Policies and Supports for Bioplastic Industries

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Presentation Outline

• Global warming: Causes and Effects

• Global awareness, Voluntary initiatives, and Regulations

• Roles of Bioplastics in reduction of GHG emission

• Bioplastics Trends

• Thailand as Bioplastics Hub
Global warming: Causes and Effects
Global warming is caused from:

- Green house gas
- Particulate and sooth
- Solar activity

Source: http://data.giss.nasa.gov/gistemp
Global warming

April

L-0.1°C Change 2013–2014 0.26

Source: http://data.giss.nasa.gov/gistemp
Global awareness, Voluntary initiatives, and Regulations enforcement
Global Awareness
Initiatives to reduce plastic bag use in EU Member States

• **Ireland**: A tax was introduced in March 2002 on the purchase of plastic carrier bags in supermarkets, petrol stations and shops. It began at a rate of 0.15 EUR and was raised to 0.22 EUR on July 2007.

• **UK**: There’s a voluntary agreement between the ministry responsible (Defra) and 21 large retailers to reduce 25% of carrier bag since May 2006.

Source: Dynamix project | case study: Reducing plastic bag use in UK and Ireland
Initiatives to reduce plastic bag use in EU Member States

• **Belgium**: The packaging tax, introduced in May 2007, set a charge of 3 EUR/kg for the distribution of plastic carrier bag.

• **Bulgaria**: A tax on PE bags with thickness of less than 15 micron effected on October 2011.

• **Germany**: Supermarket voluntarily charge for plastic bags. Most German supermarkets charge between 0.05 EUR to 0.10 EUR per “single-use” bag.

Source: Dynamix project | case study: Reducing plastic bag use in UK and Ireland
Initiatives to reduce plastic bag use in EU Member States

- **Netherlands**: Voluntary agreements in the retail sector mean that supermarket customers pay around 0.20 EUR per bag.

- **Romania**: Government Regulation entered into force on January 2009 that non-biodegradable plastic bag tax was collected at 0.50 EUR per bag and decreased to 0.25 EUR by 2010.

- **Italy**: In 2007, a national pilot program was launched for the gradual reduction of carrier bag in order to reduce the amount of CO$_2$ emission and support the biomaterials.

Source: Dynamix project | case study: Reducing plastic bag use in UK and Ireland
PS foam banned in USA

• Since 2006, there’re over 100 localities banned styro foam or PS foam packaging for take out food.

• States that already banned styro foam are Berkeley, Portland, Oregon, San Francisco, Oakland, California, and more.

Voluntary initiatives by retailers

Marks & Spencer (UK): in 2007, M&S launched a goal of becoming a sustainable, carbon-neutral and zero-waste-to-landfill business.

IKEA: in March 2007, IKEA set a goal of reducing its US stores’s plastic bag consumption by 50% and change thin plastic bag to reusable PP bag.

Source: Dynamix project | case study: Reducing plastic bag use in UK and Ireland
Voluntary initiatives by retailers

Carrefour (France): Eliminate the use of free disposable checkout bags and promote the use of reusable carrier bag.

Wal-Mart: in October 2010, Wal-Mart launched a pilot project in three stores in California, which stopped selling thin plastic carrier bag and started offering reusable PP bag.

Source: Dynamix project | case study: Reducing plastic bag use in UK and Ireland
Coca-Cola has launched PlantBottle™, the first PET plastic bottle made partially from plant, since 2009.

In 2012, Coca-Cola, Ford, Heinz, Nike, and P&G form collaborative to accelerate development of products made entirely from plants.

Coca-Cola’s goal is to use PlantBottle™ packaging for all of its PET plastic bottles by 2020.

Key drivers for Bioplastic market in China

- Chinese paradigm shift “from rapid development to more inclusive growth”, which drive market potential for bioplastics in the country.

- Increasing of consumer awareness.

- More sophisticated, value-added products being manufactured in China.

- Globalization of Chinese brand.

Source: CHEManager international | Bioplastics Commercialization in Asia
Bioplastic market in Europe

• EU commission proposes to reduce the use of plastic bag of below 50 micron by 50% in 2017 and 80% in 2019.

• There’s an exception for compostable bag with more than 50% biobased content.

Source: www.euractiv.com
Bioplastic market in France

- French MPs voted on 25 JUN, 2014 to ban single-use plastic bags in supermarkets by 2016

- The ban will include all single-use plastic bags, as well as those used for fruit and vegetables, unless the bags are biodegradable.

Source: www.thelocal.fr
Bioplastic market in Taiwan

• The latest regulation, Restrictions on the Use of Plastic Trays and Packaging Boxes, takes effect on July 2007.

• Since 2006 up to today, annual growth rate of bioplastics is increased by 20%, which currently around 9000MT/year.

Source: Minima-Technology Co., Ltd. (TAIWAN)
Roles of bioplastic in reduction of GHG emission
Reducing Green House Gas emission

• Reduce the process that emits GHG or reducing the use of product that largely emits GHG.

• Reuse the products, which can also reduce the production.

• Recycle the products, which the production require less of new material and reduce the GHG emission.
Bio based material helps reducing GHG emission

- Entire life cycle of petroleum based PE emits 4.55 kg-CO$_2$ eq./kg-PE.

- Sugar cane plantation can captures 3.2 kg-CO$_2$ eq./kg-PE. Thus, the Bio-PE life cycle emits only 1.35 kg-CO$_2$ eq./kg-PE.
Waste separation helps Recycling process

- Japanese use bioplastic garbage bag to separate the organic waste and send to composting site.

- The waste separation program can reduce the processing time and helps recycling process.
Bioplastics Trend
Global production capacities of bioplastics

Source: European Bioplastics | Institute for Bioplastics and Biocomposites (December 2013)
### 2012 Global Bioplastic application

- **Packaging**: 36.55%
  - Bottles: 32.25%
  - Bottles - 450 Kton
  - Bottles (incl. automotive): 130 Kton
  - Packaging (incl. carrier bag): 510 Kton

- **Construction**: 2.5 Kton
- **Pharmaceutical and medical**: 7 Kton
- **Others**: 30 Kton
- **Consumer products**: 81 Kton
- **Horticulture and agriculture**: 84 Kton
- **Catering**: 101 Kton
- **Technical application**: 130 Kton

Source: European Bioplastics | Institute for Bioplastics and Biocomposites (December 2013)
Bioplastics for Packagings

Compostable carrier bag

Compostable flexible packaging

Source: www.thegrocer.co.uk, www.greenmarketing.com
Thailand for Bioplastic Hub
Thailand for Bioplastic Hub

- **Resources** – Thailand is full of agricultural products (corn, potato, etc.)

- **Capacity** – PTT is establishing PBS plant, which can supply PBS in 2015.

Thailand for Bioplastic Hub

- **Association** – TBIA associate with government for promotes Bioplastic.

- **Technology** – Much more researchers and researches in Bioplastic


Strategy 1
Ensuring availability of biomass supplies as raw materials

Strategy 2
Developing new technologies

Strategy 3
Building new and innovative business

Strategy 4
Establishing infrastructure

National Bioplastic Roadmap

Monetary Policy for Bioplastic Industries supporting

• Government will support the different of interest at MLR-2%, which the supported amount is not more than 5% of average interest of commercial bank or not more than 50,000 million THB.

• This program will cover from raw material producer to end product converter.
Thank you for your attention.