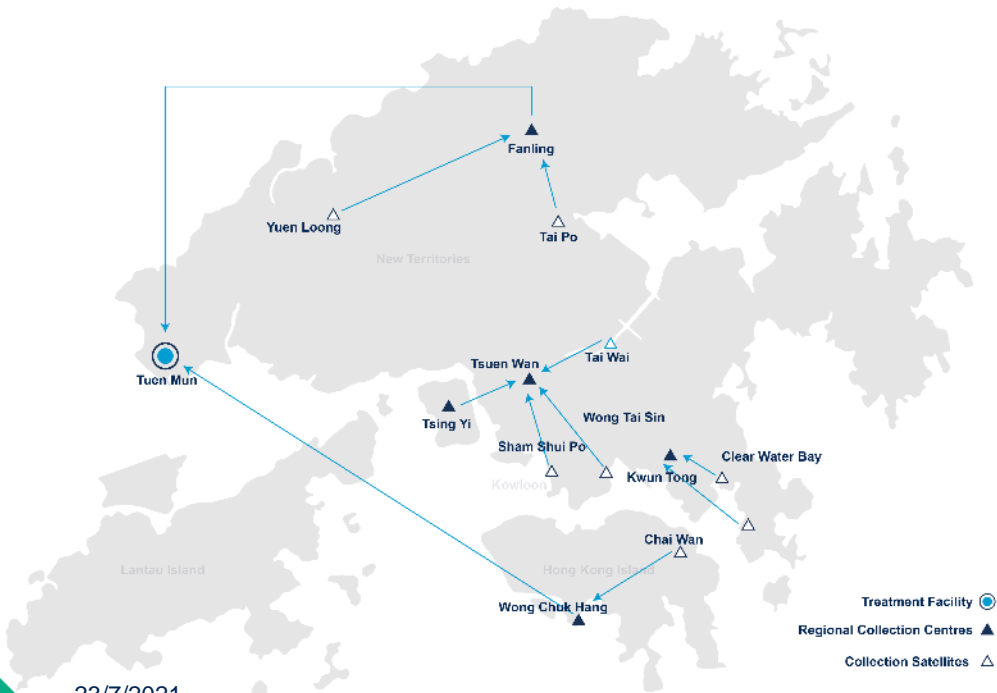
ALBA Hong Kong E-Waste Producer Responsibility Scheme

Company	ALBA IWS
Location	Tuen Mun, Hong Kong
Scope	Waste Electronics and electrical Equipment Collection & Treatment
Population	7,000,000, entire Hong Kong
Contract	2015 - 2027
Collection Vol	30,000 t/y up to 57,000 t/y
JV Partner	Integrated Waste Solutions Group Holdings Limited

- Materials covered:
- Fridges & ACs
 - TVs & Monitors
 - Printers & Scanners
 - Washing Machines
 - Computer, Laptops & Tablets

Logistics

Treatment





Sustainability

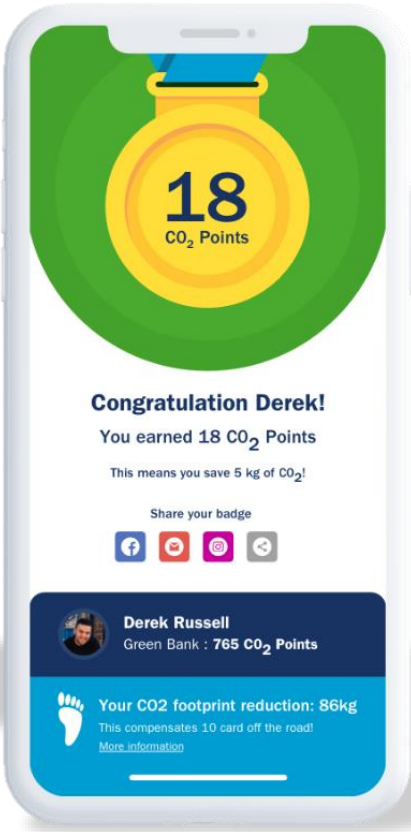
Opportunities for Singaporean companies to become more sustainable

Sustainability Initiatives

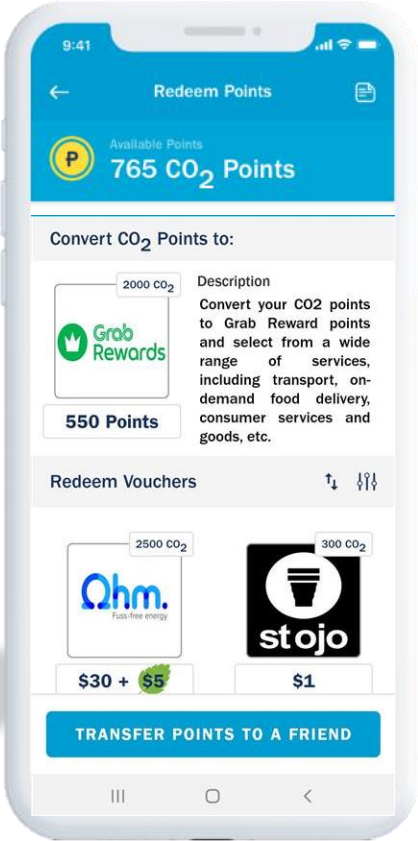
- Recycling Bins**
(In Jurong only)& potentially able to expand to entire Singapore without the need of attaching QR code.
All Recyclables
- Reverse Vending Machines**
(In Jurong only)& in Woodlands Yishun, in the case we win the tender
PET bottles & Aluminium cans
- E-Waste Bins**
Entire Singapore
All regulated E-Waste
- Shoe Recycling Bins**
Entire Singapore
Rubberized/Elastomeric soled shoes
- Collection Events**
Entire Singapore
Different Recyclable categories



Scan QR Code + Snap a picture of the recyclables



Earn your CO2 points



Redeem your CO2 points for Grab Reward Points & Vouchers for Sustainable Goods

Sustainability Service Offerings



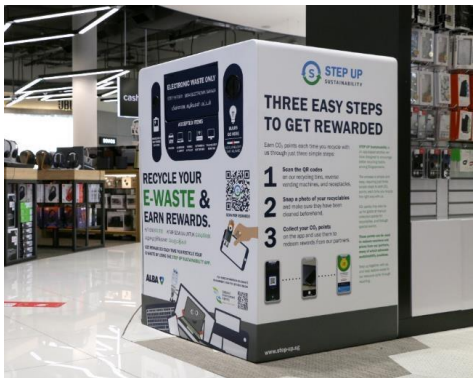
**General Waste
Collection & Recycling**



**Reverse Vending
Machines**



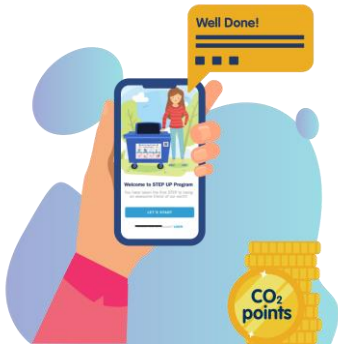
Waste Audits



E-Waste Collection

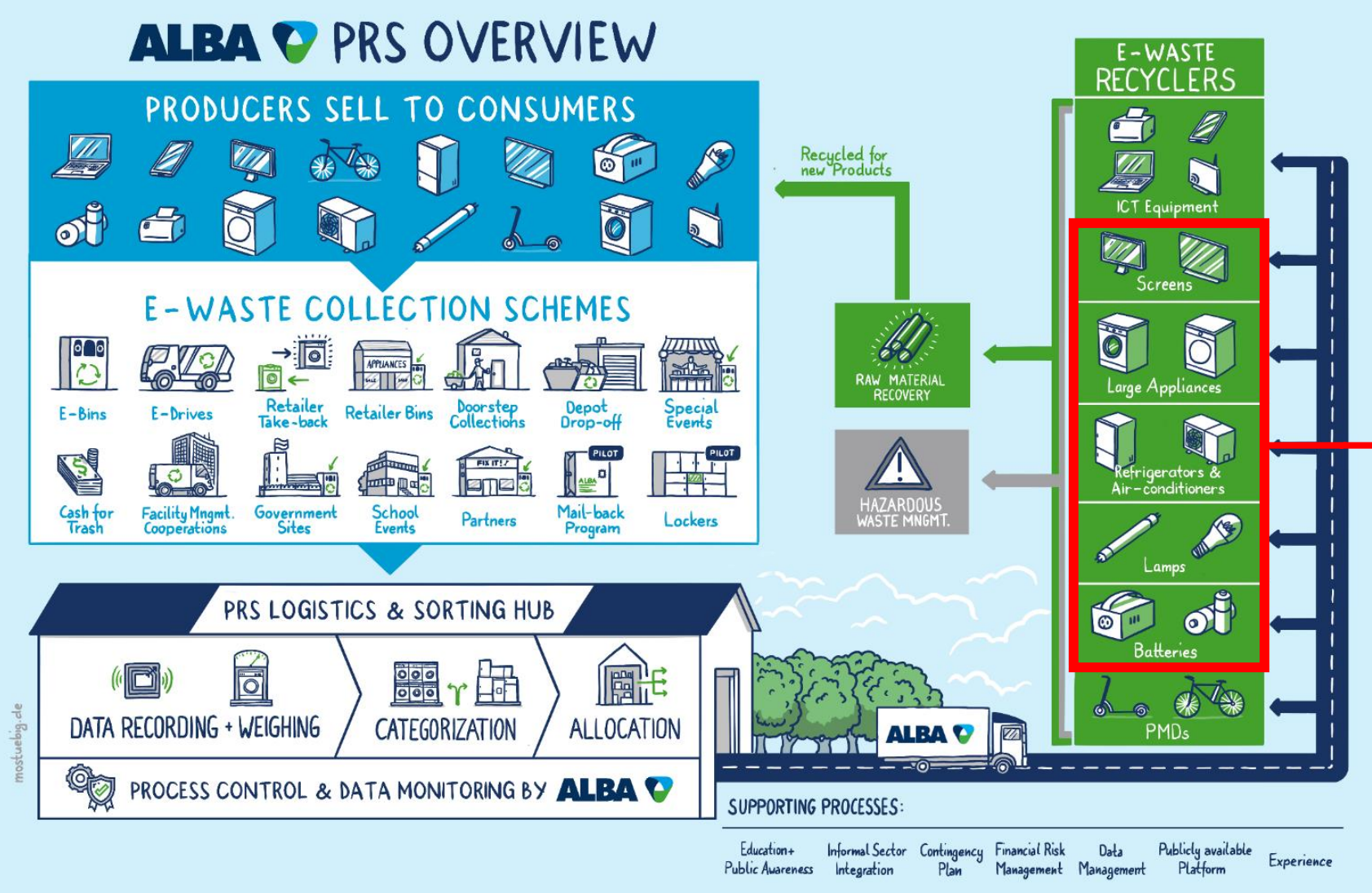


**Corporate Education and
Awareness Campaigns**



**STEP UP App
Corporate Partner**

E-Waste Recycling Opportunities in Singapore

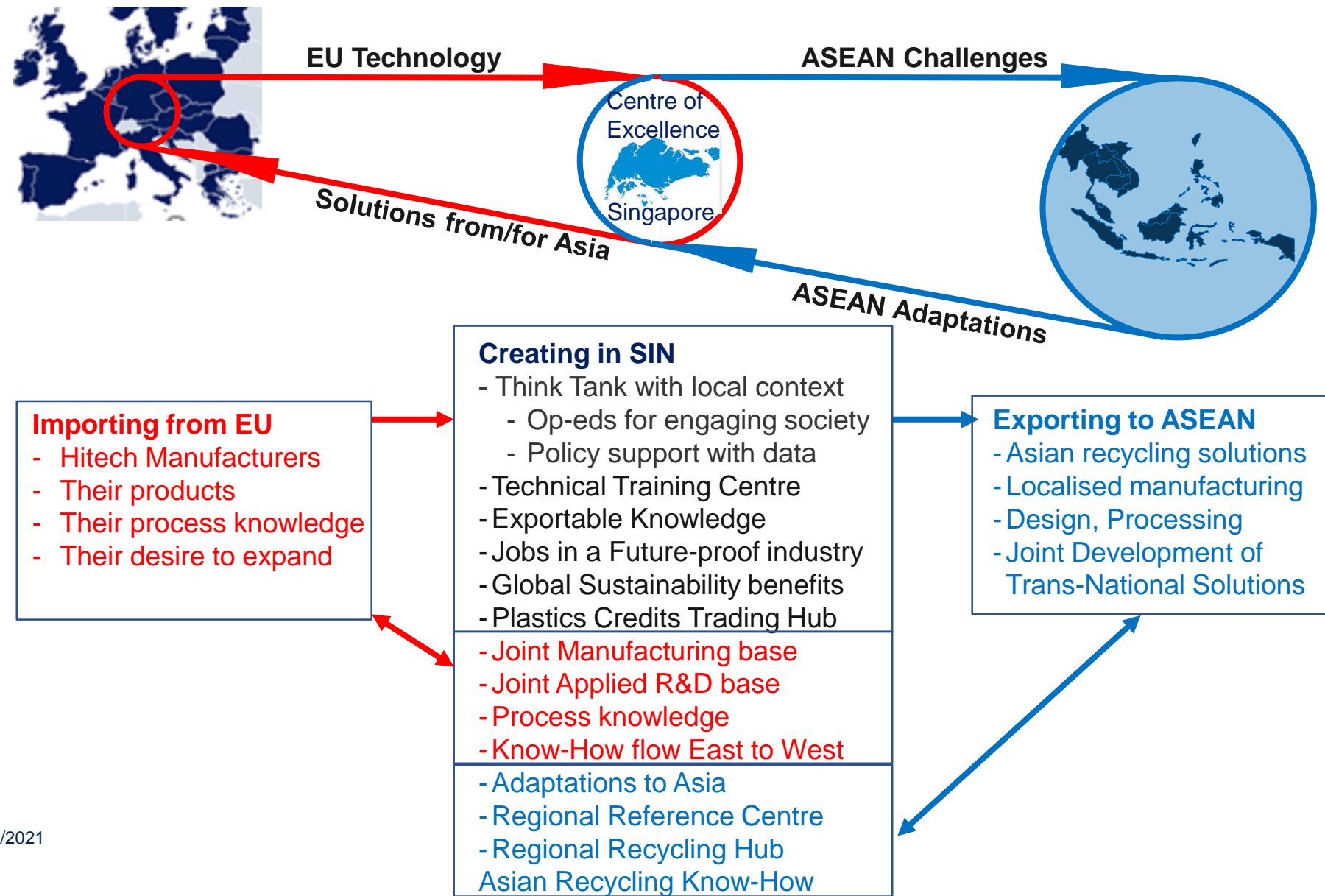




Plastic Recycling Association Singapore (PRAS)



PRAS Vision





Treasure raw materials.

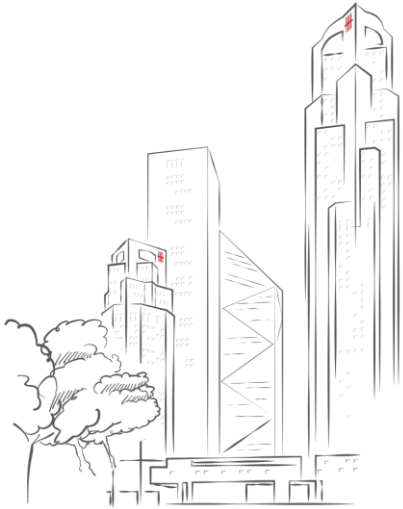
Trends and Opportunities for Plastics Recycling in the Circular Economy

MR JOSEPH POH

Head of Oil, Gas and Chemicals, Sector Solutions Group, UOB



Joseph is the Head of Oil, Gas & Chemicals within UOB and oversees the business development, new solution rollout and risk management of the sector. Prior to this, he oversaw the relationship management for state-owned enterprises (SOEs), national oil companies (NOCs) and large corporates outside of Singapore. Before joining UOB, Joseph worked in an international oil major in Singapore and Japan across various analytical and operational roles.



Trends & Opportunities for Plastics Recycling in the Circular Economy

Joseph Poh

Head – Oil, Gas & Chemicals

Sector Solutions Group

22th Jul 2021



Trends & opportunities for Plastics Recycling in the Circular Economy



Mr Joseph Poh

Head - Oil, Gas & Chemicals

Agenda

Topic

1. Increasing Awareness & Response to Plastics Pollution
 2. What is a Circular Economy?
 3. Plastics Recycling Trends and Market Updates
 4. UOB Financing Support for the Plastics Recycling Ecosystem
-

Increasing Awareness & Response to Plastics Pollution

Extent of Plastics Pollution Globally and in SEA

Scale of Ocean
Plastics Pollution

8MT Annually

Asia contributes **80%**
of the Ocean Plastics waste
and **8 of the top 10 ocean
plastics polluting countries**
are from Asia in 2015

Amount of Plastics Waste
disposed by ASEAN annually

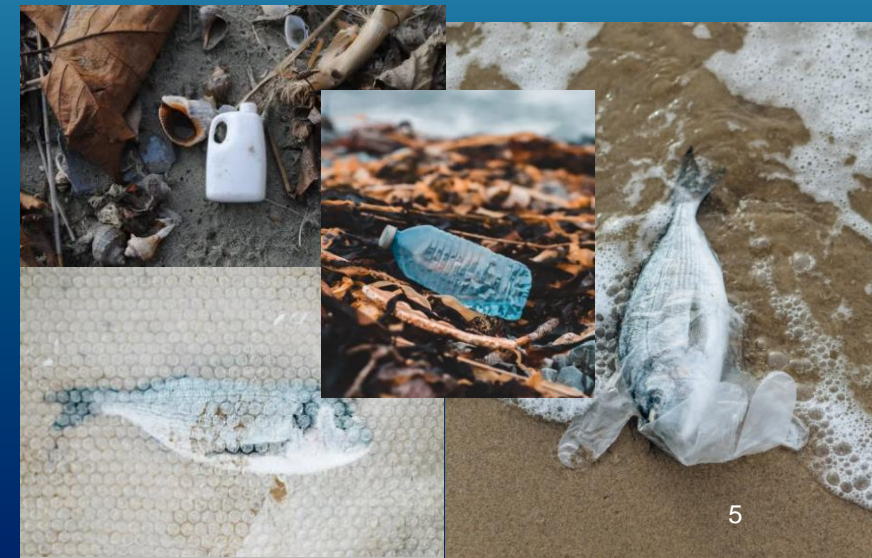
>31MT

ASEAN recycling
rate is less than

12%

Harms of Plastics Pollution

- Plastics Waste into sea affect viability of marine/ wild life and biodiversity
- Micro Plastics from plastics waste can be present in rivers and oceans – harmful if consumed by humans/ animals
- Plastics ingested by human/ animals can affect hormone and reproduction



Shifting Consumer Awareness on Plastics Pollution/ Recycling

- 1 I am extremely concerned about the extent of plastic waste issues.
- 2 I am actively pursuing efforts to tackle plastic waste.
- 3 The government is actively tackling plastic waste through policies and regulations.
- 4 Businesses are doing enough to tackle plastic waste issue.

ASEAN

91%

Agree or Strongly Agree

84%

Agree or Strongly Agree

71%

Agree or Strongly Agree

45%

Agree or Strongly Agree

FMCG companies have pledged to use recycled plastics



TARGET TO USE

25%

recycled content in
plastic packaging
by 2025



Increase the use
of recycled plastic
content in its
packaging to

25%

by 2025



75%

of all Nike shoes
and apparel contain
some recycled
materials



In 2019 Adidas
estimates it will
have manufactured

11m

pairs of shoes from
recycled ocean
plastics

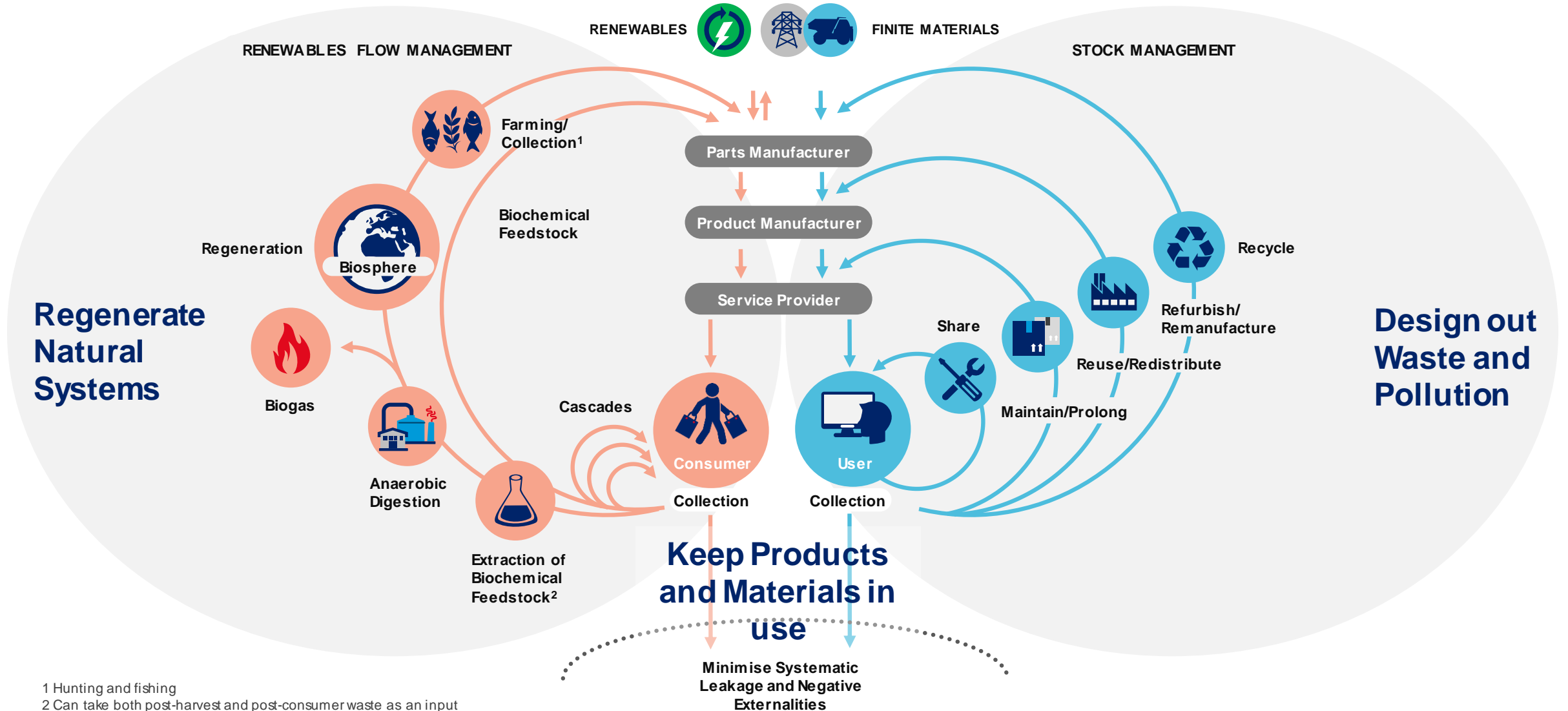
Source: New Plastics Economy Global Commitment Jun 2019, various websites, UOB analysis

<https://new.s.nike.com/new/s/sustainable-innovation-air-bag-manufacture>

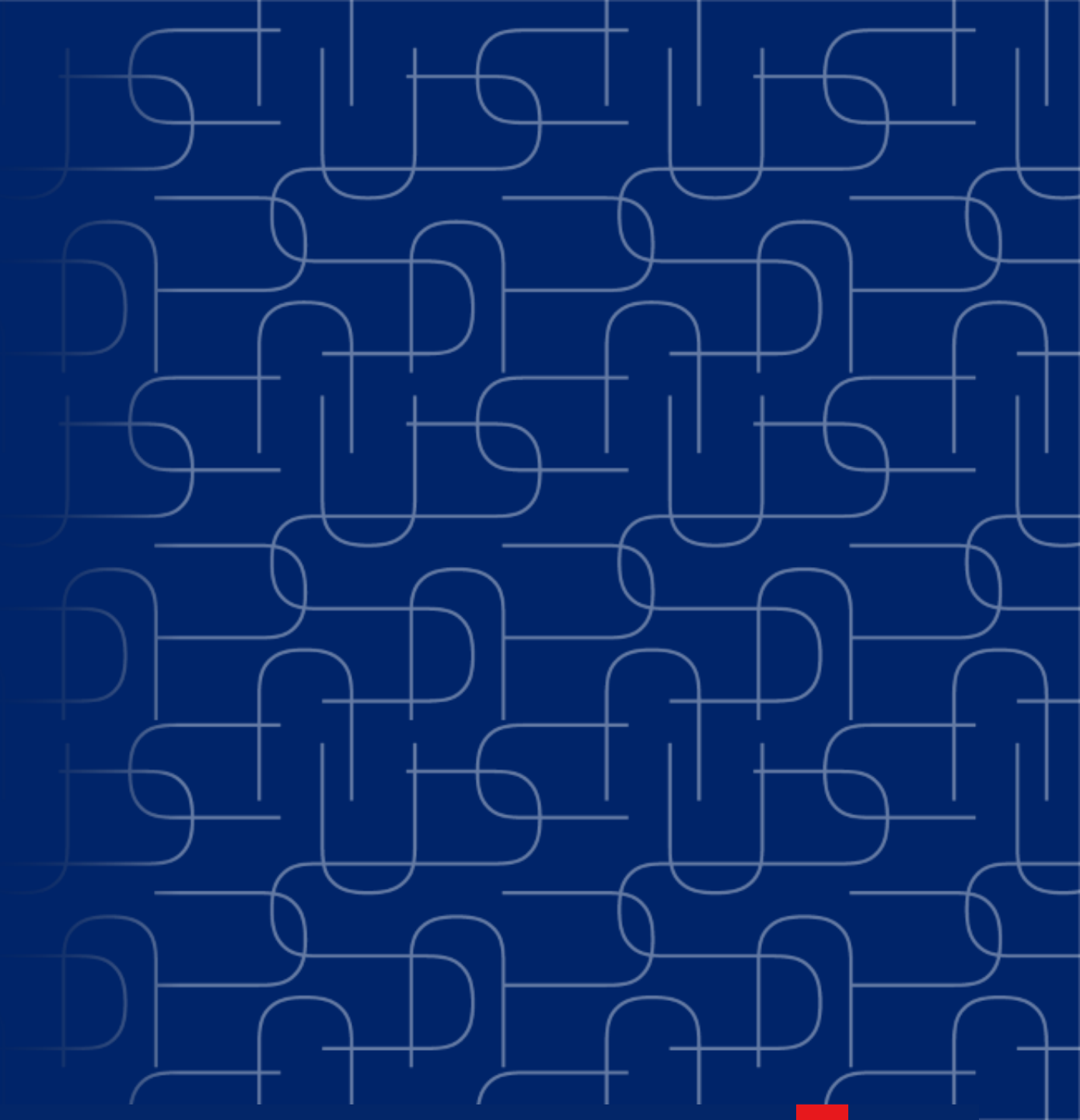
<https://www.businessinsider.com/adidas-sneakers-plastic-bottles-ocean-waste-recycle-pollution-2019-8>

What is a Circular Economy?

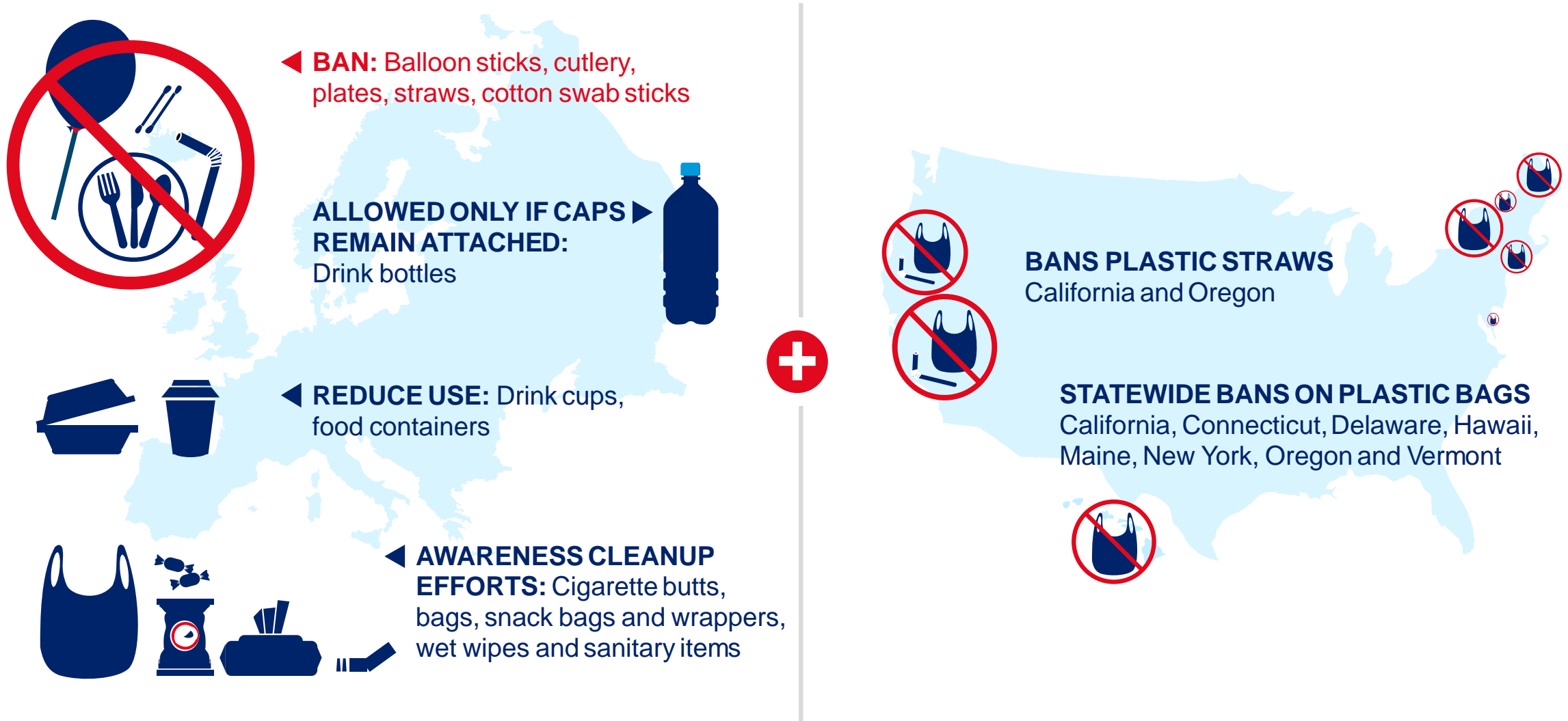
Principles of Circular Economy








Plastics Recycling Trends and Market Updates



Europe and US have single-use plastics ban



Key Elements supporting a Plastic Recycling Ecosystem

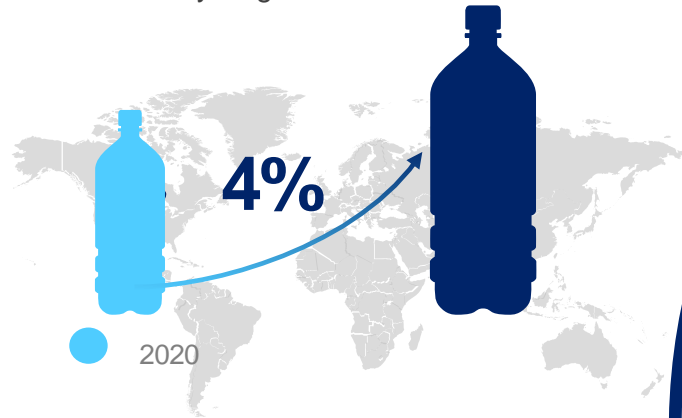
	 Europe	 Germany	 Japan	 South Korea	 Taiwan
Current Plastic Recycling Rate	40% of plastic packaging	46% of total plastic waste recycled. 36% of plastic packaging waste recycled.	Overall ~20% PET Bottles ~85%	38% of plastic waste	Plastic containers – 84%
Target Plastic Recycling Rate	55% of plastic packaging by 2030. 25% recycled plastic content in plastic bottles* by 2025. To be raised to 30% by 2030.	63% of plastic packaging waste recycled by 2022	Reuse & recycle plastic containers & packaging to 60% by 2030. PET Bottles – 100% by 2030.	70% of plastic waste by 2030	
Extender Producer Responsibility (EPR)	Yes	Yes	Yes	Yes	Yes
Household Waste Separation	Yes	Yes	Yes	Yes	Yes
Single-use plastics rule/levy	By 2021	By 2021	Yes	Yes	Yes
Others		Deposit refund system: €0.25 deposit collected for each PET drink bottle. Deposit refunded upon returning bottle to retailer. “Blue Angel” label: National label awarded to products with >80% recycled plastics.		Regulating on over-packaging: e.g. prohibit PVC. Govt provided low interest loans to support plastics recycling industry.	

*Plastic bottles are defined to have a capacity of up to 3 litres including caps and lids. Source: UOB Analysis

Plastics Recycling in Singapore

Plastics recycling trends

Plastics recycling rate

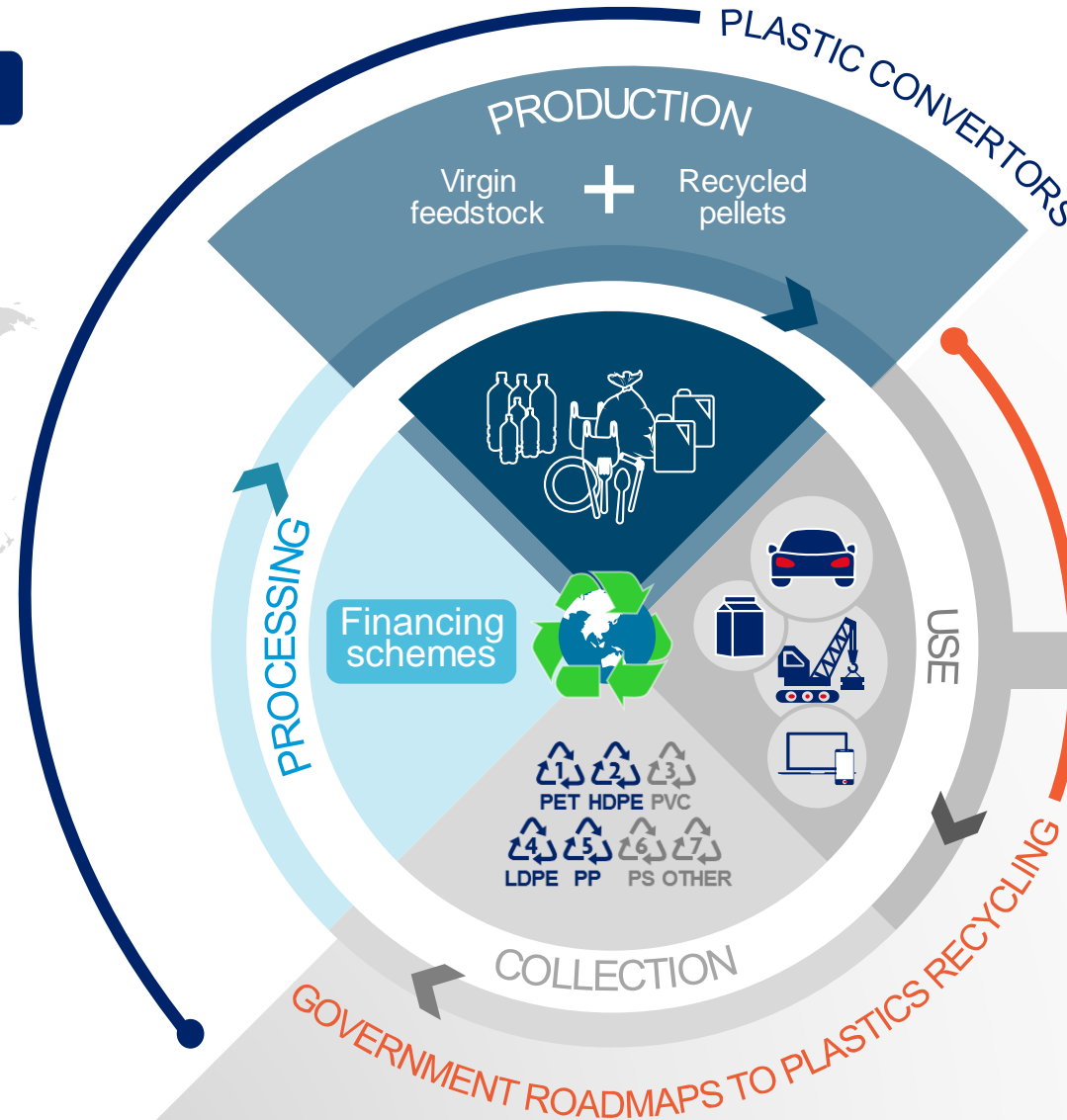


Processing

- Some mechanical recycling facility for PET
- Feasibility study: chemical recycling facility (Shell)

Government support

- 3R Fund
- Enterprise Singapore's sector agnostic financial and non-financial assistance



Government Regulation/ Roadmap

- **Green Plan 2030:** Reduce waste sent to landfill by 20% by 2026, and 30% by 2030 by 2022-2025
- **Resource Sustainability Act 2019:** Require reporting of packaging imported or used in Singapore
- **Zero Waste Master Plan:** Close the resource loop

Use / Recycled plastics consumption

Lay foundation for Extended Producer Responsibility (EPR):

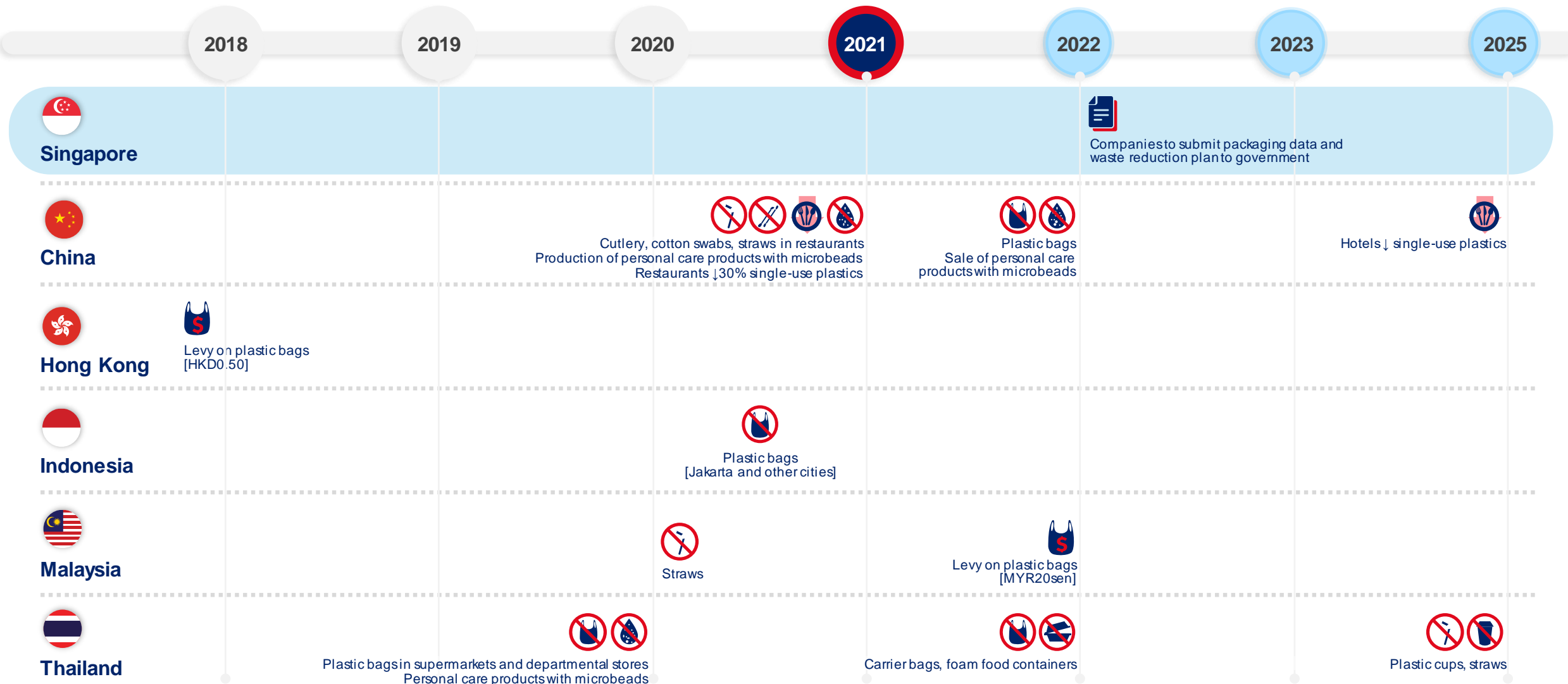
- Mandatory packaging reporting by 2022
- Eco label
- Blue recycling bins in public housing estate
- Public consultation on plastic bag charges to be completed by 2021



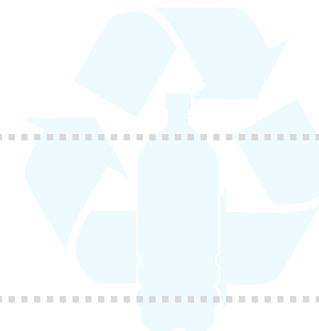
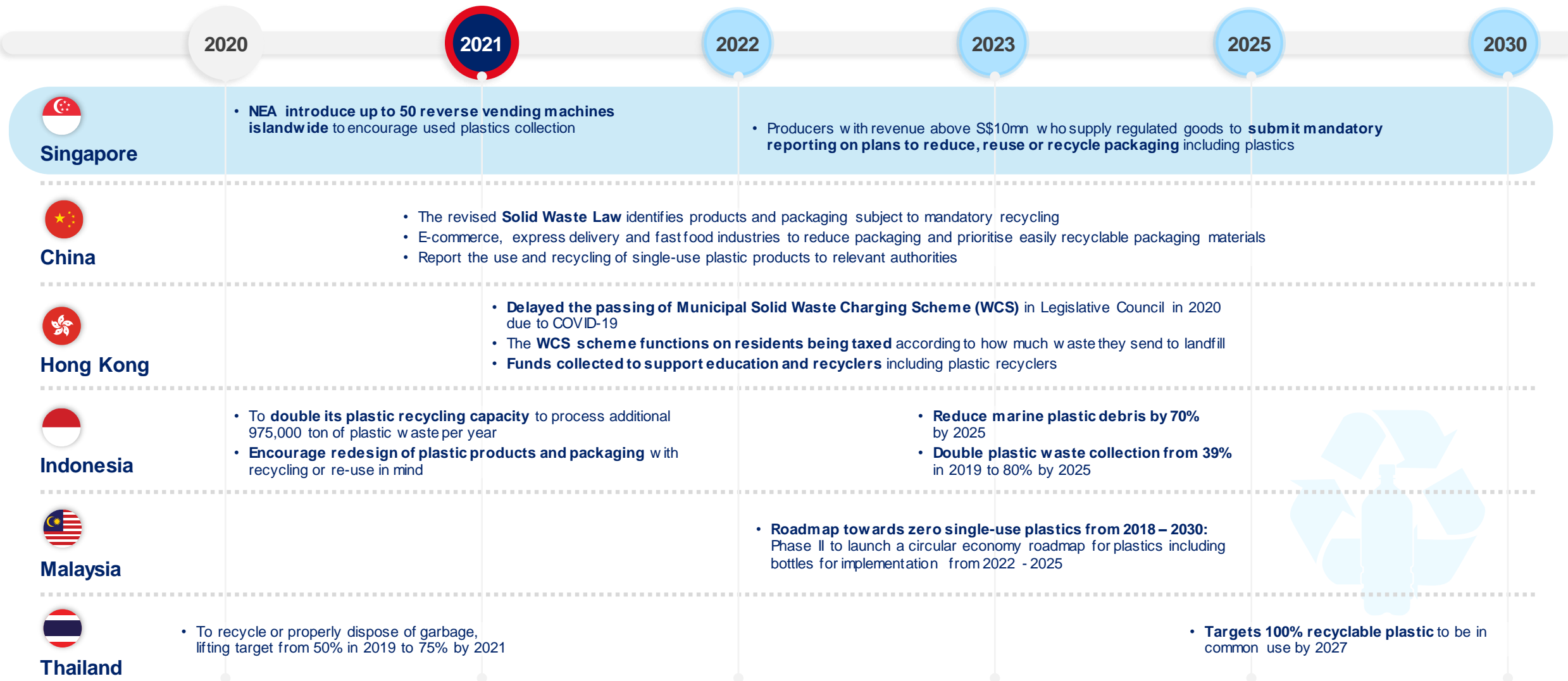
Collection

- Pilot 50 reverse vending machines (F&N)
- Implement Deposit Refund Scheme (first phase of EPR) by 2022 on beverage containers
- Feasibility study: Pilot plastic recovery facility (HTP GmbH & Co)

China and Southeast Asia's single-use plastics regulations/ initiatives (Timeline)



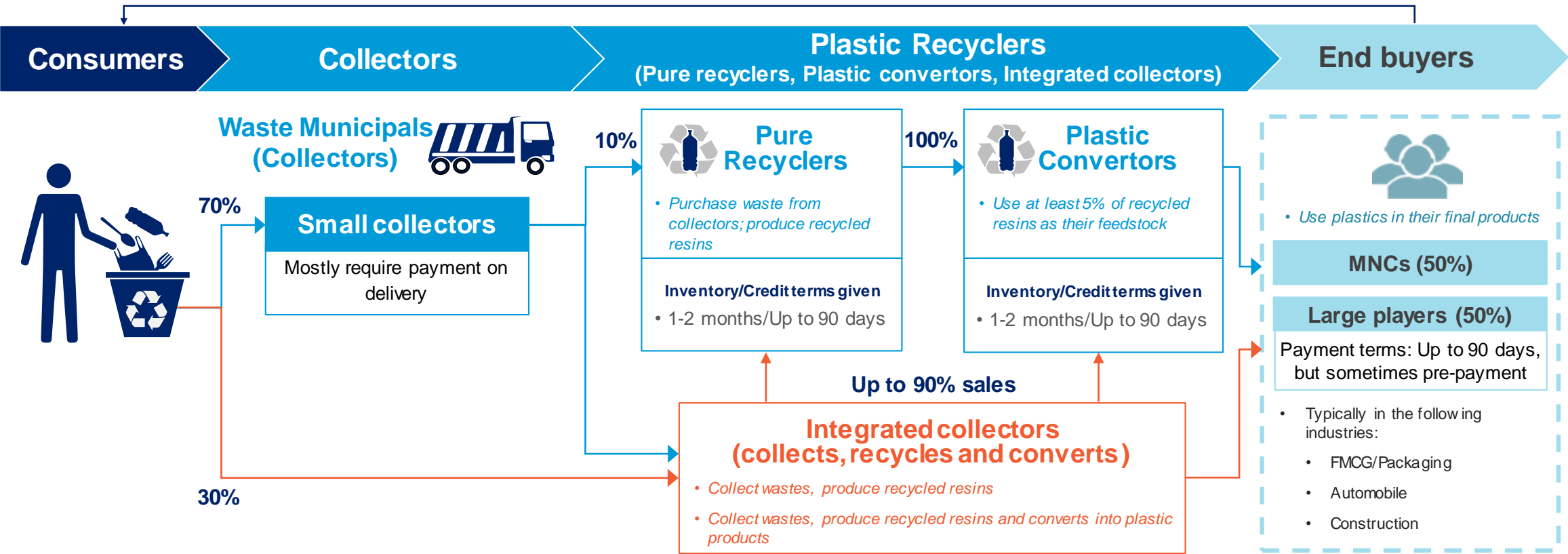
China and Southeast Asia's recycled plastics regulations/ initiatives





UOB Financing Support for the Plastics Recycling Ecosystem

Business Flow and Pain Points



Pain points to be addressed

1 Upfront cash involved, tight working capital and liquidity

1 Upfront cash involved, tight working capital and liquidity

2 Expensive recycling equipment, which will have to purchase at the outset

3 CAPEX equipment on balance sheet

4 May require upfront cash payment to plastic recyclers

Key Benefits of UOB's Plastic Recycling Package



Exclusive

Plastic Recyclers

(>5 years of business)



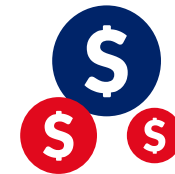
Comprehensive Working Capital Package with cash lines[#]

To adequately meet your working capital requirements



Equipment Financing

Attractive **LTV** and **tenor** for **equipment financing**. **Interest capitalisation** available



Attractive pricing and expedited approval

- Competitive pricing structure;
- Fast tracked credit approval process

[#]Cash lines and trade facilities granted dependent on customer type

UOB Green Circular Economy Framework



Material and resource recovery

Promote waste recovery and reduce unnecessary waste disposal



Circular design

Modular design for ease of disassembly and repair, which facilitates reuse, recycling, and extension of product life-time



Product-as-a-service

Solutions that support circular supply chain where the asset is owned and maintained by the supplier



Facilitators and enablers

Supports larger ecosystem necessary for transitioning to a circular economy



Green Circular Economy Framework

Circular inputs

Substitution of virgin materials with secondary materials originating from material and resource recovery



Sharing business models

Optimise capacity utilisation of products during its useful life, through sharing business models



Product Lifetime Extension

Increase longevity of products and services through reuse, refurbishment or remanufacturing



PART OF
Moody's ESG Solutions

Vigeo Eiris provided Second Party Opinion (SPO) on the framework and the highest level of assurance has been given that the eligible projects contribute to sustainability.

UOB simplifies sustainability for business



Sustainable Financing

Simplifying sustainability for business

Integrating sustainability into your business strategy can be complex. Let us be your partner in forging a sustainable future by simplifying sustainability for you.

UOB

Industry Perspective

The future for plastic recycling in Asia is bright

UOB

A circular plastics economy

UOB

- Access industry insights and make informed decisions with **'The future of plastic recycling in Asia is bright'** report and video.
- Learn more about how **Plastic Recyclers Ecosystem Financing** solution simplify implementation of sustainable practices.
- **Green Circular Economy Framework** guides you on accessing sustainable financing.

UOB's sustainable finance frameworks

Green Trade Finance Framework	Smart City Sustainable Finance Framework	Real Estate Sustainable Finance Framework	Green Circular Economy Framework
3R Businesses	E-Waste Recycling	Plastic Recyclers Ecosystem Financing	
UN Sustainable Development Goals			



Visit our website www.UOBgroup.com/sustainable-financing or email sustainable-city@uobgroup.com to find out more.

Disclaimer



This publication is strictly for informational purposes only and shall not be transmitted, disclosed, copied or relied upon by any person for whatever purpose, and is also not intended for distribution to, or use by, any person in any country where such distribution or use would be contrary to its laws or regulations. This publication is not an offer, recommendation, solicitation or advice to buy or sell any banking or investment product/securities/instruments. Nothing in this publication constitutes accounting, legal, regulatory, tax, financial or other advice. Please consult your own professional advisors about the suitability of any banking or investment product/securities/ instruments for your investment objectives, financial situation and particular needs.

The information contained in this publication is based on certain assumptions and analysis of publicly available information and reflects prevailing conditions as of the date of the publication. Any opinions, projections and other forward-looking statements regarding future events or performance of, including but not limited to, countries, markets or companies are not necessarily indicative of, and may differ from actual events or results. The views expressed within this publication are solely those of the author's and are independent of the actual trading positions of United Overseas Bank Limited, its subsidiaries, affiliates, directors, officers and employees ("UOB Group"). Views expressed reflect the author's judgment as at the date of this publication and are subject to change.

UOB Group may have positions or other interests in, and may effect transactions in the securities/instruments mentioned in the publication. UOB Group may have also issued other reports, publications or documents expressing views which are different from those stated in this publication. Although every reasonable care has been taken to ensure the accuracy, completeness and objectivity of the information contained in this publication, UOB Group makes no representation or warranty, whether express or implied, as to its accuracy, completeness and objectivity and accept no responsibility or liability relating to any losses or damages howsoever suffered by any person arising from any reliance on the views expressed or information in this publication.



RIGHT BY YOU

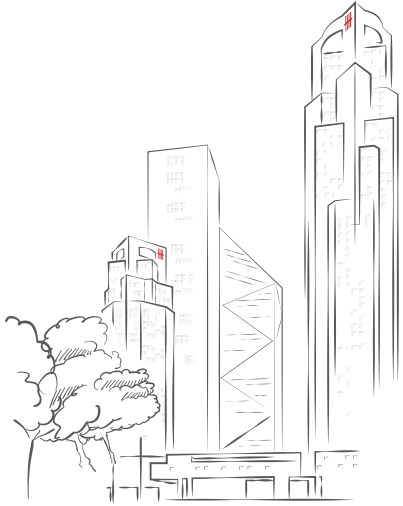
e-Waste: Trends and Opportunities

MR TERENCE KOH

Head of Technology, Media & Telecommunications, Sector Solutions Group, UOB



Terence heads the Technology, Media & Telecommunications (TMT) Centre of Excellence in UOB, where he is responsible for the strategic business development activities of the sector in Asia. His experience in wholesale banking experience spans across reputable multinational and regional financial institutions and he has also led project teams in the evaluation and negotiation of strategic mergers and acquisitions for Singapore Corporates in the Telecommunications, Media and Power sectors.



e-Waste: Trends and Opportunities

Terence Koh Teck San

Head – Technology, Media & Telecommunications (TMT)
Sector Solutions Group

22th Jul 2021

e-Waste: Trends and Opportunities



Mr Terence Koh

Head – Technology, Media &
Telecommunications (TMT)

Agenda

Topic

1. e-Waste Trends and Market Updates
 2. The EPR Framework in Singapore
 3. UOB's Financing support for the EPR Ecosystem
-

e-Waste Categories

Waste Electrical and electronic equipment (WEEE) that have been discarded without intent for re-use.

6 Categories:

1



Cooling and freezing equipment

Refrigerators, freezers, air conditioners, heat pumps

4



Large equipment

Washing machines, clothes dryers, dish-washing machines, electric stoves, printing machines, copying equipment and photovoltaic panels.

2



Screens and monitors

CRT television, monitors, laptops, notebooks and tablets

5



Small equipment

Consumer white goods

3



Lamps

Fluorescent lamps, high intensity discharge lamps and LED lamps

6

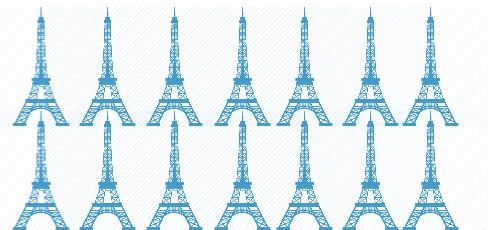
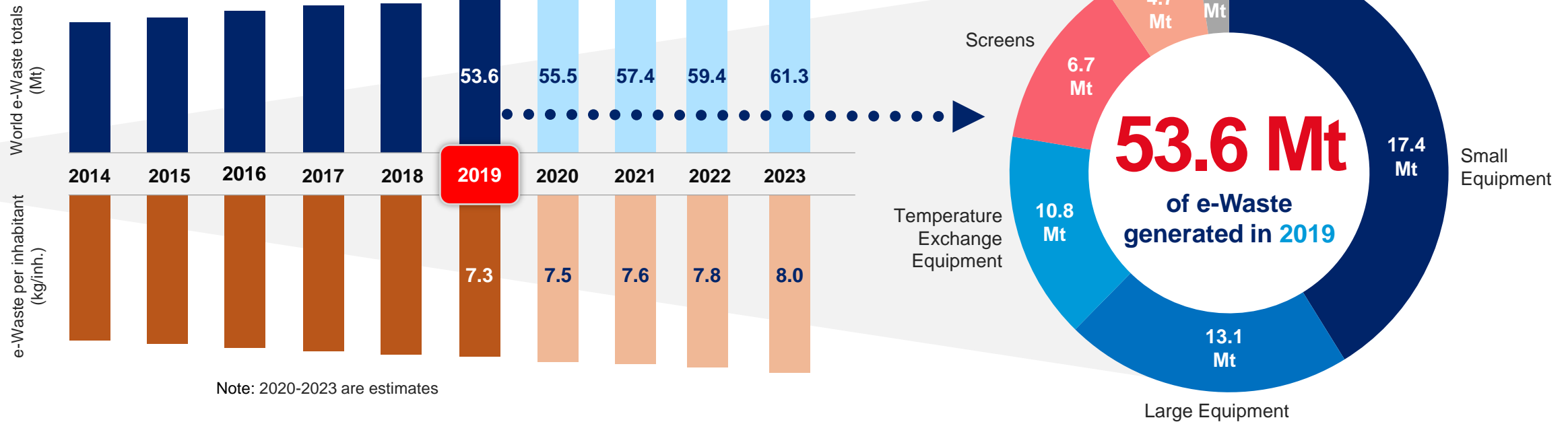


Small IT

Handphones and etc.

e-Waste Trends and Drivers

Global e-waste generated



e-Waste generated in 2019 is equivalent to almost **5,400 Eiffel towers**.



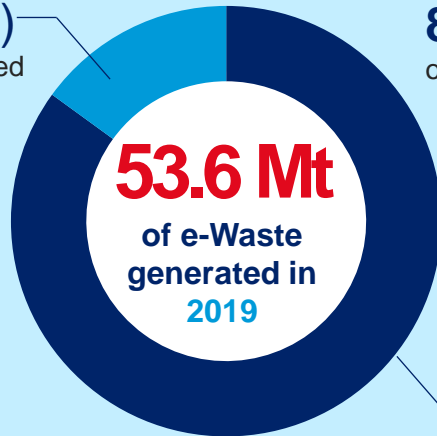
Asia is the largest generator of e-Waste (24.9mt in 2019):

- China (10.1 mt), Japan (2.6 mt), India (3.2 mt)

e-Waste Trends and Drivers

Collection methods of e-Waste in 2019

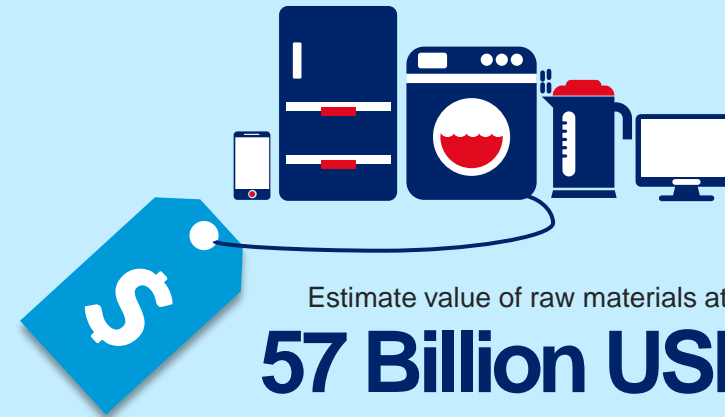
17.4% (9.3 Mt)
of e-Waste is documented
to be collected and
properly recycled



82.6% (44.3 Mt)
of e-Waste is not documented

- 1% (0.6 Mt) of e-Waste is estimated to end up in waste bins in EU countries
- The fate of 82% (43.7 Mt) of e-Waste is unknown; this is likely dumped, traded, or recycled in a non-environmentally sound way

Potential value of raw materials in e-Waste in 2019



Estimate value of raw materials at
57 Billion USD

e-Waste represents threat and opportunities:



Opportunities: Urban Mining of E-Waste

E-Waste contains valuable element such as gold, silver, copper and etc. that can be recycled with the right infrastructure.



Threat: Back-yard burning practices

Illegal shipment of E-Waste to other countries where improper recycling method pose danger to human and environment as e-waste contains harmful materials such as lead, cadmium, mercury, CFC and etc.

Southeast Asian countries looking at developing regulations relating to the EPR framework

Most countries are currently looking at developing an EPR framework



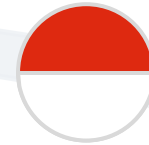
SINGAPORE

- The regulated e-waste management system will be based on the Extended Producer Responsibility (EPR) approach.
- ALBA E-waste Smart Recycling Pte Ltd has been appointed as the Producer Responsibility Scheme Operator for a period of five years, from 1 July 2021 to 30 June 2026, to collect regulated consumer electrical and electronic waste across Singapore for proper treatment and recycling on behalf of producers.



MALAYSIA

- DOE is drafting the Environmental Quality (Household Scheduled Waste) Regulation, which is in the final stage of approval by the Attorney General's Chambers of Malaysia (as of Nov 2019).
- The proposed regulation covers televisions, air-conditioners, refrigerators, washing machines, personal computers and mobile phones.
- It is based on the EPR approach. Recycling contribution fee is going to be imposed on the manufacturers and importers based on the number of electrical and electronic appliances placed in the Malaysia market.



INDONESIA

- According to the Ministry of Environment and Forestry, the Ministerial Decree on national e-Waste management is still ongoing.
- The government is still conducting studies and looking at the best way to build an incentive system to encourage producers do EPR, and looking at building a program to encourage the community to deposit their e-Waste appropriately.



THAILAND

- Thailand's draft Act on the Management of Waste Electrical and Electronic Equipment and Other End-of-Life Products will include the EPR framework.
- In the meantime, Ministry of Natural Resources and Environment has partnered the private sector to launch "Thailand without e-Waste" campaign to install e-Waste bins across the nation.

Under the backdrop of robust segment drivers, e-Waste market poised for growth in Singapore



Replacement cycle will drive the Consumer Electronics and Appliances market in Singapore

Consumer Products	Replacement Cycle (yrs)	Retail Volume ('000)			
		2017	2018	2019	5-year CAGR
Consumer Electronics		4,757.9	4,784.2	4,854.0	0.1%
• Portable Consumer Electronics	3+ (Mobile Phones)	3,401.0	3,465.6	3,576.4	1.3%
• Others	3-5 (Notebooks)	1,357.0	1,318.6	1,277.6	-2.7%
Consumer Appliances		3,509.0	3,568.1	3,630.3	2.2%
• Major Appliances	7-10	631.9	649.6	663.5	2.6%
• Small Appliances	3-5	2,877.0	2,918.5	2,966.8	2.1%

- Market remains defensive despite weakening consumer sentiments over the last 5 years and will continue to be driven by the replacement cycle of key products.
- Positive CAGR would mean that there will be a constant volume of e-Waste from the consumer electronics and consumer appliances when these items are being replaced.
- Household penetration for consumer appliances remains defensive despite weakening consumer sentiments. Household penetration for Washing Machines grew 10% between 2013 and 2018.
- Opportunities for connected appliances in Singapore due to the Smart Nation Initiative:
 - Manufacturers can partner service providers to provide more solutions to consumers

Source: Euromonitor. **Portable Consumer Electronics** include mobile phones, portable players and wearables. Others include computers and peripherals and in-home consumer electronics. **Major appliances** are an aggregate of the following categories: refrigeration appliances, home laundry appliances, dishwashers, large cooking appliances and microwaves. Small appliances are an aggregation of the following categories: food preparation appliances, small cooking appliances, vacuum cleaners, irons, personal care appliances, heating appliances and air treatment appliances.

e-Waste Recycling in Singapore

60K
tonnes
e-waste generated



e-Waste Landscape

- SG is the **2nd largest producer** of e-waste per capita in Asia
- **6% recycled** with majority thrown away or traded-in/ resold



Challenges to e-Waste recycling

- Lack of regulations to govern e-Waste recycling
- Lack of economies of scale in infrastructure for collection and recycling of e-Waste
 - Leads to insufficient volume of e-Waste collected to drive an economically viable industry

National Voluntary Partnership For e-Waste Recycling



- Industry partners taking lead in e-Waste recycling program with support from NEA
- B2B Programmes where corporates provide services to collect and recycle e-Waste (e.g. Dell Recycling, HP Planet Partners, Toshiba-Metech Recycling)
- B2C Programmes where corporates work with venue/ logistics providers to provide infrastructure for collection and transport of e-Waste to approved recyclers (e.g. StarHub's RENEW, M1 E-waste Drop-Off Point Programme, Project Homecoming – Ink & Toner Cartridge Recycling Programme, Dell Recycling Programme, IKEA's Lightbulb Recycling Programme)

Innovations in e-Waste recycling

- An app – RESQ was launched to connect local SMEs to certified e-Waste recyclers for collection and recycling of e-Waste
- Recyclers pay a monthly subscription fee to use the platform
- SMEs pay collection fee if e-Waste weight is below a minimum and data destruction fee
- Shopping vouchers for referrals

RESQ's close-loop e-waste recycling framework



The EPR Scheme in Singapore



Business Flow and Pain Points



Pain points to be addressed

1 Some producers may feel a pinch in having to make additional payments, especially the lump sum variable recycling fee at end of quarter.

1 Working capital gaps with low DPO and higher DSO.

2 Need to make payment to recyclers while payment from Producers is collected after quarter ends.

3 Working capital gaps with low DPO and higher DSO.

4 Capital requirement cost to finance technical upgrades and capex.

Key Benefits of UOB's e-Waste Solution Package



Green Financing for Circular Economy (GCF)



Account Receivable Purchase Financing

Increased flexibility in working capital

- Off-balance sheet financing support
- Financing can be provided on project or individual contract basis
- Qualifies as a **Green Trade Finance** facility



Transaction Banking Services

Support your domestic and international business activities

- **Green Trade Finance** e.g., LC issuance, confirmation and financing, bank guarantees
- Cash management e.g., collection, payment



Capital Support

Leverage our support to expand to new markets

- CAPEX and M&A financing support
- Sustainability-linked financing and debt solutions
- Hire purchase facilities
- Expansion support and advisory; e.g. centralized invoicing, procurement and treasury function
- ASEAN market insights



FX and Hedging Solutions

Support your FX and hedging needs

- FX spot/ forwards

UOB Simplifies Sustainability for Business



Sustainable Financing

Simplifying sustainability for business

Integrating sustainability into your business strategy can be complex. Let us be your partner in forging a sustainable future by simplifying sustainability for you.



- Access industry insights and make informed decisions with reports and videos
- Learn more about how **UOB's sustainable financing solutions** simplify implementation of sustainable practices
- **Green Circular Economy Framework** guides you on accessing sustainable financing

UOB's sustainable finance frameworks

Green Trade Finance Framework

Smart City Sustainable Finance Framework

Real Estate Sustainable Finance Framework

Green Circular Economy Framework



3R Businesses



E-Waste Recycling



Plastic Recyclers Ecosystem Financing

UN Sustainable Development Goals



Visit our website www.UOBgroup.com/sustainable-financing or email us at sustainable-city@uobgroup.com to find out more.



RIGHT BY YOU

Disclaimer



This publication is strictly for informational purposes only and shall not be transmitted, disclosed, copied or relied upon by any person for whatever purpose, and is also not intended for distribution to, or use by, any person in any country where such distribution or use would be contrary to its laws or regulations. This publication is not an offer, recommendation, solicitation or advice to buy or sell any banking or investment product/securities/instruments. Nothing in this publication constitutes accounting, legal, regulatory, tax, financial or other advice. Please consult your own professional advisors about the suitability of any banking or investment product/securities/ instruments for your investment objectives, financial situation and particular needs.

The information contained in this publication is based on certain assumptions and analysis of publicly available information and reflects prevailing conditions as of the date of the publication. Any opinions, projections and other forward-looking statements regarding future events or performance of, including but not limited to, countries, markets or companies are not necessarily indicative of, and may differ from actual events or results. The views expressed within this publication are solely those of the author's and are independent of the actual trading positions of United Overseas Bank Limited, its subsidiaries, affiliates, directors, officers and employees ("UOB Group"). Views expressed reflect the author's judgment as at the date of this publication and are subject to change.

UOB Group may have positions or other interests in, and may effect transactions in the securities/instruments mentioned in the publication. UOB Group may have also issued other reports, publications or documents expressing views which are different from those stated in this publication. Although every reasonable care has been taken to ensure the accuracy, completeness and objectivity of the information contained in this publication, UOB Group makes no representation or warranty, whether express or implied, as to its accuracy, completeness and objectivity and accept no responsibility or liability relating to any losses or damages howsoever suffered by any person arising from any reliance on the views expressed or information in this publication.

Others by SBF Global

Sustainable Financing Awareness Series

Episode 4

Financing for Energy Efficiency

26 Aug 2021 / 3pm

**Sign up for a complimentary one-on-one
Business Consultation Session with
representatives from SBF after this webinar.**



Chan Zhiquan
Manager, Infrastructure
SBF Global
zhiquan.chan@sbf.org.sg

Scan here to
learn more about
SBF Infrastructure
Committee



Sign up with
Infrastructure
Interest Group
and be informed
of our activities



Thank you!

Questions? Comments?

We'd love to hear from you!

Scan QR Code to give your feedback:



You can also connect with us at:

GC Hotline

GC Email

GlobalConnect@SBF Hub

+65 6701 1133

globalconnect@sbf.org.sg

Level 6, SBF Centre, 160 Robinson Road, Singapore 068914