

# EECi: An Innovation Infrastructure of EEC



High-speed Train & Dual-track Railway



Lam Chabang & Map Ta Phut Seaports



Industrial Estates



Smart Cities



U- Tapao International Airport



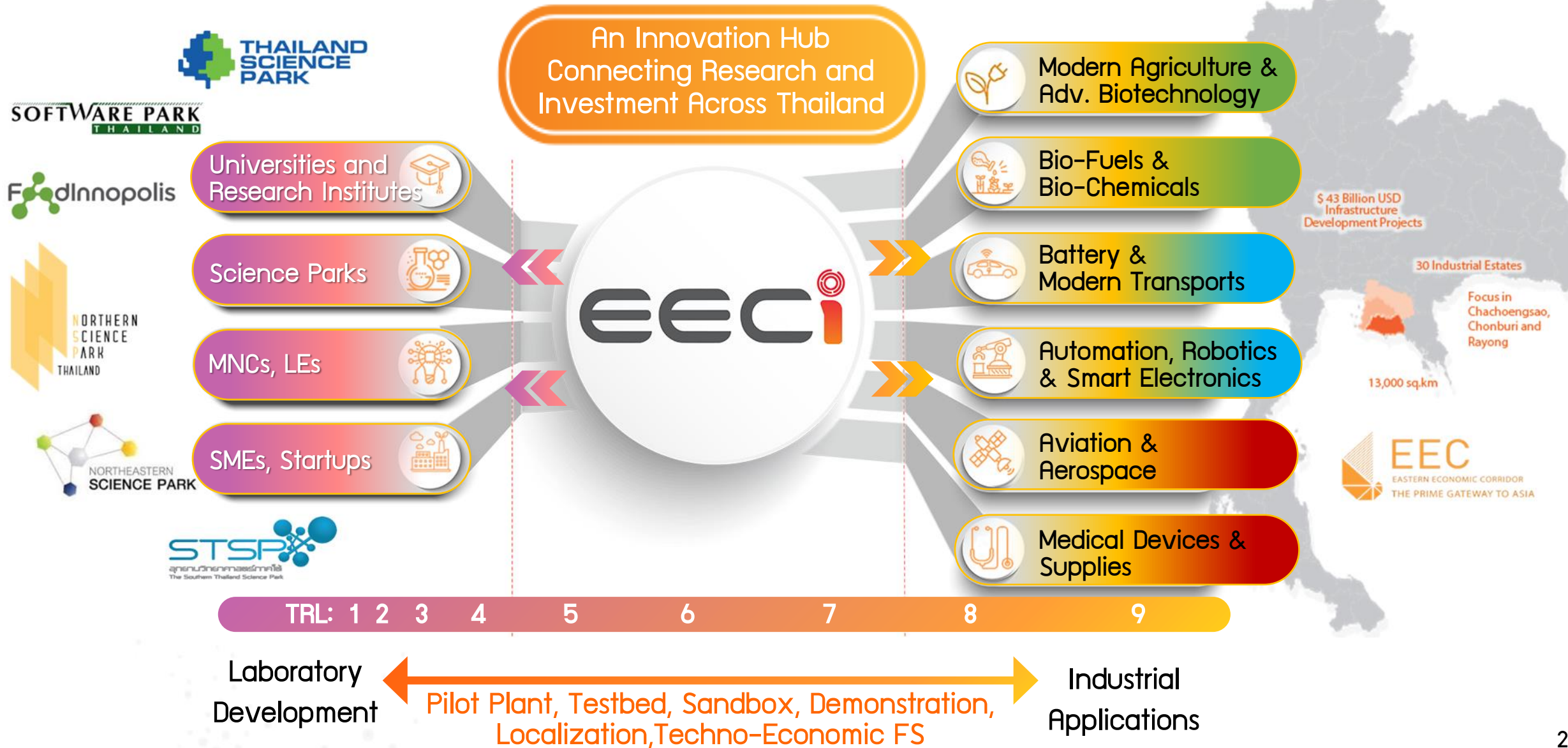
Economic Growth

Inclusive Growth

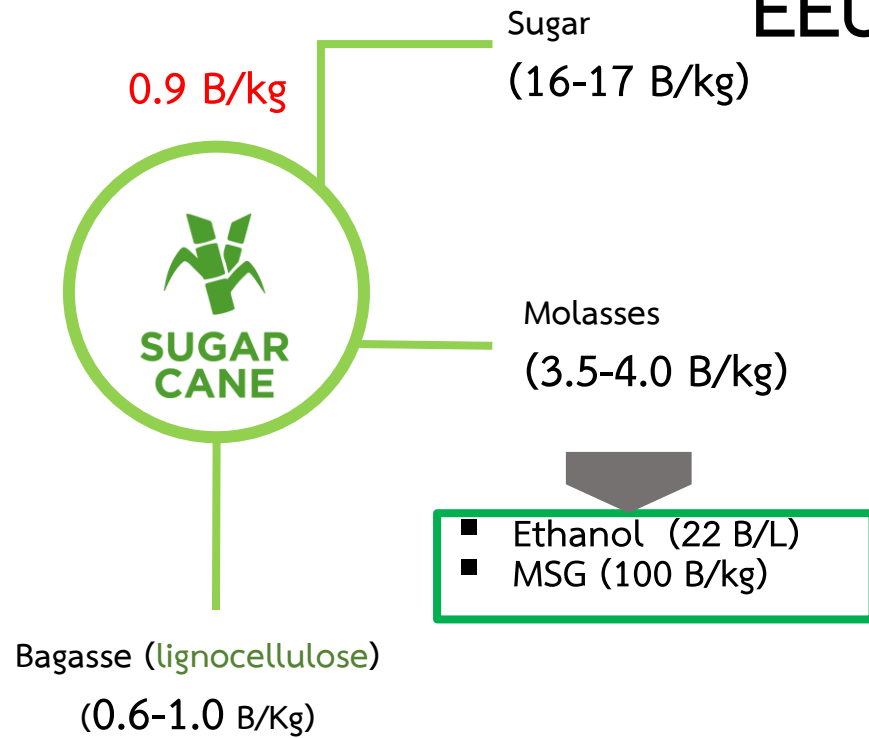
Green Growth



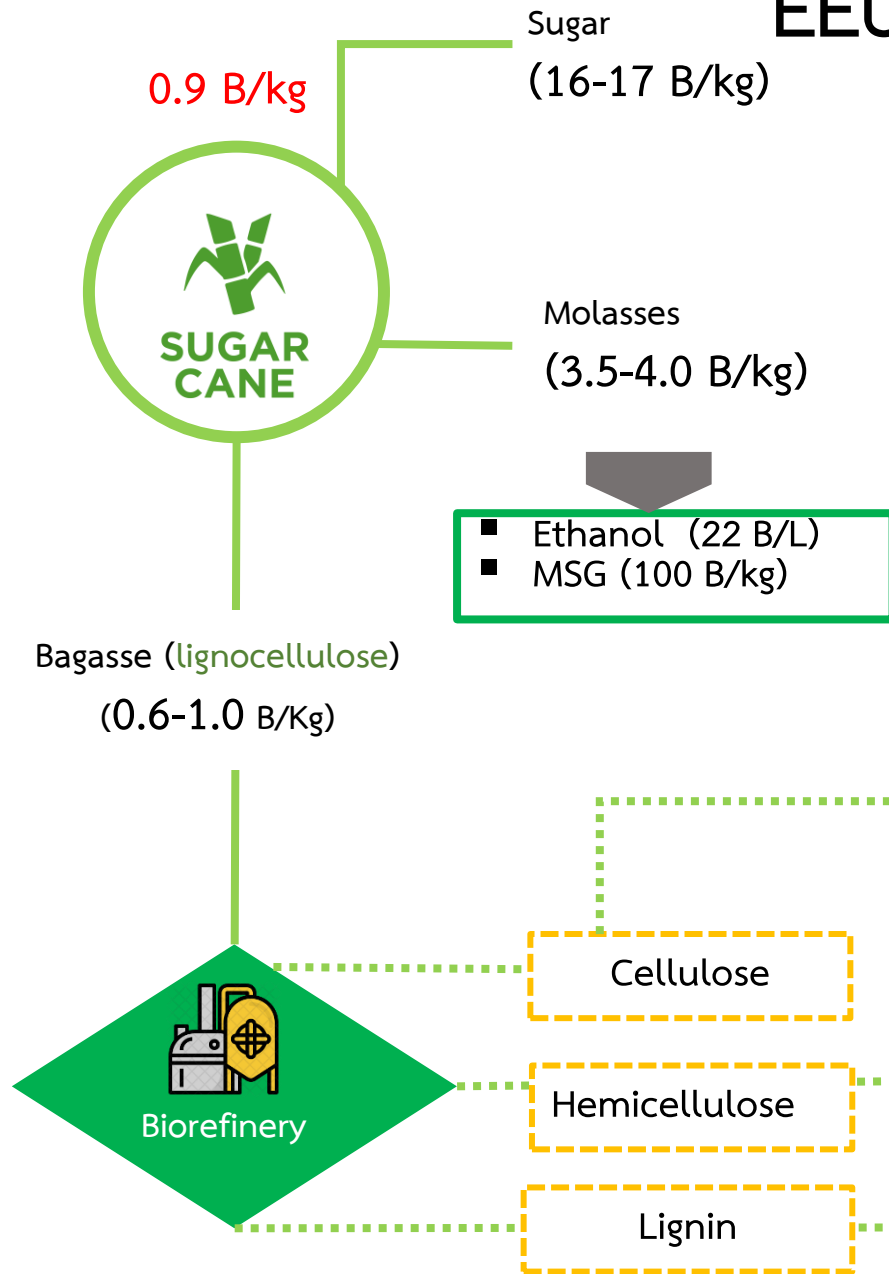
# EECi : Innovation Infra Supporting S-Curve Industries



# EECi and Biorefinery Industry



# EECi and Biorefinery Industry

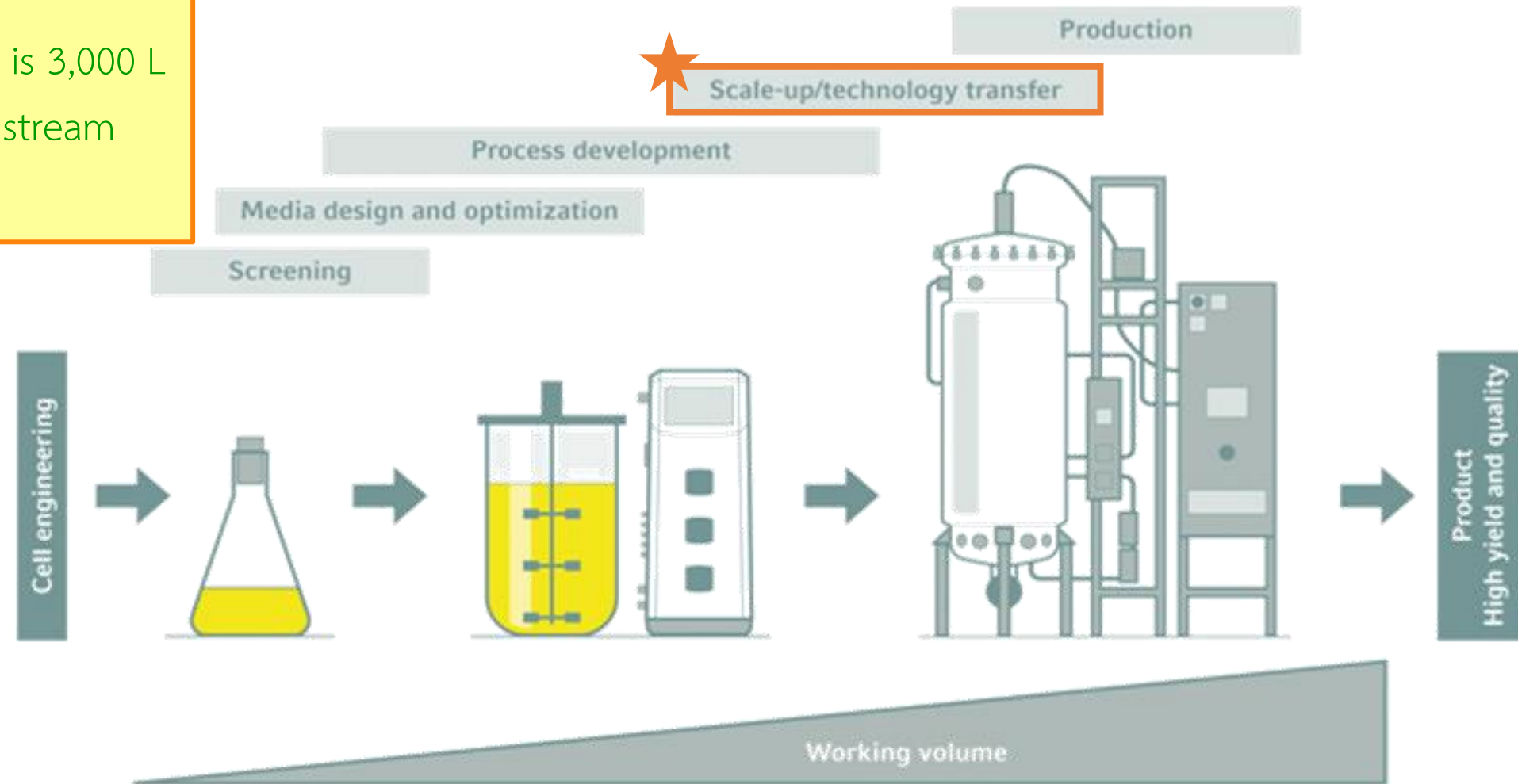


Product	Price (Baht/Kg)
Cellulose	50-95
Cellulose acetate	300-600
Carboxymethyl cellulose (CMC)	300-700
Hydroxypropyl cellulose (HPC)	600-1,000
Hydroxypropyl methylcellulose (HPMC)	100-300
Microcrystalline cellulose (MCC)	300-1,000
Nanocellulose (CNF and CNC)	54,000-500,000
Xylooligosaccharide	1,300
Furfuryl alcohol	1,700-2,600
Polyphenol	50,000-70,000
Carbon fiber	2,000-3,000

## Status of scale-up biorefinery facility in Thailand

- 10 biorefinery pilot plants
- Most are not operating in GMP appliance
- The largest fermenter size is 3,000 L with no subsequent downstream processes

## EECi and Biorefinery Industry



# Biorefinery Pilot Plant

## STI Development and Technology Localization for Creating New Bio-based Industries



### Agro-industrial side streams:

Bagasse, cassava pulp, glycerol, rice bran, empty fruit bunch, stillage, protein waste



### Agronomic by-products:

Sugarcane trash, cassava stem, rice straw, coconut shell, corn stover & cobs



- ⦿ Biomass pretreatment
- ⦿ Upstream fermentation Process
- ⦿ Green chemistry
- ⦿ Downstream process (Extraction, recovery, purification, etc.)



Nutraceuticals



Food Ingredients



Bioflavours



Functional Oligosaccharides



Industrial Enzymes



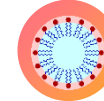
Oleochemicals



Biosolvents



Fatty Acid Esters



Biosurfactants



Functionalized Biopolymers



Bioplastics



Fine and Bulk Chemicals



Biofuels

# Comparison of Scale-up Approaches

## Scale-up on *your own self*

High capital investment on the pilot plant

Time-consuming  
(especially pilot plant construction)

Learning and developing upscaling on your own



## Scale-up with **Biorefinery Facility @EECi**

✓ No burden on the pilot plant investment

✓ Can start promptly!

✓ Upscaling with experts

The Biorefinery Facility @EECi will be completed by mid-June 2025 (B.E. 2568).