

Circular Economy

New Value Chain for Thai Industries



PTT Global Chemical

Integrated petrochemical and refinery supply chain

GC is PTT GROUP'S PETROCHEMICAL

FLAGSHIP, IS COMMITTED TO STRENGTHEN

LEADING POSITION IN CHEMICALS BUSINESS

BASED ON **Circular Economy**

PRINCIPLES

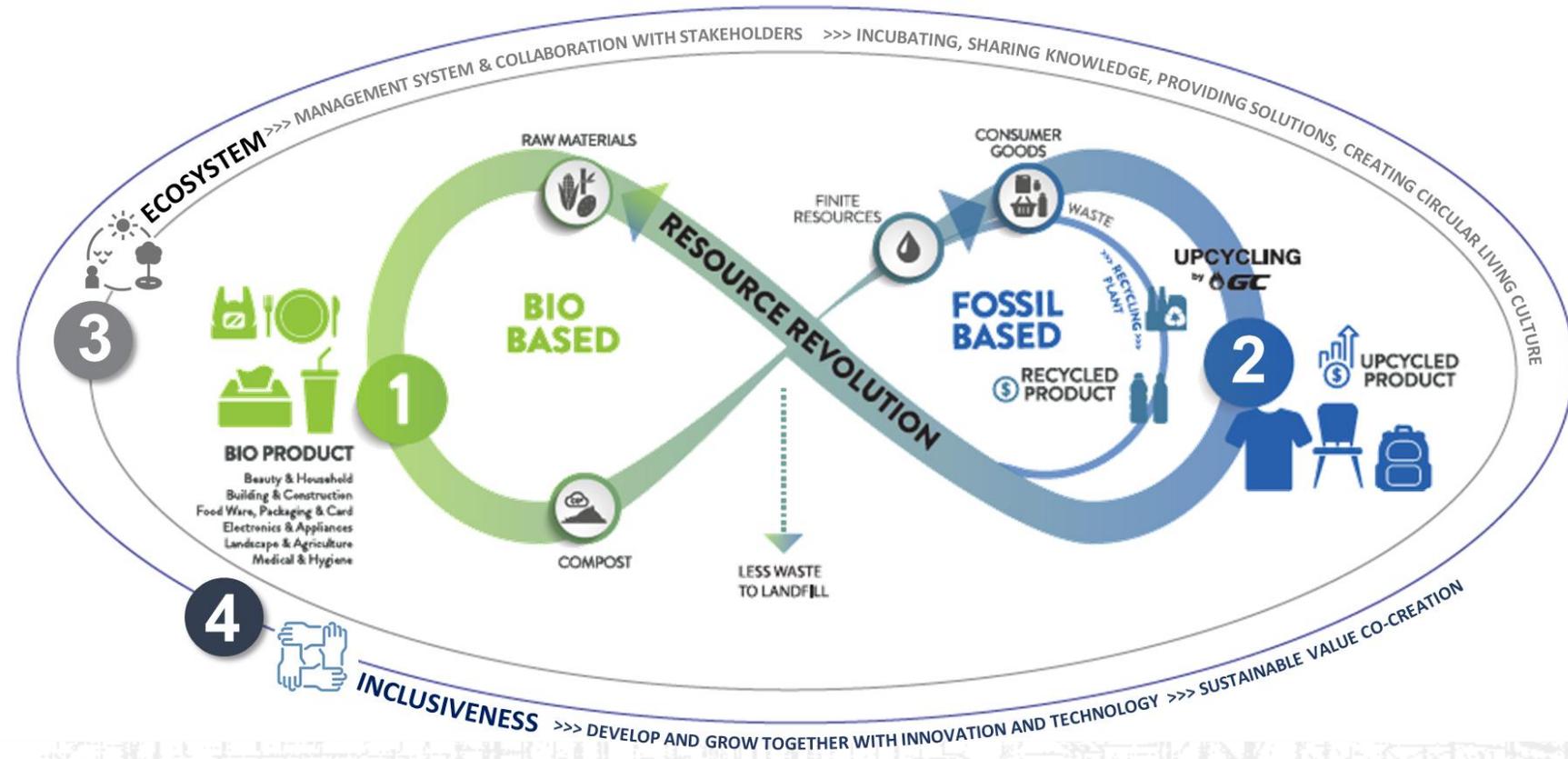
Integrated

Public

– Integrated sustainability within

GC CIRCULAR LIVING

The solutions for everyone



GC CIRCULAR LIVING



GC as a circular economy role model

**N
o.
1
Rank**

Biodiesel

Largest production capacity in Thailand



Biological Chemicals

Only 1 in Thailand for Oleochemicals production



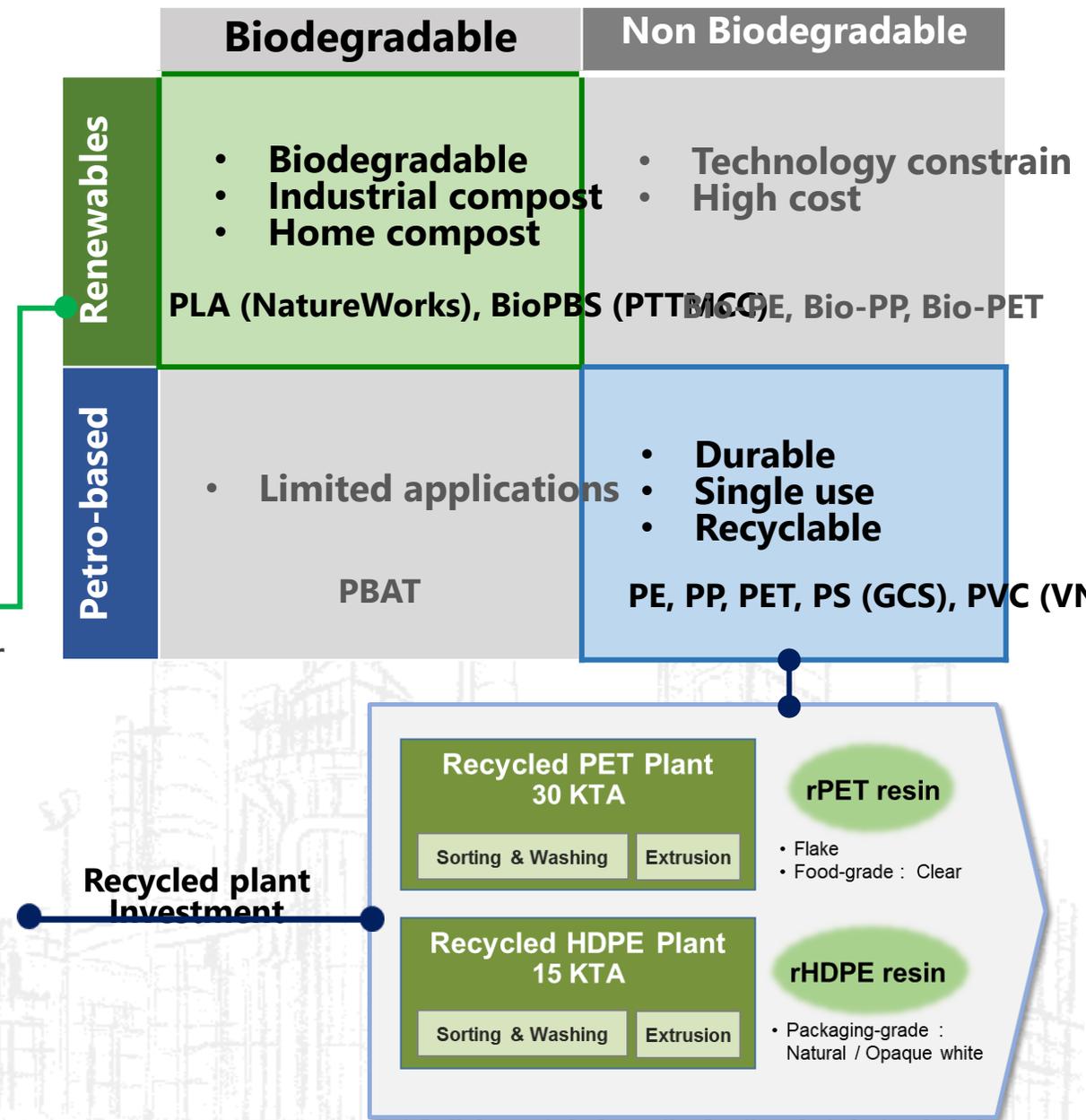
Bioplastic

No. 1 in the world's for PLA & BioPBS production capacity



Recycled Plastic Plant

Advanced Technology and largest in Thailand (rHDPE, rPET)



GC Green Business

GC Green Group
Companies

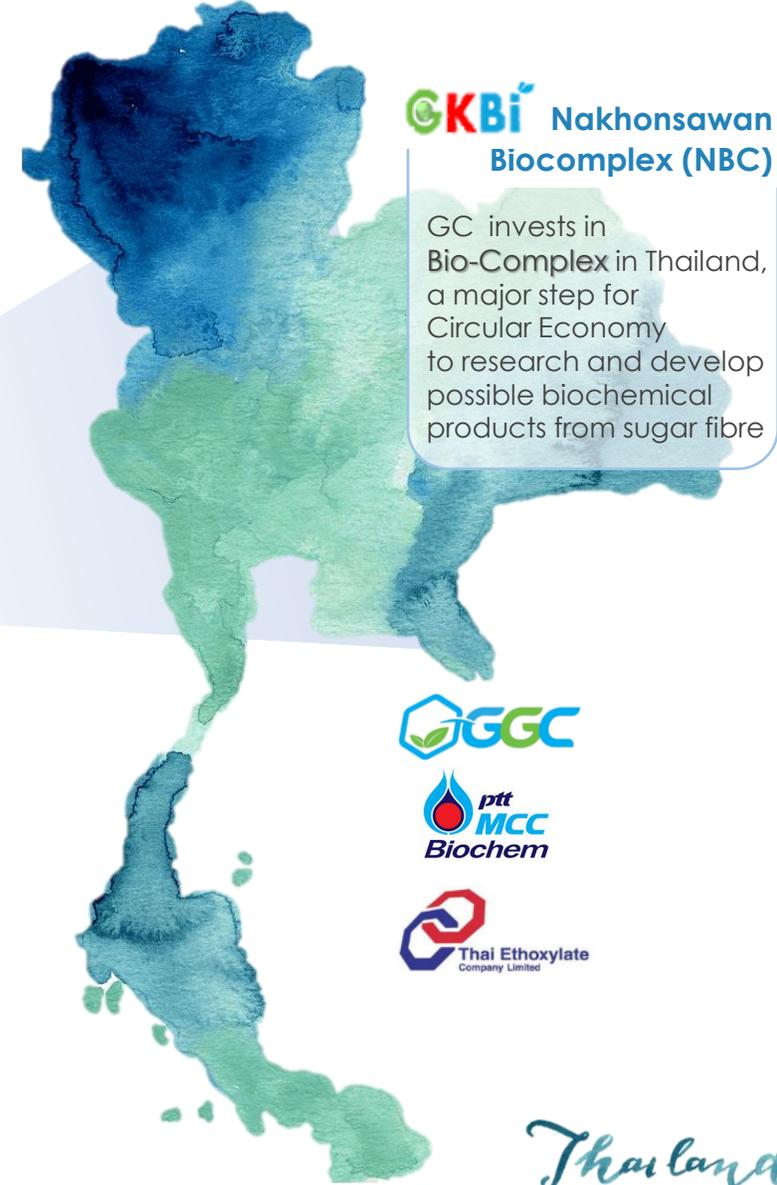


NatureWorks
Emery
GC INNOVATION AMERICA
Green Chemicals Business Unit

Emery
Green Chemicals Business Unit

Green Business
Chemicals Business Unit

Emery
Green Chemicals Business Unit



GKBI Nakhonsawan
Biocomplex (NBC)

GC invests in Bio-Complex in Thailand, a major step for Circular Economy to research and develop possible biochemical products from sugar fibre

GGC
ptt MCC Biochem
Thai Ethoxylate Company Limited

Thailand

BIO & GREEN ECONOMY



Our innovations help enable sustainable 'BIO & GREEN ECONOMY'

Polybutylene Succinate (PBS)

Polylactic Acid (PLA)

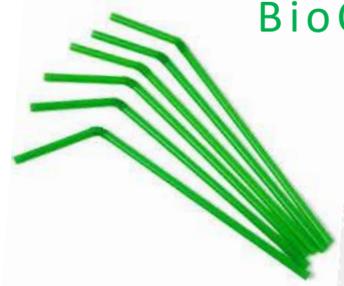


+ Value

- Cost



BioComplex



+ MARKET DEVELOPMENT

+ APPLICATION DEVELOPMENT

BIO BASED

BIO & GREEN ECONOMY



Our innovations help enable sustainable 'BIO & GREEN ECONOMY'



Bio-lubricant



Bio-based & recycled polyols for PU foam



Industrial Compost



Potential Benefits:

- Reduce carbon footprint
- Eco-friendly
- Biodegradable



Industrial Compost



Home Compost



BIO & GREEN ECONOMY



Our innovations help enable sustainable 'BIO & GREEN ECONOMY'

Flexible Packaging

- ✓ Sealant layer for short shelf-life product



Coffee Capsule

- ✓ Improve thermal stability & flexibility with PLA compound



Bamboo Paper Straw

Paper Coating

- ✓ High heat resistance up to 100°C



Flexible Packaging

- ✓ Excellent adhesion & heat seal properties



Coffee Filter

- ✓ Industrial compostable and compatible with PLA and cellulose for nonwoven



Fruit Net

- ✓ Biodegradable in Soil



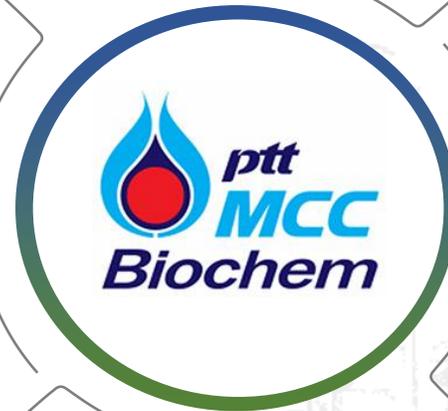
Injection Moulding

- ✓ Shorten cooling time with improving heat resistant.



Mulch Film

- ✓ Save time & cost without film removal & disposal



Potential Benefits:

- Reduce carbon footprint
- Eco-friendly
- Biodegradable

RECYCLING & UPCYCLING

Creating values from waste



FOSSIL BASED

COLLABORATION
DRIVES
CIRCULAR LIVING



Potential Benefits:

- Circular business model
- Optimum resources utilization
- Environment friendly

Sustainable
Fashion



Building
with Waste



Upcycled
Furniture



Decorative /
Accessories



COLLABORATIONS FOR ACTIONS

The partnerships for sustainability: engage with all generations



CHILDREN

“ThinkCycle Bank”



COLLEGES

“Kayaking for Chao Phraya”
Sustainable University Network of Thailand



COMMUNITIES

“OUR Khung Bangkachao”



COUNTRY

“PTT Life Station”
Waste segregation





Redefine the world with Circular Economy

Raise awareness among youth about waste separation and reuse according to the Circular Economy concept

“**CHILDREN ARE OUR FUTURE**”





Collaboration with University Network

Through projects, GC promotes circular living concept to college and university students to encourage sustainable lifestyle with easy and practical steps in their daily life.



**SUSTAINABILITY
TOWARDS NEXT
GENERATION**



Integrated waste management

Involve in social collaboration among public, private, and civil society sectors by focusing on community needs and involvement for conservation and development of local communities.

Turn trash into treasure

Collect plastic waste for upcycling into new fashion items such as clothes, bags, furniture, lifestyle products and other accessories

“PUBLIC ENGAGEMENT FOR SUSTAINABLE DEVELOPMENT”



Sorting for SMILES, waste management for sustainable Thailand

Collaborate with PTT's network nation wide to promote practical waste management and circular living lifestyle, scaling up impact and creating multiplier effect for sustainable Thailand

**“CIRCULAR ECONOMY,
SUSTAINABLE
SOLUTIONS FOR ALL”**



How 'GC' Response to COVID-19



The Ministry of Natural Resources and Environment, the Thailand Responsible Business Network (TRBN)

GC initiates **'Send Plastic Home'**, a proactive pilot project in partnership with both the public and private sectors, and civil society, to retrieve waste from online food delivery service providers and adopt a more integrated Circular Economy

“ Waste management, must start with everyone ”



How ' GC ' Response to COVID-19



GC partnered with LINEMAN & Wongnai, popular food delivery services to initiate the **'Stronger Together'** project in which GC will contribute over **300,000 units of bioplastic packaging** to 200 Wongnai and LINEMAN restaurant partners whose sales have declined sharply due to COVID-19.

**“ Help save the world
by using Bioplastic packaging
for your food ”**



GC X wongnai X LINEMAN

"สู้ไปด้วยกัน | Stronger Together"

GC ร่วมช่วยเหลือร้านอาหารสู้ COVID-19
มอบบรรจุภัณฑ์รักษ์โลกที่ได้รับการรับรอง กว่า 300,000 ชิ้น
ให้แก่ร้านอาหารในเครือข่าย Wongnai X LINE MAN เพื่อใช้ในบริการจัดส่งแบบเดลิเวอรี่

และชวนมาร่วมสนุกถ่ายภาพมืออ้อย
กับบรรจุภัณฑ์พลาสติกชีวภาพ

พร้อมติด #สู้ไปด้วยกันSTRONGERTOGETHER
#GCCOMPOSTABLE #โพลีสไตล์เปลี่ยนโลก

โพสต์ลง FACEBOOK INSTAGRAM หรือ TWITTER
(ตั้งค่าสาธารณะ)

ยอด Like & Share
สูงสุด 10 อันดับ
ลุ้นรับรางวัลสุดพิเศษ
จาก Upcycling by GC
ส่งตรงถึงบ้าน

ผลิตจากเม็ดโพลีพลาสติกทำจาก
พืชและสลายตัวได้ทางชีวภาพ

ปลอดภัย
ทำจากพืช
ย่อยสลายได้
เป็นมิตรต่อสิ่งแวดล้อม

How 'GC' Response to COVID-19



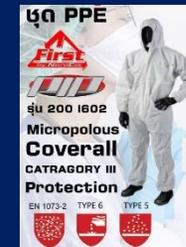
Provided 1 million bottles of **Hand Sanitizer Gel** to front line village health volunteers nationwide who are fighting the COVID-19 virus



Developed **CoviClear**, Thailand's first disinfection unit to prevent the risk of COVID-19



Produced **PPE** for Medical Professionals to Tackle COVID-19



Protective Suit



Face Shield
Visor
Holder



Isolation Gown

PAPR Hood Cover
(ผ้าคลุมหมวก)



Shoe Covers



Sustainability Achievements



**CIRCULAR
LIVING**

MEMBER OF
**Dow Jones
Sustainability Indices**
In collaboration with 
a RobecoSAM brand


**Sustainability Award
Gold Class 2020**


FTSE4Good

 **Global Compact
LEAD**

 **wbcasd**

 **CDP**

Rated **No.1**

in the World for Sustainability in DJSI's Chemicals Sector

WORLD MEMBERS IN CHEMICALS SECTOR

For **7th CONSECUTIVE YEAR**



CIRCULAR
LIVING



**THANK
YOU**