



Carbon Reduction and High Value Development in Functional Food Between Thailand and Taiwan

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Thailand Institute of Scientific and Technological Research (TISTR)

Thailand-Taiwan Industrial Collaboration Summit 2023
12th September 2023

Thailand Institute of Scientific and Technological Research (TISTR)

A state enterprise administered under Ministry of Higher Education, Sciences, Research and Innovation, Thailand as a key R&D institute of the country



Location

Pathumthani

- R & D
- Material Properties Analysis and Development Centre
- Microbes Centre (Bangkok MIRCEN, UNESCO)

Bangkok (Bangkhaen)

- Thai Packaging Centre

Chiangmai

- R&D at Doi Pui

Nakhon Ratchasima

- ✓ Sakaerat Environment Research Station (UNESCO-Biosphere Reserve)
- ✓ Lam Takhong Research Station

Samutprakarn

- Industrial Metrology and Testing Service Centre



TISTR STI Infrastructure

1 Algal Excellent Center

2 Pilot Plant for Research Products Production

3 Technology Transfer Center (Postharvest Tech. for Longan)

4 Technology Transfer Center (Food Processing Innovation) in Phrae

5 Pilot Plant for Ethanol Production in Kamphaeng Phet

6 Innovation Center for Production on Industrially-used Microorganism

7 Biodegradation Testing Center

8 Technology Transfer Center for Applied Technologies to SMEs

9 Railway and Transportation Systems Testing and Development Building

10 Operation Building for Crop Strain Expansion and Development for Economic Forest for Communities

11 Building for Visual Agricultural Technology

12 Center for Organic Crop Strain Development and Improvement for Communities

13 R&D Center for Biomass Technology

14 Learning Center on Natural Materials Innovation

STI Total Service

Technology Services Training Education Provider

10 Translational STI Center for Food Industry

10 Standard for Animal Testing in Laboratory

มาตรฐานงานด้านสัตว์ทดลอง

มาตรฐานระดับสากล

- มีคน ฝึกอบรม มาตรฐานระดับสากล
- System มาตรฐาน การปฏิบัติในระดับสากล
- Subcontract มาตรฐาน การปฏิบัติในระดับสากล
- Implementation มาตรฐาน การปฏิบัติในระดับสากล

Thai Packaging Center

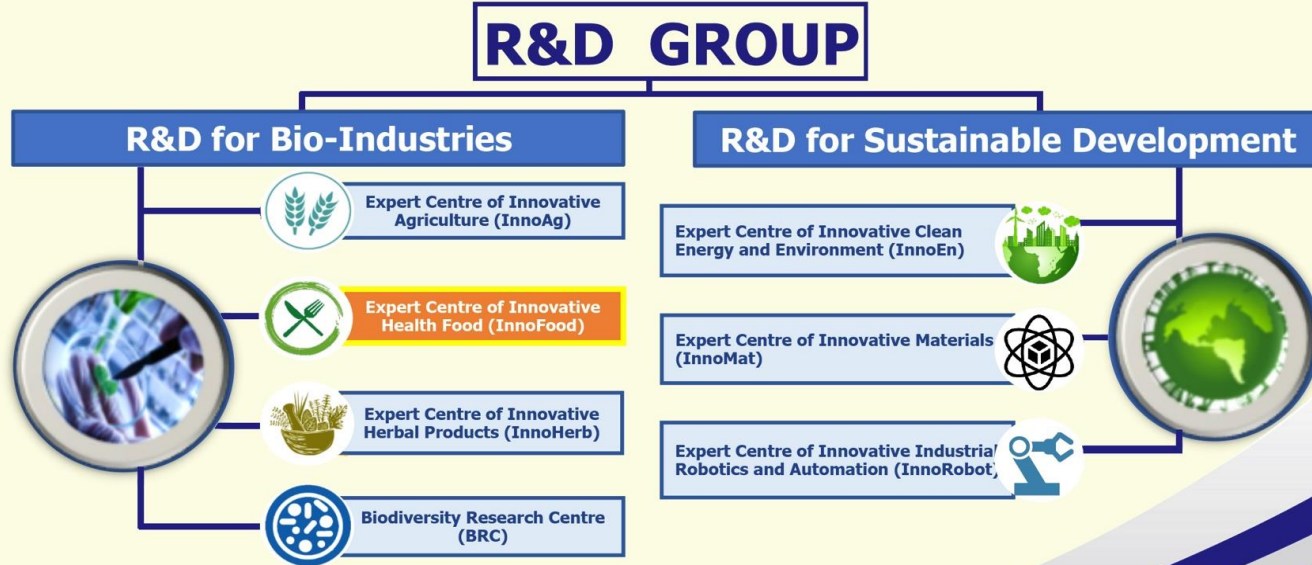
ศูนย์การบรรจุภัณฑ์ไทย

Assessment and Certification of Quality Management Systems





Automotive Robotics Medical hub Biofuels Aviation Agriculture Wellness Food for the future Smart electronics Digital





Overview of Expert Center of Innovative Health Food (InnoFood)

Overview of InnoFood: Vision, Mission & Objectives

Vision

"To achieve excellence, increase innovation and creativity in research and development of Functional Food/Drink, Dietary Supplements and Natural Functional Ingredients in order to potentially enhance competitiveness of Thailand Food Industry in Asian market"

Mission

"To research, develop, service and provide consultancy on Functional Food/Drink, Dietary Supplements and Natural Functional Ingredients"

Objectives

"To support private & governmental sectors on Sciences, Technology and Innovation (STI) regarding Functional Food/Drink and Dietary Supplement products as well as Natural Functional Ingredient"

Role and Responsibility of InnoFood



R&D



Adv Tech.

Natural Functional Ing.
Functional Food/drink
Dietary Supplement

Basic Tech

Area based

Services/ Consultancy



Testing on Food
& Food Related
Products

*R&D Services

Infrastructure

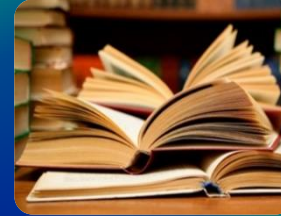


Scale up Plant
study/OEM
(FISP)

Beverage
Production
Scale up Plant

Dehydrated Fruit
Scale up Plant

Academic Support



Student
Internship

Advisory
Service

MOU/
Joint Projects

Training /
Conference

Commercialization



Business
Matching

Technology
Transfer

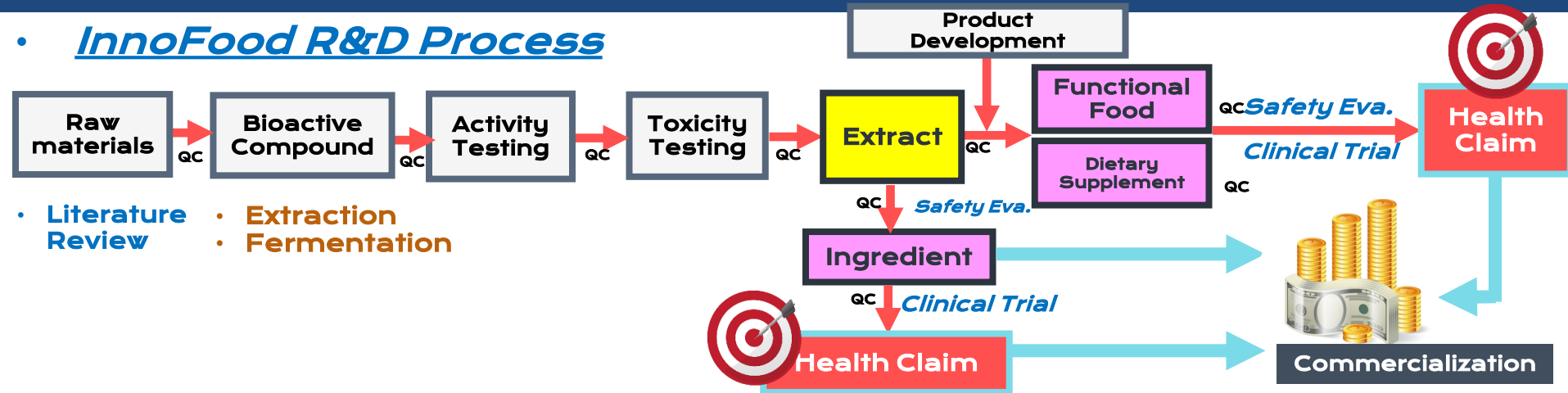
InnoFood Operation: R&D Process



• Thai FDA Guideline



• InnoFood R&D Process



- Literature Review
- Extraction
- Fermentation

Functional Ingredients: InnoFood



Anthocyanin extract from mulberry Aloe Vera extract Fiber from by-product Asparagus Fructan from Asparagus extract Phyllanthus Emblica Extract Lotus seed extract Chayote+Brassica oleraceae var. gongylodes extract Holy basil Extract Soluble dietary Fiber from mango peel



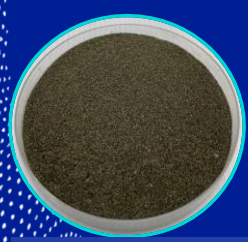
In Vitro

In Vivo

Clinical Study

Health Claim

Alternative Protein: InnoFood



Spirulina platensis
TISTR 8217



Cladophora glomerata Kutzing.

Protein Concentrate /Isolated



Pigeon pea

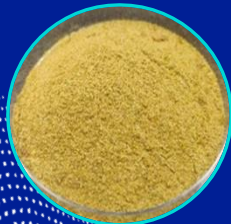


Vigna mungo



Red kidney bean

Protein Hydrolysate



By- product
Asparagus



Schizophyllum commune



Pleurotus pulmonarius



Acheta domestica



Gryllus bimaculatus

Insects



Rice bran



Pigeon pea

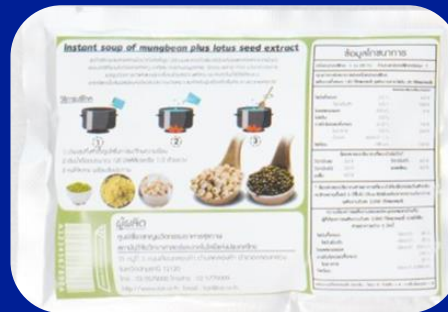
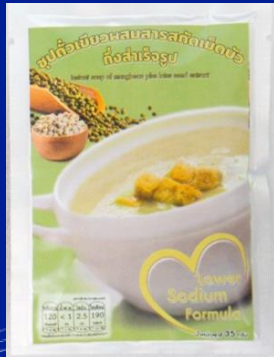


Shiitake

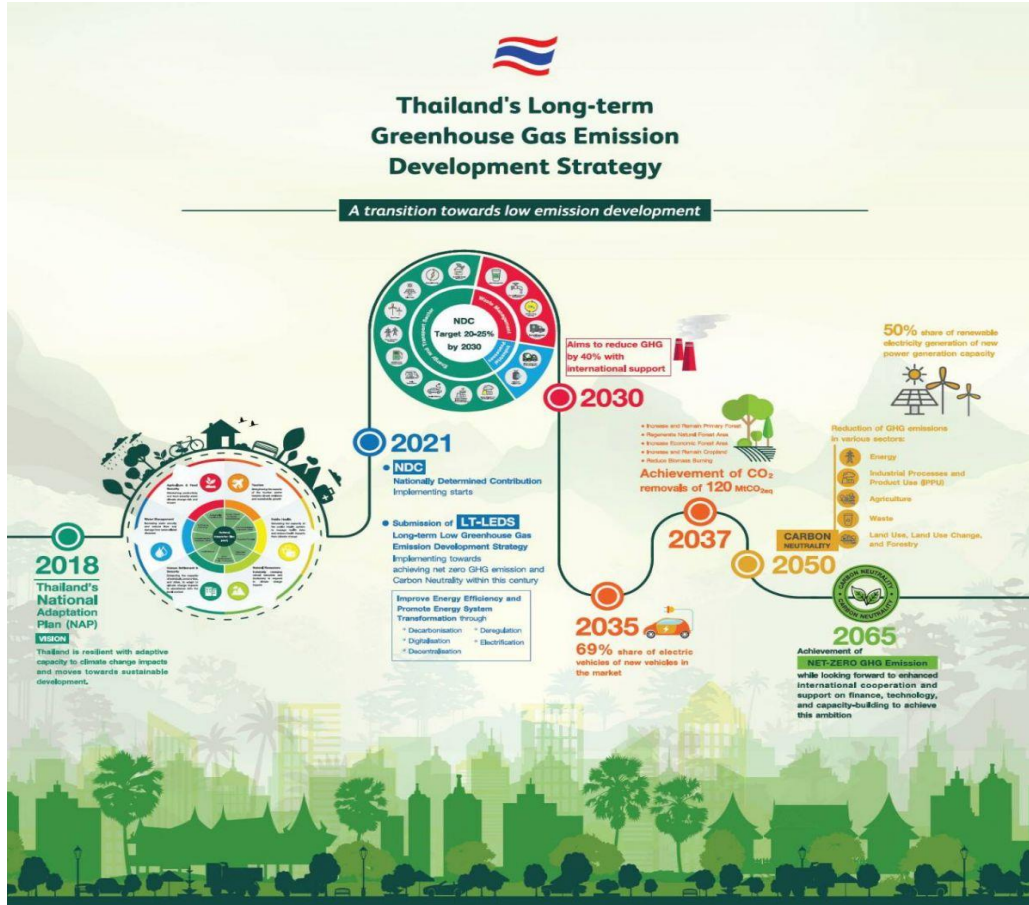
Legume

Mushrooms

Future Food



Thailand's Long-term Greenhouse Gas Emission Development Strategy, COP26, UK



The National Roadmap Toward Net Zero



2021	2030	2050	2065
Implementation of National Determined Contribution (NDC) for Reduction of GHG	Reduction of GHG by 40% With International Support	Achievement of Carbon Neutrality Reduction of GHG in various sectors eg. Energy, Waste, Industrial, Agriculture Land use Forestry	Achievement of Net Zero GHG Emission Reduction of GHG in various sectors eg. Energy, Waste, Industrial, Agriculture Forestry

Source: Ministry of Natural Resources and Environment

Long-Term Mitigation Actions in Key Sectors

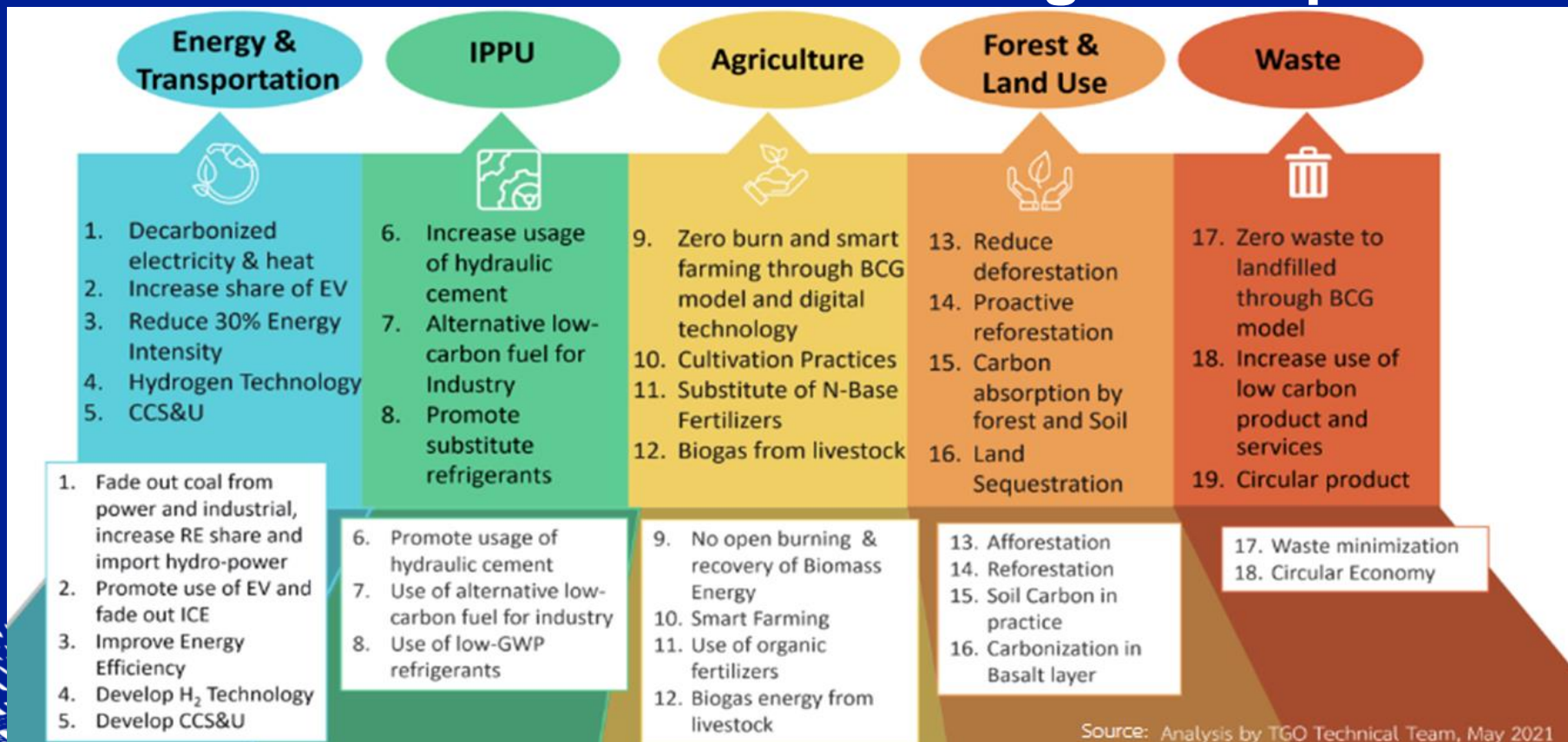


- ENERGY
- INDUSTRIAL PROCESSES AND PRODUCT USE
- WASTE
- AGRICULTURE
- FORESTRY



Source: Ministry of Natural Resources and Environment

Thailand Possible Climate Mitigation Options



Source: Analysis by TGO Technical Team, May 2021



Thanks!

Do you have any questions?

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DRIVING YOUR INFINITE SUCCESS