

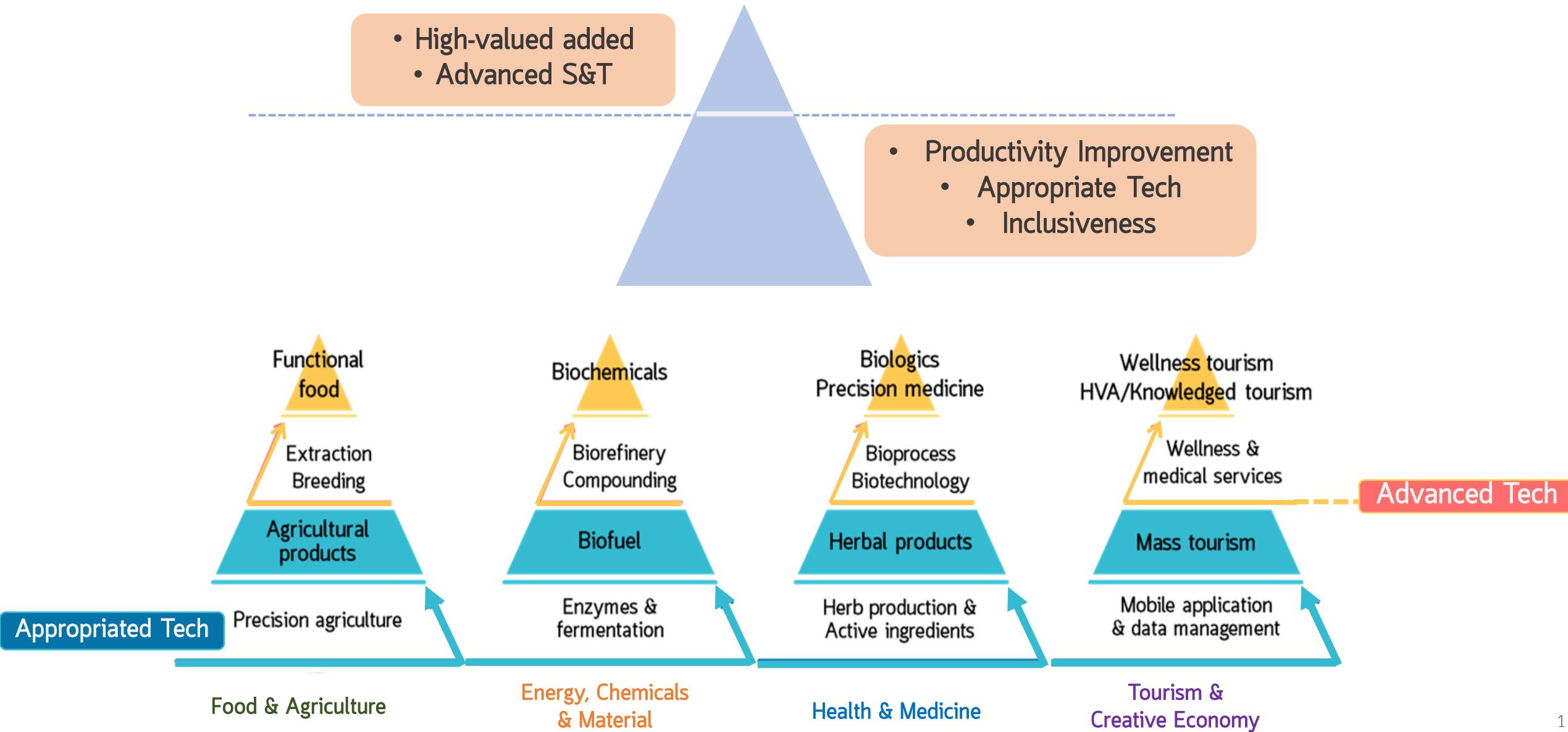
Thailand's Bio-Circular-Green (BCG) Economy Policy

18 November 2020

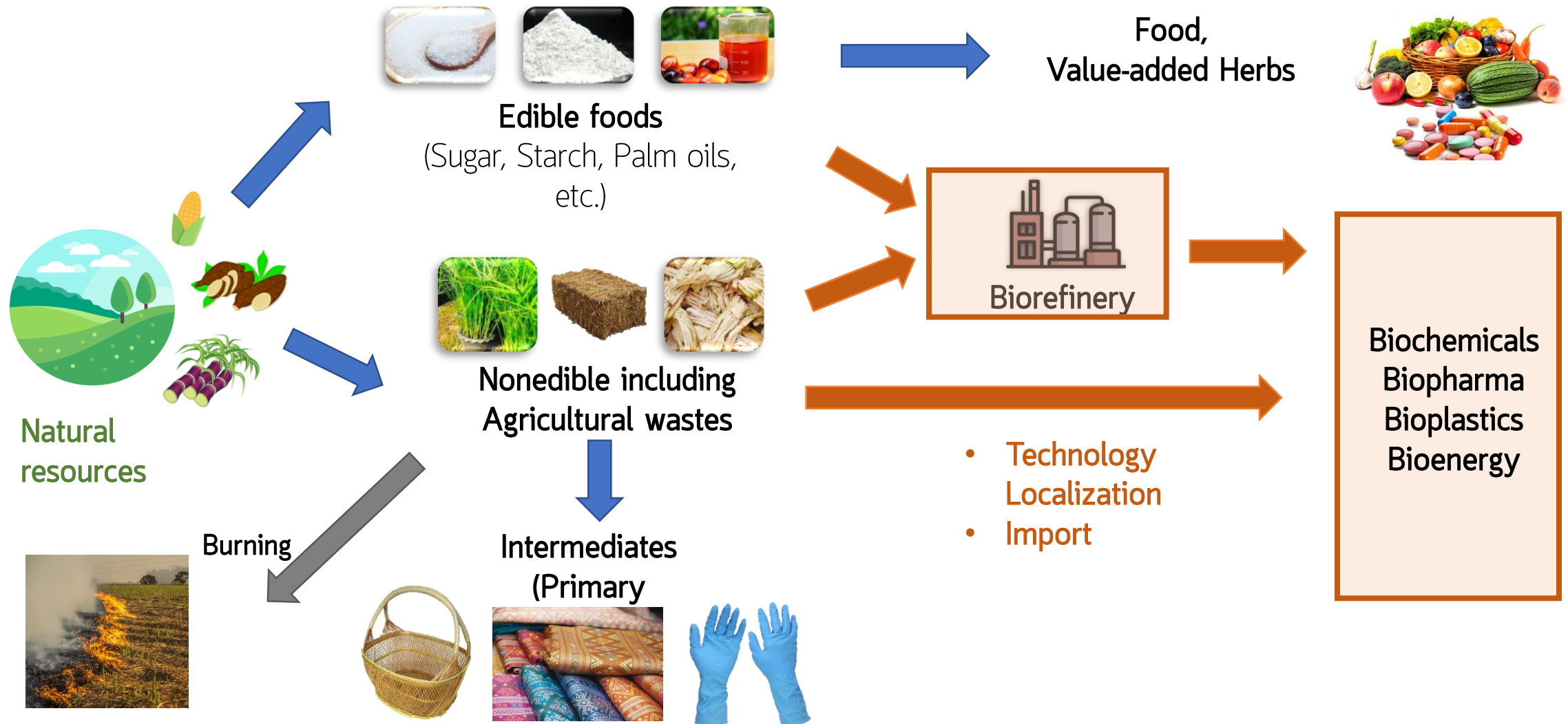
Dr.Kitipong Promwong

President of the Office of National Higher Education Science Research and Innovation Policy Council (NXPO)

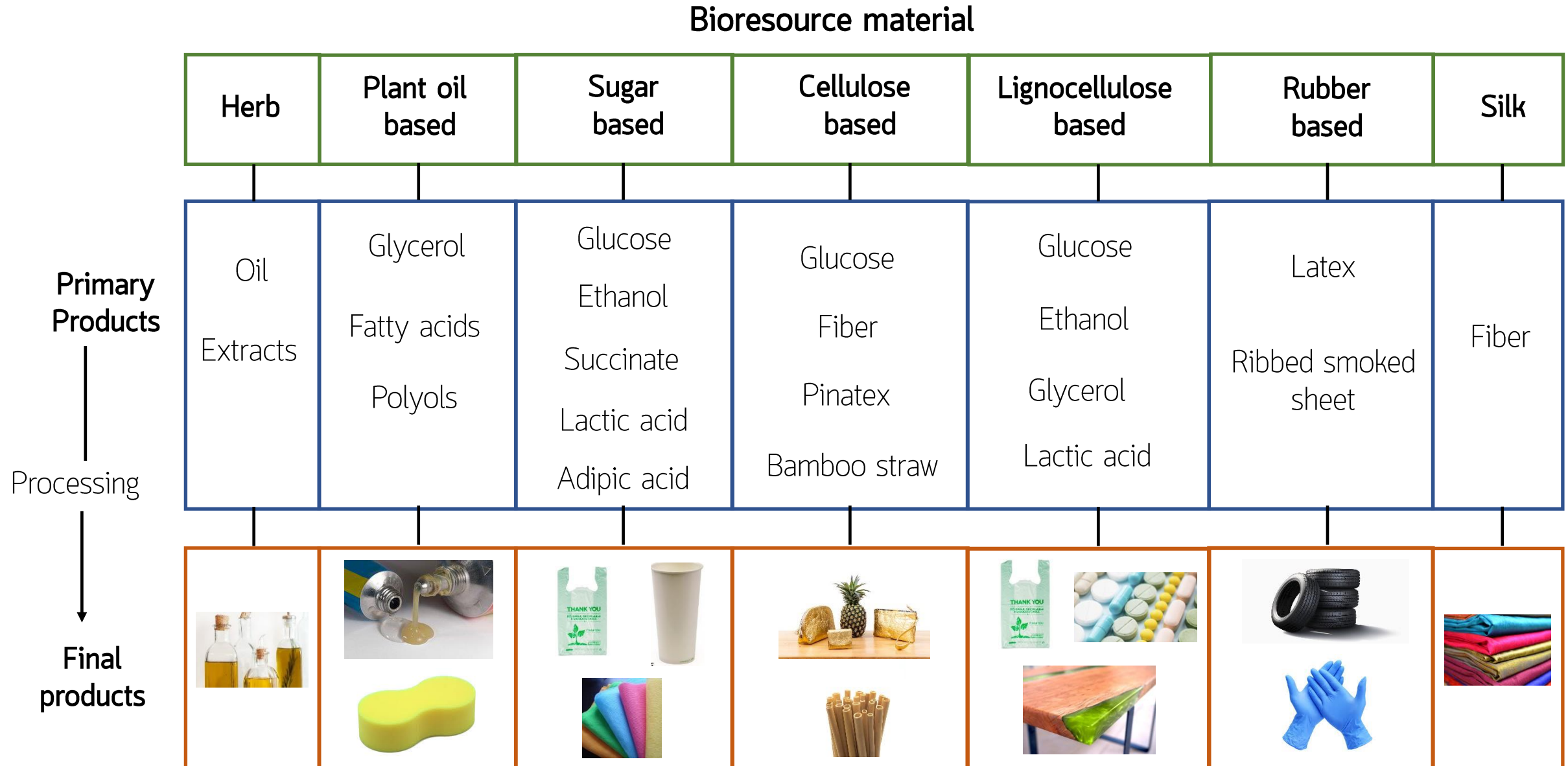
BCG Economy Policy



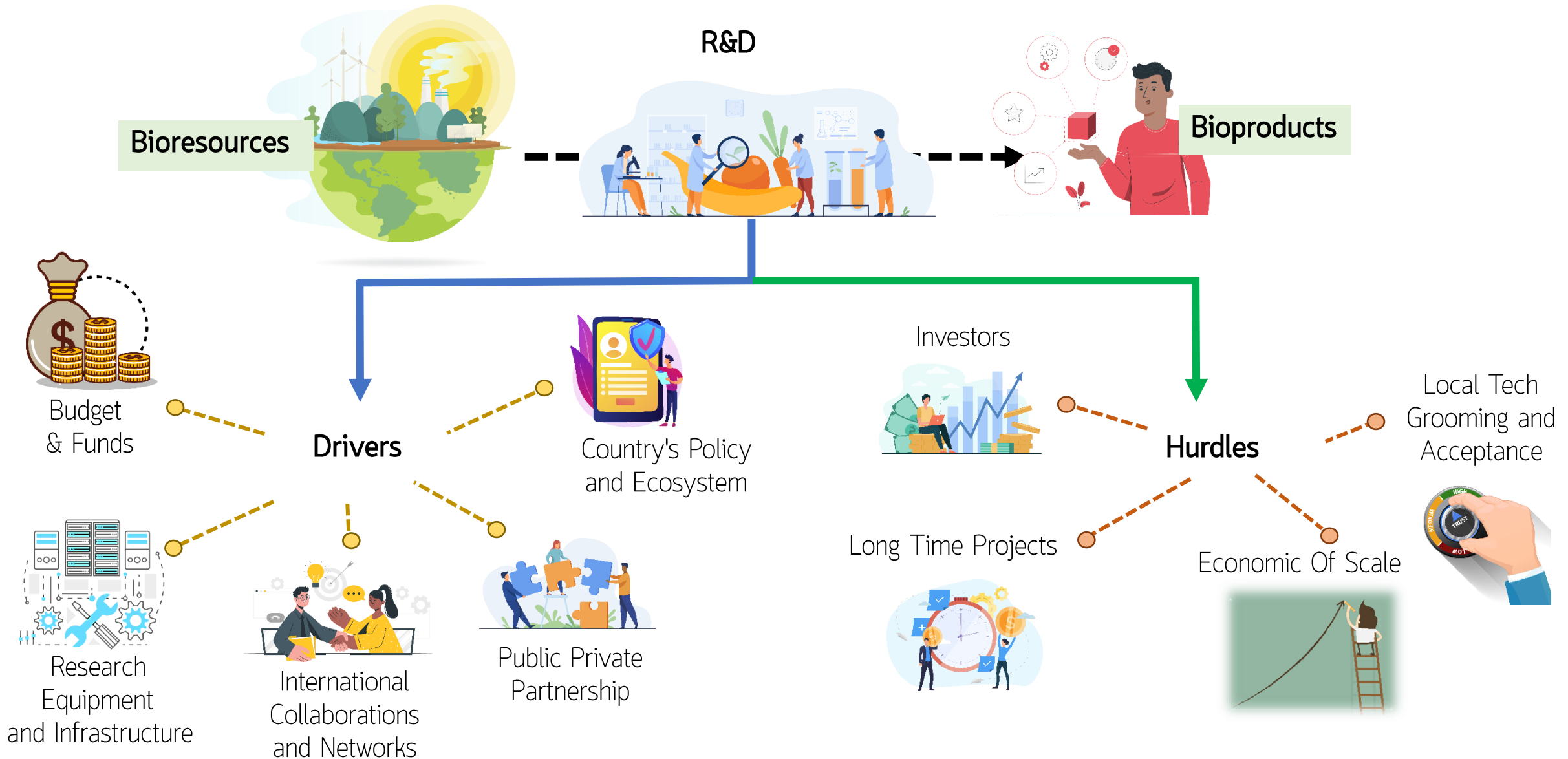
Value-creation of Bio-based sectors in Thailand



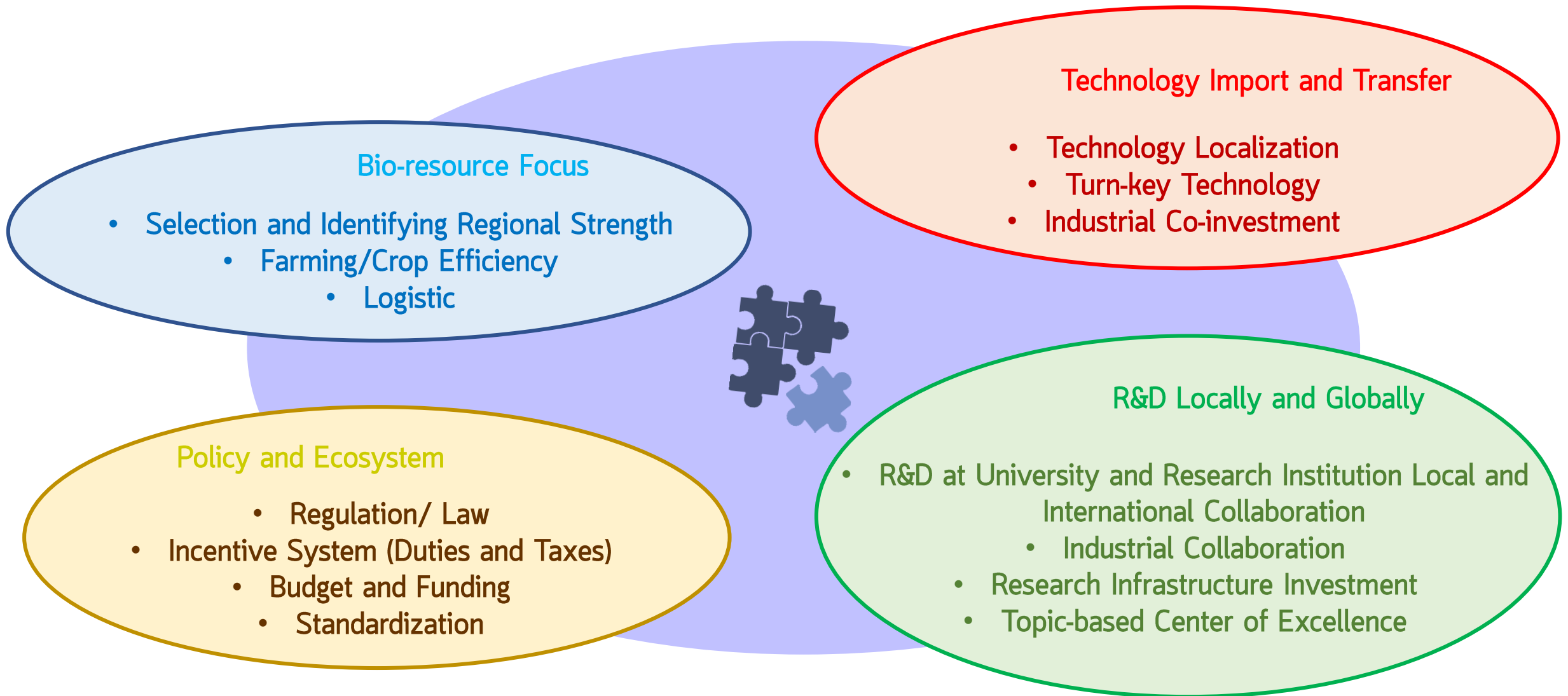
Potential High-value added Products



Drivers and Hurdles based on STI Perspective



4 Key Success Factors



BCG Area-based Development

Northern Economic Corridor (NEC)

- food safety and agricultural health standards
- agro-industry and food processing
- the integration of “Lanna Culture” into the products and services

Central Economic Corridor (CEC)

- waste management
- innovation for ageing-society

Eastern Economic Corridor (EEC)

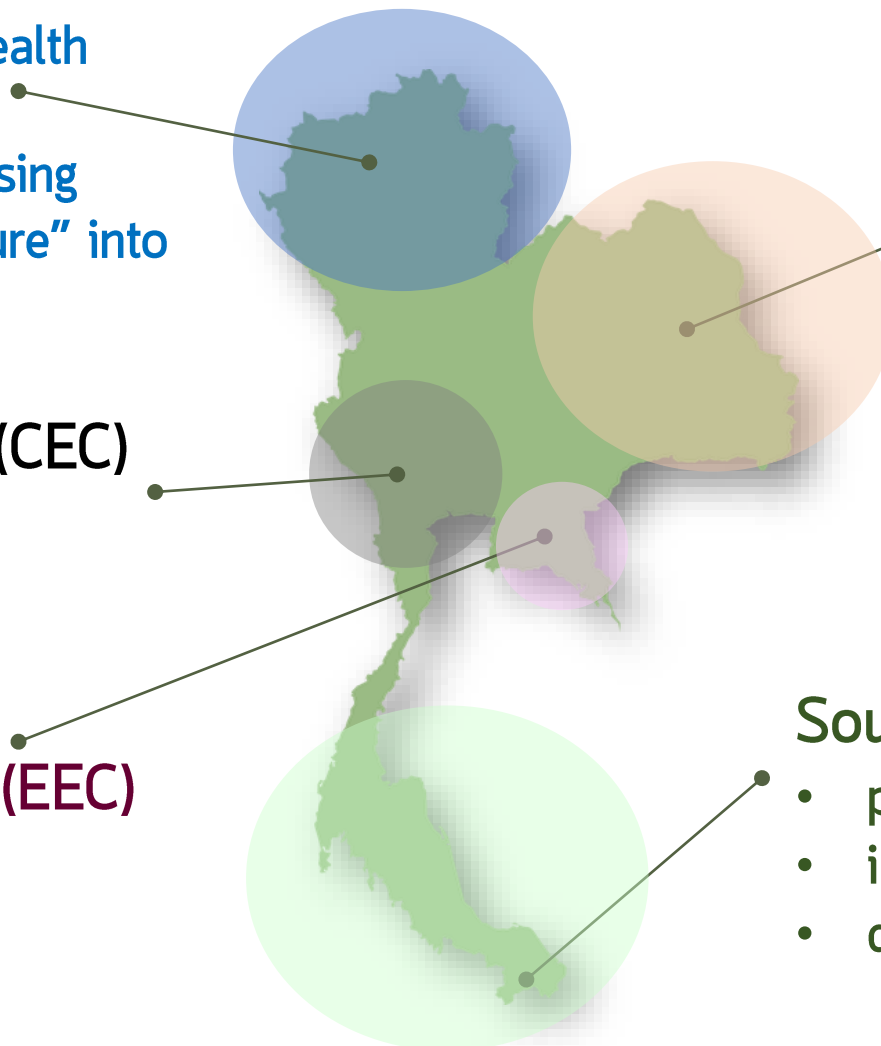
- fruit production
- the development of future industries.

North-Eastern Economic Corridor (NEEC)

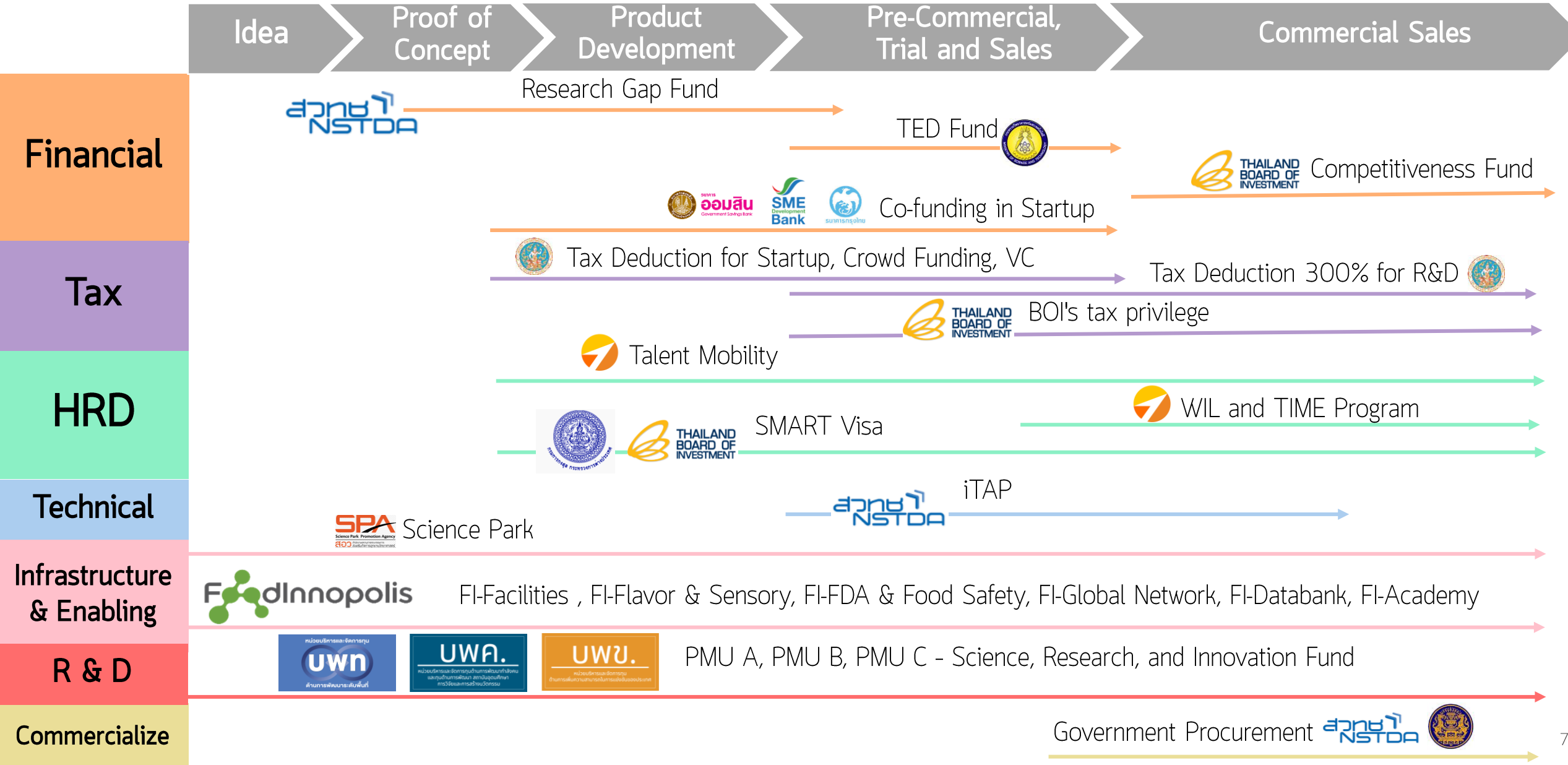
- resolving major health issues inherent to this region such as liver fluke
- promoting insect farming for an alternative protein source
- developing cultural tourism along the Mekong riverbank

Southern Economic Corridor (SEC)

- precision aquaculture
- innovative halal food products
- development of new tourist destinations



Example of Supporting Mechanisms



Investment Aspect: BOI Investment Incentives

TAX INCENTIVES*

≥ 8 years
Corporate
Income Tax
Exemption

↓ **Exemption/
Reduction of Import
Duty** on Machinery,
Raw Materials,
R&D Materials

25%
Deduction on
Installation/
Construction
of Facilities

NON-TAX INCENTIVES*

Permit to
own land



**No
restriction**
on foreign
currency



**Work
Permit &
Visa
Facilitation**



ADDITIONAL INCENTIVES*

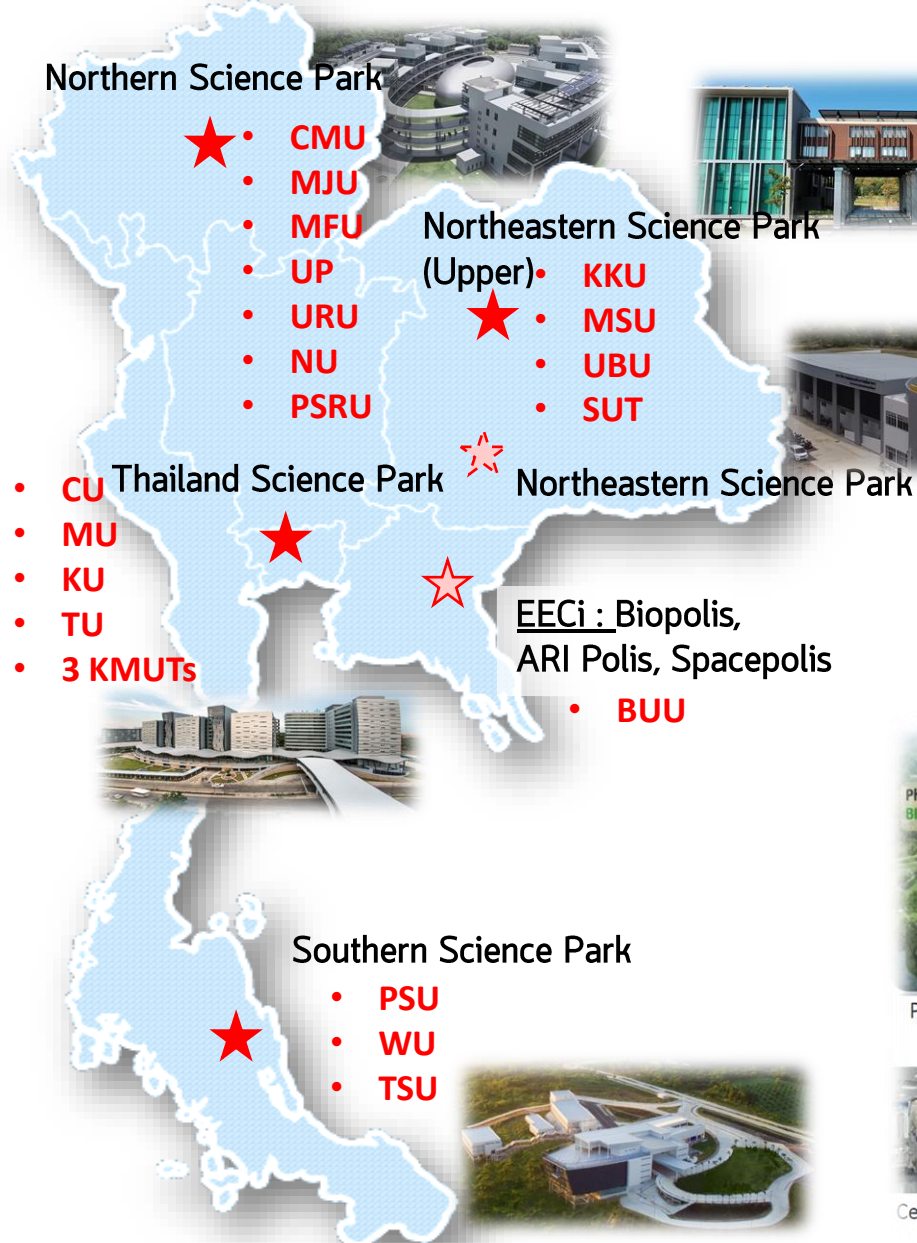
- R&D
- IP Licensing fee
- Advanced technology training
- Development of local suppliers
- Product & Packaging design
- Support academic/research institutes, or technology and human resource development fund

Merit-Based

- EEC 3 provinces
- SEZ 10 provinces
- Southern border provinces
- 20 provinces with lowest income
- Industrial Estates/Zones
- Science and Technology Parks (Thailand Science Park, Food Innopolis, Space Krenovation Park)

Area-Based

Public Sector Investment



FdInnopolis
Network & Specialization

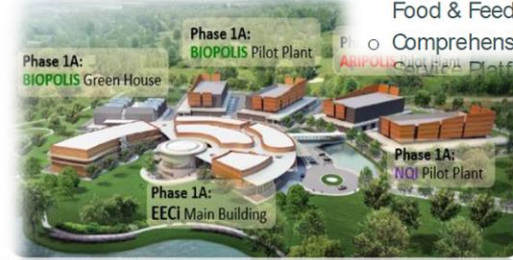
Headquarter @ Thailand Science Park

- One-Stop Service Center
- Future Food Lab (FFL) for SMEs & Startups
- STI Infrastructure for Private Sector RDI Center
- National STI Facilities e.g. NCTC, CTEC, DECC, and Food & Feed Innovation Center
- Comprehensive Food Innovation Service Platforms

CMU : High-value Ingredients & Food Pilot Plant
MJU : Organic Food & Gastronomy, and Food Makerspace
MFU : Tea & Coffee Innovation
NU : Herbal Innovation & Food Pilot Plant (HPP)

KKU : Functional Ingredients
SUT : Animal Meat Product, Fruit & Vegetable, and Functional Food
UBU : High Value Added Local Food

KU : Food Pilot Plants (R&D, Scaling Up, GMP) and Functional Ingredients
CU : Dairy Innovation
MU : Nutritional and Functional Foods
TU : High Value Added Functional Foods
KMUTT : Solution on Innovative Automation and New Technology of Food Processing for SMEs
KMITL : Adv. Food Processing, Feed Innovation, Future Protein and Food Safety & Innovation for Street Food
UTCC : Beverage Innovation and Functional Foods
TISTR : Food Innovation Service Plant (GMP)
TINT : Radiation and Isotope Technology for Food Quality and Safety



Phase 1A: Completed in 2021



Startup Center Co-Working Space



Centers of Excellence



Testing Center



Scale-up Facilities



Demonstration Plant



Living Lab & Regulatory



BCG Demand for Manpower



BCG Manpower Development Strategy



Reskilled/Upskilled



Work Integrated Learning (WiL)

Educational activities that **integrate academic learning and practical application** in the workplace through combination of academic and work-related activities.



Talent Mobility

Mobilizing talents from universities and public research institutions to assist private sector in technological upgrading




Example of Private Sector Investment

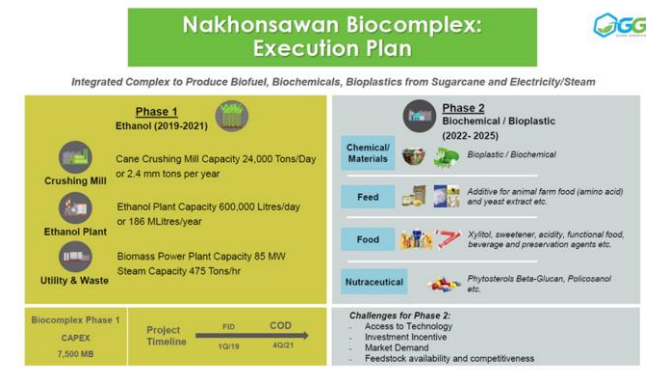
The Nakhon Sawan Biocomplex (NBC)

 A joint venture of two SET-listed companies:
GGC (Global Green Chemicals Plc) & **KTIS** (Kaset Thai International Sugar Corporation Plc).

 The First phase focuses on **Biofuel**. The development is for a sugar-cane crushing unit processing 24,000 tonnes a day and an ethanol plant producing 600,000 litres a day.

GGC and KTIS signed an agreement in August 2018 with Finnish state-owned **Chempolis Co**, a biorefinery technology provider, to conduct a feasibility study of biochemical products from sugar fibre. The collaboration is to research and develop possible biochemical products from sugar fibre via Chempolis's cellulosic technology.

 More than 400 workers will be employed for the farmers in the area and ethanol plant.
Reduce water usage by 30% once the project is fully operated

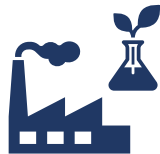


ASEAN Partnership for BCG Economy Proposal



HRD & RDI

- Researcher & Talent Mobility
- RDI Grant & Funding



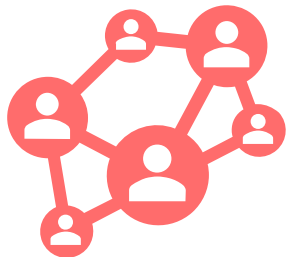
Infrastructure Sharing

- Research Labs
- Pilot Plants
- Quality Infrastructure



Investment Promotion

- Academic - Industry Link
- Innovation Sandbox



Joint Funding & Partnership Contribution

- ASEAN work with ASEAN
- ASEAN help ASEAN
- ASEAN & Dialogue Partners