



How does Thailand apply a **Bio-Circular-Green** Economy in their urban agenda?

Circular City Hubs: Improving thriving, liveable, resilient urban centres
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Thailand BCG Model



Circular Economy



Big Rock Project

BCG MODEL: Economic Model for Sustainable Development



Bioeconomy



Circular economy

Green economy

BCG Economy: Thailand's Economic Model Post-COVID-19





Thailand BCG Model



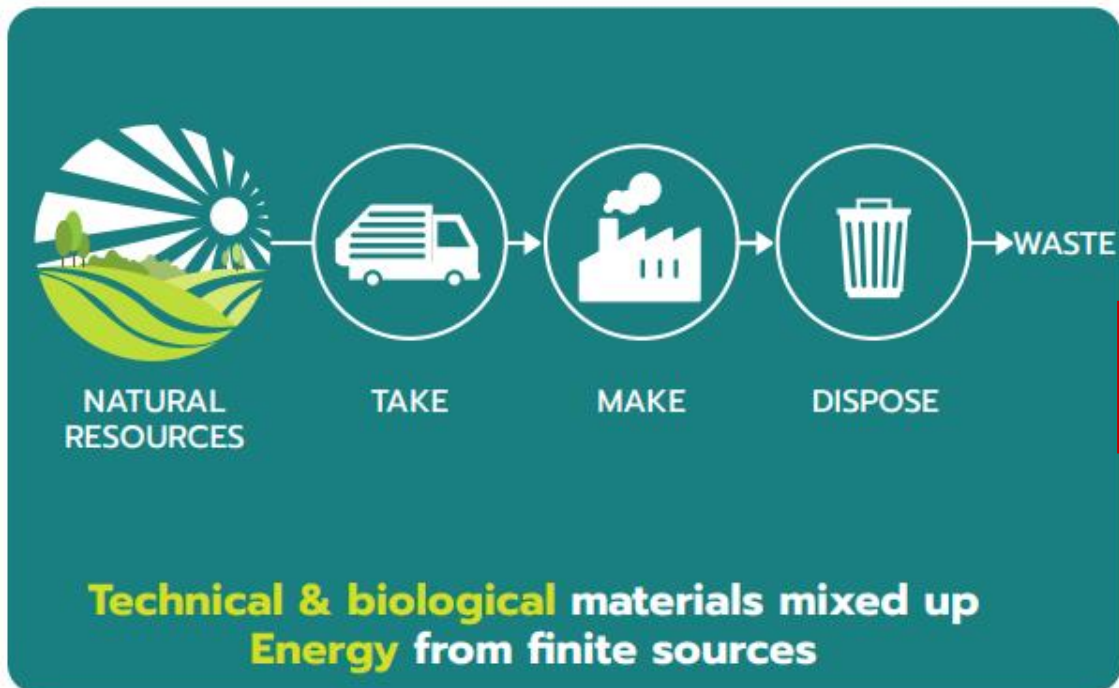
Circular Economy



Big Rock Project

A transition from unsustainable linear economy to a more sustainable circular economy

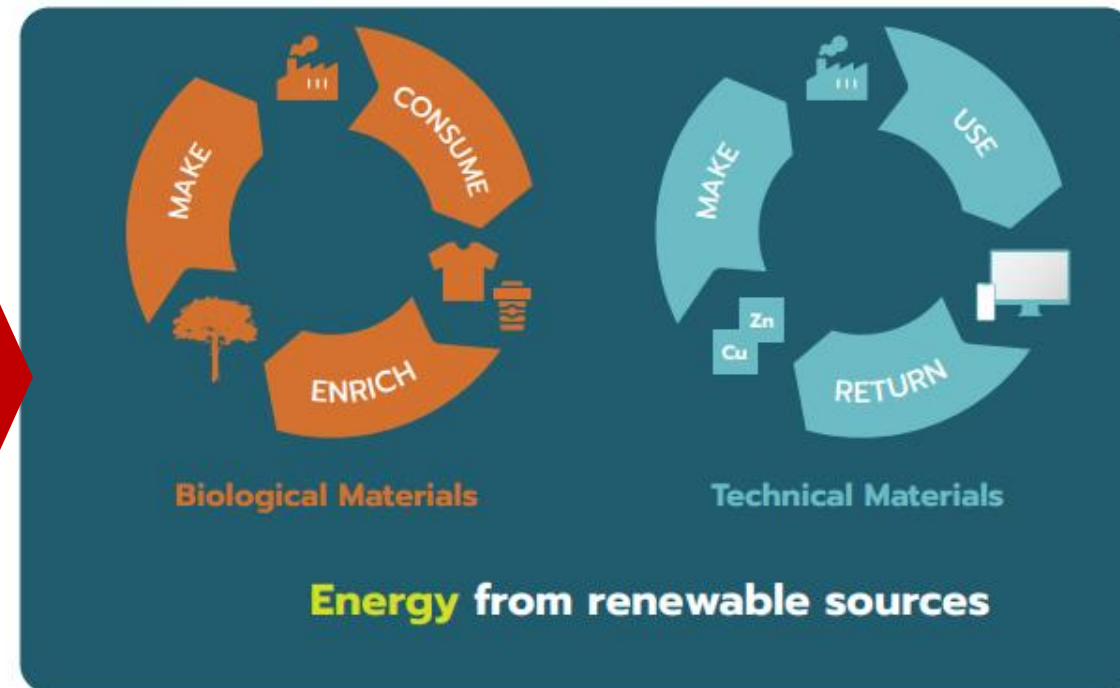
Linear Economy



Linear economy; Take-make-dispose

We take resources from the ground to make products, which we use, and, when we no longer want them, throw them away

Circular Economy



Circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems



Circular Economy Concept

UNIDO, 2021

Why we need a circular economy?



Resource Scarcity

Leading to economic and social risk of supply shortage



Over Consumption of Resources

: Business rely on increasing resource consumption to create growth



Severity of Pollution

Linear economy means increased consumption.... Leading to more waste and pollution



Effect of Global warming & Climate Change

Paris Agreement target of limiting global warming to as close as possible to 1.5 -2°C (113 mil tons CO2eq)



Actions to achieve a Better and More Sustainable Future for All



Maximize Resource Efficiency and Eliminate Waste



New Economic Opportunities

- Boost GDP
- Glowing green business/startups
- Job creation/Green job



Alignment with Government Policy

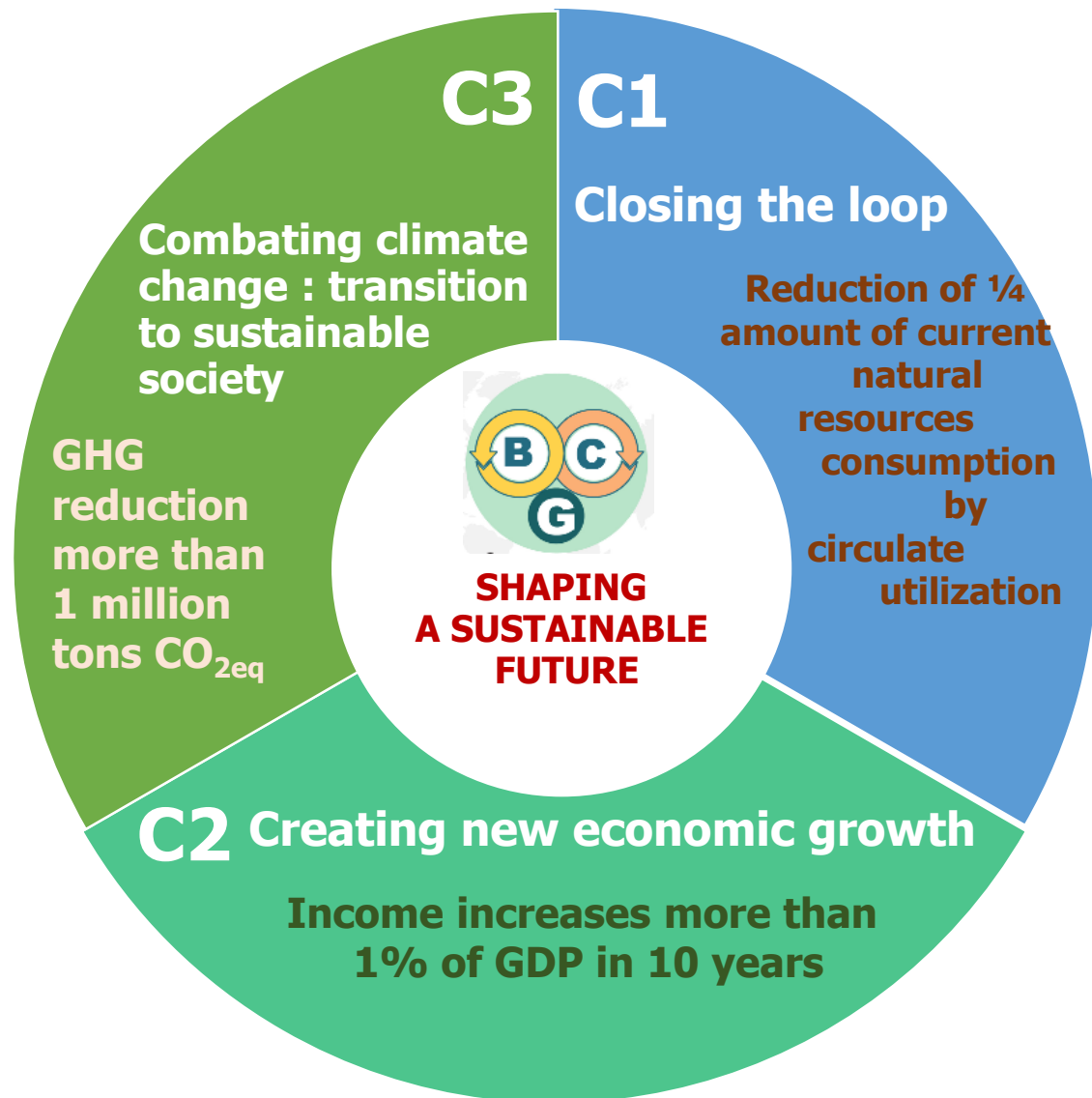
- Bio-Circular-Green(BCG) economic model and Thai Plastic Roadmap

BCG in Circular Economy

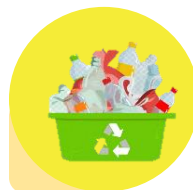
Driving mechanism

: Delivering through key project/Focus sector
Co-benefits to create success model

Target Sectors



Plastic Waste



- : Waste reduction
- : Improving Segregation & collection system
- : Encourage recycling

Agriculture & Food Industry



- : Increasing resource use efficiency;
- Agricultural waste - Stop open burning
- : Food loss/food waste reduction
- : Increasing consumer awareness

Construction Sector



- : Strengthening innovation & technology capability
- : Promoting environmental friendly construction to support smart city policy

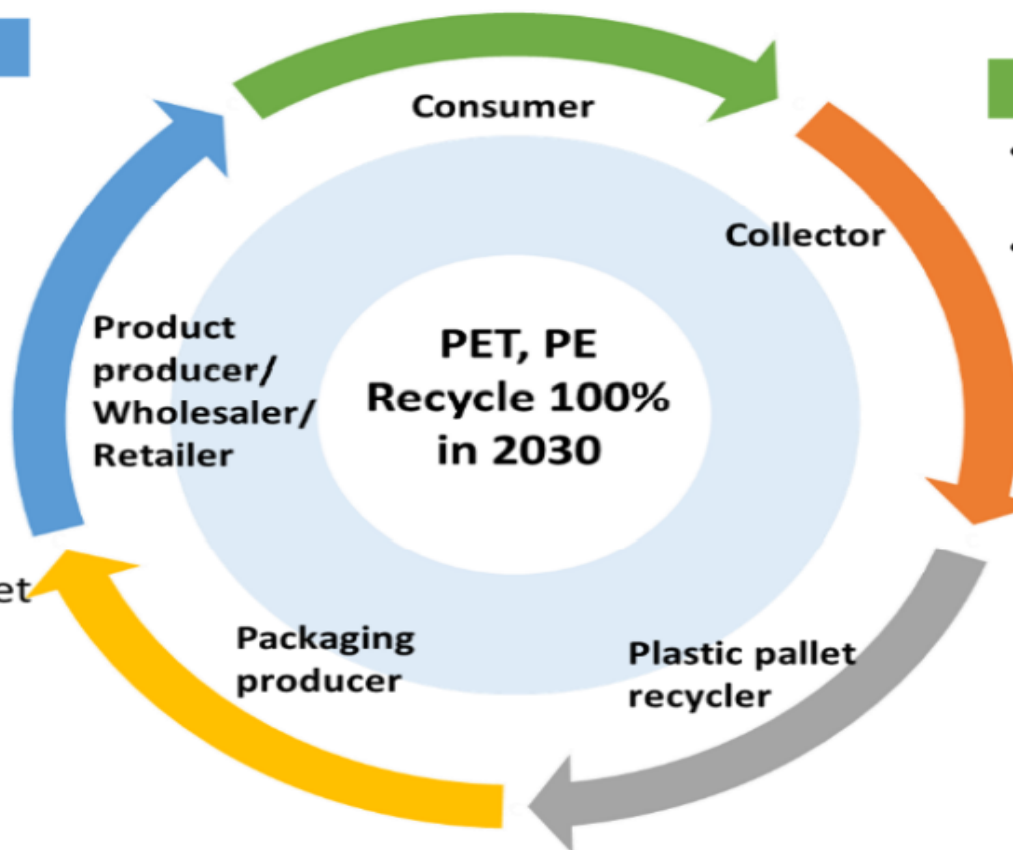
Circular Economy Model (under the BCG Economic Model)

Closed-loop Plastic Waste Management sorting, collection, storage and recycling

Recycling

Cooperation mechanisms of the public, private and public sectors (PPP)

- Increase the use of plastic reused and recycled. Developing new approaches in recycling plastics.
- Create a market for upcycling products
- Develop innovation & technology
- Amend rules and regulations that barrier the recycled plastics market
- Measures to encourage manufacturers to use packaging with an increasing proportion of recycled plastic content



Reduce and sorting

- Consumers reduce the use of plastic
- Sort waste at the household and community levels.

Collection, storage and treatment

- Public-private cooperation to develop an integrated infrastructure and system for waste collection and sorting through innovation



To reduce plastic marine debris by at least **50%** by **2027**.

Target 1 Reduce and replace some single use plastic by using environmentally friendly products



Target 2 Recycle target plastic waste by applying circular economy principle



Thailand Roadmap's Target



Circular Economy Model (under the BCG Economic Model)

Sub-Committee

under the Driven BCG Model Committee

CE Model chaired by
Dr. Wijarn Simachaya

Driven BCG Model Committee

chaired
by the Minister of MHESI

BCG Model Committee

chaired by the Prime Minister



Thailand BCG Model



Circular Economy



Big Rock Project

Operational Guideline



01

Creating business opportunity and marketing by CE Model



02

Promoting technology and innovation to create new products and services from recycled wastes



03

Development of platforms and infrastructure to promote a systematic CE



04

Creation of a management mechanism that facilitates CE



05

Building manpower with knowledge and understanding on CE and raising awareness of sustainable production and consumption to drive CE.



Big Rock Project

To create major changes in Thailand



Project 1: Comprehensive plastic waste management including segregation, collection, and circulation for sustainable use



Project 2: Management and Integrated information for reduction of food loss and food waste at the national level



Project3: Development and application of CE Model in construction sector



Indicators



1

Reduce national's resources consumption by 25% within 2027

2

Create investment opportunities for growth and employment with the new economy, resulting in a 1% increase in GDP by 2027



3

Reduce Green House Gas Emissions at least 1 million tons CO_{2eq} by 2027





PPP Plastics

Press Conference and MOU Signing: **June 5, 2018**



**Public Private
Partnership for
Sustainable
Plastic and
Waste
Management
(PPP Plastics)**



PPP Plastics

Organization



Government sector



Private sector



PPP Plastics

International organization



Educational institution



PPP Plastics
Network Partners

40 ORGANIZATIONS

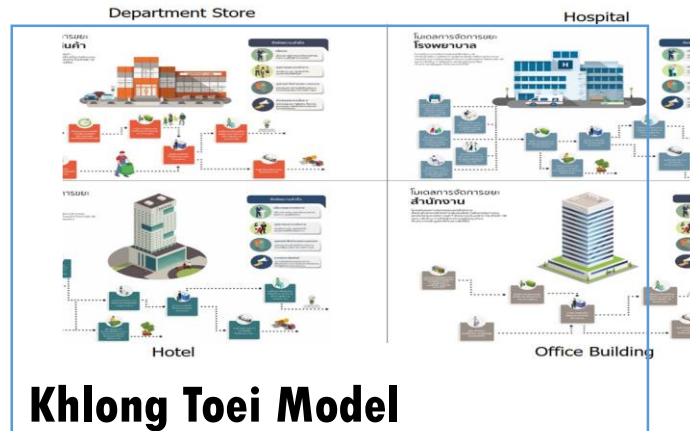
City Model : PPP Plastics 's Infrastructure Circular Economy Model



PPP Plastics

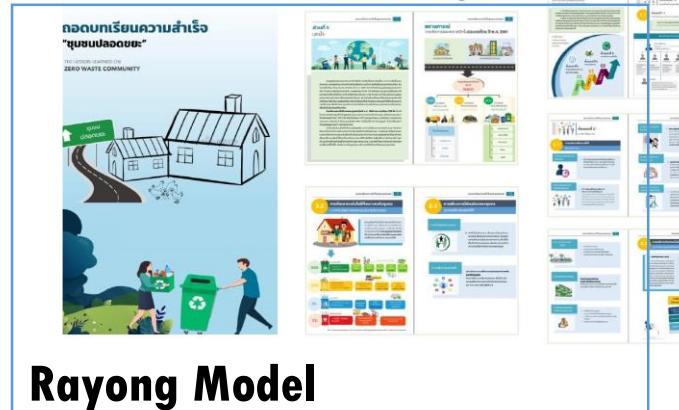
Circular Economy Model in Urban Area

Four sub-models



Guidebook for community model

Example





Big City Waste Management with Circular Economy

Created waste management models focusing on increasing recycle rate by improving waste separation facilities and process.

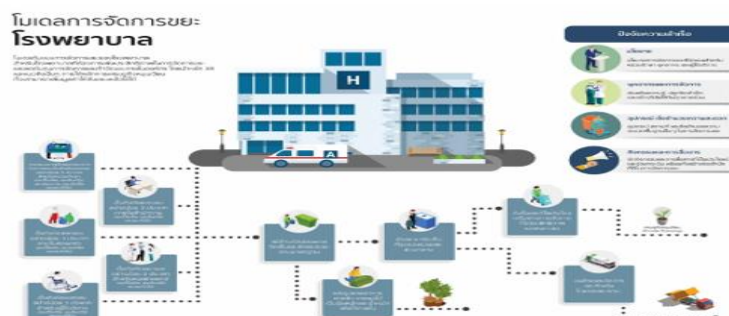
- General waste of the 7 participating buildings decrease **21.0 %**
- Recycle rate increase more than **55.8 %** or **358 kilograms/month.**

Four sub-models

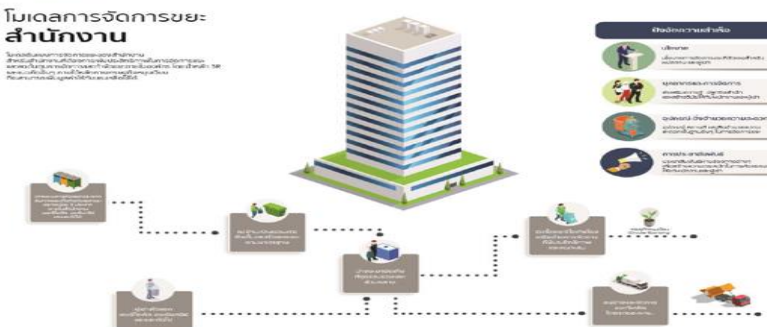
Department Store



Hospital



Hotel



Office Building

Khlong Toei City Model



คู่มือ
การจัดการขยะสำหรับองค์กร
โดยโครงการจัดทำแผนดำเนินงานจัดการขยะพลาสติกขององค์กร
ในพื้นที่เขตคลองเตย





Circular Economy in Action

“Magic Hand x Won”



- Creating a plastic waste collection system
- Closed Loop Film Packaging Management
- Target plastic bag and film packaging
- Target used-plastic is value 5 baht/kg for donation to marine life conservation program



>350

Place Used-Plastic Box

>40

Drop Point
Contributor

7

Recycler &
Picker

17,390

Kg. of
Cumulative used-
plastic bag and
film packaging

15,113

Kg. of
CO2 emission
reduction



8.8

Rai of Teak



Drop Point Project



Circular Economy Business Model : PPP Plastic-Rayong Model



10 Aug' 18
Meeting with Rayong governor



18 Dec' 18
MOU ceremony
PPP Plastic Rayong



23 Jan' 19
Bi-monthly meeting#1



12 Mar' 19
Bi-monthly meeting#2



7 May' 19
Bi-monthly meeting#3



16 Aug 19
Bi-monthly meeting#4



6 Nov 19
Annually Performance Meeting



18 Dec' 18
Waste management workshop
with communities



5 Mar' 19
Outside exhibition



2 Apr' 19
Waste management workshop
with schools



3 Nov 19
Waste management sharing



“Rayong Less-Waste project” aimed to expand the community and local waste management model with a circular economy in Rayong Province by transferring knowledge to create knowledge and understanding of waste management to cover all 68 municipalities of Rayong Province, and to generate income, a career, good quality of life and reduce the amount of plastic waste that goes to landfills in Rayong which it is counting the days to have less area.

Rayong Less-Waste

พนักกำลังสร้างระยองต้นแบบจัดการขยะยั่งยืน



Circular Economy Business Model

Target

- % Reduction of plastic waste to landfill
- Municipalities engagement

2019

30%
19

2020

• 50%
• 24

2021

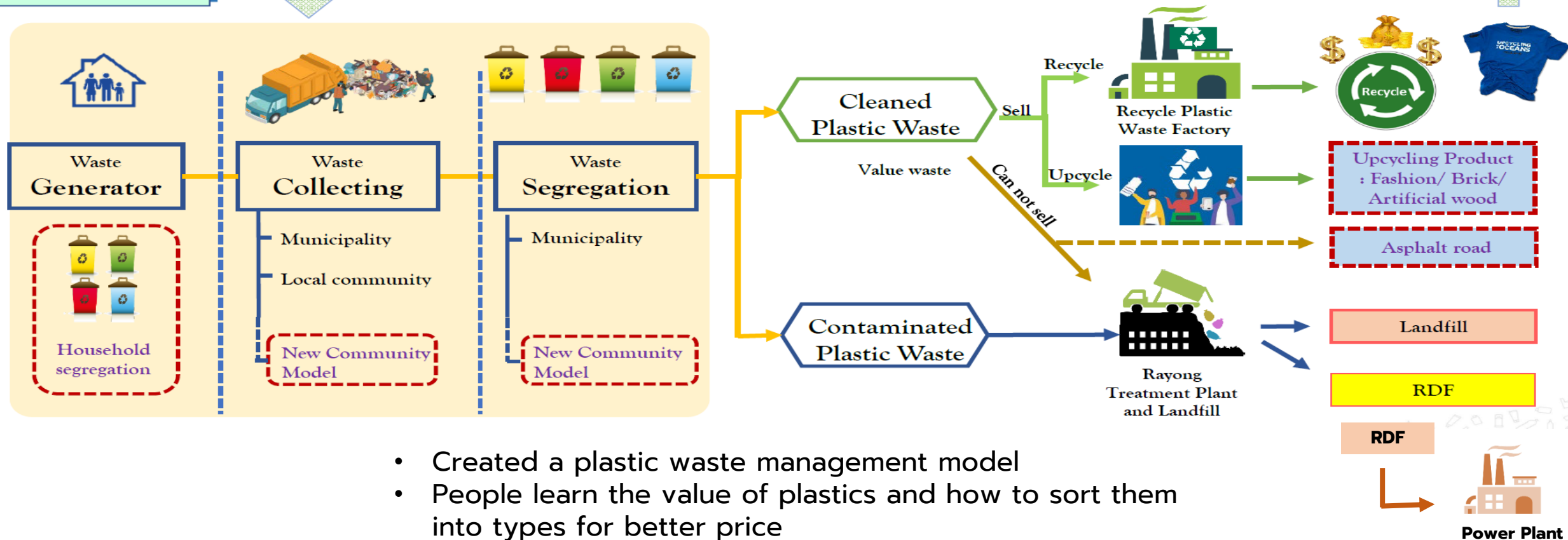
2022

• 70%
• 48

2023

• Zero plastic waste
• 68

Rayong Model



- Created a plastic waste management model
- People learn the value of plastics and how to sort them into types for better price
- The model can be replicated to other communities
- 300 tons of plastic waste were recycled

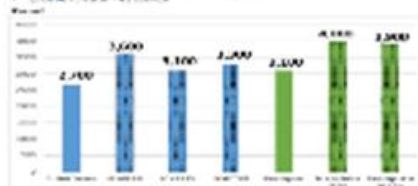
Recycled Plastic Road ... One of the Innovation in Circular Economy



15. 77% = 100% - 23% (lost) with same fraction of loss as concentrated on asphalt

What is the "big picture" and why?

- $\frac{1}{2} \text{ mole of } \text{H}_2\text{SO}_4 \text{ is } 49 \text{ g}$
- $\therefore 1 \text{ mole of } \text{H}_2\text{SO}_4 \text{ is } 98 \text{ g}$
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PP/HDPE → bins

No Waste, More Resources

We start the "circular economy"

from the internal loop from waste to resources

It's a re-process, a re-design

and finally an innovation.

It's a real value creation.



Plastic & Sand → Plastic Bricks



PET bottle → fashion product

Upcycling Oceans, Thailand Proj

Upcycling Cozans, Thailand Project (UTC) where we turn PET bottles into modish style products like t-shirt and backpack.



Plastic Waste & Saw dust → Artificial woods



Drivers Mechanism of BCG-Circular Economy in the City Context

Driving by Key project/ Focus sector

- : create success model
- : accelerating the scale-up of circular economy

CE Solution Platforms

- : develop CE platforms and link to users (e.g. CE design platform)
- : strengthening innovation & technology capability

Public-Private Partnerships

- : bringing together leaders from the private, public and not-for-profit sectors



Build CE Society and Citizens

- : education and communication to change social behavior of consumers e.g. CE curriculum in general education
- : enhancing skills of manufactures/businesses

Create CE Market

- : regulatory reforms
- : unlock policy & regulatory barriers for CE market
- : introduce tax incentives/ financial support
- : create measures to stimulate demand e.g. green public procurement (GPP)



Thank You

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