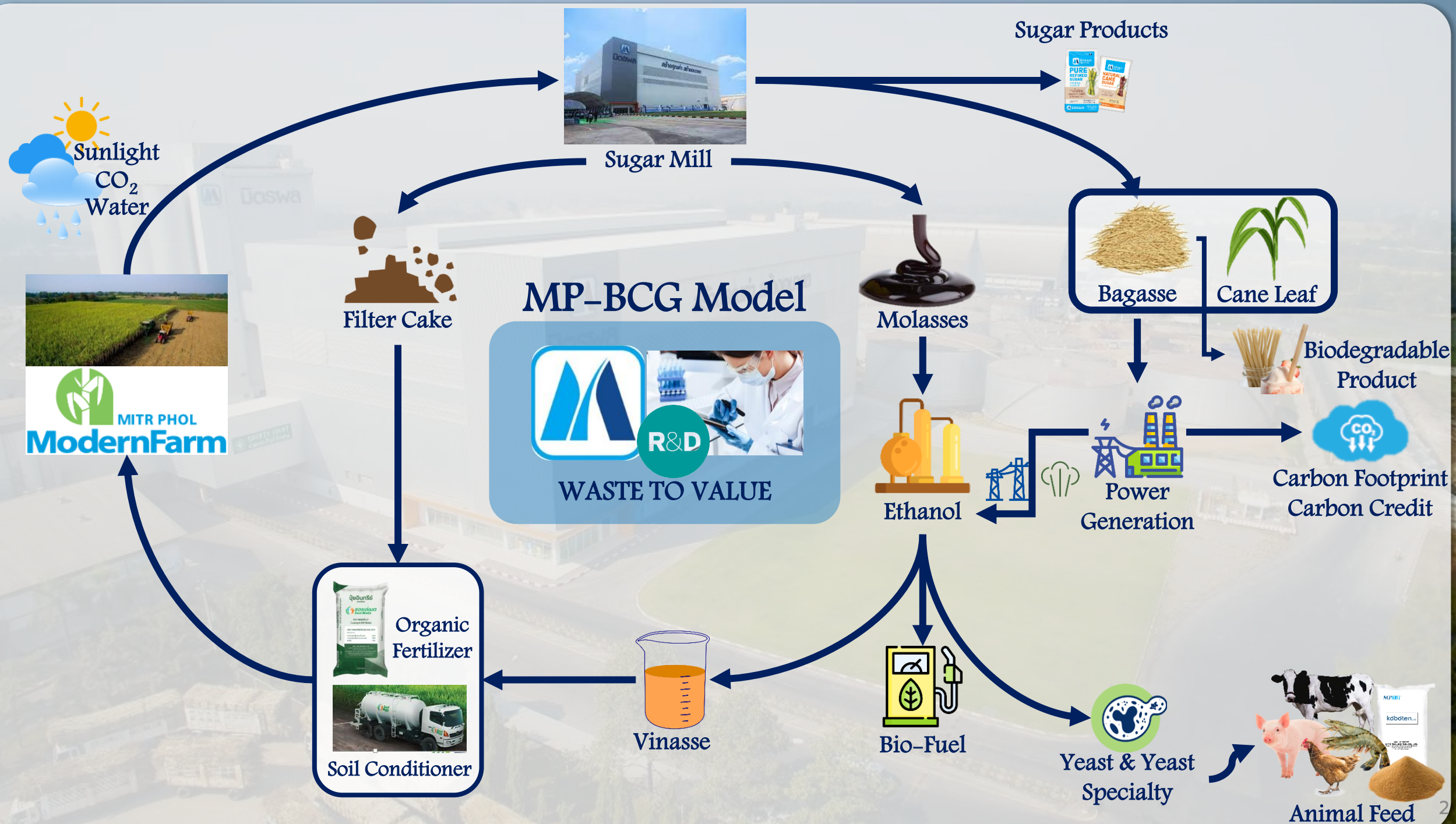


# Mitr Phol Climate Action

*For the 2nd TIChE Open Innovation Idea Challenge*



**Worrawat Sriyook**  
Vice President - Corporate Sustainability





# Mitr Phol New S-Curve

Performance



## 1<sup>st</sup> Generation

- Sugar & Plantation



## 2<sup>nd</sup> Generation

### Renewable Energy:

- Bio-Power & Steam
- Bio-Ethanol
- Fertilizer



## 3<sup>rd</sup> Generation

### Bio-based Chemicals Products:

- Yeast and Yeast Derivatives
- Functional Food
- Low Calories Sweetener
- Prebiotics/ Probiotics
- Organic Acids
- Bio-Plastics
- Bio-Polyethylene
- Bio-Jet



# Mitr Phol Business in Overview



Support all business units in Research Development and Innovation



**Sugar Business**



**Energy Business  
(Ethanol-Biomass)**



**Wood Substitute Business**



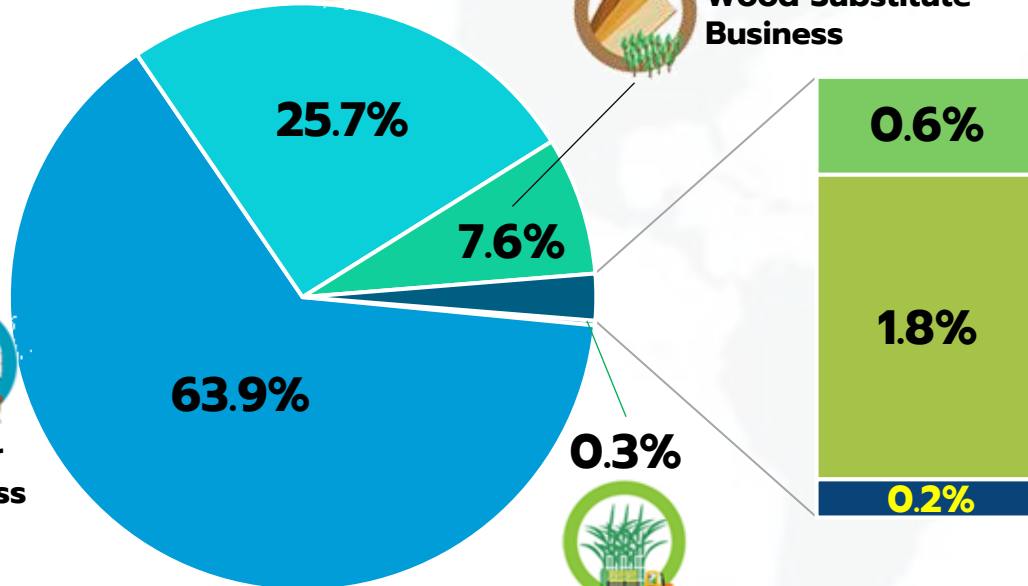
**Fertilizer Business**



**Logistics & Warehouse Business**



**Other Businesses**



**Plantation Business**

Mitr Phol Sales Ratio by Business, Thailand, 2019



**Thailand**

- 7 Sugar Mills
- 12 Power Plants
- 4 Ethanol Plants
- 1 Yeast & Yeast Specialty Plant
- 1 Tapioca Starch Plant
- 3 Fertilizer Plants
- 2 Particle Board Plants
- Logistics & Warehouse service provider



**China**

- 5 Sugar Mills
- 1 Refinery
- 2 Power Plants
- 1 Fertilizer Plant



**Laos**

- 1 Sugar Mill
- 1 Fertilizer Plant



**Indonesia**

- 1 Sugar Mill
- 3 Refinery



**Australia**

- 4 Sugar Mills
- 1 Power Plant





MITR PHOL  
Sugar

# Mitr Phol Sugar

From “SUGARCANE” to primary product to “SUGAR AND HIGH VALUE ADDED SUGAR”

คุณค่าที่เป็นมิตรจาก น้ำอ้อย  
ธรรมชาติ 100%







MITR PHOL  
Bio Power

# Mitr Phol Bio-Power

**Value added "BAGASSE" to "BIOMASS POWER" – 700 Mwh.**

The clean energy: carbon emission reduction.







**MITR PHOL**  
Bio Fuel

# Mitr Phol BioFuel - Ethanol

**Value added "MOLASSES" to "BIOFUEL" with Capacity 500ML/Year.** The value creation for co-product by using R&D and Technology

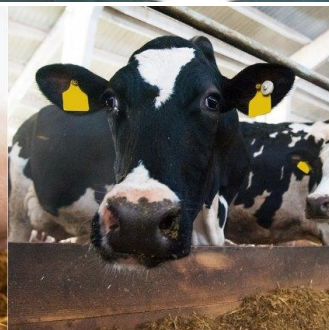


MPSBT

# Mitr Phol Specialty Biotech

**"YEAST from Ethanol Production Process" added value to "FEED ADDITIVE"**  
by using R&D and technology

# koböten







# Productivity Plus

**"VINASES & FILTER PASTE" added value to "ORGANIC FERTILIZER".**

One of scientific fertilizer manufacturers with high technology.







# Wood Substitute Materials Business

...Saving the Forest & the Planet for All...







# Planex

**Mitr Phol Group is aware  
of environmental and  
sustainable development  
by encouraging the  
production of  
biodegradable packaging  
made from cane & tapioca  
starch components.**



# Health Innotech

Natural Functional Ingredients

**Vallex**

**Fructo-  
Oligosaccharide  
Powder and Liquid**





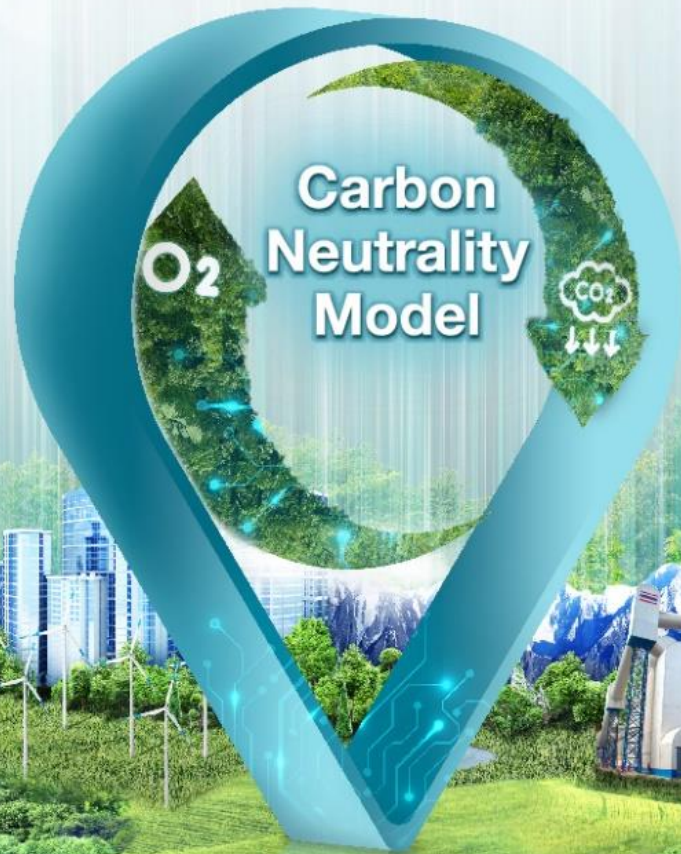


# Mitr Phol Climate Action



# MITR PHOL PATHWAY TO NET ZERO

**CARBON NEUTRALITY IN 2030**  
**NET ZERO IN 2050**








# Commitment with SBTi




## Target dashboard

Mitr Phol ×

 FILTERS

 DOWNLOAD XLS

 KEY

COMPANY/FINANCIAL INSTITUTION ▲	TARGETS			ORGANIZATION TYPE ▲	
	NEAR TERM ▲	LONG TERM ▲	NET-ZERO ▲		
Mitr Phol Group ★ Thailand, Asia	COMMITTED	-	COMMITTED	Company	VIEW MORE ▼

Showing 1 - 1 of 1

Per page 10 ▼







**CFO – 7 BUs 41 Plants**

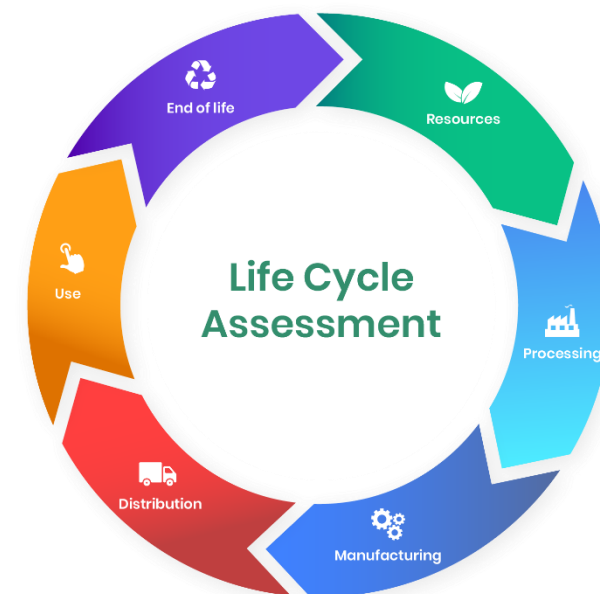


**CFP – 35 Sugar Products**



# LCA

**LCA – 5 Ethanol Plants**

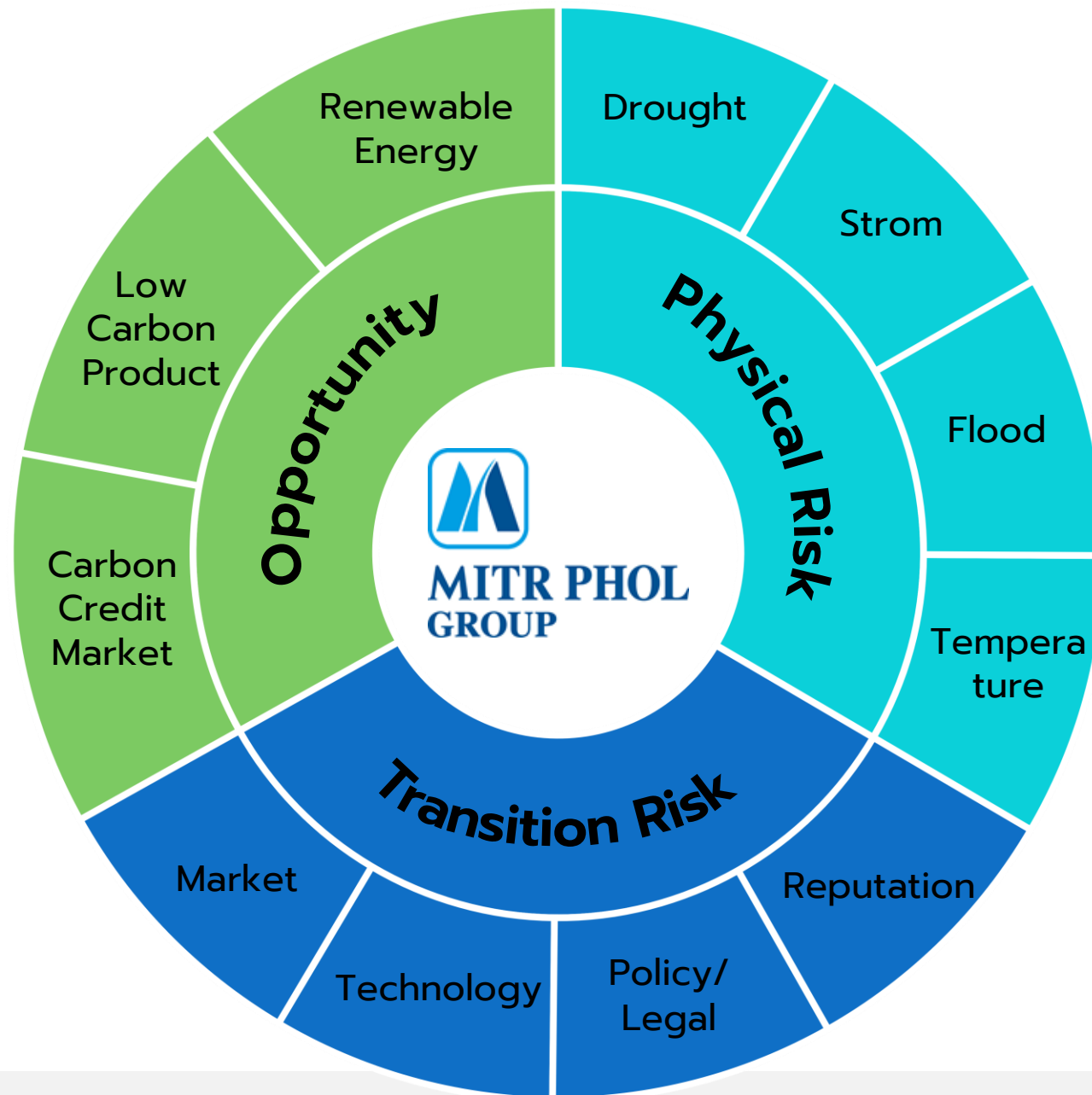




# Climate Change

-

# Climate Chance





# Climate Chance





# Suphanburi Carbon Neutrality Model

**Goal** : Carbon Neutrality in 2023  
**Kick off** : 6.6.2022

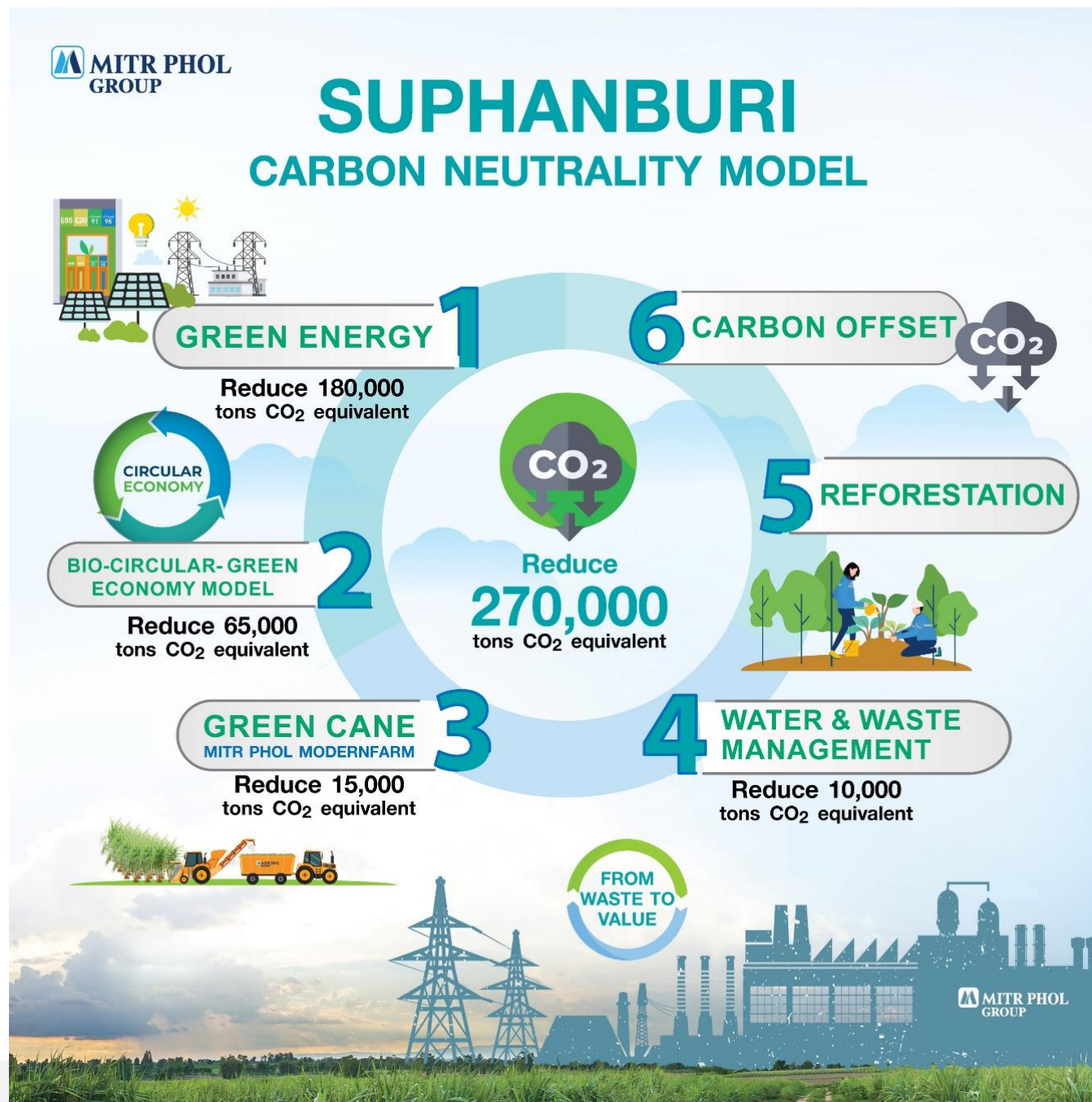






# 6

## Ways to be Carbon Neutral





# 1. Green Energy in Production Process



Biomass Power

189,575 MWh

Steam

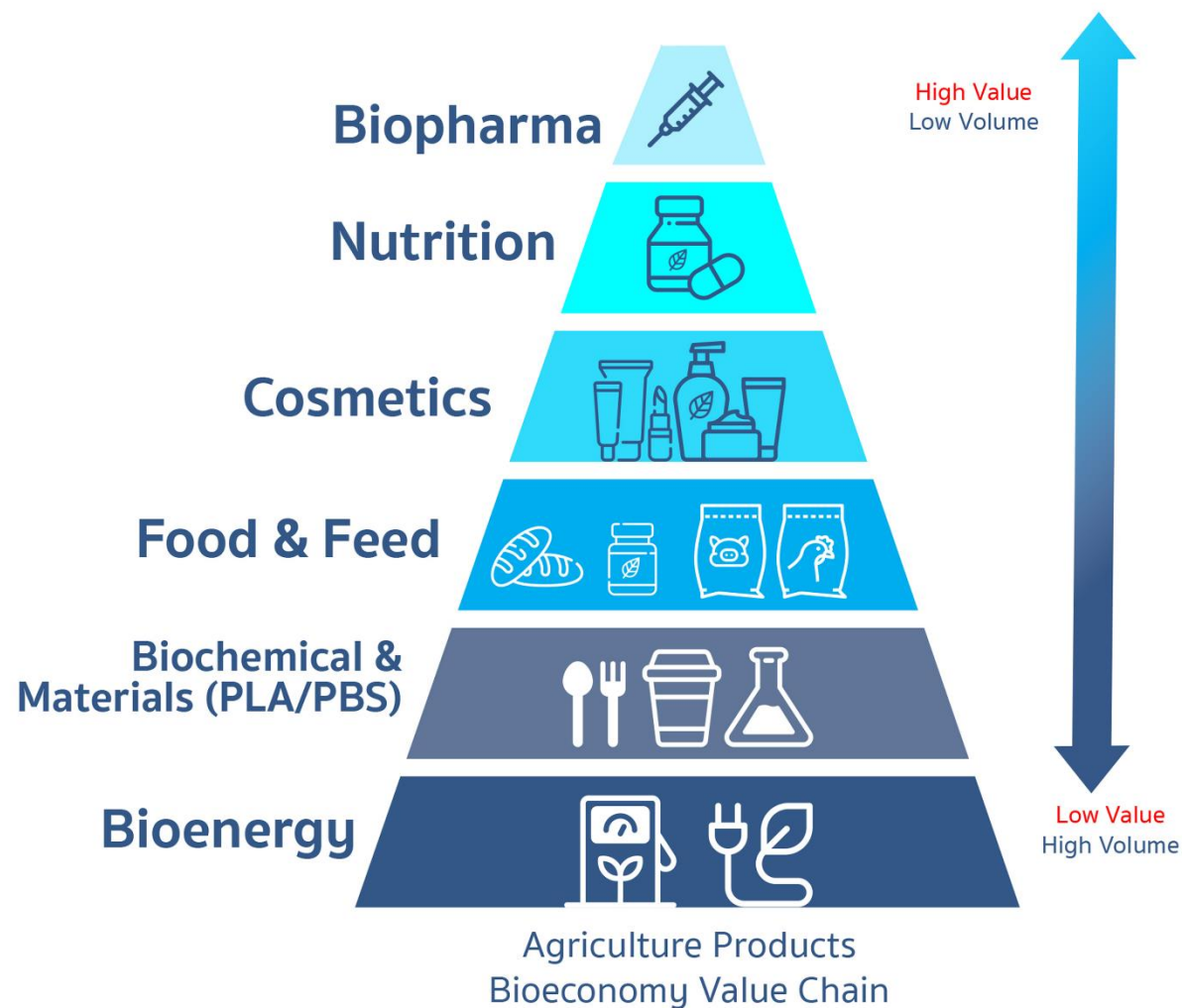
3,633,532 Tonnes

REDUCE GHG

180,000 tCO<sub>2</sub>e



## 2. BCG Economy Model



REDUCE GHG  
65,000 tCO<sub>2</sub>e



### 3. Green Cane

GREEN CANE HARVESTING 95%  
REDUCE GHG 40,000 tCO<sub>2</sub>e





## 4. Water & Waste Management

REDUCE GHG 10,000 tCO<sub>2</sub>e

Water Management  
Activated Sludge System



### OUTCOME :

1. Increase Raw Water Area 167 Rai
2. Increase Raw Water for Usage 3 Million Cubic Meters
3. Support waste water treatment and recycle for further usage within the mills



## 5. Reforestation Project (2022-2032)

### INTERNAL (15%)



Company Area

2,000 rais = 400,000 trees

(200 rais yearly)



Farmer Area

2,200 rai = 440,000 trees

TOTAL AREA 4,200 rais  
(840,000 trees)

### EXTERNAL (85%)



Royal Forest Department

4,260 areas = 852,000 trees



Mae Fah Luang Foundation  
under Royal Patronage

14,120 trees

TOTAL AREA 18,380 rais  
(3,676,000 trees)

Budget 100 MB. | 10 Years. | Plantation 4,316,000 trees



Sustainable  
Development

## 6. Carbon Credit Offsetting

Energy  
saving

CO<sub>2</sub>

Environment

Leader in Thailand's  
Carbon Emission  
Reduction

Emissions

COP26



TARGET

Thailand

CARBON  
NEUTRALITY

2050

2030

NET  
ZERO

2065

2050

MP Carbon Credit  
registered more than  
800,000 tonCO<sub>2</sub>e each  
year

KBank



GREEN

NRF



ธนากร

CPALL

CPLAND

CPF

PCG



PTTEP

Bangkok Bank

SEC

SET

SIAM PIWAT

DELTA





# MP Renewable Energy Certificate (REC)

1. Phu Khieo Bio Power
2. Danchang Bio Power
3. Kalasin Bio Power
4. Phu Luang Bio Power
5. Phu Viang Bio Power

**Total REC : 1.3 – 1.6 Million REC /year**



# Awareness Building

## Internal PR

MP E – Magazine  
Intranet  
Mail



## Training

Seminar  
Upskill – Reskill  
MP Employee Program



## Activities

MP Carbon Neutral Man





# Thank you

