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THAILAND TAXONOMY

A Deep Dive into the Construction and Real Estate Sector

June 2025

Present by
Mr. Boonrod Yaowapruek, Managing Partner, Creagy
Mr. Mikhail Korostikov, Taxonomy Manager, Climate Bonds Initiative

Moderate session by Ms. Preechaya Rassadanukul, Senior Consultant, Creagy

Version: 30 June 2025

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 Construction and Real Estate Sector.
3. Deep dive into the Technical Screening Criteria (TSC) for Construction and Real Estate activities.
4. Explore practical applications and use cases for businesses.

THAILAND TAXONOMY


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INTRODUCTION
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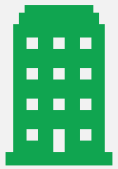
Energy

Transportation

Agriculture



Construction & Real Estate

Manufacturing

Waste Management

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The Importance of Thailand Taxonomy for a Sustainable Economy

มาตรฐานกลางแบบภาคสมัครใจ ที่ใช้อ้างอิงการจำแนกและจัดกลุ่มกิจกรรมทางเศรษฐกิจที่เป็นมิตรต่อสิ่งแวดล้อมของไทย

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

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

✓ It 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

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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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Basic Principles of Thailand Taxonomy for the Construction and Real Estate Sector

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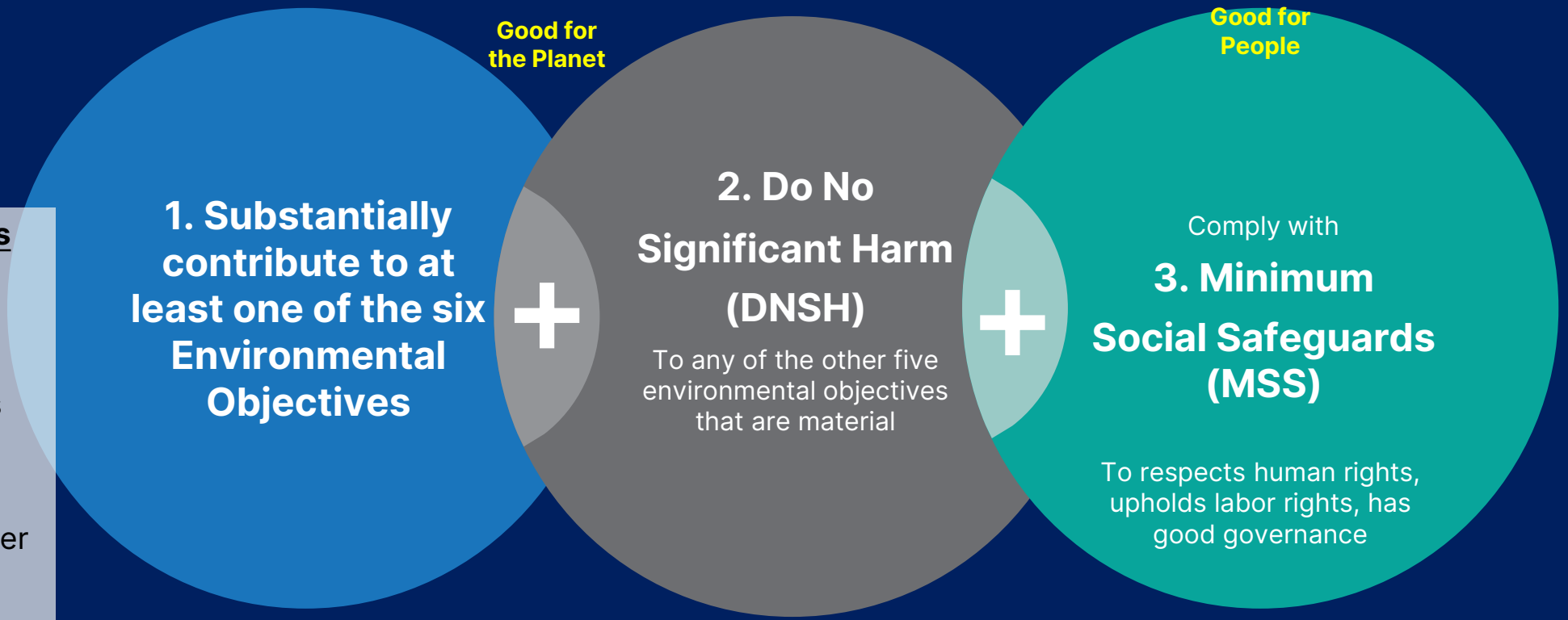
The 3 Core Pillars of Thailand Taxonomy Alignment

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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Thailand Taxonomy uses a “traffic light system" to assess if an economic activity makes a Substantial Contribution to at least one of the six Environmental Objectives

“Traffic Light System”

Green

Activities that **clearly and significantly contribute** to achieving one of the six Environmental Objectives

Amber

Activities that **can be developed to become more environmentally friendly** and potentially move into the green category in the future. They are crucial for the transition to a low-carbon & sustainable economy.

Red

Activities that **cause significant harm** to one or more Environmental Objectives and must be gradually phased out.

*All activities must comply with important principles such as the **Do No Significant Harm (DNSH)** principle and **Minimum Social Safeguards**.

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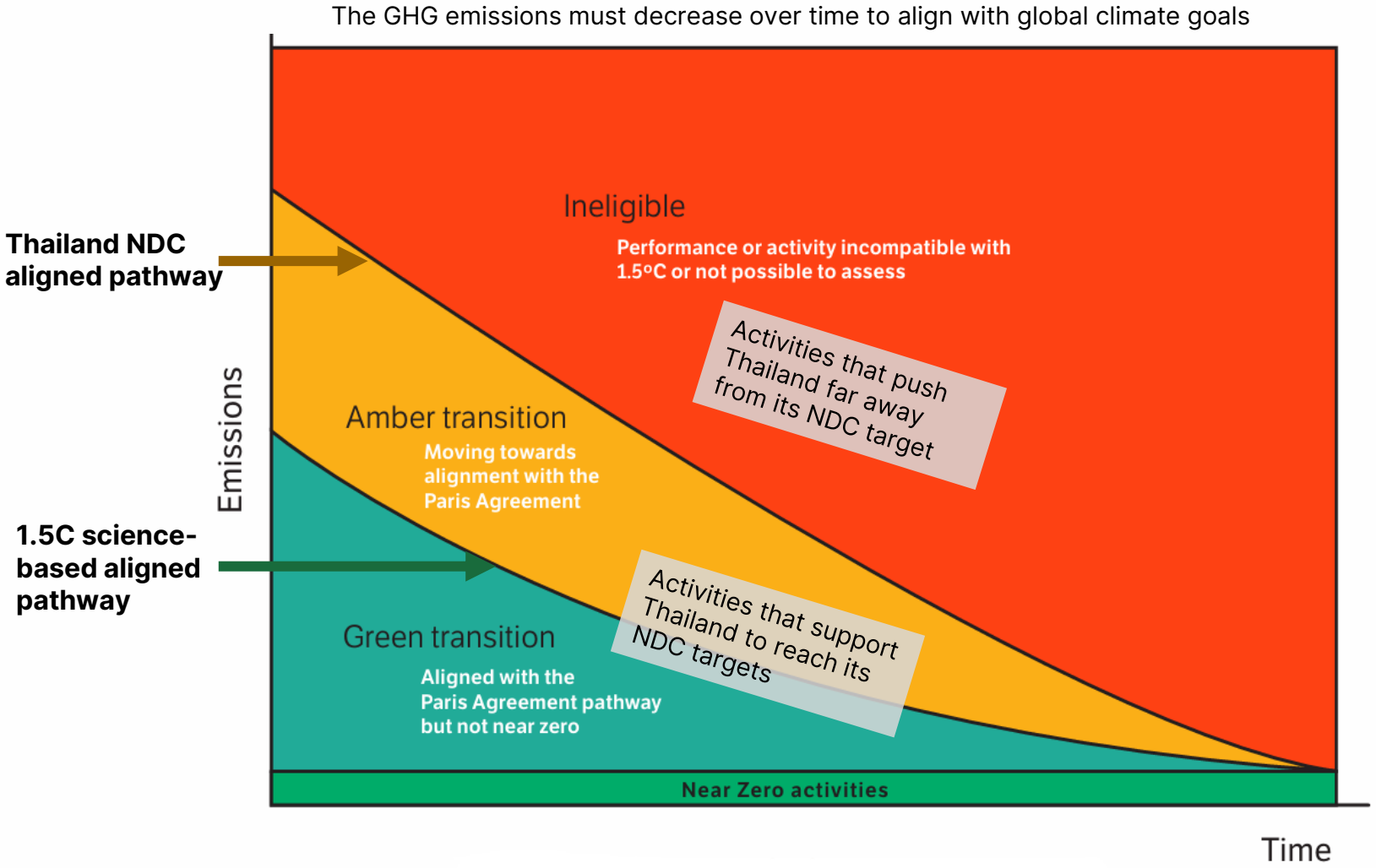
The goal for any business or economy is to move its activities downward on this chart from red to amber, from amber to green, and eventually, towards near-zero emissions.



- **New assets/ projects/ activities**: new projects must comply with green criteria.
- **Existing assets/ projects/ activities** could comply with either green or amber criteria.
- Thus, **amber criteria** are available for the transition of **Existing projects** only.
- For some activities, there will be no amber threshold.

Source: Climate Bonds Initiative, explained by Creagy

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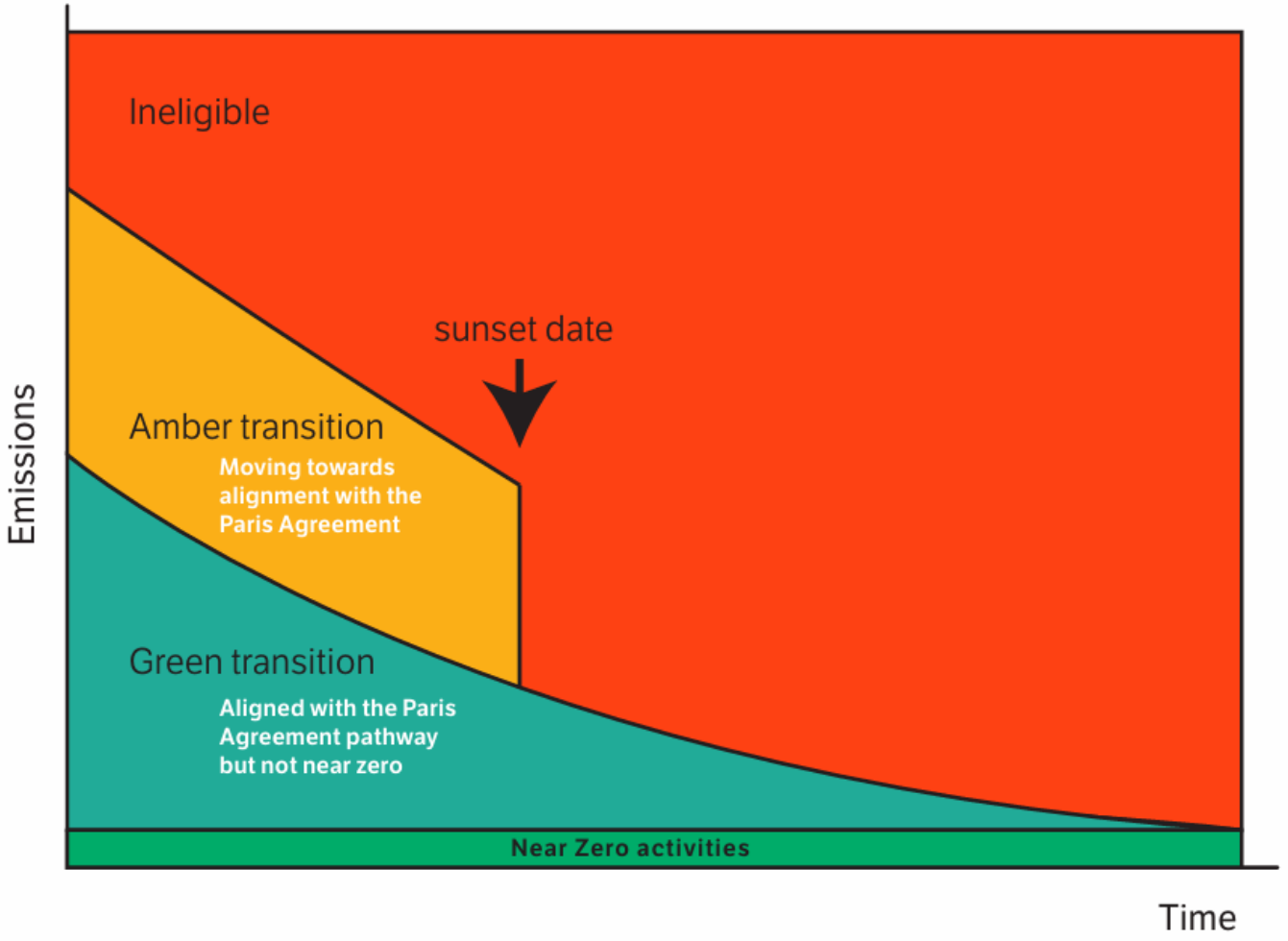
“Sunset date" acts as a deadline for the "Amber transition"

- A transition cannot last indefinitely – at some point in time, **the amber activity should be following a 1.5°C pathway to net zero.**
- The **Amber criteria have a sunset date (2040) to ensure that transition does not last forever** and that the thresholds facilitate movement towards green.
- **Before the sunset date,** activities that are not fully green but are on an approved improvement path can still be considered compliant and receive transition financing.
- **After the sunset date**, this "amber" category disappears. From that point forward, all activities must meet the much stricter "Green transition" or "Near Zero" criteria to be considered aligned with the taxonomy
- Therefore, transition requires change over time.



Source: Climate Bonds Initiative, explained by Creagy

Construction and real estate activities climate materiality

The activities covered by Thailand Taxonomy include:

1. **Construction of new buildings**: Must meet high GHG performance standards based on Thai and international certifications.
2. **Renovation of existing buildings**: Should reduce operational emissions, ideally aligning with new building standards or lowering primary energy demand.
3. **Acquisition or ownership of buildings**: Promotes green financial products by rewarding transactions involving Taxonomy-aligned buildings.
4. **Installation, maintenance, and repair of special-purpose equipment**: Focuses on technologies that reduce resource use or support low-emission infrastructure (e.g. EV chargers).
5. **Demolition and site preparation**: Though not climate-material, it is included due to its relevance to the building life cycle.
6. **Early warning systems**: Involves climate adaptation measures like installing or maintaining climate hazard alert systems.

The construction and real estate sector is among the most complex to assess in terms of emissions.

In general, there are 3 main groups of GHG emission from construction and real estate sector:

1. Embedded emissions from building materials & components
2. Buildings construction emissions: emissions from transport and energy
3. Buildings operation emissions: energy use (electricity and gas) during the building's lifetime.

Thailand Taxonomy focuses solely on **"Buildings operation emissions".**

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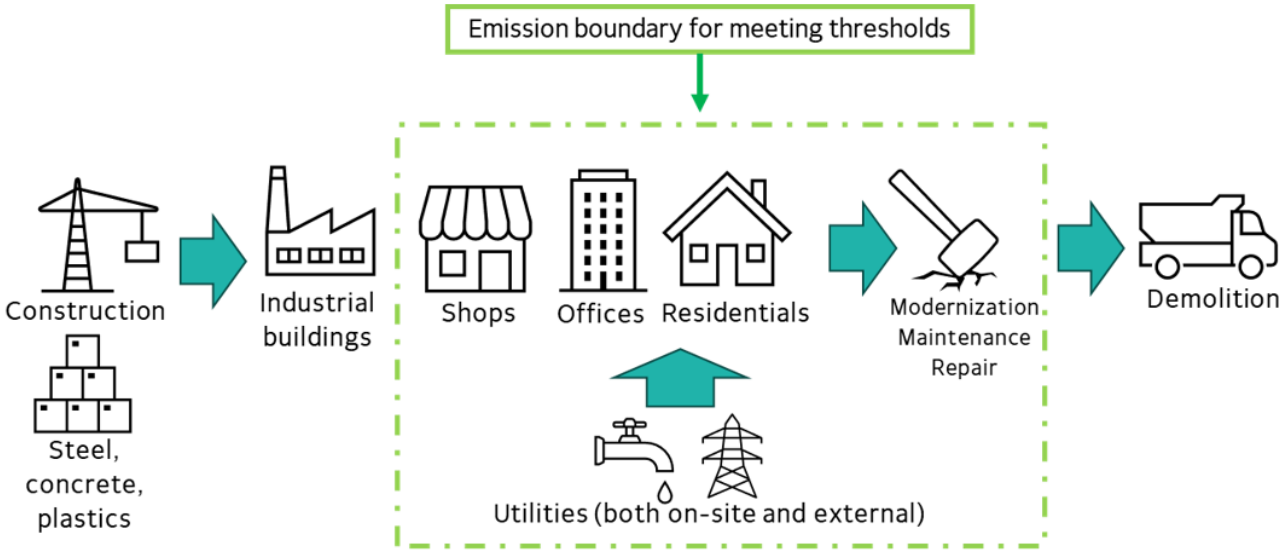
Criteria methodological approach & Emission calculation scope



Thailand Taxonomy focuses solely on **"Buildings operation emissions"**

Thailand Taxonomy uses emission per square metre (carbon intensity) as the metric for evaluating a building's performance. In practical terms, this includes the following scope of emissions, as defined in the Greenhouse Gas Protocol methodology :

- **Scope 1:** Direct emission sources from buildings including the energy conversion-through-combustion of fossil fuels such as natural gas, fuel oil and in some cases coal on-site. Other types of direct emissions such as refrigerants are not included.
- **Scope 2:** Indirect emissions sources from building include the energy conversion-through combustion of fossil fuels such as coal, oil, and natural gas, and/or the emissions associated with non-fossil fuel such as nuclear and renewables (when substantial enough i.e., reservoir emissions from hydro) when providing electricity and/or district heating/cooling to the building.
- **Scope 3:** Indirect emissions sources associated with the sourcing, transmission, and distribution of energy to the building. Other Scope 3 emissions from transport, waste, and water are not currently incorporated.

Construction and real estate criteria also focus on the emissions associated with energy use within the control of the landlord, i.e., base building services, also known as "core and shell," and not on the emission of the tenant. The reasons for this are:

- Light, power, and miscellaneous end-use energy demand within tenant spaces is outside the financial or management control of the building manager.
- Commercial buildings may experience a change in occupiers during the term of the green/transitional bond or loan, distorting the parameters.

Note: While embodied emissions are material, there is a current lack of data available which makes it unreasonable to set mandatory emissions targets and decarbonisation pathways. Depending on the availability of data in the upcoming years, future iterations of the Taxonomy may require projects to disclose their lifecycle emissions.

Source: Greenhouse Gas Protocol, "Commercial and Residential Building Sector Guidance," May 2015, https://ghgprotocol.org/sites/default/files/2022-12/Buildings%20-%20Additional%20Guidance.pdf.

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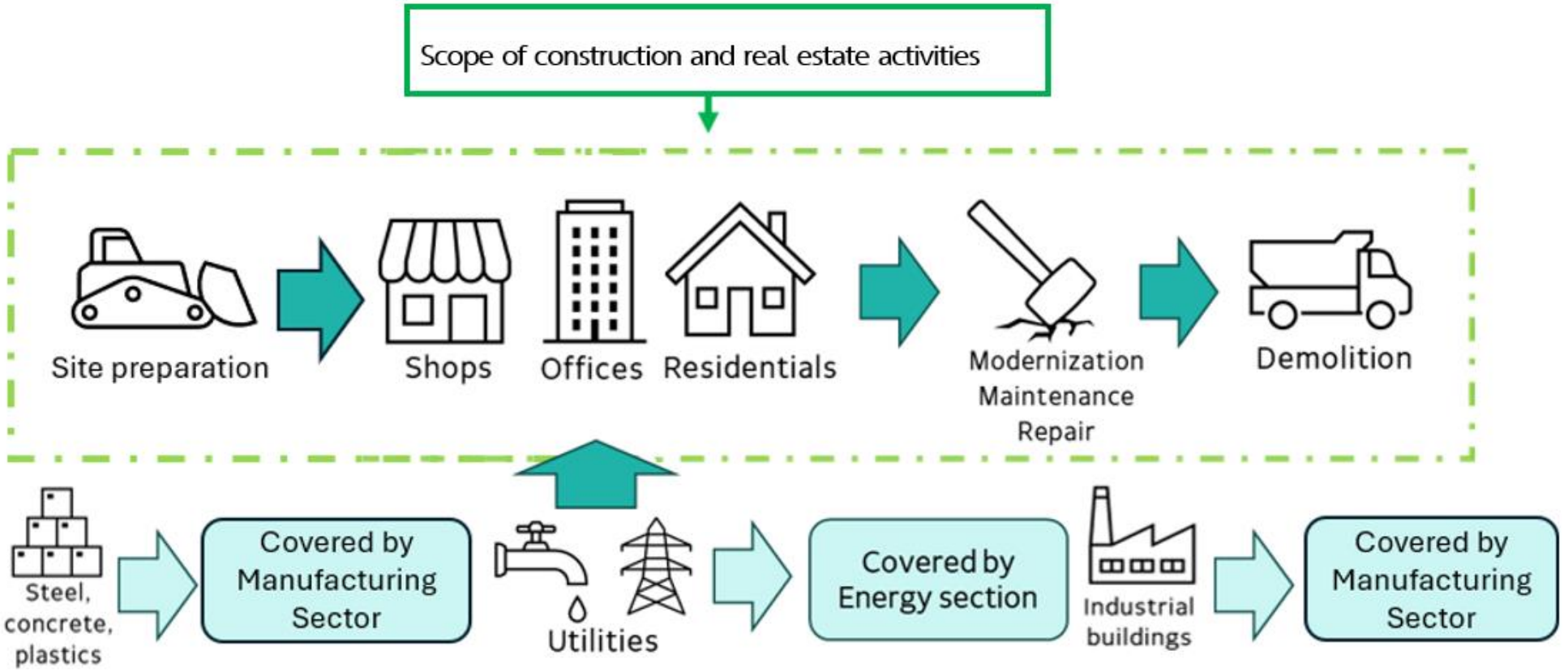
Scope of Construction and Real Estate **Activities**

Climate objectives: climate change mitigation; climate change adaptation



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Types of Buildings covered the Construction & Real Estate Sector

Residential buildings	Commercial buildings
A building or portfolio of buildings where more than half of the floor area is used or suitable for use for dwelling purposes, including but not limited to the following subcategories of residential buildings: - Single house - Semi-detached house - Townhouse - Condominiums - Shophouses - Dormitories (for construction workers and others)	A building or portfolio of buildings where more than half of the floor area is used for commercial purposes and is intended to generate a profit, either from capital gain or rental income. There are sub-categories of commercial buildings, including but not limited to: - Offices - Public buildings - Schools and campuses - Shopping centres, retail, warehouses - Hotels - Hospitals

Note: Industrial buildings (not covered under Construction & Real Estate Taxonomy)
A building or facility dedicated to the manufacturing, altering, repairing, cleaning, washing, breaking up, adapting, or processing various articles, including special-purpose manufacturing and energy-related facilities. The activity of building industrial buildings is included into manufacturing or energy section criteria and is tied to manufacturing or energy generation activities indicated in this section.

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Eligible Expenditure Types under the Construction and Real Estate Criteria

- Capital costs of performance upgrades
- Operating expense of ongoing maintenance and building management
- Building cost or value
- Origination or refinancing of loans or mortgages, including portfolios
- Building assets
- Green building consulting – only if it is a part of a Taxonomy-eligible construction, renovation, acquisition, or demolition project and relevant buildings meet their respective activity criteria. (Note that this is not eligible as a standalone activity)
- Demolition and site preparation projects

An important note on construction process

Construction works themselves are not covered by the taxonomy (there are no criteria to separate sustainable works from unsustainable ones or to improve them), but a construction project that results in a building or renovation that is compatible with the taxonomy can be certified as green, **including** the costs of the construction processes itself.

Criteria application scheme

Either the financial flows (revenues, CapEx, OpEx, bonds and loans) associated with an activity or the entire project (for example, a renovation project) can qualify as aligned with the Taxonomy.

- **To align the construction or renovation project**, the manager must fulfil the relevant requirements of the activity cards, and the buildings must meet the characteristics required by the Taxonomy at the time of completion. The building construction process itself and the costs associated with it may also be recognised as meeting the taxonomy criteria if the construction process results in a Taxonomy-aligned building or structure.
- **For the alignment of the building itself,** the manager must provide evidence that the building at the time of checking alignment meets the requirements of the Taxonomy.
- **For acquisition or ownership of buildings**, the property must have a taxonomy-compliant status at the time of the transaction.
- **For adaptation activities** BOTH expenditures required to procure adaptation solutions themselves AND services required to install this equipment is eligible.

The relevant Thailand authorities should set guidelines on when and how taxonomy compliance status must be revoked and what consequences should it imply.

Construction and Real Estate Sector Criteria and Thresholds

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The activities covered under Construction and Real Estate Sector and their potential contributions to the Environmental Objectives (EO)

Activities	EO1 (Climate Change Mitigation)	EO2 (Climate Change Adaptation)	EO3 (Marine & Water resources)	EO4 (Circular Economy)	EO5 (Pollution control)	EO6 (Biodiversity &Ecosystem)
1. Construction of new buildings	✓	✓				
2. Renovation of existing buildings	✓	✓				
3. Acquisition or ownership of buildings	✓	✓				
4. Installation, maintenance, and repair of special-purpose equipment	✓	✓				
5. Demolition and site preparation				✓		
6. Early warning systems		✓				

1. CONSTRUCTION OF NEW BUILDINGS

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1. Construction of new buildings

Sector	Construction and Real Estate
Activity	Construction of new buildings
ISIC CODE	4100
Description	Development of building projects for residential and non-residential buildings by bringing together financial, technical, and physical means to realise the building projects for later sale as well as the construction of complete residential or non-residential buildings, on own account for sale or on a fee or contract basis.
Objective	**Climate change mitigation**
Green	The building must meet one of the following criteria: • Building emission intensity is in line with the decarbonisation trajectory indicated in Thailand buildings national decarbonisation pathways; OR • Construction of buildings that comply with eligible national and international certification schemes and associated requirements. For the purpose of alignment with the current taxonomy, the certificate is valid for a maximum period of three years regardless of the requirements of the certification system itself. A whole life carbon assessment (WLCA) of the building must be conducted and reported in line with the current WLCA guidelines . The present version of the taxonomy does not contain any WLCA-based criteria, but the future versions of the taxonomy might feature them. The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	N/A (New buildings need to meet green criteria)
Red	Construction of new buildings that are dedicated to the extraction, storage, manufacturing, and transport of fossil fuels is harmful to the objective of climate change mitigation. To avoid doubt, the above does not include buildings providing office space to fossil companies for administrative or trading activities.
Criteria reference	Climate Bonds Buildings Criteria

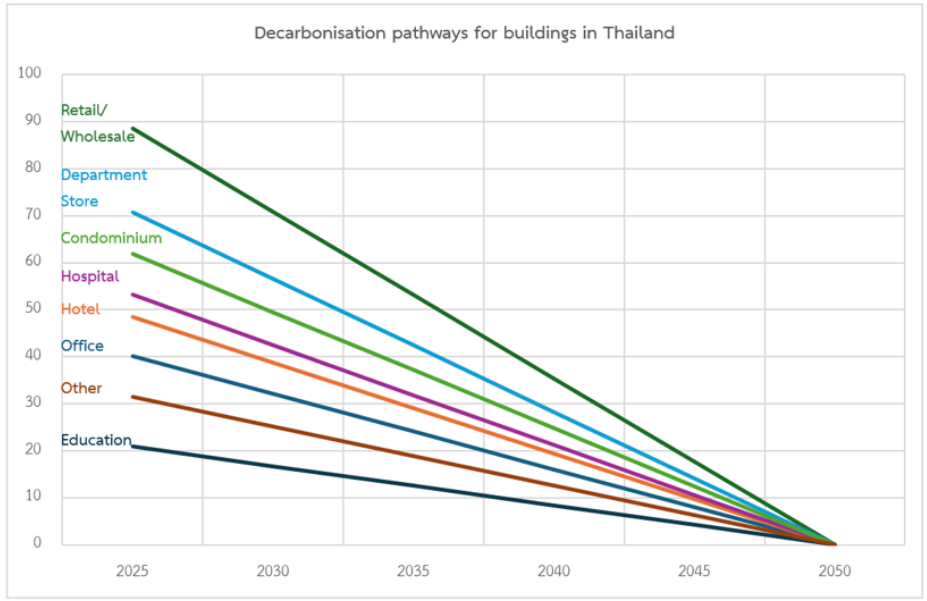
Construction of New Buildings: Mitigation (Green)

Option 1

Thailand Buildings National Decarbonisation Pathways

Following a decarbonisation pathway calculated specifically for Thailand or its major cities based on data provided by relevant ministries and agencies. The pathway is calculated as a straight line drawn between today's emission intensity parameters for different classes of buildings in Thailand and zero emissions in 2050.

Figure 7 Decarbonisation pathways for buildings in Thailand (kgCo2/m2/y)



Year	Office	Hotel	Retail/ Wholesale	Department Store	Hospital	Condominium	Education	Other
2025	40.16	48.4	88.6	70.77	53.14	61.94	20.92	31.47
2030	32.12	38.72	70.88	56.62	42.51	49.55	16.74	25.18
2035	24.09	29.04	53.16	42.46	31.88	37.16	12.55	18.88
2040	16.06	19.36	35.44	28.31	21.25	24.78	8.37	12.59
2045	8.03	9.68	17.72	14.15	10.63	12.39	4.18	6.29
2050	0	0	0	0	0	0	0	0

Note: The pathways are built based on DEDE's energy data (kWh/m2/y) which is then converted to emissions intensity (kgCO2/m2/y) using the current grid emissions factors provided by DEDE using Climate Bonds Initiative **"best in class scenario"** methodology: the numbers represent 15% best buildings in each category in terms of kgCo2/m2/y.

Source: Calculation from the Department of Alternative Energy Development and Efficiency

Construction of New Buildings: Mitigation (Green)

Option 2

Proxy certification labels and additional requirements

The alignment can be achieved through obtaining internationally recognised green building labels.

Proxy certification labels and additional requirements for residential buildings	
Proxy Label	**Proxies**
House No.5 (Sustainable Energy and Environmental Label)	▪ Top-runners or premium labels are compliant ▪ Refer to EGAT's Label No.5 for Houses criteria
TREES	Meet all of the following criteria: ▪ TREES Gold or Platinum and ▪ 30% improvement above the levels in the latest version of ASHRAE 90.1 and If for a debt instrument: Date of TREES certification must be within five years before bond issuance
Green Star Homes	Certified by the GBCA and comply with Renewable Energy Pathway A or B and do not include a swimming pool.
Evaluation Standard for Green Building	Evaluation Standard for Green Building rating of 3-Star
IGBC Green Homes	Buildings certified under the IGBC Green Homes ® Rating system
LEED	Meet all of the following criteria: ▪ LEED Gold OR Platinum ▪ 30% improvement above the levels in the latest version of ASHRAE 90.2 (1-3 floors) or ASHRAE 90.1 (4 or more floors) If for a debt instrument: Date of LEED certification must be within five years before bond issuance.
EDGE	▪ EDGE level 2 or 3 certified ▪ No offsets use allowed ▪ This option is only able to be used in developing countries (including Thailand) as defined by the UN If for a bond: 10-year limit on bond tenor
Living Building Challenge Certified	Living Building Challenge Certified
Climate Bonds Initiative	Climate Bonds Buildings Criteria
Singapore BCA Green Mark Scheme	Gold or the above levels are compliant.
BEAM	▪ Gold or the above levels are compliant ▪ Refer to Thailand's Building Energy Code for HVAC and lighting criteria

Note: Important note: In each case the latest published version of the certificate must apply. For additional ASHRAE the version mentioned in the main certificate itself must apply.

Construction of New Buildings: Mitigation (Green)

Option 2

Proxy certification labels and additional requirements

The alignment can be achieved through obtaining internationally recognised green building labels.

Proxy certification labels for commercial buildings	
Proxy Label	**Proxies**
Building No.5 (Sustainable Energy and Environmental Label)	▪ Top-runners or premium labels are compliant ▪ Refer to EGAT's Label No.5 for Buildings criteria
TREES	Meet all the following criteria: ▪ TREES Gold OR Platinum and ▪ 30% improvement above the levels in the latest version of ASHRAE 90.1. ▪ If debt instrument: the 6-year limit on tenor. If debt instrument: The date of TREES certification must be within five years before bond issuance.
Australian Proxy for Green Star Buildings	▪ Certified by the GBCA under the Green Star Buildings scheme and complies with the Climate Positive Path. ▪ Buildings certified with 6 Star automatically comply. 5-star rated buildings registered after 2023 will also comply. More information
IGBC Net Zero Building rating system	Buildings that achieve a Net Zero Rating under the IGBC Net Zero Building rating system. Buildings in construction and recently completed buildings must provide additional pre-issuance document.
LEED	Meet all the following criteria: ▪ LEED Gold OR Platinum and ▪ 30% improvement above the levels in the latest version of ASHRAE 90.1. ▪ If debt instrument: the 6-year limit on tenor. If debt instrument: The date of LEED certification must be within five years before bond issuance.
EDGE	▪ EDGE Certified ▪ This option is only able to be used in developing countries (including Thailand) as defined by the UN
Living Building Challenge	Living Building Challenge Certified (all tiers)
Climate Bonds Initiative	Climate Bonds Buildings Criteria
Singapore BCA Green Mark Scheme	Gold or the above levels are compliant
BEAM	▪ Gold or the above levels are compliant ▪ Refer to Thailand's Building Energy Code for HVAC and lighting criteria

Note: Important note: In each case the latest published version of the certificate must apply. For additional ASHRAE the version mentioned in the main certificate itself must apply.

Adaptation criteria implementation scheme

Part 1

Manager of the building conducts climate risk assessment through Climate risk vulnerability assessment (CRVA) methodology included into the taxonomy or any other comparable methodology

Part 2

Manager of the building implements certain adaptation solutions that help to mitigate or prevent adverse effects of climate change to the building

Part 3

The manager of the building makes sure that implemented solutions:

- do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities;
- favour nature-based solutions or rely on blue or green infrastructure to the extent possible;
- are consistent with local, sectoral, regional or national adaptation plans and strategies;
- are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met.

Climate Risk Vulnerability Assessment (CRVA) Methodology

Assessment Methodology

Physical climate risks that are material to the activity must be identified. This includes the following steps:

- Screening of the Activity to identify which physical climate risks may affect the performance of the activity during its expected lifetime;
- Where the activity screened is likely to be at risk from one or more of the physical climate risks, conduct a risk assessment in line with CRVA check list to assess the significance of the physical climate risks on the activity; and
- Assess and prioritise adaptation solutions that can reduce the identified physical climate risk.

Principle of Proportionality

Risk assessment must be proportionate to the scale of the activity and its expected lifespan, such that:

- For activities with a lifespan of less than 10 years, the assessment is performed, at least by using climate projections at the smallest appropriate scale, which may include extrapolated past trends data;
- For all other activities, the assessment is performed using the highest available resolution, state-of-the art climate projections across the existing range of future scenarios consistent with the expected lifetime of the activity, including at least, 10-to-30-year climate projections scenarios for major investments.
- Future scenarios include Intergovernmental Panel on Climate Change (IPCC) representative concentration pathways RCP2.6, RCP4.5, RCP6.0, and RCP8.5.

Climate-related hazards table

	Temperature related	Wind related	Water related	Solid mass related
Chronic	• Changing temperature (air, freshwater, marine water) • Heat stress • Temperature variability	• Changing wind patterns	• Changing precipitation patterns and type • Precipitation or hydrological variability • Ocean acidification • Saline intrusion • Sea level rise • Water stress	• Coastal erosion • Soil degradation • Soil erosion • Solifluction
Acute	• Heat wave • Wildfire	• Cyclone, hurricane, typhoons • Storms (including dust and sandstorms) • Tornadoes	• Drought • Heavy precipitation • Flood (coastal, fluvial, pluvial, ground water)	• Landslide • Subsidence

1. Construction of new buildings

Sector	Construction and Real Estate
Activity	Construction of new buildings
ISIC CODE	4100
Description	The construction of new buildings aimed to be adaptive to climate change physical and non-physical risks
Objective	**Climate change adaptation**
Green	A new building complies with the green category for adaptation if: • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment (CRVA) in accordance with the guidance provided in Annex: Guidance on performing a Climate Risk and Vulnerability Assessment; OR • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment through any other internationally recognised methodology. The climate projections and assessment of impact of climate change on the building must be based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; AND The project of the building and/or finished building incorporate physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that building that have been implemented; AND The adaptation solutions implemented: • do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; • favour nature-based solutions or rely on blue or green infrastructure to the extent possible; • are consistent with local, sectoral, regional, or national adaptation plans and strategies; • are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	N/A (New buildings need to meet green criteria)
Red	N/A (New buildings need to meet green criteria)
Criteria reference	ASEAN Taxonomy V3

2. RENOVATION OF EXISTING BUILDINGS

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2. Renovation of existing buildings

Sector	Construction and Real Estate
Activity	**Renovation of the existing residential or commercial buildings**
ISIC CODE	4100/ 4330
Description	Construction and civil engineering works or preparation thereof
Objective	**Climate change mitigation**
Green	A renovation leads to the building compliance with the green criteria of the “Construction of new buildings” activity card. A whole life carbon assessment (WLCA) of the building must be conducted and reported in line with the current WLCA guidelines . The present version of the taxonomy does not contain any WLCA-based criteria, but the future versions of the taxonomy might feature them. The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	Renovation projects must lead to at least a 30% reduction in greenhouse gas emissions intensity or energy use for buildings under 10,000 m^2 or a 20% reduction for buildings 10,000 m^2 or larger, compared to baseline levels at the start of the project. This option remains valid until the adaptation period ends in 2040.
Red	Renovation of buildings that are dedicated to extraction, storage, manufacturing, transport of fossil fuels is harmful to the objective of climate change mitigation. For the avoidance of doubt, the above does not include buildings providing office space to fossil companies for administrative or trading activities.
Criteria reference	Climate Bonds Buildings Criteria

2. Renovation of existing buildings

Sector	Construction and Real Estate
Activity	**Renovation of the existing buildings**
ISIC CODE	4100/ 4330
Description	Renovation of the existing buildings aimed to be adaptive to climate change physical and non-physical risks.
Objective	**Climate change adaptation**
Green	A renovation project complies with the green category for adaptation if: • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment (CRVA) in accordance with the guidance provided in Annex: Guidance on performing a Climate Risk and Vulnerability Assessment; OR • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment through any other internationally recognised methodology. The climate projections and assessment of impact of climate change on the building must be based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; AND Physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that building that have been implemented during the renovation; AND The adaptation solutions implemented: • do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; • favour nature-based solutions or rely on blue or green infrastructure to the extent possible; • are consistent with local, sectoral, regional, or national adaptation plans and strategies; • are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	N/A (Existing buildings need to meet green criteria)
Red	N/A (Existing buildings need to meet green criteria)
Criteria reference	ASEAN Taxonomy V3

3. ACQUISITION OR OWNERSHIP OF BUILDINGS

3. Acquisition or ownership of buildings

Sector	Construction and Real Estate
Activity	**Acquisition or ownership of buildings**
ISIC CODE	6810
Description	Buying real estate and exercising ownership of that real estate
Objective	**Climate change mitigation**
Green	Financial operations (buying, selling) with the buildings in question are in compliance with the green criteria of the "Construction of new buildings" activity card. A whole life carbon assessment (WLCA) of the building must be conducted and reported in line with the current WLCA guidelines . The present version of the taxonomy does not contain any WLCA-based criteria, but the future versions of the taxonomy might feature them. The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	Acquisition or ownership of buildings that demonstrate a 30% energy efficiency improvement over the latest version of the Thailand's Buildings Energy Code. This option is available until the established sunset date (2040)
Red	Acquisition and ownership of buildings that are dedicated to the extraction, storage, manufacturing, and transport of fossil fuels is harmful to the objective of climate change mitigation. To avoid doubt, the above does not include buildings providing office space to fossil companies for administrative or trading activities.
Criteria reference	Climate Bonds Buildings Criteria

3. Acquisition or ownership of buildings

Sector	Construction and Real Estate
Activity	**Acquisition or ownership of buildings**
ISIC CODE	6810
Description	Buying, selling, owning, and renting out real estate objects with certain adaptation characteristics defined in the criteria
Objective	**Climate change adaptation**
Green	The activity of acquisition or ownership of buildings complies with the green category for adaptation if: • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment (CRVA) in accordance with the guidance provided in Annex: Guidance on performing a Climate Risk and Vulnerability Assessment; OR • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment through any other internationally recognised methodology. The climate projections and assessment of impact of climate change on the building must be based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; AND The building in question has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that activity that have been implemented; AND The adaptation solutions implemented: • do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; • favour nature-based solutions or rely on blue or green infrastructure to the extent possible; • are consistent with local, sectoral, regional, or national adaptation plans and strategies; • are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	N/A (Existing buildings need to meet green criteria)
Red	N/A (Existing buildings need to meet green criteria)
Criteria reference	ASEAN Taxonomy V3

4. INSTALLATION, MAINTENANCE, AND REPAIR OF SPECIAL-PURPOSE BUILDING EQUIPMENT

4. Installation, maintenance, and repair of special-purpose building equipment

Sector	Construction and Real Estate
Activity	**Installation, maintenance, and repair of special-purpose building equipment**
ISIC CODE	4321/ 4322/ 4329
Description	Individual measures and professional services aimed at helping the building achieve energy or resource savings and enabling other activities as defined by Thailand Taxonomy.
Objective	**Climate change mitigation**
Green	At least one of the following projects must be implemented to comply with the Taxonomy: • Installation of renewable energy equipment, renewable energy charging stations and regulation devices; • Installation of the equipment that decreases building operational emissions and consumption of water, gas, or electricity; • Installation of infrastructure for charging electric cars using grid electricity; • Installation of equipment within the two highest energy efficiency classes for equipment, as determined by relevant international labelling schemes or Thailand regulation • Addition of insulation to existing envelope components, such as: - external walls (including green walls), - roofs (including green roofs), - lofts, - basements and ground floors (including measures to ensure airtightness, - measures to reduce the effects of thermal bridges and scaffolding, - products for the application of the insulation to the building envelope (including mechanical fixings and adhesive); • Replacement of existing windows with new energy-efficient windows; • Replacement of existing external doors with new energy-efficient doors; • Installation and replacement of energy-efficient light sources; All installed equipment must comply with the highest standards of energy efficiency as defined by relevant national or international labels (e.g., Label No.5, Energy Saving Label or comparable)
Amber	N/A
Red	Installation of equipment that facilitates the use of fossil fuels is harmful to the objective of climate change mitigation.
Criteria reference	Climate Bonds Buildings criteria; ASEAN Taxonomy v.3

4. Installation, maintenance, and repair of special-purpose building equipment

Sector	Construction and Real Estate
Activity	**Installation, maintenance, and repair of special-purpose building equipment**
ISIC CODE	4321/ 4322/ 4329
Description	Individual measures and professional services aimed at helping the building increase its resilience to the negative consequences of climate change
Objective	**Climate change adaptation**
Green	The activity of installation, maintenance or repair of special-purpose building equipment complies with the green category for adaptation if: • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment (CRVA) in accordance with the guidance provided in Annex: Guidance on performing a Climate Risk and Vulnerability Assessment; OR • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment through any other internationally recognised methodology. The climate projections and assessment of impact of climate change on the building must be based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; AND Installed, maintained or repaired equipment substantially reduces physical or non-physical climate risks that are material to that building in question; AND The adaptation solutions implemented: • do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; • favour nature-based solutions or rely on blue or green infrastructure to the extent possible; • are consistent with local, sectoral, regional, or national adaptation plans and strategies; • are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; The manager of the building must report all data relevant for the alignment in line with International Performance Measurement and Verification Protocol requirements (where applicable).
Amber	N/A (Existing buildings need to meet green criteria)
Red	N/A (Existing buildings need to meet green criteria)
Criteria reference	ASEAN Taxonomy V3

5. DEMOLITION AND SITE PREPARATION

5. Demolition and site preparation

Sector	Construction and Real Estate
Activity	**Demolition and site preparation**
ISIC CODE	4310
Description	Individual measures and professional services aimed at helping the building to achieve the minimum percentages of energy savings indicated in this taxonomy, as well as enabling other activities included in the Taxonomy
Objective	**Resource resilience and promotion of circular economy**
Green	In order to comply with the green category, both of the following criteria must be fulfilled: 1. Prior to the start of the demolition or wrecking activity, at least the following aspects are discussed and agreed upon with the client: • definition of key performance indicators and target ambition level ; • identification of project-specific constraints that may compromise the target ambition level (such as time, labour and space) and how to minimise these constraints; • details of the pre-demolition auditing procedure; • an outline waste management plan that prioritises selective deconstruction, decontamination, and source separation of waste streams. Where these actions are not prioritised, an explanation is provided to justify why selective deconstruction, decontamination, or source separation of waste streams are not technologically feasible in the project. Cost or financial considerations are not an acceptable reason to avoid complying with this requirement; 2. The operator of the activity conducts a pre-demolition audit: • All demolition waste generated during the demolition or wrecking activity is treated in accordance with regional waste legislation; • At least 90% (by weight) of the non-hazardous demolition waste generated on the demolition site is prepared for reuse or recycling. This excludes naturally occurring material. Alternatively, at least 95% of the mineral fraction and 70% of the non-mineral fraction of nonhazardous demolition waste is separately collected and prepared for reuse or recycling. **Definitions:** • Building demolition material reuse is the practice of salvaging and repurposing construction materials and components from a demolished structure. These materials are then either incorporated into the development of the same site or made available for use in other construction projects. • Building demolition material recycling is the process of collecting, sorting, and reprocessing materials and components that are removed during the demolition of a building. These materials, such as concrete, wood, metal, and other construction materials, are treated to remove contaminants and then transformed into new construction materials or products.
Amber	N/A
Red	Demolition works that are not compliant with the green category are harmful to the objective of resource resilience and promotion of circular economy.
Criteria reference	ASEAN Taxonomy V3

6. EARLY WARNING SYSTEM

6. Early Warning System

Sector	Construction and Real Estate
Activity	**Early Warning Systems**
ISIC CODE	4321
Description	Individual renovation measures consisting in installation, maintenance, testing and repair of instruments and devices for providing early warning for climate related hazards. Instruments and devices can include both early warning communication systems and hazard specific systems.
Objective	**Climate change adaptation**
Green	The activity of installation, maintenance or repair of early warning systems complies with the green category for adaptation if: • The physical climate risks that are material to the building have been identified by performing a robust climate risk and vulnerability assessment through any other internationally recognised methodology. The climate projections and assessment of impact of climate change on the building must be based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; OR • The climate projections and assessment of impacts are based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications and open source or paying models; AND Installed early warning systems reduce physical or non-physical climate risks that are material to the building in question; AND Installed, maintained, or repaired equipment: • does not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; • favours nature-based solutions or rely on blue or green infrastructure to the extent possible; • is consistent with local, sectoral, regional, or national adaptation plans and strategies; • is monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met.
Amber	N/A (Existing buildings need to meet green criteria)
Red	N/A (Existing buildings need to meet green criteria)
Criteria reference	ASEAN Taxonomy V3

Application of DNSH criteria to Thailand taxonomy activities

No.	Activity	Climate change mitigation	Climate change adaptation	Sustainable use and protection of marine and water resources	Promotion of resource resilience and transition to a circular economy	Pollution prevention and control	Protection and restoration of biodiversity and ecosystems
1.	Construction of new buildings	Generic + Specific	Generic	Generic + Specific	Generic + Specific	Generic + Specific	Generic + Specific
2.	Renovation of the existing residential or commercial buildings	Generic + Specific	Generic	Generic + Specific	Generic + Specific	Generic + Specific	Generic + Specific
3.	Acquisition or ownership of buildings	Generic + Specific	Generic	Generic + Specific	Generic + Specific	Generic + Specific	Generic + Specific
4.	Installation, maintenance, and repair of special-purpose building equipment	Generic + Specific	Generic	Generic + Specific	Generic + Specific	Generic + Specific	N/A
5.	Demolition and site preparation	Generic + Specific	Generic	Generic + Specific	Generic + Specific	Generic + Specific	Generic + Specific
6.	All activities contributing solely to adaptation objective	Generic + Specific	Generic	Generic	Generic	Generic	Generic

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Do No Significant Harm (DNSH)

Generic DNSH Requirements	
Objective	**Description**
Climate change mitigation	For an activity to demonstrate that it will do no significant harm with respect to factors related to climate change mitigation, the following must be implemented: • The manager should calculate Scope 1 and Scope 2 emissions related to the activity as well as Scope 3 emissions if material to the sector in question. Estimation of emissions referring to credible international or national proxies such as Intergovernmental Panel on Climate Change (IPCC) and Thailand Greenhouse Gas Management Organization (TGO) may be used.; • The manager should identify potential risk to other people or assets to directly increase their GHG emissions as the result of the activity's implementation.; • The manager should take actions to minimise GHG emissions associated with the implementation of the activity, including, but not limited to installation of monitoring and leak prevention measures (if applicable).
Climate change adaptation	• Any activity seeking to demonstrate its compliance with DNSH related to climate change adaptation must conduct a Climate Risk and Vulnerability Assessment (CRVA) in accordance with the guidance provided in Annex III: Climate Risk and Vulnerability Assessment (CRVA). • The manager of the activity should strive to minimise adaptation risks revealed throughout the CRVA. Adaptation solutions should support system adaptation that takes into consideration regional and national adaptation strategies and plans.

Specific DNSH Requirements	
Objective	**Description**
Climate change mitigation	Adaptation measures applied should not lead to an increase in the consumption of fossil fuels by the construction to which they are applied or any other structures.

Do No Significant Harm (DNSH)

Generic DNSH Requirements	
Objective	**Description**
Sustainable use and protection of marine and water resources	• Risks associated with water consumption and water quality must be identified, assessed and mitigated to the biggest possible extent. Water risk analysis tools must be used for this purpose (e.g. risk assessments by national environmental authorities, water footprint, WWF Water Risk Filter, WRI Aqueduct or comparable). • If assets or activities are located in water-stressed areas, may be affected by floods or water quality issues, ensure that water use and conservation management plans, developed in consultation with relevant stakeholders, have been implemented. • Ensure that water use/conservation management plans (including monitoring, reporting and verification methodology), developed in consultation with relevant stakeholders, have been developed and implemented as per international standards and guidelines. (e.g., UNEP Framework for Freshwater Ecosystem Management; ISO 13.060: Water Quality or comparable).

Specific DNSH Requirements	
Objective	**Description**
Sustainable use and protection of marine and water resources	All relevant water appliances (shower solutions, mixer showers, shower outlets, taps, WC suites, WC bowls and flushing cisterns, urinal bowls and flushing cisterns, bathtubs) must be water efficient as per national or international water labelling systems (e.g., WELS, WaterSense, MWA Water Saving Label or comparable).

Do No Significant Harm (DNSH)

Generic DNSH Requirements	
Objective	**Description**
Promotion of resource resilience and transition to a circular economy	• In order to assess whether the activity in question is doing significant harm to this objective, a lifecycle assessment inline with ISO 14040 and ISO 14044 (or any comparable international methodology) should be conducted on the products, material, process, or other measurable activities. • The activity manager should implement concrete demonstrable measures to maximise the efficient use, reduction, repair, recycling and reuse of materials during the activity operational life cycle (e.g. through contractual agreements with recycling companies and integration of the cost of recycling), proper treatment and waste disposal (e.g. proper end-of-life management of batteries) and compliance, as a producer, with Extended Producer Responsibility standards must be demonstrated. • New installations must be designed and manufactured for high durability, easy to dismantle, refurbishment and recycling to the extent possible. Potential of repair of facilities and equipment, and the accessibility and interchangeability of the activity's equipment components must be ensured. • The activity shall apply relevant national regulations and international guidelines associated with retirement and dismantlement plans for plants and infrastructure related to the activity.

Specific DNSH Requirements	
Objective	**Description**
Promotion of resource resilience and transition to a circular economy	• At least 80% (by weight) of the non-hazardous construction, renovation and demolition waste (excluding naturally occurring material) generated on the construction site must be prepared for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials. • Activities must be aligned with international standards with international standards on sustainable management in this sphere, e.g., ISO 20887:2020 – Sustainability in buildings and civil engineering works or comparable • For new construction (buildings or portions of buildings), a cradle-to-grave life-cycle assessment of the projects structure and enclosure should be conducted.

Do No Significant Harm (DNSH)

Generic DNSH Requirements	
Objective	**Description**
Pollution prevention and control	• A recognised environmental management system (ISO 14001, EMAS, or comparable) should be adopted for the enterprise where the activity takes place. • Ensure the activity undergoes screening to assess whether it leads to the manufacture, placing on the market, or use of dangerous substances (as defined by relevant Thailand laws and regulations), whether on their own, in mixtures, or in articles, and causes significant harm to the environment. • Integrated Environmental Assessment in line with the UN Environment Programme's Guidelines for Conducting Integrated Environmental Assessments5 must be conducted for the activity to specifically identify and manage environmental detrimental risks related to the emission of pollutants, heat, light or noise to the environment. • It must be demonstrated that neither the construction nor operation of the activity is emitting dangerous substances, noise, light or heat in excess of those allowed by relevant national or international regulations. Furthermore, the achievement of applicable air, water and soil quality targets should not be hampered due to the activity. • In the case that the construction and/or operation of the activity is known to cause significant harm to the environment, the activity must identify risk-based measures to prevent the pollution, and safely remediate any contamination caused by the activity. • Based on the EIA, ensure that management plans are developed for every pollutant causing significant harm. Management plans are to be drafted in consultation with relevant stakeholders. Furthermore, Monitoring, Reporting and Verification strategies are to be implemented to monitor the compliance and effectiveness of the mitigation measures.

Specific DNSH Requirements	
Objective	**Description**
Pollution prevention and control	• Ensure that building components and materials do not contain asbestos nor substances of very high concern as per national and international standards. • If the new construction is located on a potentially contaminated site (brownfield site), the site must be subject to an investigation for potential contaminants.

Do No Significant Harm (DNSH)

Generic DNSH Requirements	
Objective	**Description**
Protection and restoration of biodiversity and ecosystems	• The determination of whether a biodiversity related environmental impact assessment (EIA) is required for a particular activity or not is made through a case-by-case examination of the activity6. If applicable, an Integrated Environmental Assessment (EIA) in line with the UN Environment Programme's Guidelines for Conducting Integrated Environmental Assessments must be conducted for the activity. • The activity manager must mitigate all potential risks for biodiversity and ecosystems associated with activity implementation that were identified throughout the EIA. • Ensure the Biodiversity and Ecosystem Management Plans are developed in consultation with relevant stakeholders. Furthermore, ensure that the Monitoring, Reporting and Verification strategies are implemented to monitor the compliance and effectiveness of the mitigation measures. • New financed facilities and infrastructure should not be located in ecosystems that are strategic for food security, rich in biodiversity, or that serve as habitat for endangered species (flora and fauna) that are in the Thailand lists of nationally protected areas or on the IUCN Red List. Museums or technical facilities (specifically electronic communications network equipment and facilities used to originate, process, transfer, transmit or receive electronic communications calls and information signals) necessary for their functioning are exempt from this requirement. • For sites and operations located in or near biodiversity sensitive areas (defined as areas included into, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment must be carried out in line with the criteria set by IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources9. For these sites, a long-term biodiversity monitoring and assessment programme must be adopted.

Specific DNSH Requirements	
Objective	**Description**
Protection and restoration of biodiversity and ecosystems	At least 80% of all timber products used in the new construction for structures, cladding and finishes must have been either recycled/reused or sourced from sustainably managed forests as defined by the Forestry criteria of the Thailand Taxonomy.

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

Case Studies

Taxonomy integration case study: EuGBS

- Directly effective since 21 December 2024;
- Enables taxonomy-compliant instruments to be **clearly labeled in financial markets**, facilitating investment decisions, ESG indexing, and central bank eligibility.
- Transparency requirements on how EuGBS bond proceeds are allocated through **detailed pre-issuance and post-issuance reporting** requirements. All reporting **must be verified by an independent 3rd party**.
- The funds raised by EuGBS-compliant bonds must be allocated to projects aligned with the EU Taxonomy, if activities are covered by the taxonomy. For those activities not yet covered by the taxonomy there is a **"flexibility pocket" of 15% (up to 15% of the net proceeds may be allocated to economic activities for which no technical screening criteria under the EU Taxonomy yet exist but which otherwise comply with the EU Taxonomy).**
- EuGBS includes specific provisions for issues by sovereign/regional/local authorities which mitigate the compliance burden on those entities. E.g., these categories are **exempt from the requirement to prepare a EU Prospectus Regulation** compliant prospectus for the purposes of any EuGBS issuance. Consequently, those issuers are not subject to supervision and imposition of sanctions by a national competent authority.

Case Study 1: New Energy-Efficient Office Building – "Sathorn Eco Tower"

A property developer in Bangkok is constructing a 20-story office tower and seeks green financing by aligning with Thailand's Green Taxonomy under the activity "Construction of new buildings."

The developer identifies the activity under the Construction section: *"Construction of new buildings."*

The developer goes to the bank that has specific loans for Taxonomy-aligned construction projects.

The developer chooses alignment with the green category of the activity card, Option 1 (compliance with national emission intensity pathway).

The building is scheduled to be completed in 2030, so the developer provides a simulated model proving that the building will emit no more than 32.12 kgCo2/m2/y at the time of commissioning. This result is achieved through using high-efficiency HVAC, high-performance insulation, and rooftop solar.

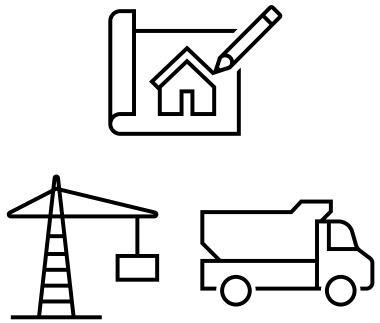
Case Study 1: New Energy-Efficient Office Building – "Sathorn Eco Tower"

The developer also provides a proof of compliance with minimum social safeguards for their enterprise and a proof of DNSH compliance for the activity itself.

Adaptation	Climate risk vulnerability assessment is conducted and submitted. Adaptation risks are minimised through the introduction of flood barriers in the basement
Protection of water resources	Assessment is carried out through WWF Water Risk Filter and submitted. Water use and conservation management plan aligned with ISO 13060 is prepared and submitted. A proof is presented that all water appliances in the building will have the highest water-saving category available on the market.
Resource resilience	Lifecycle assessment in line with ISO 14040 is conducted and submitted. Waste management plan in line with local recycling capabilities is prepared and submitted. A proof that at least 80% of construction waste will be recycled/reused is submitted. A proof is presented that construction works will comply with ISO 20887:2020 – Sustainability in buildings and civil engineering works.
Pollution prevention	A proof is presented that environmental management system aligned with ISO 14001 standard is introduced. An integrated environmental impact assessment in line with UNEP requirements is conducted and submitted.
Protection of biodiversity	Biodiversity and Ecosystem Management Plan is developed and submitted. A proof that at least 80% of all timber products used in the new construction for structures, cladding and finishes have been either recycled/reused or sourced from sustainably managed forests is submitted

Case Study 1: New Energy-Efficient Office Building – "Sathorn Eco Tower"

The bank manager accept the documentation and conducts verification in line with approved internal procedures.



At the end of the project the bank must make sure that the building is built in line with the stated parameters.

The bank approves the loan after conducting all other necessary non-taxonomy related checks.

The developer can now spend the loan on the activities within the scope of the taxonomy.

- Buy the land to construct the building
- Pay to subcontractors on the project
- Pay consultants to help comply with DNSH requirements

The bank must track loan disbursement in line with internal regulations.

Case Study 2: Transition Bond for Residential Upgrade Project – "EcoNova Phase 2"

- **Bond Type:**
  THB 600 million Transition (Amber) Sustainability Bond – 5-year maturity

- **Use of Proceeds:**
  Renovation and retrofitting of a 10-year-old condominium complex in Khon Kaen to reach improved energy efficiency and climate resilience.

The developer identifies the activity under the Construction section: *"Renovation of the existing buildings."*

The developer chooses amber category and plans to issue transition bonds. According to amber criteria requirements, renovation projects must lead to at least a 30% reduction in greenhouse gas emissions intensity or energy use for buildings under 10,000 m².

The developer conducts an audit and finds that planned upgrades) expected to bring improvements to 30% within 3 years.

- Replacing HVAC systems with inverter-type units
- Installing rooftop solar thermal systems for water heating
- Upgrading lighting to LED
- Adding insulation to roof and façade
- Introducing smart meters

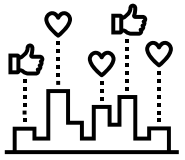
Case Study 2: Transition Bond for Residential Upgrade Project – "EcoNova Phase 2"

The developer creates a transition bond framework that aligns with the stock exchange requirements and Thailand Taxonomy requirements

- Eligible projects and taxonomy alignment
- Allocation and impact reporting commitments
- Management of proceeds

The developer appoints an external verifier (e.g., DNV or CICERO) to provide a Second Party Opinion (SPO):

- Verifies alignment with the Amber category under Thailand Green Taxonomy;
- Confirms credibility of the 3-year remediation plan;
- Evaluates DNSH and MSS compliance.



The bond is issued! Collected proceeds are 100% allocated to the EcoNova Phase 2 retrofit project.

- Separate account used to track disbursements;
- Monthly disbursement updates provided to bond trustee.

Possible post-issuance reporting

Allocation Reporting (Annual):
Includes:

- Percentage of funds used;
- Status of each upgrade phase;
- Any unallocated proceeds held in green-compliant money market instruments.

Impact Reporting (Annual):
Metrics reported:

- % energy performance improvement (vs. baseline);
- Total kWh saved;
- Estimated GHG emissions avoided (tCO_2/year);
- Water savings (liters/year).

INTRODUCTION
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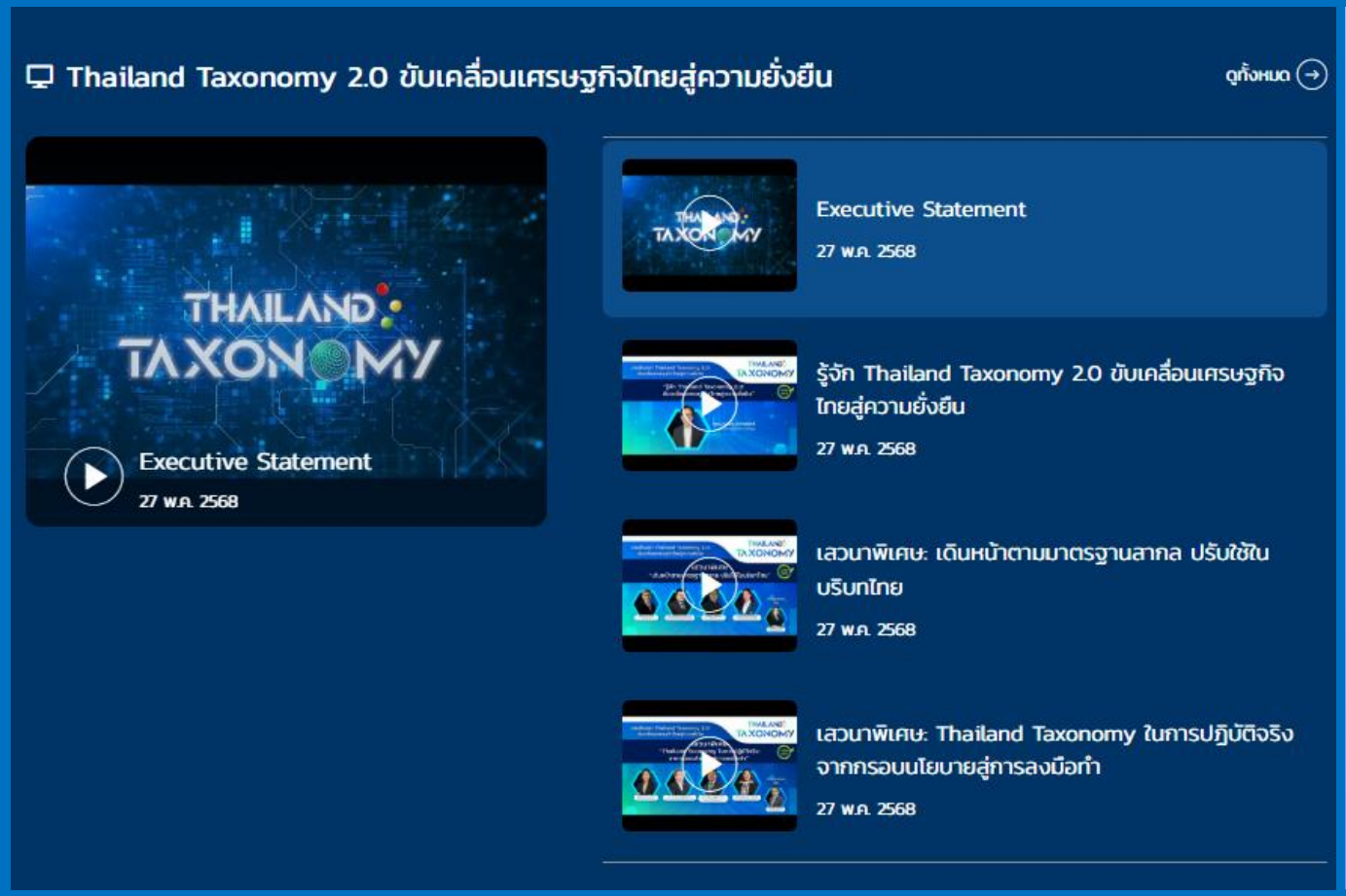
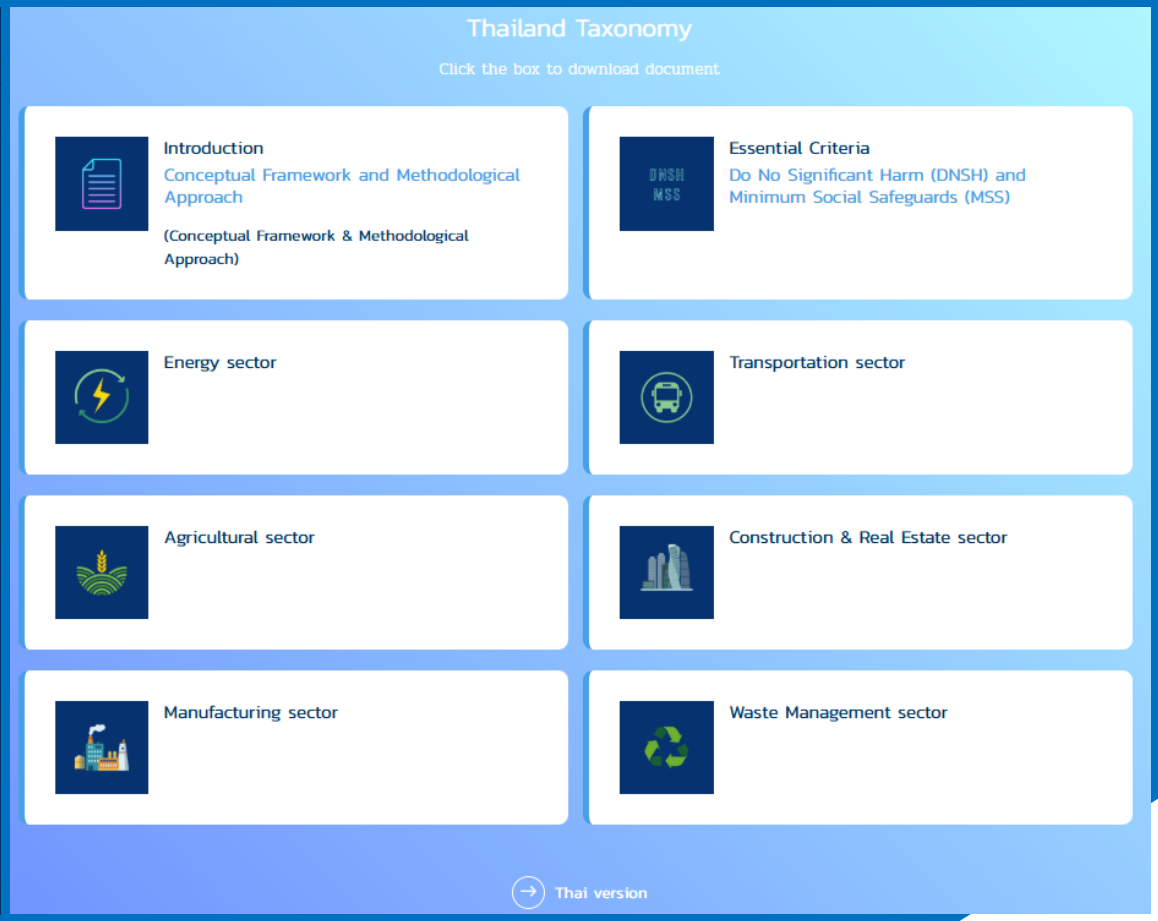
Q&A

Please submit your question using the Q&A feature.

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





THAILAND TAXONOMY

ผู้สนับสนุน

ผู้จัดทำ

ที่ปรึกษา

THAILAND TAXONOMY