

# Pulp and Paper Industry A Circular Economy Integrated Approach



**Dr. Wijarn Simachaya**

**President of Thailand Environment Institute (TEI)**

**Chairman of Circular Economy Sub-Committee under BCG Model Committee**

*SUSTAINABILITY TODAY AND TOMORROW  
OPPORTUNITY IN BALANCING GROWTH AND SUSTAINABILITY  
8<sup>th</sup> December 2021*

# OUTLINES



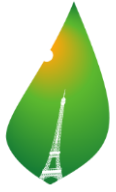
Thailand BCG Model

Circular Economy

Paper & Pulp Industry

Opportunity

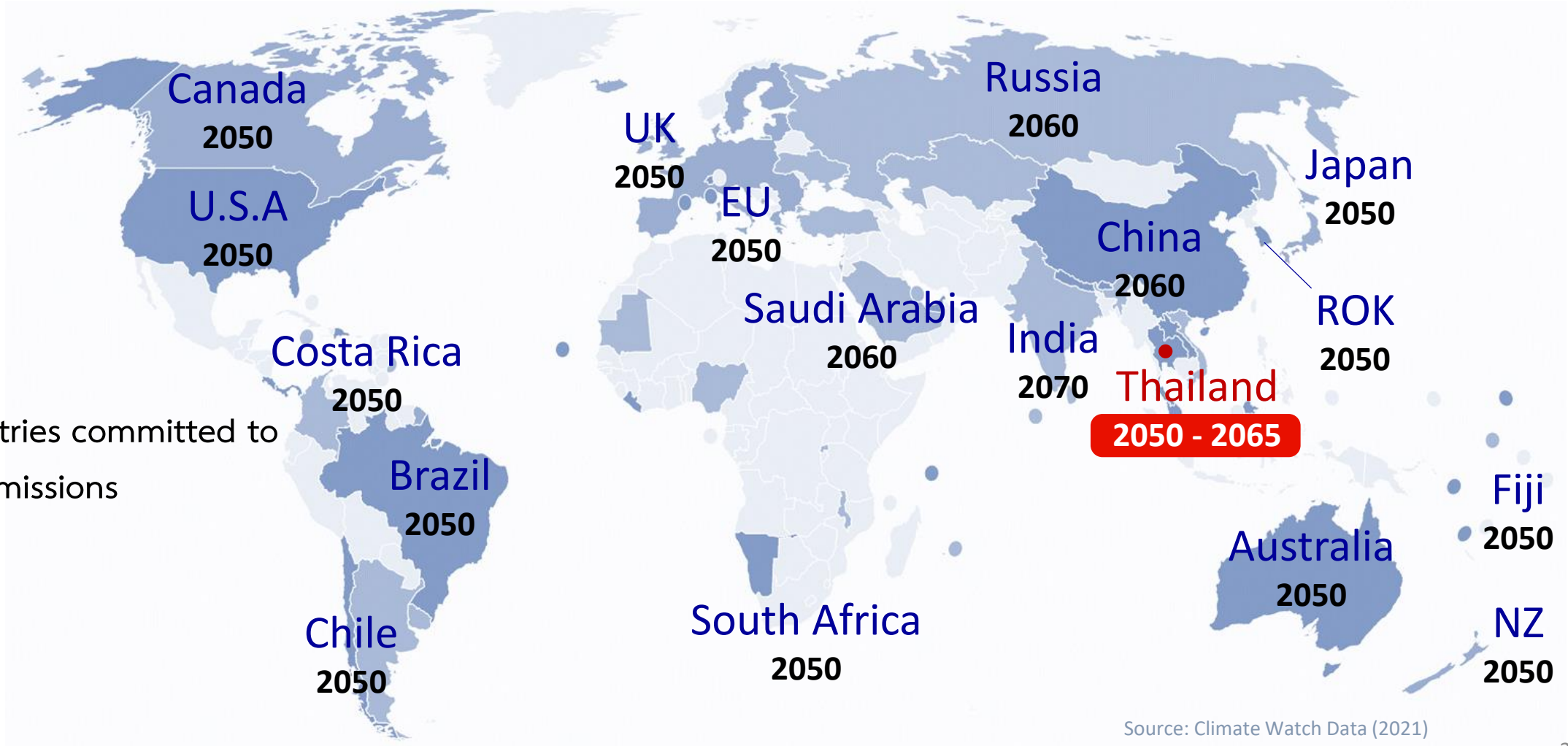
# Global Goal towards Net Zero Emissions



## Paris Agreement

To achieve a **balance** between anthropogenic emissions by sources and removals by sinks of greenhouse gases **in the second half of this century**

**81** Countries committed to Net-zero emissions



Source: Climate Watch Data (2021)

# BCG Economy Model



# BCG MODEL: Economic Model for Sustainable Development



## Bioeconomy

*Increase value  
from biodiversity  
database*



## Circular economy

- *Making the most of resources*
- *ZERO WASTE*

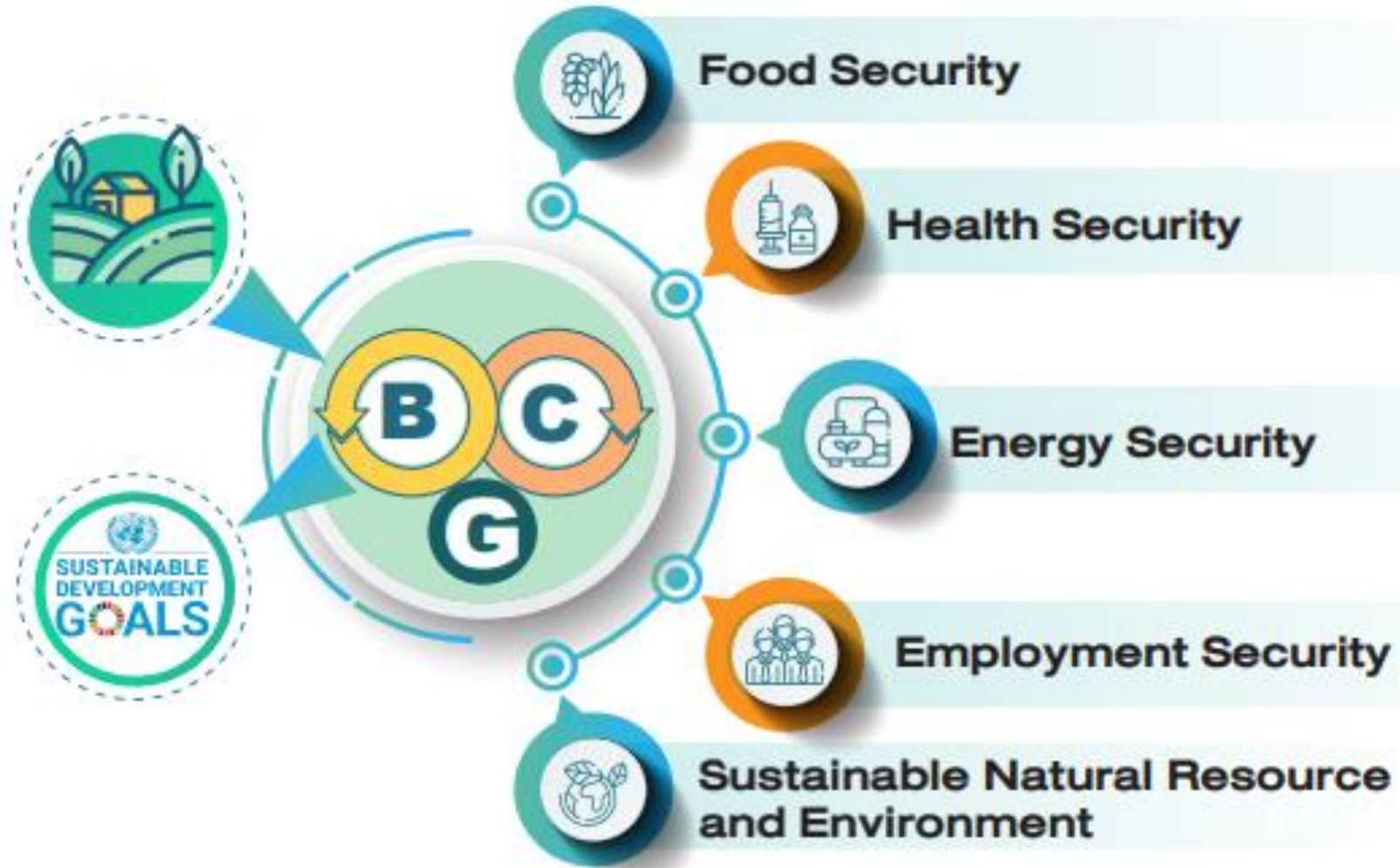
## Green economy

- *Reduce environmental impact*
- *Reduce GHG emission*

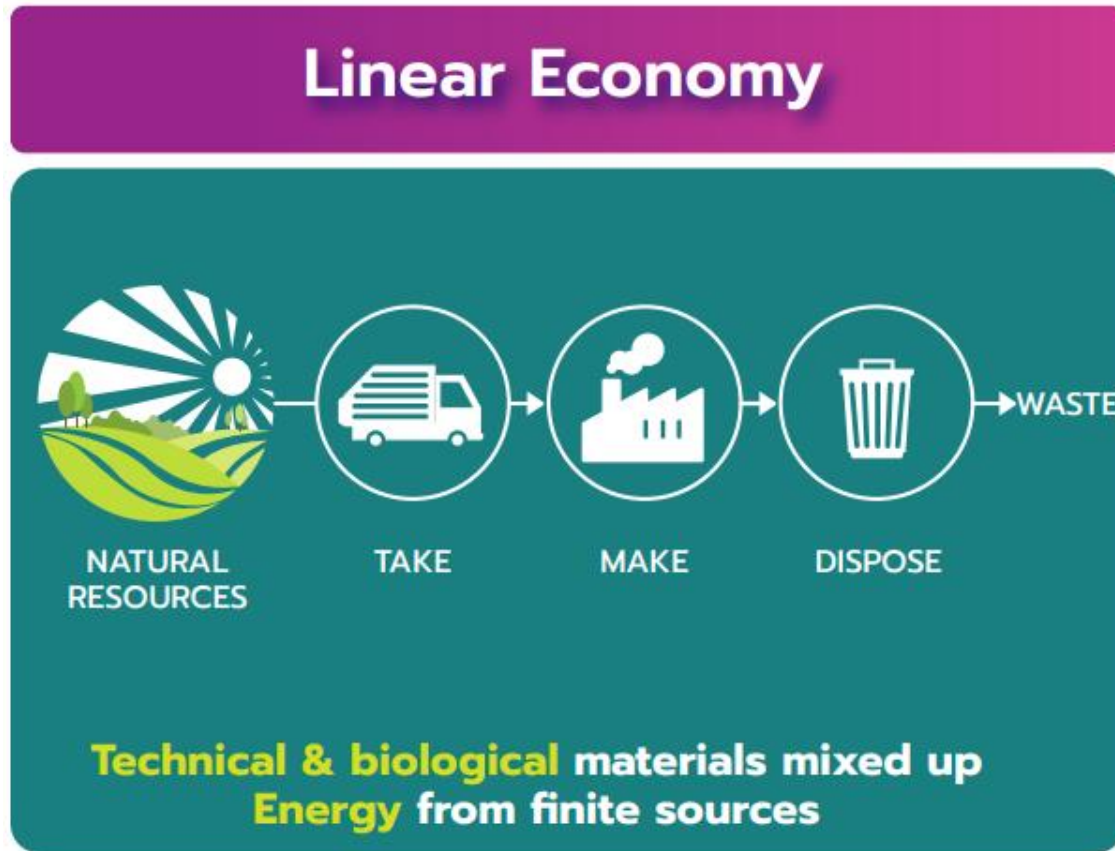
# BCG Economy: Thailand's Economic Model Post-COVID-19

**Principle:**  
Sufficient  
Economy  
Philosophy

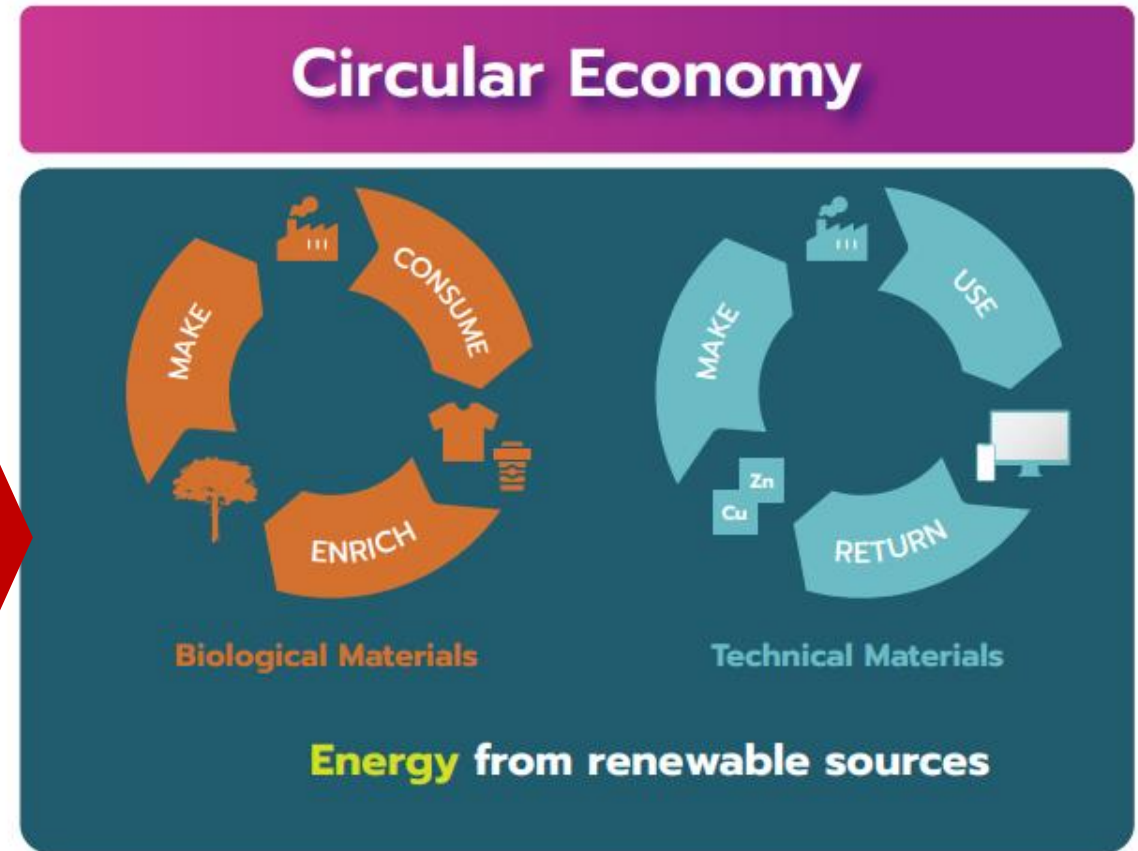
**Goal:**  
Sustainable  
Development  
Goals (SDGs)



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

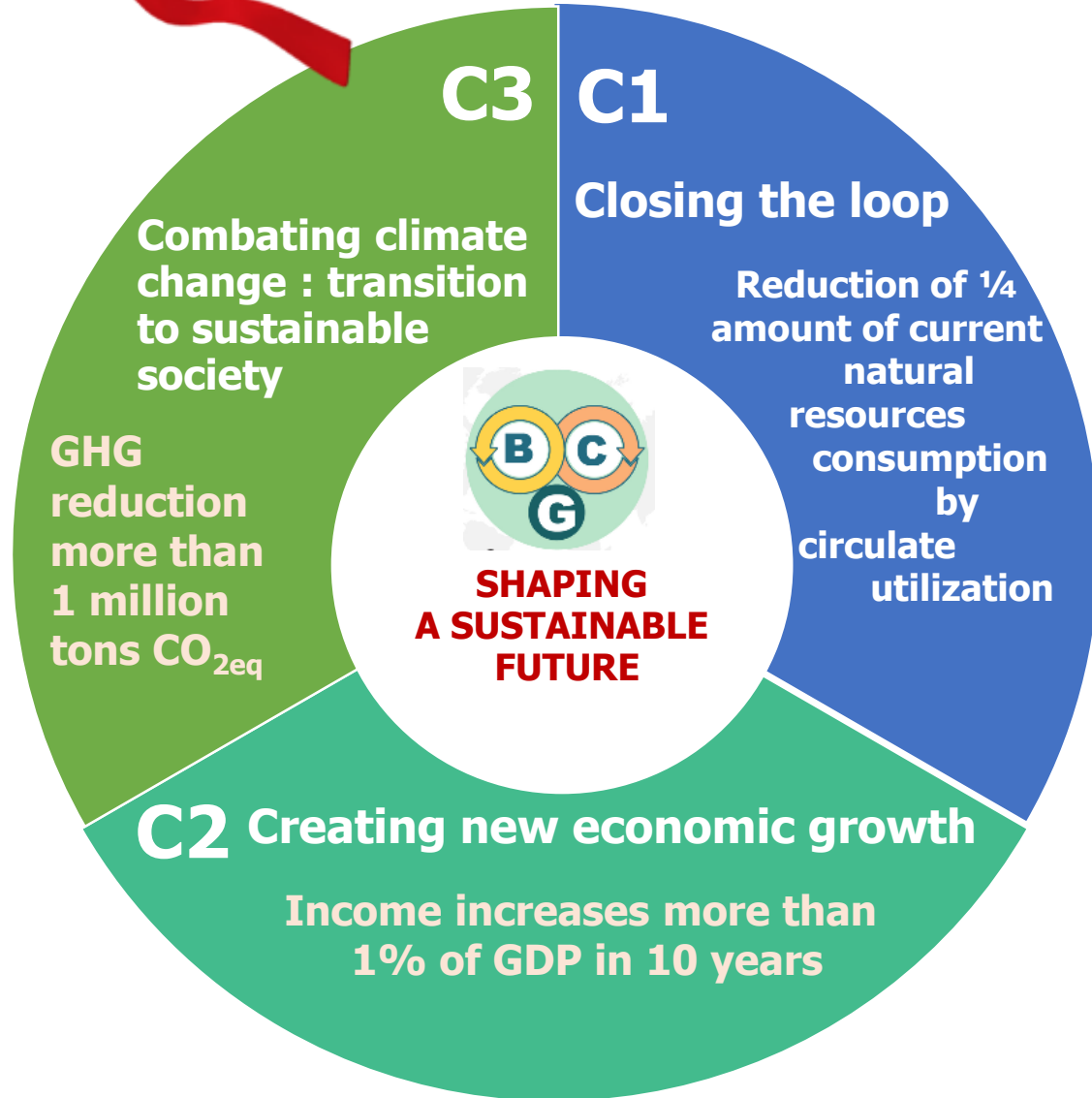
- Boost GDP
- Glowing green business/startups
- Job creation/Green job



## 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

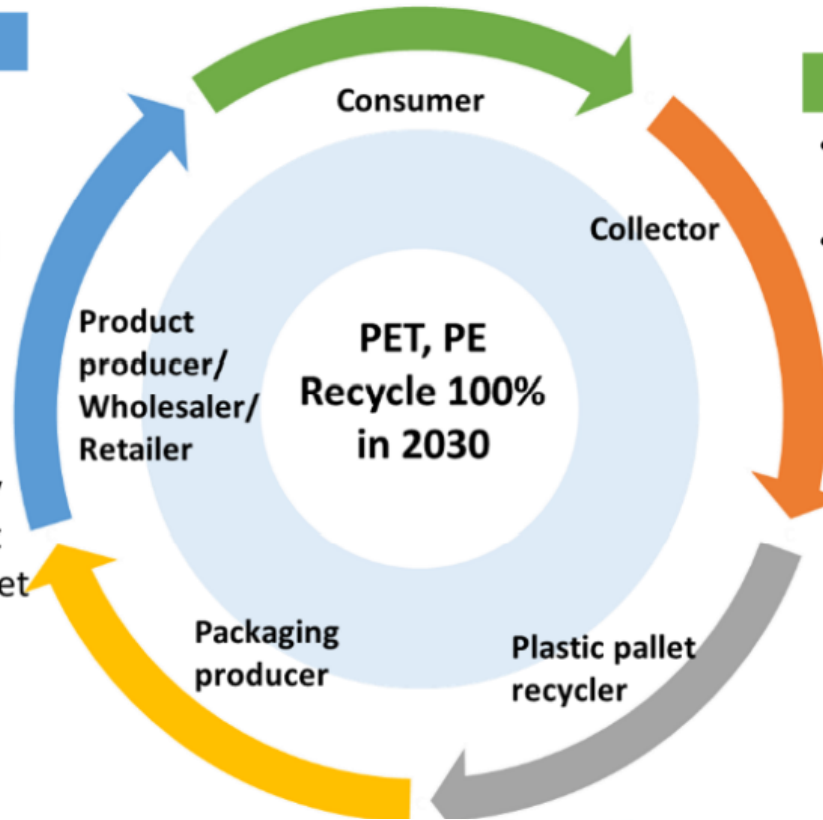
# Circular Economy Model (under the BCG Economic Model)

## 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

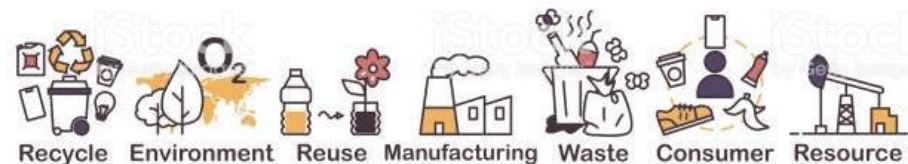


### Reduce and sorting

- 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



# Circular Economy Model (under the BCG Economic Model)

**Sub-Committee**  
 under the Dirven 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

# Drivers Mechanism of BCG-Circular Economy

## 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

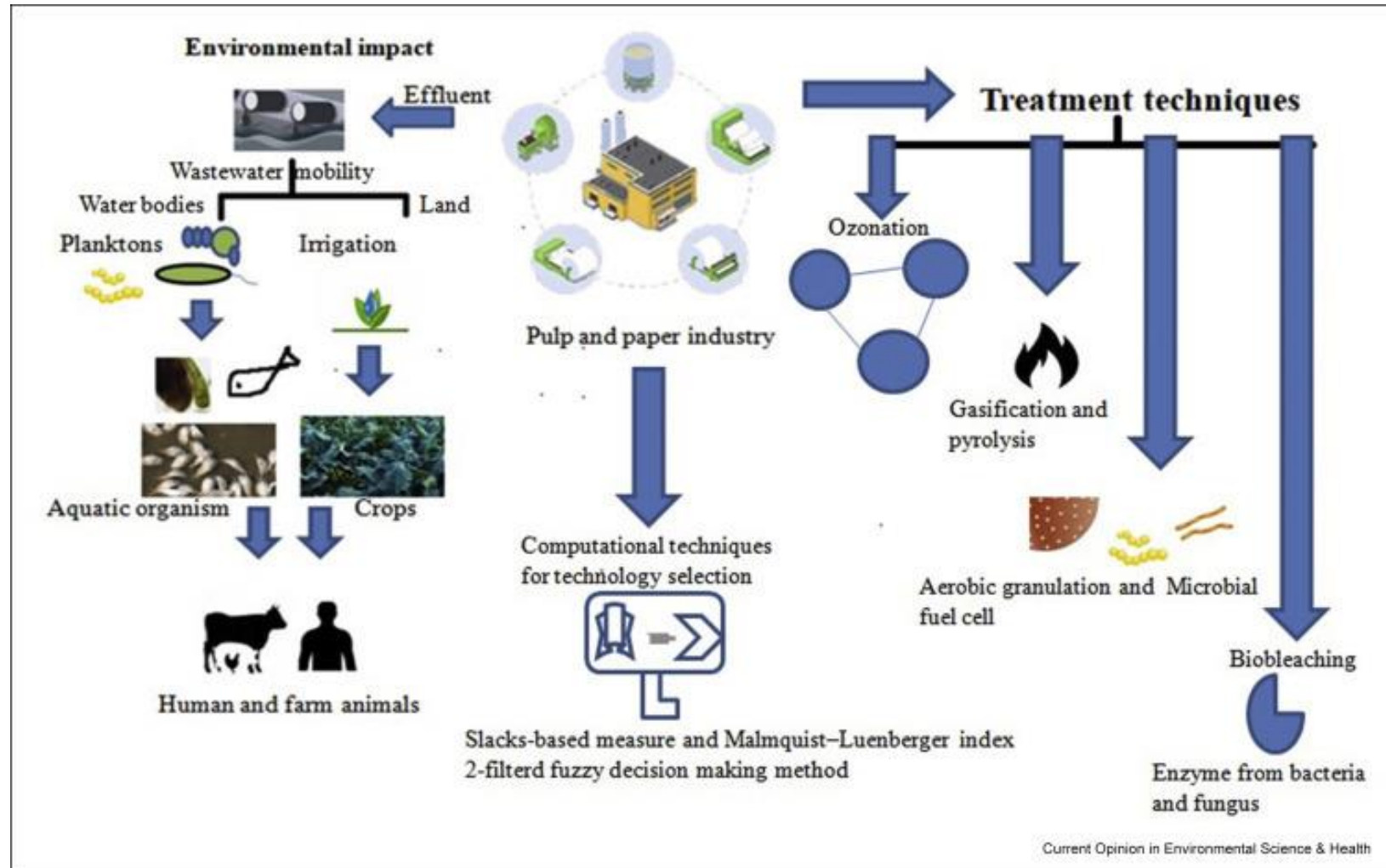
- : Regulatory reforms
- : Unlock policy & regulatory barriers for CE market
- : Introduce tax incentives/ financial support
- : Create measures to stimulate demand e.g. green public procurement (GPP)



# Paper and Pulp Industry

# Paper and Pulp Industry is considered as one of the most polluter industry in the world

(Tompson et al., 2001)





# Opportunity



# Resource Efficiency is the key opportunity

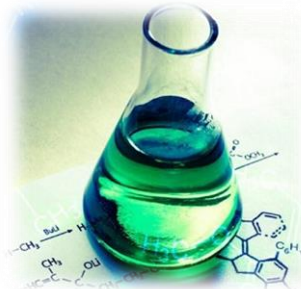
Circular economic model's tools are: Reduce, Reuse and Recycle.



# Resource Efficiency is the key opportunity

The Circular Economy concept is to increase resource efficiency of

- Fiber resource – Minimize fiber resource
- Water – Reduce and Recovery
- Chemical – Reduce and Recovery
- Energy – Waste-to-energy



# Example of Circular Economy – Paper and Pulp Industry

Design for recovery:

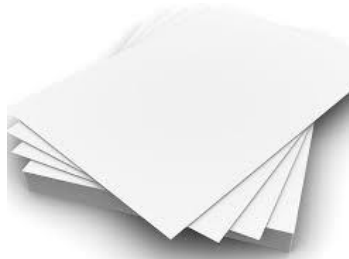
- Interlocking Box to minimize the adhesive used (Minimize chemical used)
- Avoid over printing on the packaging (Reduce water and chemical used)





# Green Label Certification for Paper products

Printing and writing paper (TGL-8/1-15)



Sanitary paper (TGL-8/2-19)



Paper packaging (TGL-104-15)



Paper (TGL-8-R2-11)



Craft paper



Gypsum paper



Processed paper



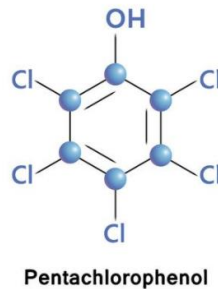
# Green Label Criteria for Paper products

✓ Minimize fiber resource

At least  
**50%**



✓ Reduce and control of Chemical substances



Azo dye  
< 30 ppm



< 0.12 kg/ADT



✓ Concern on Energy consumption

Reference values for electricity

- Chemical Pulp – 800 kWh/ADT
- Mechanical Pulp – 1900 kWh/ADT
- CTMP – 2000 kWh/ADT
- Recycled fiber pulp - 800 kWh/ADT
- Uncoated wood free fine paper – 600 kWh/ ADT
- Coated wood free fine paper – 600 kWh/ ADT

✓ Reduce and Recovery of Water

Recycle water from waste water treatment shall be  
Use in production process **more than 55 m<sup>3</sup>/ ADT**



**Green Label**  
Global Ecolabelling Network Member

**เครื่องหมายที่สากลยอมรับ**



**Non-Tariff Measures: NTMs**



*Opportunity*



2000 - 2004 → 2005 - 2009 → 2005 - 2009 → 2015 - 2019



สมาชิกของ GEN ที่ลงนามบันทึกข้อตกลง  
**(Memorandum of Understanding: MOU)**



# Green Public Procurement

gp.pcd.go.th

*Opportunity*



Mobile App Version



ขอบเขตการดำเนินงาน: ทั้งหมด  
 การรับรอง: ทั้งหมด  
 ตำแหน่ง: ค้นหา

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กระดาษถ่ายเอกสารเรื่องงานพิมพ์ทั่วไป (22)	ผลิตภัณฑ์ลบลำพิศ (47)	หลอดฟลูออเรสเซนต์ (0)	เครื่องเขียนเหล็ก (6)
กระดาษชำระ (23)	แบตเตอรี่ปรุมนภูมิ (10)	ปากกาไวต์บอร์ด (6)	เครื่องถ่ายเอกสาร (172)

100% Paper purchased

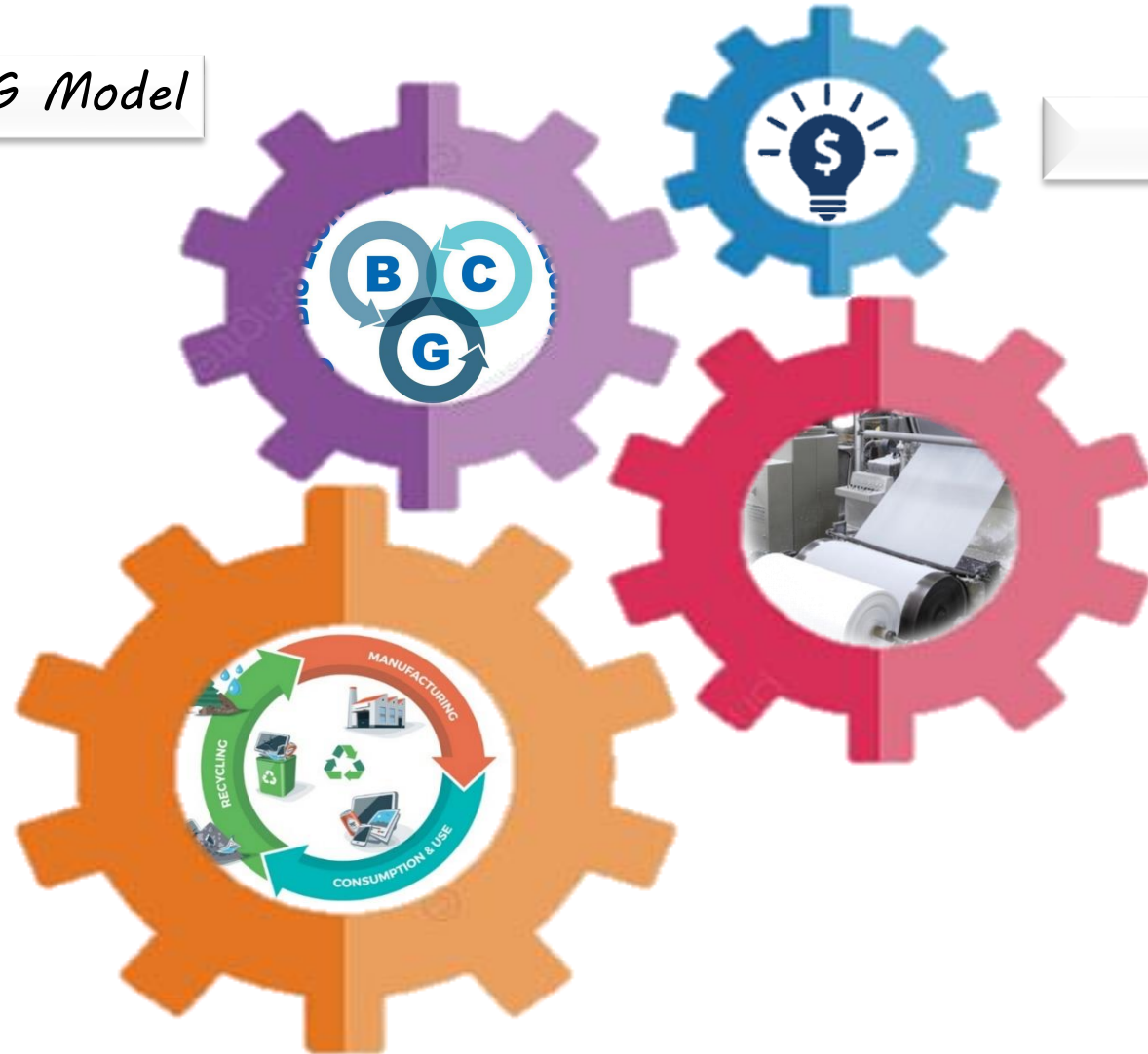
# SUMMARY

*BCG Model*

*Opportunity*

*Circular Economy*

*Paper & Pulp Industry*







**THAILAND  
ENVIRONMENT  
INSTITUTE**

**Thank You**

**Dr. Wijarn Simachaya**

**Email:**

[wijarn@tei.or.th](mailto:wijarn@tei.or.th)

[www.tei.or.th](http://www.tei.or.th)

[www.tei.or.th/greenlabel/en/](http://www.tei.or.th/greenlabel/en/)



**รู้จัก สำนักดี ภาควางใจ รับผิดชอบต่อสังคม**

# CARBON CYCLE

Sustainable forestry and forest products and their role in carbon storage

## PAPER

MANUFACTURERS ASSOCIATION OF SOUTH AFRICA (PAMSA)

