ผู้สนับสนุน

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ที่ปรึกษา

THAILAND TAXONOMY

A Deep Dive into Agricultural Practices and Criteria for Forestry Activities

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What You Will Learn Today

1. Recap of the Thailand Taxonomy's overall framework and key principles.
2. Understand the Basic Principles of Thailand Taxonomy for the Agriculture sector
3. Deep dive into Agricultural Practices and Criteria for Forestry Activities
4. Explore practical applications and use cases for businesses.

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INTRODUCTION
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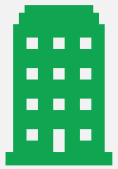
Energy

Transportation

Agriculture



Construction & Real Estate

Manufacturing

Waste Management

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The Importance of Thailand Taxonomy for a Sustainable Economy

มาตรฐานกลางแบบภาคสมัครใจ ที่ใช้อ้างอิงการจำแนกและจัดกลุ่มกิจกรรมทางเศรษฐกิจที่เป็นมิตรต่อสิ่งแวดล้อมของไทย

✓ provides a common framework to steer the market and guide investors and stakeholders.

✓ helps mobilise green financing, avoid greenwashing, and increase capital flows to truly green projects.

✓ serves as a tool for the government to direct capital flows and achieve national climate objectives.

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Thailand Taxonomy identified and prioritizes 6 sectors that are both major contributors to environmental impacts for sustainable transformation, aligning with Thailand's economic structure and commitments.

Phase I

- Energy
- Transportation

Phase II

- Agriculture
- Construction & Real Estate
- Manufacturing
- Waste Management

Thailand Taxonomy is structured and designed to improve the ecological and climate credentials of the economy, and activities within each sector are selected on the basis of the following:

1. Contribution to Environmental Objectives
2. Availability of Technologies and Best Practices
3. Align with National Policies & Other Green Taxonomies
   (inclusion into other taxonomies)
4. Economic Significance
   certain activities is provided for information purposes, but it is not the main reason for activities selection.

*Climate-material activities are selected based on the International Standard Industrial Classification of All Economic Activities (ISIC)(Rev. 4) classification system.

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Taxonomy is:

- A system for classifying economic activities to separate sustainable activities from those that are unsustainable and harmful to the environment and climate.
- A convenient tool for use by economic agents, financial market participants and government agencies.
- A tool to categorise financial flows and increase transparency in disclosure, issuance of green financial instruments and financial decision-making.
- A tool to decarbonise those activities that have the potential to affect the climate (climate material) or environment.
- A living document

Taxonomy is NOT:

- A tax collection. The name Taxonomy contains "Tax" but it's not a tax.
- A classifier of activities into 'good' and 'bad'.
- A tool for assessing the financial or economic characteristics of an activity.
- Prohibit lending. Loans can still be issued according to the policies of financial institutions.
- Prohibit investment. Investments can still be made according to the risk appetite of each individual.

Source: Climate Bonds Initiative

Basic Principles of Thailand Taxonomy for the Agriculture Sector

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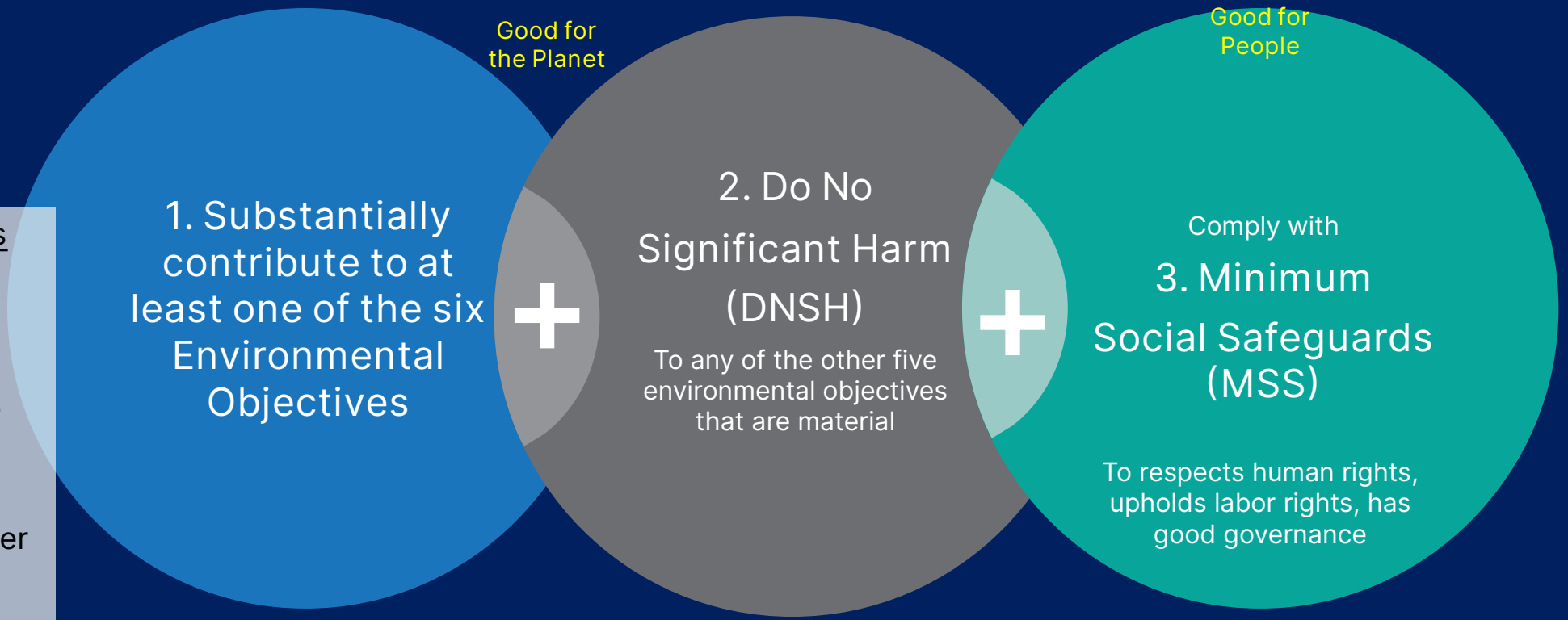
The 3 Core Pillars of Thailand Taxonomy Alignment



Key Development Principles

- ✓ Based on up-to-date climate science
- ✓ Covers a maximum of climate-material activities
- ✓ Interoperable with other green taxonomies
- ✓ Locally applicable, consider Thai Context in amber activities
- ✓ Provides paths to decarbonization for hard-to-abate sectors of the economy
- ✓ Dynamic & Living document

EO1- Climate change mitigation
EO2- Climate change adaptation
EO3- Sustainable use and protection of marine and water resources
EO4- Promotion of resource resilience and transition to a circular economy
EO5- Pollution prevention and control
EO6- Protection and restoration of biodiversity and ecosystems

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Basis for the activities selection within the sector

The agricultural sector is the most challenging sector to include in taxonomies because of the huge number of variables affecting it (such as water, air and soil chemistry), the diversity of practices and the lack of reliable data. Only the taxonomies of Colombia, Rwanda and (partly) Singapore contain agricultural sectors.

For the selection of activities, the climatic materiality of different activities and the most significant challenges driving the development of this sector in the country were analysed.

- ✓ Agriculture, livestock and forestry were identified as the most material subsectors in terms of emissions and environmental issues to be addressed.
- ✓ The inclusion of the fisheries (aquaculture production) sector, which is not climate material but is important to the Thai economy, is also being worked on in the taxonomy.

Agricultural sector activities

Thailand Taxonomy	ISIC Code
Agricultural practices	
General perennial or non-perennial crops	Various activities from A011, A012 and A016 except for 0112, 0126 and 0129
Sustainable rice production	0112
Sustainable sugarcane production	0111
Sustainable oil palm production	0126
Sustainable rubber trees production	0129
Sustainable cassava production	0113
Sustainable livestock production	014
Sustainable aquaculture production	032
Forestry activities	
Sustainable forest management	02
Forestry plantation	02
Conservation, restoration and maintenance of natural forests	02

Practice-based approach

Criteria-based approach

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Basic Principles of the Agricultural Sector

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Agricultural Criteria Activity Scope

Boundary of activities that are in the scope of the Taxonomy

Waste management

Production and supply of inputs used on the farm

Farm-level agricultural practices

Primary processing and storage before points of sale

Inputs, capital goods and transformation processes

Agricultural outputs:
- Fruits and crops
- Animal products
- Agroforestry products

Off-farm activities
to enable mitigation and adaptation on farms

Processing or distribution of agricultural goods

Wholesale or retail

Packaging or handling

= Out of scope

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Agricultural criteria: a practice-based approach

Definition of Agricultural practice.

An agricultural practice refers to the methods and techniques used in farming to cultivate crops and rear animals. Practices can be sustainable or unsustainable, meaning that they can either contribute to taxonomy objectives (like the application of nature-based solutions) or be harmful to them (like slash-and-burn practices). The taxonomy incentivises the application of sustainable practices given in Annex and disincentivises from applying unsustainable practices.

- Thailand Taxonomy Agriculture sector is based on introduction of eligible practices and providing assurance of not doing any harm to the environment.
- The proposed methodology encompasses pivotal aspects like land management, climate change adaptation and mitigation, water management, and biodiversity and ecosystem protection. It defines sustainable investments and practices, rendering them attainable for all projects, under specific requirements outlined to meet the stringent criteria for inclusion in this Taxonomy.
- There are a number of levers available to reduce emissions from agriculture which we are trying to target through these criteria. These include, but not only:
  - Less emission intensive crops and animal production
  - Reduced use of chemicals
  - Increased use of bio solution
  - Use of organic fertilisers
  - Use of low-carbon equipment
  - Better monitoring of environmental conditions
  - Plant breeding dedicated to achieve better yields and resilience

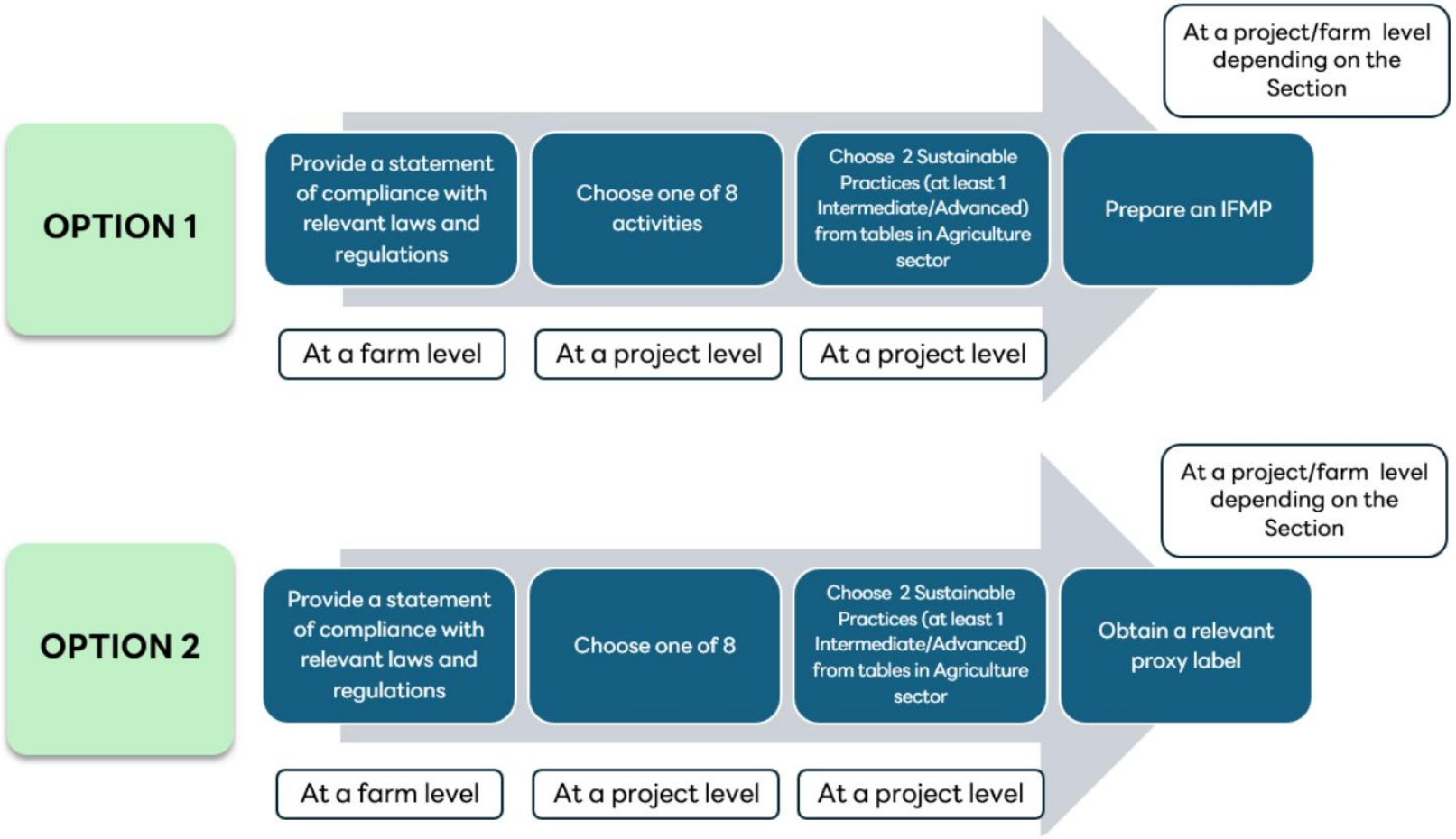
Basic practices: measures that are relatively low-cost and not very complex. They generate benefits by enabling more efficient use of resources and environmental preservation with respect to the traditional extensive model.

Intermediate practices: measures and technologies of greater complexity than the basic ones, incorporating greater technical knowledge and investment.

Advanced practices: changes that fundamentally modify the production model, integrating techniques, knowledge and inputs that allow for the highest productive and environmental yields.

Complementary adoptions: these are specific technologies that are beneficial to any farm at any stage of its development. The manager of the farm may choose one of the complementary adoptions as one of the practices to implement under the transformation project.

A Model for Agricultural Criteria



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Integrated farm management plan (IFMP)

- Objectives of the transition project. What changes are planned to be achieved on the farm by implementing the practices
- Current situation on the farm.
  - What natural resources (soil quality, vegetation, water sources, etc.) are available on the farm and in the surrounding area?
  - Information about the fertilisers and pesticides the farm manager uses.
  - Provide climate-relevant data.
  - Data on conservation practices that have already been integrated into the production system;
  - Expected results: impact indicators, such as productivity gains, efficiency in the use of natural resources and other metrics used.
- The nature of transition. What changes will be implemented throughout the project?
- Expected results of the project. In the opinion of the farm manager, what result will the implementation of the transformation plan lead to in terms of ecology, climate, yield and other indicators?
- Do-No-Significant-Harm
- Objectives contribution

Integrated farm management plan (IFMP)

Do No Significant Harm part

- ✓ Avoid habitat destruction: burning, felling or fragmentation of natural vegetation.
- ✓ Protect areas of natural forest. Set aside at least 40% of the forest for regeneration or conservation.
- ✓ Avoid the introduction of non-native species. Native species are allowed. Naturalised species with proven benefits in restoration programmes are allowed.
- ✓ Control the use of agrochemicals (fertilisers and pesticides) because, in excess, they cause the decline of populations of beneficial organisms in terrestrial and aquatic ecosystems.
- ✓ Avoid any slash-and-burn practices or burning of agricultural residues.

Substantial Contribution part

- ✓ Increase species diversity, seeking to connect non-degraded areas via corridors and buffer zones. Involve planting and maintenance of vegetation: trees, shrubs, mangroves and other natural ecosystems.
- ✓ Encourage the use of native or naturalised species
- ✓ Strengthen practices that allow the rational use of nutrients and the biological control of pests, diseases or parasites, promoting the development of organisms that act as natural predators, decomposers and parasitoids.
- ✓ Improve the resilience of ecosystems by protecting mangroves, forests, and wetlands. Use climate-tolerant agricultural varieties, breeds and forest species.

Proxy Certifications

Certification scheme	Associated crops
Cocoa Certification — Conservation Alliance	Cocoa
Certification Scheme for Organic Agriculture (Thailand)	General perennial and non-perennial crops
Thai Agricultural Standard Organic Agriculture: The production, Processing, Labelling and Marketing Of Organically Produce And Products (TAS 9000-2021)	General perennial and non-perennial crops
UTZ Certified and Rainforest Alliance	General perennial and non-perennial crops
International Sustainability and Carbon Certification	General perennial and non-perennial crops
Thai Quality Good Agricultural Practice (Q GAP)	General perennial and non-perennial crops
Singapore Good Agricultural Practice (SG GAP) Certification	General perennial and non-perennial crops
Global GAP	General perennial and non-perennial crops, Livestock production, Aquaculture production.
Farm Sustainability Assessment (FSA)	General perennial and non-perennial crops
Singapore Clean and Green Certification	General perennial and non-perennial crops
IFOAM Standard	General perennial and non-perennial crops, Aquaculture production
Organic label of the National Bureau of Agricultural Commodity and Food Standards	General perennial and non-perennial crops
Proterra Foundation	General perennial and non-perennial crops
RSB Standard	General perennial and non-perennial crops
Climate Bonds Protected Agriculture and Water Infrastructure Criteria	General perennial and non-perennial crops
USDA Organic Label	General perennial and non-perennial crops
Naturland Standards	General perennial and non-perennial crops
EU Organic Regulations	General perennial and non-perennial crops
Roundtable of Sustainable Palm Oil	Palm oil
Indonesian Sustainable Palm Oil	Palm oil
Malaysia Sustainable Palm Oil	Palm oil
Palm Oil Innovation Group	Palm oil
Forest Sustainability Council (FSC)	Rubber trees
Programme for the Endorsement of Forest Certification (PEFC)	Rubber trees
Sustainable Rice Platform	Rice
T-VER-P-METH-13-08	Rice
Climate-Friendly Rice Certification (AgriCapture)	Rice
Thai Agricultural Standard for Sustainable Rice (TAS 4408-2022)	Rice
Roundtable on Responsible Soy	Soy
Bonsucro	Sugarcane
Smartcane BMP	Sugarcane
Aquaculture Stewardship Council	Aquaculture production
Best Aquaculture Practices	Aquaculture production
Premium T-VER	
Agricultural Product Standards: Good Agricultural Practices	Livestock production
Thai Agricultural Standard Organic Livestock	Livestock production
Better Cotton Initiative (BCI)	Cotton
Soy Sustainability Assurance Protocol (SSAP)	Soy

Eligible expenditures

Regardless of the chosen option, alignment with the taxonomy allows to mark as taxonomy-aligned the following items and revenue streams:

- Expenditures required to implement the transformation project, including items and services from the “eligible inputs” column of each tables of Annex;
- Expenditures required to make substantial contribution to measures;
- Revenues coming from selling farm production after the transformation project was completed.
  - Please note that only revenues from farm products that were transformed throughout the transformation project are considered taxonomy aligned.
  - For example, if the farm grows corn and soy together and the manager carries out a transformation project aimed at increasing biofertiliser input for soy (or obtained Roundtable on Responsible Soy certification), only soy and revenues associated with selling soy are considered taxonomy aligned.
  - This product taxonomy alignment lasts two years , counting from the date when the transformation project was fully implemented.

Thailand Taxonomy: Agricultural Practices

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1. General perennial or non-perennial crops	2. Sustainable rice production	3. Sustainable sugarcane production	4. Sustainable oil palm production	5. Sustainable rubber trees production	6. Sustainable cassava production	7. Sustainable livestock production	8. Sustainable aquaculture production
Basic Practices (e.g., crop rotation, fertilizer management, pest and disease control, water management etc.)							
Intermediate Practices (e.g., waste management and treatment of water contaminated with organic wastes; water harvesting technologies; organic or green manures (use of mulching) chains)							
Advanced Practices (e.g., the shift from transient crops or pasture to agroforestry systems; Introduction of polycultures or intercropping of permanent crops; improvement of genetic material in seeds and reproductive material; biotechnology in agricultural production chains)							
Complementary Adoptions (e.g. nature-based solutions (NBS) for water resources management; parametric insurance for mitigating climate risks; capacity building on sustainable agriculture models; biodigesters; energy saving and clean energy)							

1. GENERAL PERENNIAL AND NON-PERENNIAL CROPS

1. General perennial or non-perennial crops

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Soil conservation • Irrigation management • Water management • Fertiliser management • Pest and disease control • Management and processing of agricultural residues • Compliance with agricultural standards • Crop rotation (in transient or short-cycle crops)	• Utilise Agrimap for zoning agricultural land based on various factors such as soil type, crop suitability, and climate conditions • Land levelling • Water harvest technologies (NBS) • Composting, organic and bio-fertilisers • Integrated weed management • Laser-based weed eliminators • Implement precision agriculture technologies and practices • Waste management and treatment of water contaminated with organic wastes • Traceability and certification	• Biodigesters • Improvement of genetic material in seeds and reproductive material. Biotechnology in agricultural production chains • Introduction of polycultures or intercropping of permanent crops • Shift from transient crops or pasture to agroforestry systems (e.g. fruit or forestry) and agroforestry systems (NBS) • Payment for Environmental Services (PES)	• Parametric Insurance for mitigating climate risks • Capacity building on sustainable agriculture models • Nature-based water management (NBS) • Energy saving and clean energy

2. SUSTAINABLE RICE PRODUCTION

2. Sustainable rice production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Alternative wetting and drying (AWD) • Soil conservation • Water resources management • Pest and disease control • Prolonged midseason drainage • Crop diversification and rotation	• Rice variety diversification (drought- and heat-tolerant strains and short-duration varieties) • Laser land levelling • Dry Direct-Seeded Rice (DSR) • Composting, organic and bio-fertilisers • Machinery and accessories providing alternatives to burning waste	• Biodigesters • Straw and stubble management (SSM) • Drones for agricultural use • Precision agriculture equipment • Agro-met advisory services • Agrosilvopastoral systems (NBS)	• Rice harvesters • Infrastructure and equipment to produce bio-inputs in general. • Establishment of forest plantations (NBS) • Maintenance of forest plantations (NBS) • Efficient engines • Efficient pumping systems • Modernisation of the cooling systems • Energy saving and clean technology

3. SUSTAINABLE SUGARCANE PRODUCTION

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3. Sustainable sugarcane production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Conservation tillage • Pest and disease control • Water resources management • Crop rotation	• Land levelling • Composting, organic and bio-fertilisers • Replacement of slash and burn with sustainable practices	• Biodigesters • Genetic improvement of seedlings and reproductive material • Drones for agricultural use • Precision agriculture equipment • Agrosilvopastoral systems (NBS)	• Infrastructure and equipment to produce bio-inputs in general. • Efficient pumping systems • Energy saving and clean technology • Efficient engines • Modernisation of the cooling systems • Establishment of forest plantations (NBS) • Maintenance of forest plantations (NBS)

4. SUSTAINABLE OIL PALM PRODUCTION

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4. Sustainable oil palm production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Soil conservation • Intercropping, cover cropping and mulching • Pest and disease control	• Composting, organic and bio-fertilisers • Machinery and accessories providing alternatives to burning agricultural residues • Traceability and certification	• Biodigesters • Biodiversity conservation • Plant genetic improvement and propagation materials • Drones for agricultural use • Precision agriculture equipment • Agrosilvopastoral systems (NBS)	• Nature-based water management (NBS) • Infrastructure and equipment to produce bio-inputs in general • Establishment of forest plantations (NBS) • Maintenance of forest plantations (NBS) • Efficient engines • Efficient pumping systems • Modernisation of the cooling systems • Energy saving and clean technology

5. SUSTAINABLE RUBBER TREES PRODUCTION

5. Sustainable rubber trees production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Soil conservation (NBS) • Responsible chemical use • Pest and disease control	• Composting, organic and bio-fertilisers • Water resources management • Traceability and certification • Machinery and accessories providing alternatives to burning waste	• Biodigesters • Biodiversity conservation • Genetic improvement of reproductive material • Drones for agricultural use • Precision agriculture equipment • Agrosilvopastoral systems (NBS)	• Nature-based water management (NBS) • Infrastructure and equipment to produce bio-inputs in general. • Establishment of forest plantations • Maintenance of forest plantations • Efficient engines • Efficient pumping systems • Modernisation of the cooling systems • Energy saving and clean technology

6. SUSTAINABLE CASSAVA PRODUCTION

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6. Sustainable cassava production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Soil conservation and contour planting • Organic mulching • Timely and balanced fertilisation	• Intercropping with legumes • Improved pruning techniques • Cover cropping	• Precision agriculture and digital monitoring • Bioinput-based pest and disease management • Agroforestry systems	• Establishment and strengthening of organizations for implementing basic sustainable practice. • Energy savings and clean energy • Electric, hybrid or biofuel-based machinery and accessories for minimum and conservation tillage • Biodigester machinery and equipment • Efficient engines • Efficient pumping systems • Modernization of cooling systems • Live fences • Conservation tillage • Silvopastoral systems

7. SUSTAINABLE LIVESTOCK PRODUCTION

7. Sustainable livestock production

Basic Practices	Intermediate Practices	Advanced Practices	Complementary Adoptions
• Compliance with agricultural standards • Efficient management and protection of water sources • Water management	• Animal welfare (excluding health aspects) • Organic and green manures, manure, and effluent utilization • Pasture and fodder management • Balanced nutrition and local feed sources	• Biodigesters, aquatic plant and aquaculture channels, oxidation ponds, composting and vegetative systems • Capacity building on sustainable livestock models • Crop residues utilisation • Fodder hedges • Improved breeds • Intensive silvopastoral systems (SSPI) • Live fences • Mixed fodder banks • Reducing methanogens and improving animal diet • Scattered paddock trees • Improved housing and ventilation	• Clean energies (solar, wind, gravity) and energy efficiency • Nature-based water management • Parametric Insurance for mitigating climate risks • Weather monitoring and forecast systems

8. Sustainable aquaculture production

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8. Sustainable aquaculture production

Basic Practices	Intermediate Practices	Advanced Practices
• Compliance with agricultural standards • Aquatic animal bank • Biosecurity system • Closed-system aquaculture technology with recirculating water and wastewater management • Disease control and monitoring in aquaculture farms • Mobile hatchery • Production of microorganisms for biological aquaculture	• Energy saving and the use of clean energy • Improving aquatic animal breeds to withstand environmental conditions • Integrated multi-trophic aquaculture (IMTA) system • Production and feeding to produce low-carbon aquatic animals • Promotion of aquatic animal health • Traceability and quality certification standards for aquatic products • Transportation of live aquatic animals	• Aquaculture insurance • Aquaculture warning system • Precision aquaculture system

Basic Principles of the Forestry Subsector

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Forestry criteria implementation scheme

Choose one of three eligible activities

1. Sustainable forest management

- Forest management is the process of controlling the use or exploitation of forested land, including extraction of timber and other forestry products.

2. Forestry plantation

- A tree plantation, plantation forest, timber plantation or tree farm is a forest planted for high volume production of wood, usually by planting one type of tree as a monoculture forest.

3. Conservation, restoration, and maintenance.

- Actions needed to return existing natural forests to a healthy state and maintain it in this state.

Obtain a relevant certification

- Thai Forest Certification Council (TFCC)
- Forest Stewardship Council (FSC)
- Programme for the Endorsement of Forest Certification (PEFC)
- Premium T-VER

Inputs required to implement listed changes are considered taxonomy-aligned (if DNSH and MSS are observed)

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1. SUSTAINABLE FOREST MANAGEMENT

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Sector	Forestry
Activity	Sustainable forest management
ISIC Code	0200
Description	Management of planted and natural forests that ensures that forests supply goods and services to meet both present-day and future needs and contribute to sustainable development.
Objective	Climate change mitigation; Protection and restoration of biodiversity and ecosystems
Green	In order to be aligned with the green category of the Taxonomy, the forest manager must first obtain a valid certification (e.g., TFCC, FSC, PEFC, Premium T-VER) for an area where the management activity is taking place. If certification is obtained, the following activities or inputs are aligned with the Taxonomy as green: • Conservation, restoration, and maintenance of forest areas; • Expenditures required to obtain the relevant certification; • Creation and maintenance of nurseries where seeds and seedlings are sourced from sustainably managed areas; • Adoption and maintenance of monitoring technology that enables the tracking of the forest extracts and their conservation status; • Equipment and costs incurred by forest management activities – pre and post extraction, including primary processing that is either powered by renewable energy or appear amongst the most energy efficient in the country – as certified by local energy efficiency standards. • The use of diverse native plants that are suitable for the area to promote biodiversity. Community rights must be respected when implementing any of those practices.
Amber	N/A
Red	Exploitation of timber and non-timber products from any species would lead to or further its threatened conservation status is harmful to the objectives of climate change mitigation and protection and restoration of biodiversity and ecosystems.
Criteria reference	Climate Bonds Forestry criteria; Singapore Asia Taxonomy Criteria

2. FORESTRY PLANTATION

Sector	Forestry
Activity	Forestry plantation
ISIC Code	0200
Description	Plantation of forests and associated activities
Objective	Climate change mitigation; Protection and restoration of biodiversity and ecosystems
Green	In order to be aligned with the green category of the Taxonomy, the forest manager must first obtain a valid certification (TFCC, FSC, PEFC or Premium T-VER) for an area where the forestry plantation activity is taking place . If certification is obtained, the following activities or inputs are aligned with the Taxonomy as green: • Expenditures required to obtain the relevant certification; • Use of organic and bio fertilisers; • Use of physical and biocontrol of pathogens, pests, and weeds; • Conservation, restoration, and maintenance; • Creation and maintenance of nurseries where seeds and seedlings are sourced in sustainably managed areas ; • Adoption and maintenance of monitoring technology that enables the tracking of the forest extracts. • Equipment and costs incurred by the above-mentioned activities (equipment must be powered by renewable energy or appear amongst the most energy efficient in the country – as certified by local energy efficiency standards); • The use of nature-based solutions / integrated landscape management • The use of diverse native plants that are suitable for the area to promote biodiversity Community rights must be respected when implementing any of those practices.
Amber	In order to be aligned with the amber category of the Taxonomy, the forest manager must first obtain a valid certification (TFCC, FSC, PEFC or Premium T-VER) for an area where the management activity is taking place. The following activities or inputs are aligned with the Taxonomy as amber: • Nutrient management plan based solely on chemical fertilisers (available only until 2040) and all associated inputs; • The phytosanitary management plan is based solely on chemicals (available only until 2040) and all associated inputs.
Red	• Use of chemicals listed in the Stockholm Convention 1a or 1b in the WHO classification of pesticides by hazard or not in compliance with the Rotterdam Convention is harmful to the objectives of climate change mitigation and protection and restoration of biodiversity and ecosystems; • Operations on land that has been converted from high carbon stock (HCS55) after Jan 1, 2010 is harmful to the objective of climate change mitigation.
Criteria reference	Climate Bonds Forestry criteria; Singapore Asia Taxonomy Criteria

3. CONSERVATION, RESTORATION AND MAINTENANCE OF NATURAL FORESTS

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Sector	Forestry
Activity	Conservation, restoration, and maintenance of natural forests
ISIC Code	0200
Description	Actions needed to protect and assure that environmental services are provided by natural or pristine forests
Objective	Climate change mitigation; Protection and restoration of biodiversity and ecosystems
Green	In order to be aligned with the green category of the Taxonomy, the forest manager must first obtain a valid certification (TFCC, FSC, PEFC or Premium T-VER) for an area where the management activity is taking place. If certification is obtained, the following activities or inputs are aligned with the Taxonomy as green : • Expenditures required to obtain the relevant certification; • Land acquisition with the purpose of conservation, restoration, and maintenance of natural forests; • Any activities associated with the implementation of the Community Forests Act; • Any activity aimed at the restoration, protection, or proliferation of mangroves; • Use of organic and biofertilisers for the purpose of restoration or replanting of natural forests; • Use of physical and biocontrol of pathogens, pests, and weeds for the purpose of restoration or replanting of natural forests; • Nurseries where seeds and seedlings are sourced in sustainably managed areas; • Adoption and maintenance of monitoring technology that enables the tracking of natural forest extracts and their conservation status; • Equipment and costs incurred by the above-mentioned activities (equipment must be powered by renewable energy or appear amongst the most energy efficient in the country – as certified by local energy efficiency standards); • The use of nature-based solutions / integrated landscape management • The use of diverse native plants that are suitable for the area to promote biodiversity Community rights must be respected when implementing any of those practices.
Amber	N/A
Red	N/A
Criteria reference	Climate Bonds Forestry criteria; Singapore Asia Taxonomy Criteria

Do No Significant Harm (DNSH)

Environmental objectives	Do-No-Significant-Harm Measures
Climate Change Mitigation	• The project should not lead to conversion of high carbon stock lands. • Any slash-and-burn practices or burning of agricultural residues must be avoided at any stage. • Avoid overtelling, overgrazing and excessive application of fertilisers. • Avoid unnecessary waste of food, maximise animal diet efficiency from the points of view of nutritional value and GHG emission reduction potential
Climate Change Adaptation	• Clear boundaries and critical interdependencies between the agricultural production unit and the ecosystem within which it operates must be identified. • An assessment has been undertaken to identify the key physical climate hazards to which the production unit will be exposed and vulnerable over its operating life. • The measures that have been or will be taken to address those risks mitigate them to a level so that the production unit is able to manage changing climatic conditions over its operational life. • Aquaculture only: Avoid using species that are intolerant and/or vulnerable to temperature fluctuations, salinity changes, and other climate-related stressors to reduce vulnerability to climate change impacts.
Sustainable use and protection of marine and water resources	• Protect riparian corridors, wetlands, and other water bodies. • Control pollution of watercourses and avoid the discharge of sediments into water bodies, nutrients, and agrochemicals. • Regulate the volume of water abstracted and returned to natural sources, improving the efficiency of use per unit of production. • Maintaining appropriate stocking densities to reduce the pressure on local water resources and minimize the accumulation of waste and uneaten feed, which can lead to eutrophication.
Pollution prevention and control	• Prevent physical degradation, e.g., erosion and soil compaction. • Prevent chemical degradation, e.g. salinisation, acidification, alkalinisation and pollution. • Avoid biological degradation, e.g. loss of organic matter, imbalance of biological activity and mineralisation processes. • Avoid uncontrolled discharge of wastewater into natural water bodies, uncontrolled and excessive release of nutrients, chemicals, and organic matter.
Protection and restoration of biodiversity and ecosystems	• Avoid habitat destruction: burning, felling or fragmentation of natural vegetation. • Protect areas of natural forest. Set aside at least 40% of the forest for regeneration or conservation. • Avoid the introduction of non-native species. Native species are allowed. Naturalised species with proven benefits in restoration programmes are allowed. • Control the use of agrochemicals (fertilisers and pesticides) because, in excess, they cause the decline of populations of beneficial organisms in terrestrial and aquatic ecosystems.
Livestock-related DNSH (applicable to livestock only)	Provide reasonable level of animal welfare, avoid cruel and inhumane practices. Provide the animal with Five Freedoms.
Aquaculture-related DNSH (applicable to aquaculture only)	Ensure minimal use of antibiotics in line with the latest FAO guidelines, SeaBOS or scientific publications.

Minimum Social Safeguards (MSS)

The eligible asset or activity must ensure that it does not generate a negative social impact and observe minimum social safeguards (MSS). For this, the owner of the activity must adhere to the relevant local regulatory framework and policies, relevant internationally recognised principles and conventions, and have a social management system in place. The minimum number of laws, standards and regulations that should be observed by the owner includes (including, but not limited to):

- United Nations Guiding Principles on Business and Human Rights (2011)

International Labour Organisation core conventions:

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labour Convention, 1930 (No. 29) (and its 2014 Protocol)
- Abolition of Forced Labour Convention, 1957 (No. 105)
- Minimum Age Convention, 1973 (No. 138)
- Worst Forms of Child Labour Convention, 1999 (No. 182)
- Equal Remuneration Convention, 1951 (No. 100)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

International Bill of Human Rights conventions:

- Universal Declaration of Human Rights (1948)
- International Covenant on Civil and Political Rights (1966)
- International Covenant on Economic, Social and Cultural Rights (1966)

The practices of activity owner must also be in line with the following IFC Performance Standards, where applicable:

1. Performance Standard 1: Assessment and management of environmental and social risks and impacts.
2. Performance Standard 2: Labour and working conditions
3. Performance Standard 3: Resource efficiency and pollution prevention
   (in parts where it does not contradict to the DNSH requirements of the present Taxonomy)
4. Performance Standard 4: Community Health and Safety
5. Performance Standard 5: Land Acquisition and Involuntary Resettlement
6. Performance Standard 6: Biodiversity Conservation
7. Performance Standard 7: Indigenous Peoples
8. Performance Standard 8: Cultural Heritage

Example of User Application

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Examples of a wide range of Thailand Taxonomy applications

Corporate Reporting & Strategy

- Sustainability Reporting: Companies can report the percentage of their economic activities (e.g. CapEx, revenue) that meet the taxonomy criteria.
- Strategic Planning: Identifying areas for green investment and transition within the company to improve taxonomy alignment over time.
- Supply Chain Management: Encouraging suppliers to adopt more sustainable practices that align with taxonomy criteria.

Financial Products

- Structuring Green Bonds/Loans: Defining eligible projects and activities for which proceeds can be used.
- Creating Sustainable Investment Funds: Setting criteria for portfolio selection.
- Benchmarking: Comparing the sustainability level of different financial products.

Investment Decisions

- Screening: Identifying investments that meet specific environmental criteria.
- Due Diligence: Assessing the environmental performance and risks of potential investments or loans.
- Portfolio Allocation: Shifting capital towards taxonomy-aligned assets.

Policymaking

- Developing Green Standards and Incentives: Using the taxonomy as a basis for official green labels for financial products or services.
- Informing Public Spending: Guiding government investments and public procurement towards sustainable options.
- Monitoring National Progress: Tracking the growth of the green economy.

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Case Study: Sugarcane and sugar factory

Business profile	Core Business: A medium-sized factory in a key sugarcane-growing province of Thailand, the company oversees the full sugar production process — from cultivating its own cane and sourcing from local farmers to processing, energy generation from bagasse, wastewater management, packaging, and factory maintenance.
GHG emissions hotspots	Scope 1: Emissions from on-site farming (fertiliser use, machinery), bagasse combustion, internal transport, and wastewater treatment. Scope 2: Purchased electricity for factory operations, mainly during off-season or when cogeneration is limited. Scope 3: Emissions from contract farming, cane transport, packaging production, and sugar distribution.

Existing operations of sugar manufacturing business

- Production of sugarcane in own farmland
- Operation of sugar manufacturing factory
- Operation of wastewater treatment plant

Planned Activities

1. Install drones and precision agriculture equipment to improve the practice of sugarcane production
2. Acquisition and Replacement of Freight Transport with Electric Vehicles (EVs)
3. Improve and upgrade equipment/machines in the factory to save energy
4. Construction a cogeneration of heat and power plant using baggage residual from the factory
5. Upgrade the wastewater treatment plant to be able to reuse the effluent in the factory

Future operations of sugar manufacturing business

- Greener Plantation and cultivation of sugarcane in own farm
- Greener Operation of sugar manufacturing factory
- Greener Operation of wastewater treatment plant
- New Operation of a biomass cogeneration of heat and power plant

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Case Study: Sugarcane and sugar factory

Defining taxonomy alignment

1. Install drones and precision agriculture equipment to decrease inefficiencies and save resources	Relevant Sector under Thailand Taxonomy: Agriculture
	Relevant Activity under Thailand Taxonomy: Sustainable production of sugar cane
	Relevant Environmental Objective under Thailand Taxonomy: • EO1: Climate Change Mitigation • E02 Climate Change Adaptation
	Taxonomy-aligned assessment: the farm prepares a list of documents that needs to prove that the transformation project that they want to implement is compliant with the Taxonomy. First, the farm checks whether it complies with all relevant national laws and regulations regarding the type of production. The farm provides a statement of compliance with them, listing all relevant laws for the accepting party to review. After that, the farm selects the practice from the relevant activity table (Table 3 of the Agricultural annex), provides its description and reference to the Taxonomy document. After that, the farm prepares an Integrated Farm Management Plan (IFMP) which includes a statement of compliance with all relevant DNSH requirements and a statement of substantial contribution to the taxonomy objectives prepared in line with the examples provided in the Taxonomy. All these documents are submitted to the accepting party.
	Reporting: Inputs required to implement this transformation such as drones, auxiliary equipment, precision agriculture equipment and training can be procured, and the funds that were used to procure them can be labeled as "Taxonomy-aligned CAPEX." Ongoing operating expenses related to these specific practices can be reported as Taxonomy-aligned OpEx. Revenues coming from selling the farm production (sugarcane in this case) after the transformation project is completed can be reported as Taxonomy-aligned Revenue. However, only revenues from farm products that were transformed throughout the transformation project are considered aligned. This product-level alignment lasts for two years after project completion, after which the farm must repeat or implement new practices to maintain the status. If the farm grows other crops, only the revenue from the compliant sugarcane would be aligned.

Case Study: Sugarcane and sugar factory

Defining taxonomy alignment

2. Acquisition and Replacement of Freight Transport with Electric Vehicles (EVs)	Relevant Sector under Thailand Taxonomy: Transportation
	Relevant Activity under Thailand Taxonomy: Freight transport by road
	Relevant Environmental Objective under Thailand Taxonomy: • EO1: Climate Change Mitigation
	Taxonomy-aligned assessment: This activity can be classified as "Green" if it complies with the following criteria: direct (tailpipe) CO2 emissions of vehicles are zero AND vehicles are not dedicated to fossil fuel transport, which is likely to be the case. To be taxonomy-aligned, the owner must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).
	Reporting: The expenditure for acquiring and replacing the freight transport vehicles with compliant EVs can be reported as Taxonomy-aligned CapEx. Operating expenses for these specific compliant EVs (e.g., maintenance) can be reported as Taxonomy-aligned OpEx. If the activity of providing freight transport using these compliant EVs is considered Taxonomy-aligned (Green), then a proportion of the net turnover derived from this specific aligned activity can be reported as Taxonomy-aligned Revenue.

Case Study: Sugarcane and sugar factory

Defining taxonomy alignment

3. Improve and upgrade equipment/machines in the factory to save energy	Relevant Sector under Thailand Taxonomy: Manufacturing
	Relevant Activity under Thailand Taxonomy: Auxiliary transition activity
	Relevant Environmental Objective under Thailand Taxonomy: • EO1: Climate Change Mitigation
	Taxonomy-aligned assessment: This activity can be classified as "Green" or “Amber” if it complies with the following criteria under the activity card in that Taxonomy: Introduction of energy efficiency and decarbonisation measures in manufacturing activities not specified in the Thailand Taxonomy. To be taxonomy-aligned, the owner must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).
	Reporting: Expenditures for these energy-saving equipment upgrades can be reported as “Taxonomy-aligned CapEx” if they contribute to meeting the Green or Amber criteria for this auxiliary activity and comply with DNSH/MSS. Operating expenses associated with these upgraded machines and the relevant operational changes can be reported as Taxonomy-aligned OpEx. *Revenue reporting* is linked to the overall sugar manufacturing business. The Taxonomy-aligned revenue is the proportion of turnover from aligned activities. If these energy efficiency improvements, combined with other potential measures, lead to the entire sugar manufacturing activity being assessed as Taxonomy-aligned (SBTi trajectory for Green, OR one of the two options for Amber) under this auxiliary activity, then a proportion of the total revenue from the sugar manufacturing business could be reported as Taxonomy-aligned.

Case Study: Sugarcane and sugar factory

Defining taxonomy alignment

4. Construction a cogeneration of heat and power plant using baggage residual from the factory	Relevant Sector under Thailand Taxonomy: Energy
	Relevant Activity under Thailand Taxonomy: Cogeneration of heating/cooling and power using renewable sources of energy
	Relevant Environmental Objective under Thailand Taxonomy: • EO1: Climate Change Mitigation
	Taxonomy-aligned assessment: To be aligned, this plant must meet the specific TSC defined for this type of energy generation. *Status Potential:* Aligned (potentially Green or Amber depending on the specific TSC defined for this activity) if relevant TSC and DNSH/MSS are met or planned for remediation.
	Reporting: The expenditure for the construction of this cogeneration plant can be reported as Taxonomy-aligned CapEx if the completed plant meets the Green criteria for this activity and complies with DNSH/MSS. Ongoing operating expenses for running the compliant cogeneration plant are eligible as Taxonomy-aligned OpEx. The revenue generated by this activity (e.g., selling excess power/heat back to the grid) can be reported as Taxonomy-aligned Revenue if the activity is assessed as Green.

Case Study: Sugarcane and sugar factory

Defining taxonomy alignment

5. Upgrade the wastewater treatment plant to be able to reuse the effluent A in the factory	Relevant Sector under Thailand Taxonomy: Waste Management
	Relevant Activity under Thailand Taxonomy: Construction, extension, upgrade, operation and renewal of decentralised wastewater collection and treatment
	Relevant Environmental Objective under Thailand Taxonomy: • EO4: Resource Resilience and Transition to a Circular Economy
	Taxonomy-aligned assessment: This activity can be classified as "Green" if it complies with the following criteria: 1. Water is for purposes other than human consumption; 2. Water is suitable for reuse after proper treatment depending on the level of contamination and subsequent reuse purposes in accordance with national regulations. For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).
	Reporting: The expenditure for upgrading the wastewater treatment plant can be reported as Taxonomy-aligned CapEx if the completed, upgraded plant meets the criteria for the relevant wastewater activity and complies with DNSH/MSS. Operating expenses for running the compliant, upgraded wastewater treatment plant are eligible as Taxonomy-aligned OpEx. Reusing treated effluent primarily results in cost savings (reduced water procurement) rather than direct revenue generation. While the activity itself (treating and reusing water) might be Taxonomy-aligned, the revenue alignment would typically depend on the alignment status of the overall entity's primary revenue-generating activity (sugar manufacturing). Therefore, there is no taxonomy-aligned revenue to be reported for this activity.

Q&A

Please submit your question using the Q&A feature.

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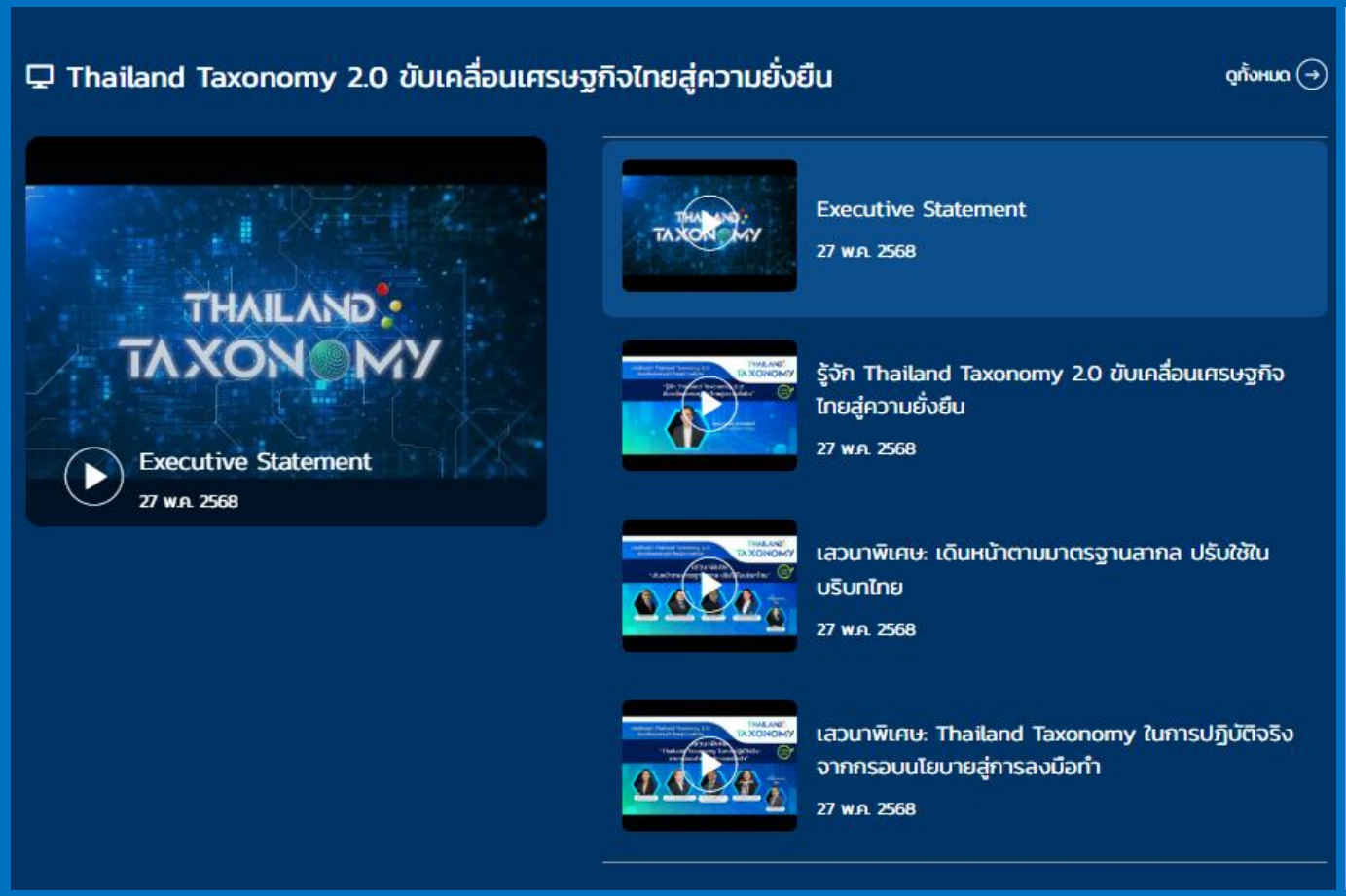
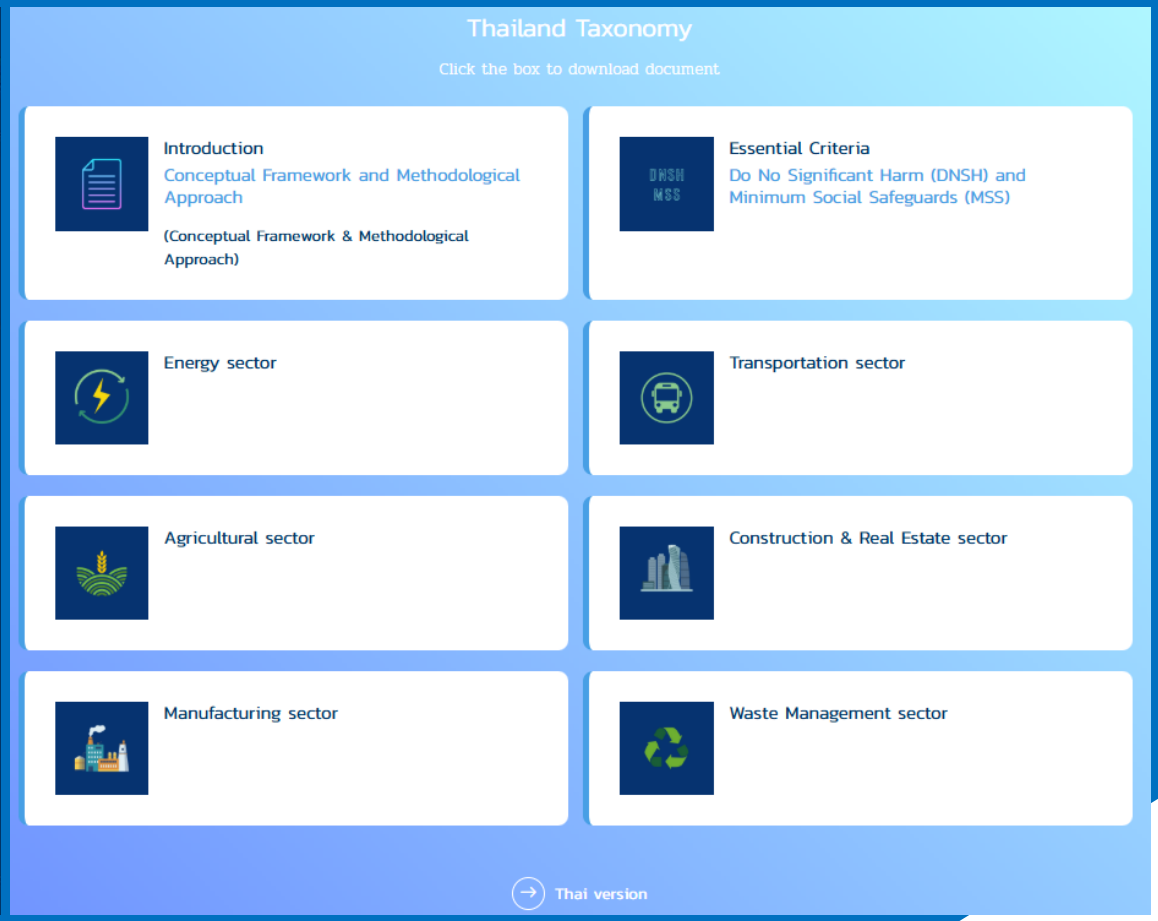
For more resources, please visit the official websites of the organisations under the Thailand Taxonomy Working Group.





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Coming up...

Online Webinar		
27 June 2025	13:30-15:00 ICT	Waste management
30 June 2025	13:30-16:00 ICT	Construction and Real Estate

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