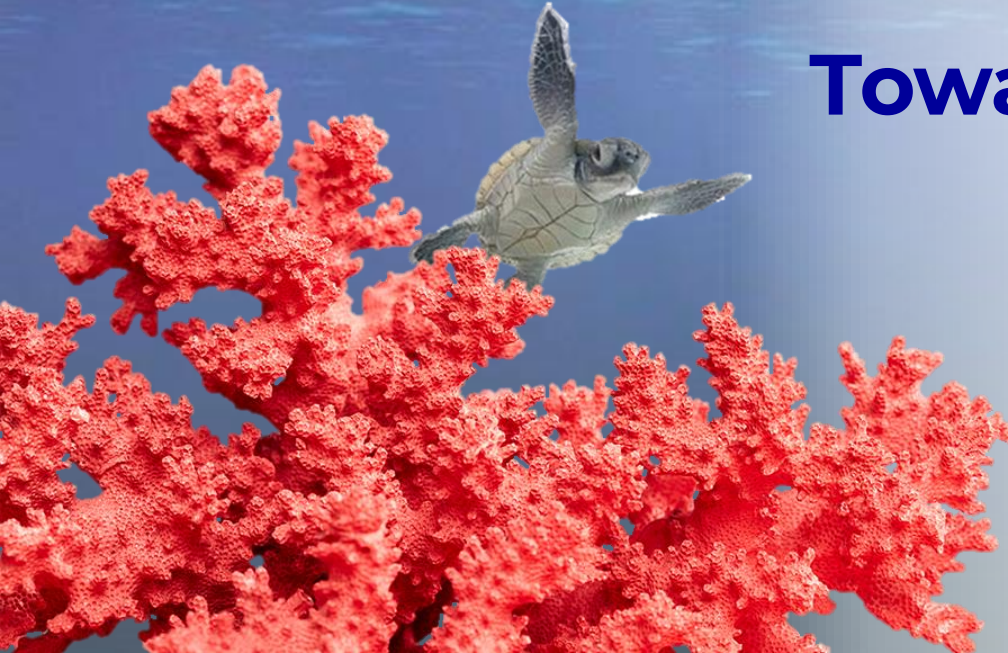




**AN PHAT**  
HOLDINGS

# Toward Circular economy

Nguyen Long, Head of R&D  
An Phat Holdings



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1 An Phat Holdings (APH) Overview

2 APH toward circular economy



# PART 1: AN PHAT HOLDINGS OVERVIEW



# Vision & Mission



01

## VISION

The leading Group in high technology and environmentally friendly plastics in South East Asia

02

## MISSION

Promote and support Vietnam's plastic industry, enhance the image of high-tech and environmentally friendly made-in-Vietnam plastic products.

03

## POSITIONING

Become the pioneer Group to establish high technology and environmentally friendly plastics value chain, developing sustainable entrepreneurial ecosystem.

# Corporate Milestones

**Established** Anh Hai Duy Ltd., the precursor of An Phat Holdings.

Incorporated **An Tien Industries**  
Stunning **export growth** from U.S, EU, Asia

- Established **An Phat Holdings**, transitioning to **holding company structure**
- AAA became the **largest mono-layer packaging manufacturer** in SEA.

- Acquired **Korean bioplastics manufacturer** and established **ANKOR**.
- Listed **HOSE:NHH**
- Launch **ANECO** brand.

- Launch **PBAT factory**
- Exploit **An Phat Complex 1**

2002

2009

2017

2019

2021

2005

**First factory** in Hai Duong Province of Vietnam

2010

- **IPO of An Phat Bioplastics JSC (HNX: AAA)**
- Penetrated **Japan market**

2018

Acquired **Hanoi Plastics JSC (NHH)**

2020

- **IPO & listing of An Phat Holdings (HOSE:APH)**
- Invest in **PBAT Project**.

# Market Presence

## Sales Office:

- Vietnam
- France
- USA
- Singapore

## Manufacturing Center:

- Vietnam
- Korea

## R&D Center:

- Vietnam
- Korea

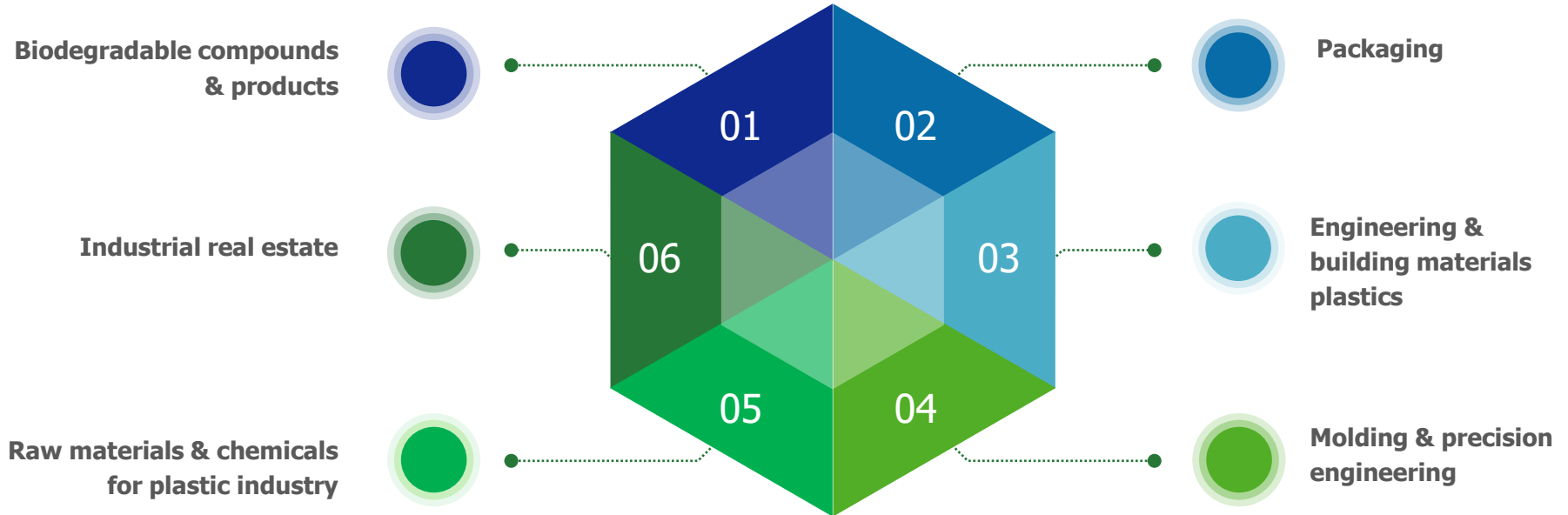
FACTORIES **16**

EXPORTS TO **70+**

COUNTRIES



# Business Segments







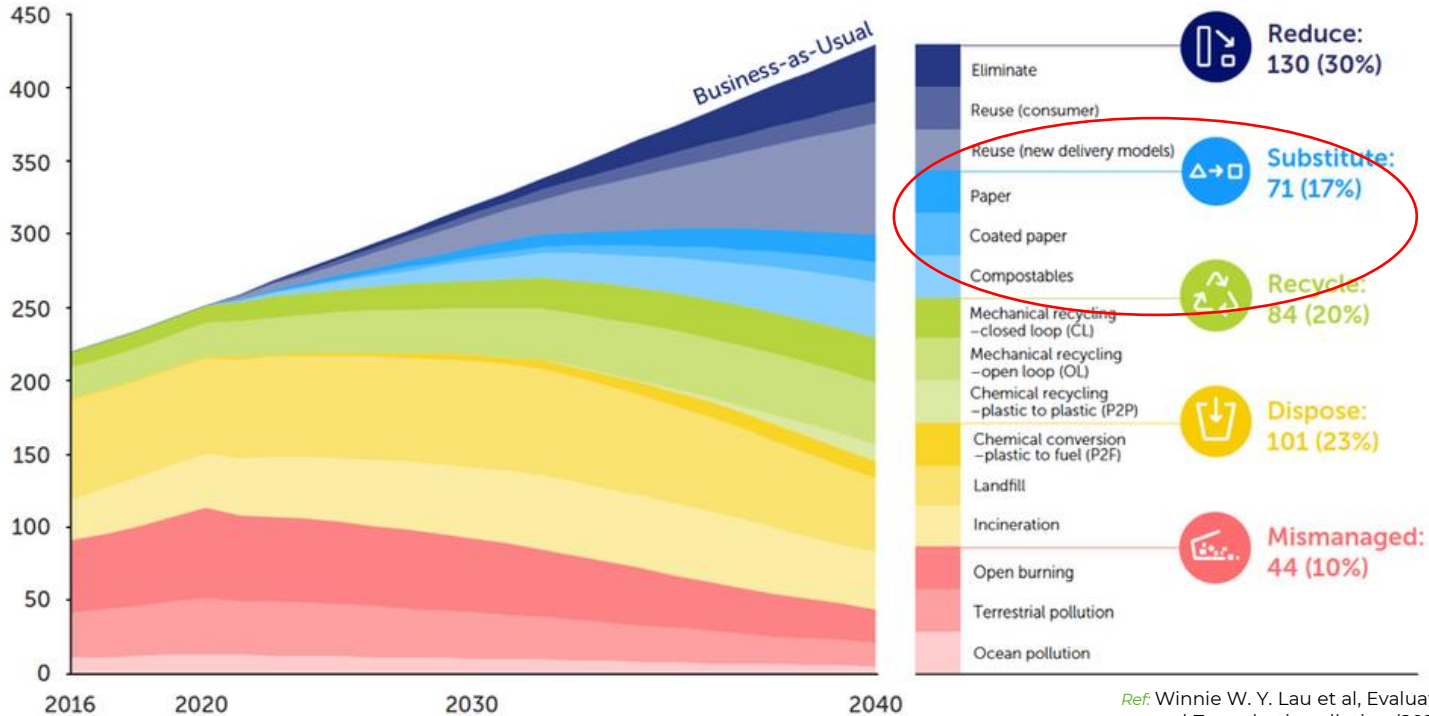
# AN PHAT HOLDINGS TOWARD CIRCULAR ECONOMY



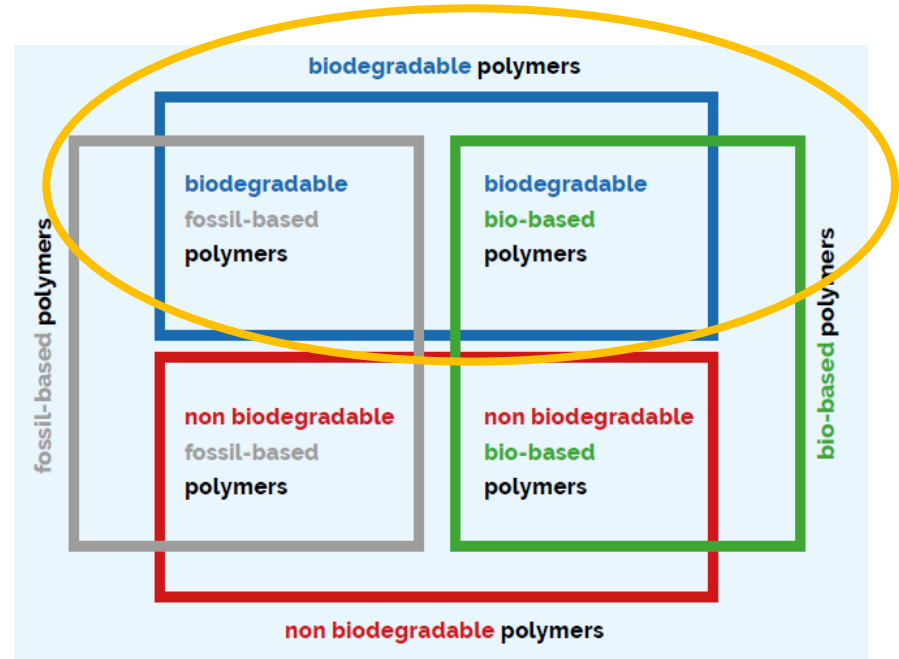
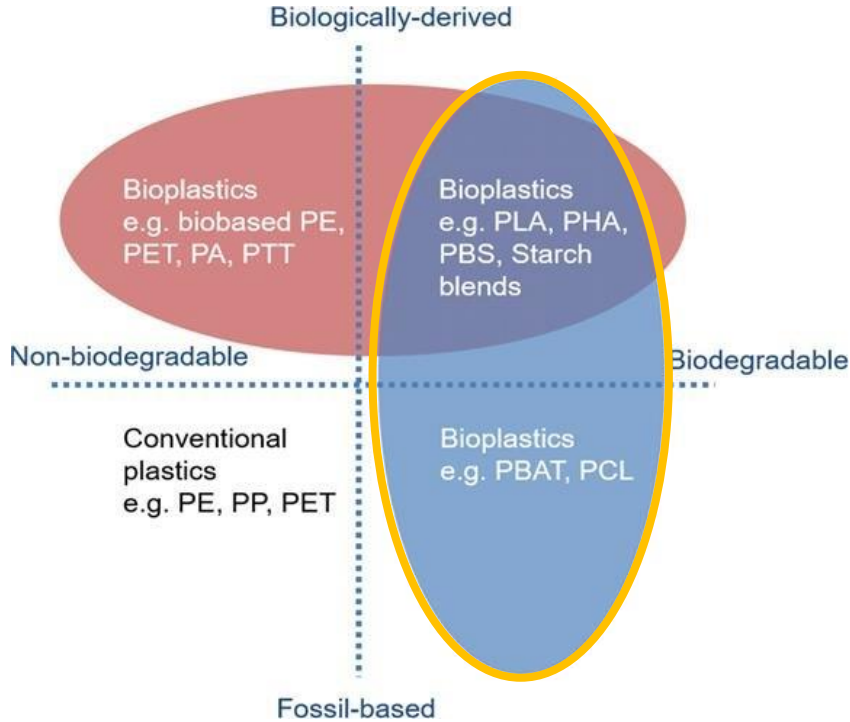


## System Change Scenario (2040)

Million metric tons per year



# BIOPLASTICS



Ref: Biodegradable Plastics and Marine Litter: Misconceptions, concerns and impacts on marine environments (2015, UNEP).

MATERIALS	0 week	2 weeks	1 month	3 months	6 months	1 year
Compostable						
Conventional plastics						





## Single-use plastics

Shopping bags, food bags, trash bags, cutlery..., difficult to collect and recycle



## Fireworks

Difficult to collect after used



## Agriculture mulching

Difficult to collect after used



## Fishing gears

Lost during fishing and often lead to "ghost nets"



## Fruit stickers (PLU)

Difficult to separate from organic wastes



## Microbeads

Difficult to get rid of due to "tiny" size

## KITCHEN TRASH BAGS

- Biobased ingredients: starch, PLA,...
- Compostable together with organic wastes in 6 months in normal landfill, convenient for using.





- Marine-biodegradable straw from PHBH
- Certified with “OK Marine biodegradable” by TÜV Austria (formerly: Vincotte), biodegradable > 90% in 6 months in seawater





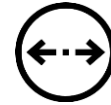
## FISHING GEARS

- According to UN's report, the abandoned, lost or discarded fishing gear in the oceans makes up around **10 percent (640 000 tonnes)** of all global marine litter.
- Fishing line is the worst offender, **taking up to 600 years to biodegrade**, and become microplastics which is threatening to the marine creatures.

## Requirements of the netting twine



Flexibility



Elastic recovery



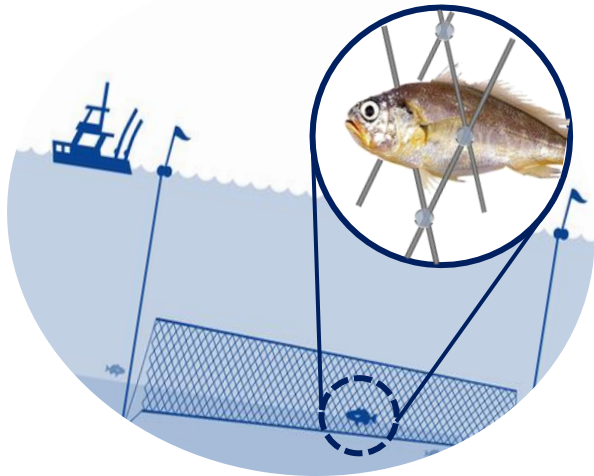
Transparency



Strength



Biodegradability



Which  
biodegradable   
resin can apply...?

# BIODEGRADABLE FISHING GEAR DEVELOPMENT



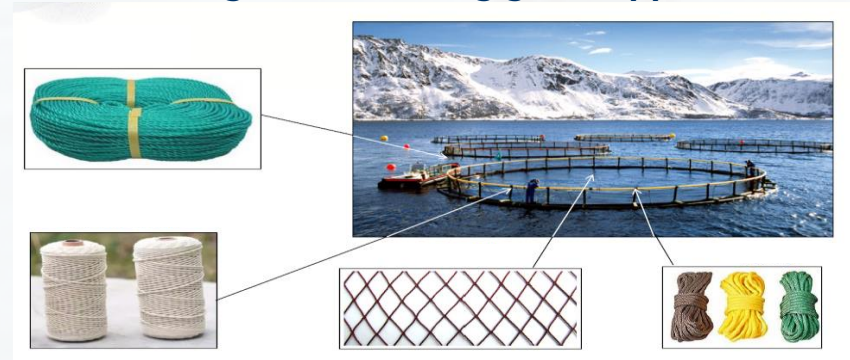
**Monofilament for gillnet and net trap  
(PBS & BDP12/13/14)**



**Rope for creating the sea forest  
(PBAT&PBS, BDP12/13)**



**Biodegradable fishing gear support**



**Fish farming equipment  
(PBS, BPD14)**





DIN CERTCO (Germany), biobased and industrial compostable



TÜV Austria (Belgium), industrial/home compostable – marine biodegradable



BPI (Biodegradable Products Institute, USA)



Korea Eco-products Institute

ecologo



## COMPOSTABLE MATERIALS



### Factory in Korea



Production capacity  
**5,000 ton/year**



Products  
**Compound resin  
PBAT, PBS, PLA**



### PBAT factory project



Installed Capacity  
**20,000 -30,000 tons/year**



Address  
**Dinh Vu IP - Hai Phong**



Expected launch in  
**2023**





**AN PHAT**  
HOLDINGS

**Thank you!**

