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ผู้สนับสนุน GB-TAP Green Bond Technical Assistance Program IFC Kingdom of the Netherlands Supported by: Federal Ministry for Economic Affairs and Climate Action on the basis of a decision by the German Bundestag IKI giz ACGF An ASEAN Infrastructure Fund Initiative ADB UK International Development Partnership | Progress | Prosperity

ผู้จัดทำ Climate Bonds DNV

ที่ปรึกษา CREAGY CBiS Carbon Institute for Sustainability TDRI Thailand Development Research Institute

INTRODUCTION TO

THAILAND TAXONOMY

THAILAND TAXONOMY

Part 1

Introduction

Objective of the E-Learning Video

This e-learning video is designed to provide learners with a clear and engaging introduction to the Thailand Taxonomy, a foundational tool for guiding sustainable finance in the country. The video aims to build understanding of why sustainable finance matters globally, and how Thailand's climate commitments and development goals shape its need for a national taxonomy.

Learners will explore what the Thailand Taxonomy is, its core objectives, and the principles—such as the traffic light system, substantial contribution criteria, and safeguards like Do No Significant Harm (DNSH) and Minimum Social Safeguards (MSS).

Finally, the video will show who can use the taxonomy, how it can be applied, and the key benefits it offers for businesses, investors, financial institutions and public sector working toward a low-carbon and sustainable Thai economy.

In this E-learning, you will learn …

Setting the Stage	Thailand Taxonomy	Using the Taxonomy & Benefits	Summary: Key Takeaways
• Why Sustainable Finance?	• Thailand's Commitment & Context	• Thailand Taxonomy applications	
• Green Taxonomy: What Is It and Why It Matters	• Foundational Principles Guiding the Thailand Taxonomy	• Advantages of Adopting the Taxonomy	
		• Case study	

THAILAND TAXONOMY

Part 2

Setting the Stage

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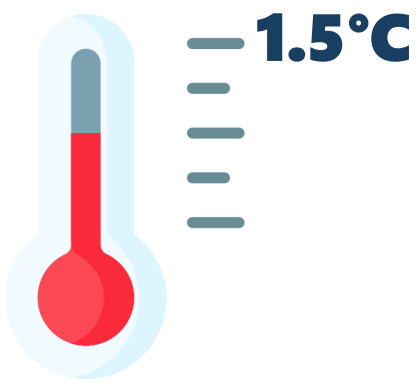
Why Sustainable Finance?

Background

PARIS ARGREEMENT GOALS

MITIGATION

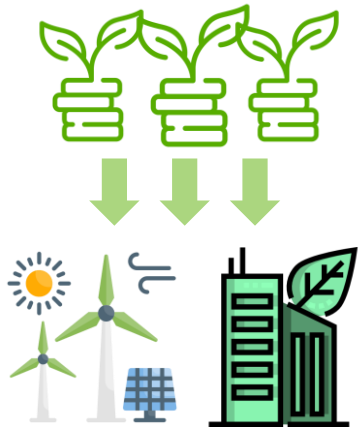


Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”

ADAPTATION

Increase the ability to adapt to the adverse impacts of climate change and foster climate resilience.

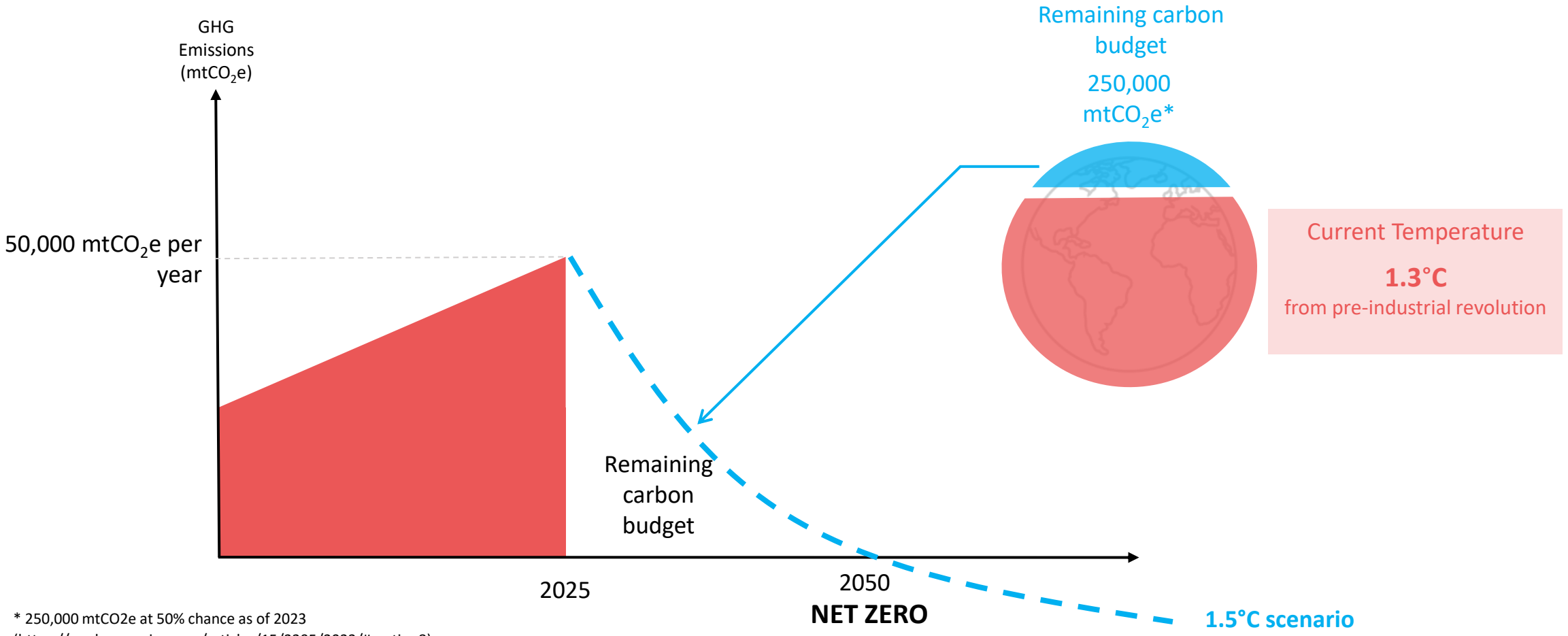
CLIMATE FINANCE



Make finance flows consistent with a pathways towards low greenhouse gas emissions and climate-resilient development.

World's Carbon Budget for 1.5 C Limit Down to ~5 Years on Current Emission Rates!

We must reduce our GHG emissions to reach Net Zero no later than 2050 to Limit Global Warming to 1.5°C.



* 250,000 mtCO2e at 50% chance as of 2023 (https://essd.copernicus.org/articles/15/2295/2023/#section8)

Global Shift towards Sustainability Requires Instruments to Unlock Sustainable Finance

Unsustainable Activities

- Fossil based Energy
- Coal-fired Power plant
- Internal Combustion Vehicles
- Low efficient Buildings
- High Polluted practices

Instruments to unlock Sustainable Finance

1. Economic instruments
2. Financial instruments
3. Financial regulations
4. Information instruments

Sustainable Activities

- Clean Energy
- Clean Transport
- Manufacturing (Industrial Process)
- Green Building & Real Estate
- Sustainable Waste
- Agriculture
- Forestry

The Transition to a Sustainable and Low-Carbon Economy and Society

Government

Tax/Fee Collection based on GHG emissions

GHG data | Carbon tax | ETS

B

C

Subsidy to low-income groups / those who are heavily affected

Tax incentive | Grant | Welfare card

New revenues generated from low-carbon economy

Corporate tax | Personal income tax | VAT

A

Support in investment to reduce GHG emissions throughout the supply chain

Grant | Subsidy | Soft loan | Equity | Guarantee | **Taxonomy**

D

High-GHG-emission activities

- Machine / Equipment that contributes to GHG Emissions
- Fossil fuel vehicles
- Fossil-based power generation
- Fossil fuel-reliant industrial park
- Etc.

Transition away

= investment from high GHG emission activities toward net-zero aligned activities

Net-zero-aligned activities

- Clean energy
- Zero-emission vehicles
- Climate Tech
- Nature-based activities
- Etc.

Green Taxonomy: What Is It and Why It Matters

Green Taxonomy is one of the **information instruments** to provide a common language when investing in project & economic activities that have substantial impacts on climate and environment

Information Instruments

Labelling	**Green Taxonomy**
Standards (e.g GHG protocol)	Risk assessment
Certification (e.g. ISO 14001)	Disclosure (e.g. CDP, TCFD)
Handbook & Guidelines	Awareness campaigns

Financial Instruments

Grant & Subsidy	Equity
Loan/Bond	Credit Guarantee
Insurance	

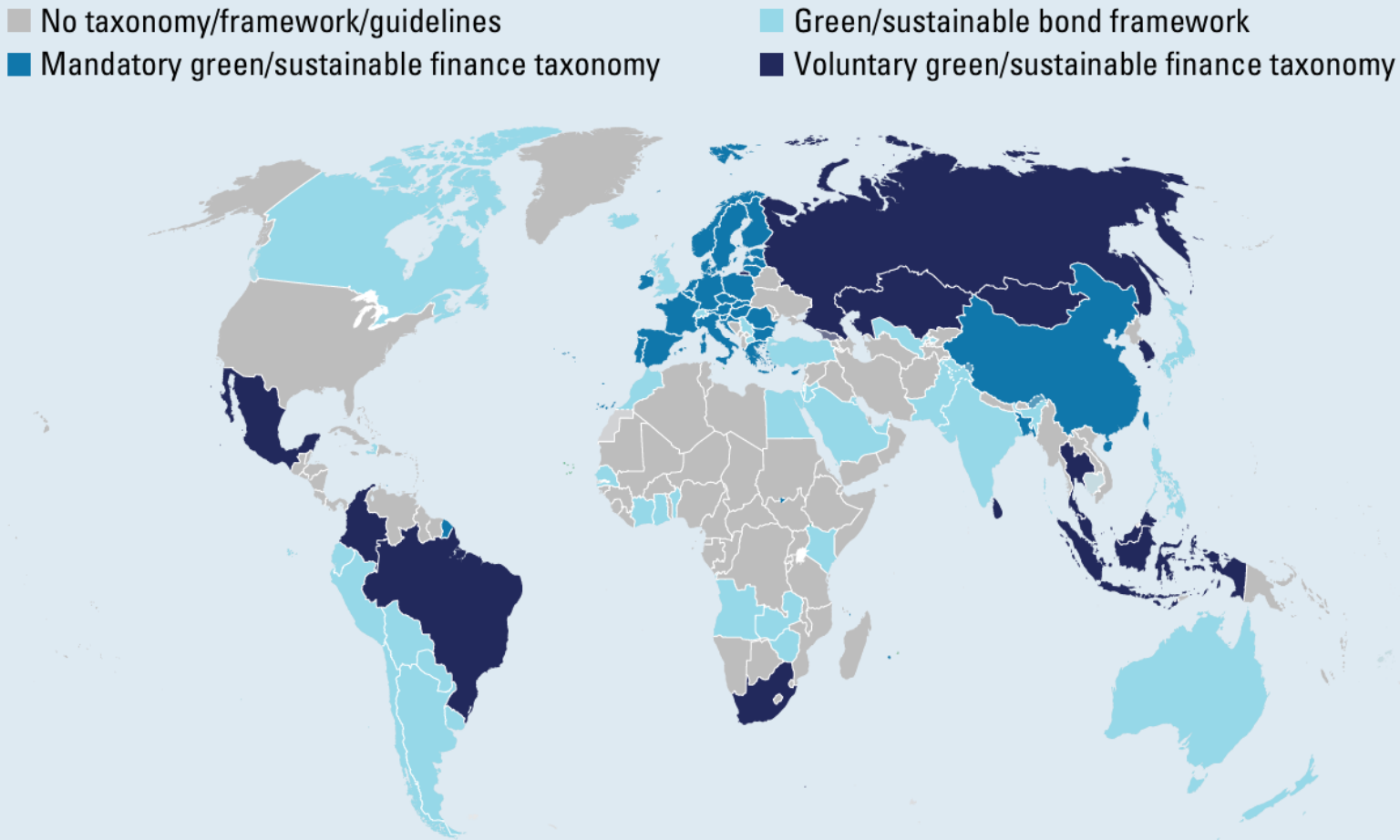
Economic & Fiscal Instruments

Carbon Tax	Emission Trading System (ETS)
Carbon credits	User charges / Certificates (e.g. CBAM)
Procurement rules	Guaranteed revenue (e.g. Feed-in-tariff)
Minimum standards	Tax relief

Financial Regulations

- Reporting requirement
- Disclosure requirement (e.g. one report, IFRS S2)
- Accounting systems
- Lending/ bond/ insurance requirements

Increase number of countries covered by Green Taxonomies or Sustainable Bond Frameworks



Source: https://www.worldbank.org/en/publication/finance-and-prosperity-2024

Part 3

Thailand Taxonomy

In this E-learning, you will learn …

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Thailand's Commitment & Context

Thailand Roadmap to Net-Zero Emission

2065
Net-Zero Emission

2050
Carbon Neutrality

2030
30-40% GHG Reduction compared to BAU

Climate Change Act & Thailand Taxonomy Development
2023-2025

2022
Thailand's commitment on GHG targets at COP26

Climate finance flows need to grow at least 5-10x per year for funding the transition towards net-zero economy*

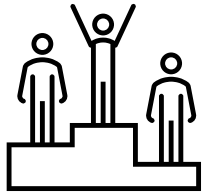
Public finance
Private finance

Domestic funding

International funding support

2025
Thailand

Finance & Investment guided by Thailand Taxonomy



2065
Net-Zero
Emission

*Creagy estimates that Thailand requires to invest around 5,000 - 7,000 billion THB to meet its NDC commitments during the year 2021-2030.

Foundational Principles Guiding the Thailand Taxonomy

- Substantial Contribution & Traffic light system
- Do No Significant Harm (DNSH) & Minimum Social Safeguards (MSS)
- Compliance decision tree

Thailand Taxonomy Development Principles

Based on G20 principles and in order to be credible, interoperable and usable, it is suggested that the **Thailand Taxonomy** should be built up on the following **premises:**

1. Science-based

Based on up-to-date climate science

2. Interoperable

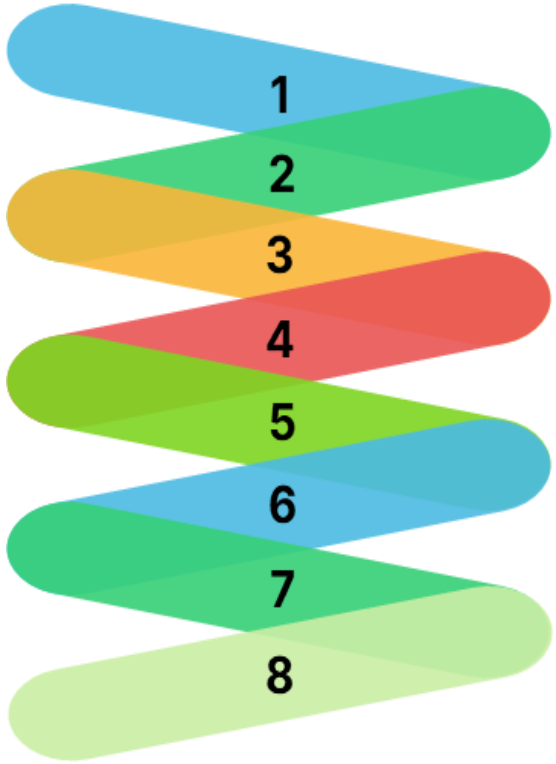
Interoperable with as many other taxonomies as possible in order to serve the purpose of attracting international capital

3. Clear and transparent

Separates activities that help the climate from the activities that worsen it

4. Simple and usable

The criteria for applying the taxonomy to the real economy is as simple and straightforward as possible



5. Comprehensive

Covers a maximum of climate-material activities, preferably those responsible for at least 75% of the country's total emissions

6. Multipurpose

The fight against climate change is a complex multi-level process, the taxonomy strives to contribute to it in every possible way

7. Transition-friendly

Provides paths to decarbonisation for hard-to-abate sectors of the economy

8. Locally applicable

Relevant in the place for which it is developed

Source: Climate Bonds Initiative

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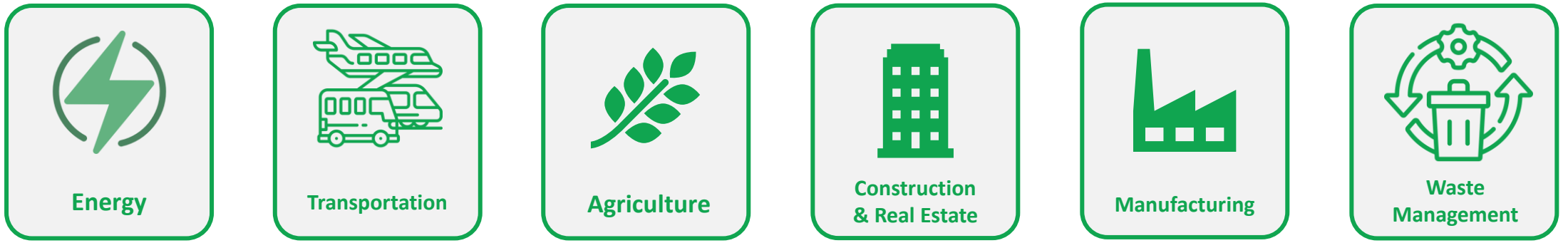
ที่ปรึกษา

THAILAND TAXONOMY

A classification system that defines specific criteria for economic activities in Thailand, covering 6 sectors, to be considered environmentally sustainable, aiming to guide investment and support Thailand's transition towards a low-carbon and sustainable economy.



- ✓ **Science-based**
- ✓ **Leverage existing work**
- ✓ **Consider Thai Context in amber activities**
- ✓ **Dynamic**
- ✓ **Living document**

1. Substantially contribute

To at least one of the six environmental objectives

- **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

2. Do No Significant Harm (DNSH)

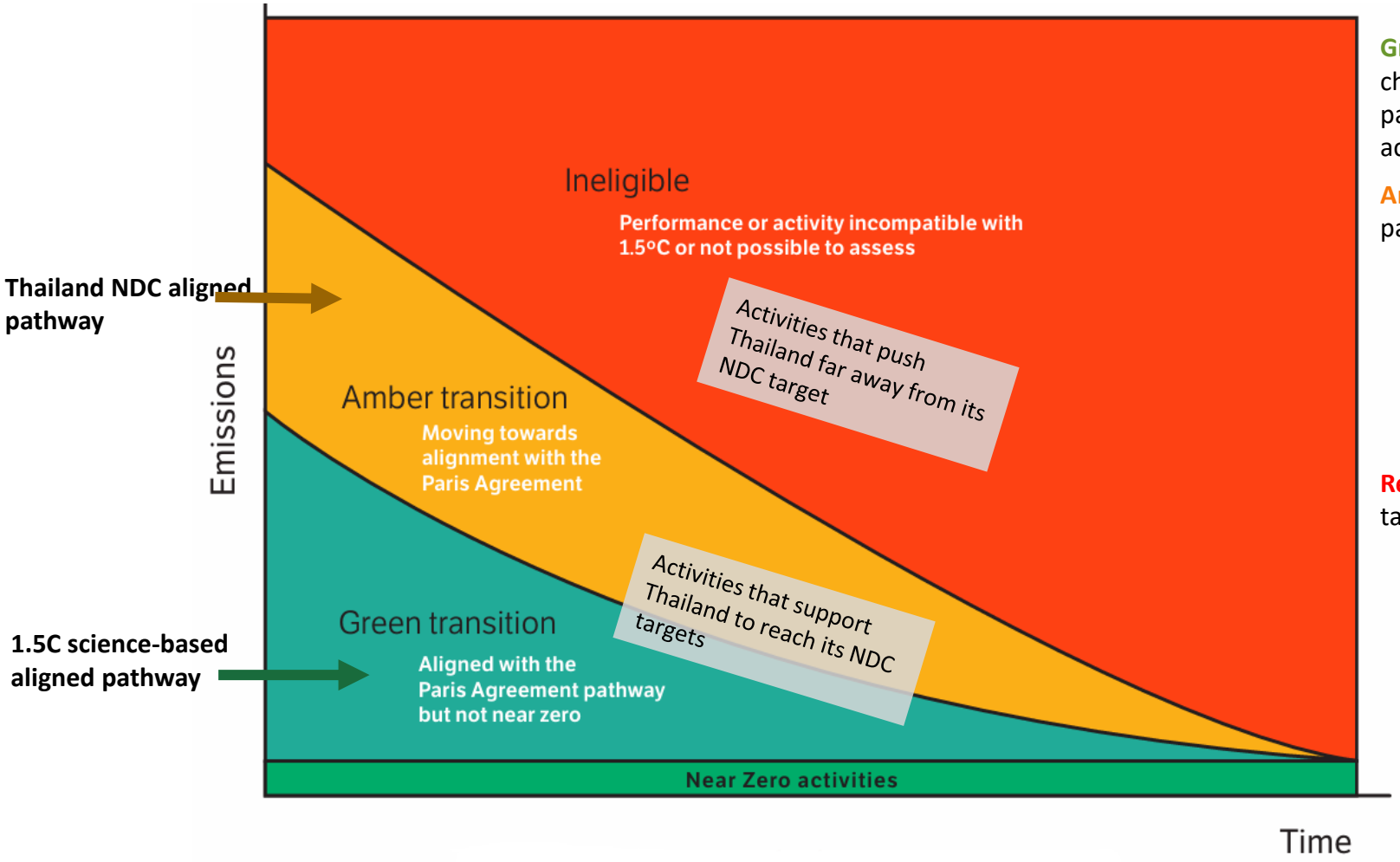
To any of the other five environmental objectives that are material

Comply with

3. Minimum Social Safeguards (MSS)

The owner of the activity must adhere to the relevant Thai regulatory framework and policies, relevant internationally recognised principles and conventions and have a social management system in place.

Traffic lights system of Thailand Taxonomy



Green: activities that contribute substantially to climate change mitigation by operating at net zero, or are on a pathway to net zero by 2050. The pathway and accompanying thresholds are based on climate science.

Amber: activities that are not presently on a net-zero pathway, but are either:

- Moving towards a green transition pathway within a defined time frame; or
- Facilitating significant emissions reductions in the short term with a prescribed sunset date.
- Aligned with country policy & plan

Red: activities that are harmful to the objectives of the taxonomy

Remark: This decarbonisation pathway criteria **is not** applicable for agriculture waste activities

Source: Climate Bonds Initiative, explained by Creagy

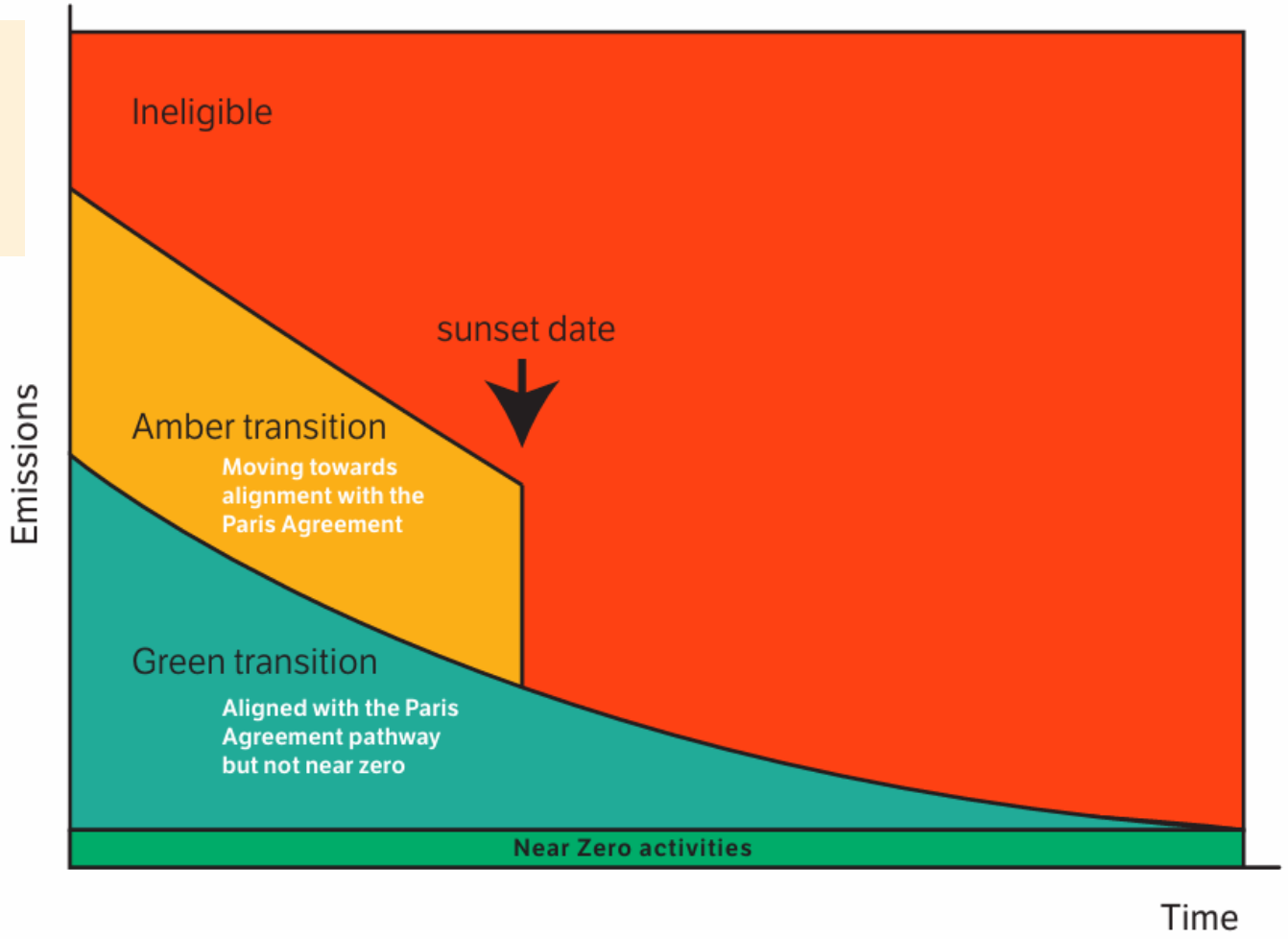
Traffic lights system of Thailand Taxonomy

with sunset date

- New assets/projects/activities: all new projects must comply with green criteria
- Amber criteria are available for the transition of existing projects only
- For some activities, there will be no amber threshold

Sunset date of 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.
- Transition requires change over time



Source: Climate Bonds Initiative, explained by Creagy

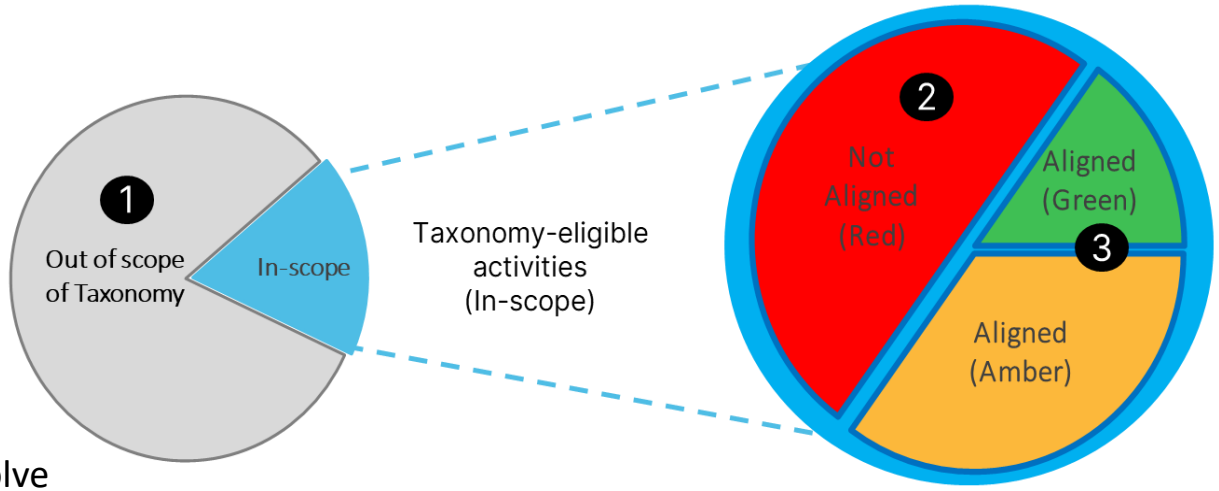
Classification and Application of Activities under Taxonomy

1. **Out-of-scope activities (Grey):** These activities are **not currently included** within the taxonomy but may be considered in the future. Typically, **these activities have a minimal impact on climate and the environment**.

2. **Not-aligned activities (Red):** These activities are **not currently compatible** with net-zero trajectory nor aligned with national's climate and the environment plans and policies. Although these activities are harmful to the environment or climate, there is no obligation on investors to not invest in these activities.

3. Taxonomy-aligned activities:

- **Taxonomy-aligned green activity (Green):**
  Activities already at or near net-zero emissions, *or* they have a clear 1.5 C aligned decarbonisation pathway.
- **Taxonomy-aligned amber activity (Amber):**
  Activities that
  1) entail relatively high emissions but facilitating significant emissions reductions in the short term, *or*
  2) enabling other green activities, even though they are not green themselves, *or* 3) involve a local context and are considered aligned with national plans and policies.



Selection of the activities for the inclusion into the Taxonomy

The 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

Environmental Materiality

2

Technology Feasibility

3

Economic Materiality

of certain activities is provided in the report for information purposes, but it is not the main reason for activities selection.

4

Align with Other Taxonomies

(inclusion into other taxonomies)

Remark:

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

Energy generation activities

4.1.1. Solar energy generation
4.1.2. Wind energy generation
4.1.3. Hydropower generation
4.1.4. Geothermal power generation
4.1.5. Bioenergy generation and production
4.1.6. Energy production from natural gas
4.1.7. Marine energy generation
4.1.8 Electricity generation from renewable non-fossil gaseous and liquid fuels, including low-carbon hydrogen
4.1.9. Cogeneration of heating/cooling and power using renewable sources of energy
4.1.10. Production of heating and cooling using waste heat
4.1.11. Installation and operation of electric heat pumps
4.1.12. Heating and cooling distribution
4.1.13. Transmission and distribution networks for renewable and low-carbon gases, including low-carbon hydrogen
4.1.14. Storage of electricity, thermal energy and low-carbon hydrogen
4.1.15. Transmission and distribution of electricity

Transportation Activities

4.2.1. Transport via railways
4.2.2. Other passenger land transport
4.2.3. Urban and suburban passenger land transport
4.2.4. Freight transport by road
4.2.5. Enabling infrastructure for low-emission transport
4.2.6. Sea and coastal water transport
4.2.7. Inland water transport
4.2.8. Retrofitting of sea and coastal freight and passenger water transport
4.2.9. Passenger and freight aircrafts

Agriculture activities

Forestry activities
1. Sustainable forest management
2. Forestry plantation
3. Conservation, restoration, and maintenance of natural forests
Agricultural practices
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. Livestock production
8. Sustainable aquaculture production

Construction & Real Estate Activities

1. Construction of new buildings
2. Renovation of existing buildings
3. Acquisition or ownership of buildings
4. Installation, maintenance, and repair of special-purpose building equipment
5. Demolition and site preparation
6. Early Warning System

Manufacturing Activities

Hard-to-Abate Activities
1. Manufacture of basic chemicals
2. Manufacture of cement
3. Manufacture of basic iron and steel
4. Manufacture of aluminum
5. Manufacture of hydrogen
Interim activities
Manufacture of plastics in primary form
Enabling activities
1. Manufacture of batteries
2. Manufacture of renewable energy technologies
3. Manufacture of low-carbon technologies for transport
4. Manufacture of energy efficiency equipment for buildings
5. Manufacture of other low-carbon technologies

CCS/CCUS-Related Activities
1. CCS/CCUS: Point-source capture of CO_2
2. Transportation of captured CO_2
3. Permanent sequestration of captured CO_2
4. Utilisation of captured CO_2
Auxiliary transitional activity
Introduction of energy efficiency and decarbonisation measures in manufacturing activities not specified in the Thailand Taxonomy

Waste Management

1. Anaerobic digestion of bio-waste or wastewater
2. Composting of bio-waste
3. Collection and transport of waste
4. Depollution and dismantling of end-of-life products
5. Waste to energy
6. Landfill gas capture and utilisation
7. Remediation of contaminated sites and areas
8. Remediation of legally non-conforming landfills and abandoned or illegal waste dumps
9. Sorting and material recovery from non-hazardous waste
10. Treatment of hazardous waste
11. Construction, extension, upgrade, operation and renewal of decentralised wastewater collection and treatment
12. Construction, extension, upgrade, and operation of centralised wastewater collection and treatment
13. Renewal of centralised wastewater collection and treatment

Part 4

Using the Taxonomy & Benefits

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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 (turnover, CapEx, OpEx) 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.

Advantages of Adopting the Taxonomy

Better Risk Management

Helps identify and manage environmental risks for resilience.

Enhance Credibility

Builds trust and reduces greenwashing risks through transparency.

Competitive Advantage

Differentiates organisations in the market with sustainability.

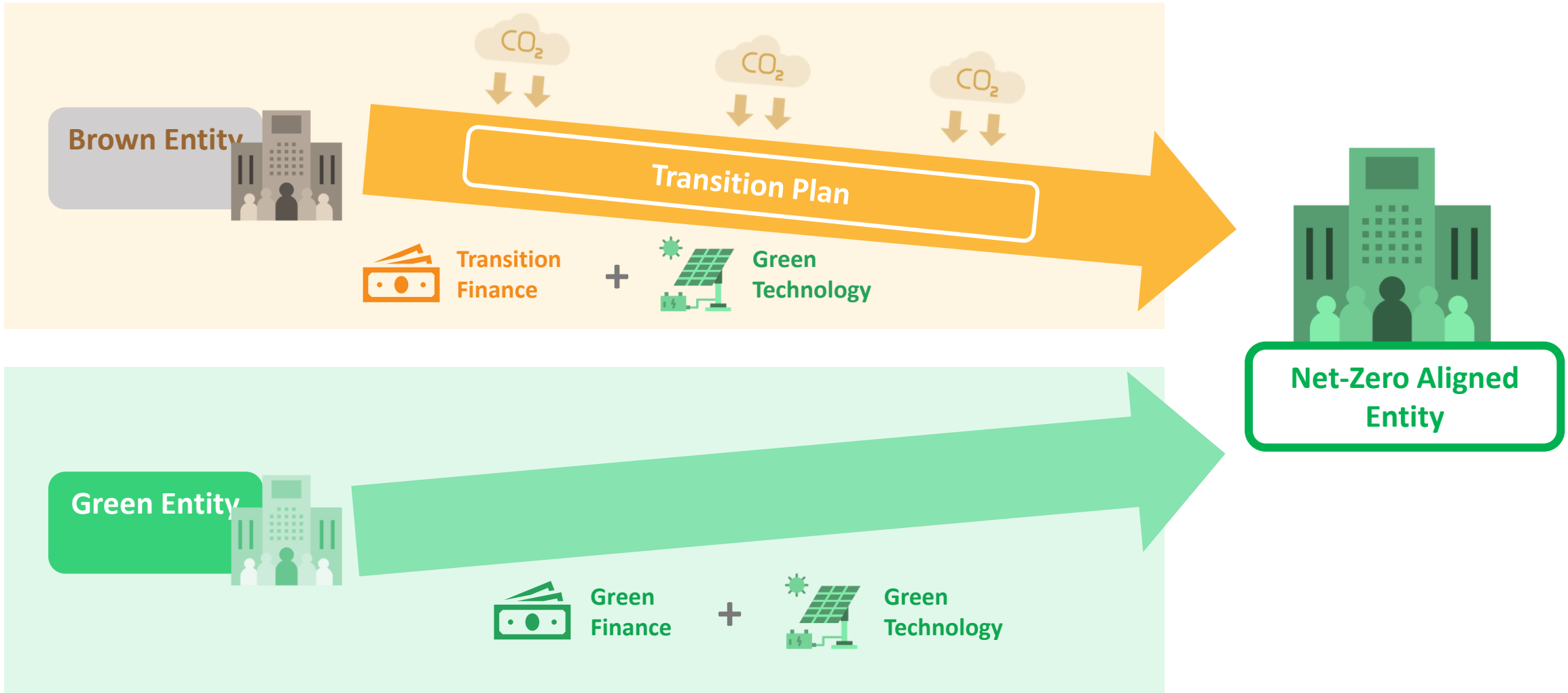
Improve Access to Capital

Facilitates funding and favorable terms for green projects.

Future-Proofing

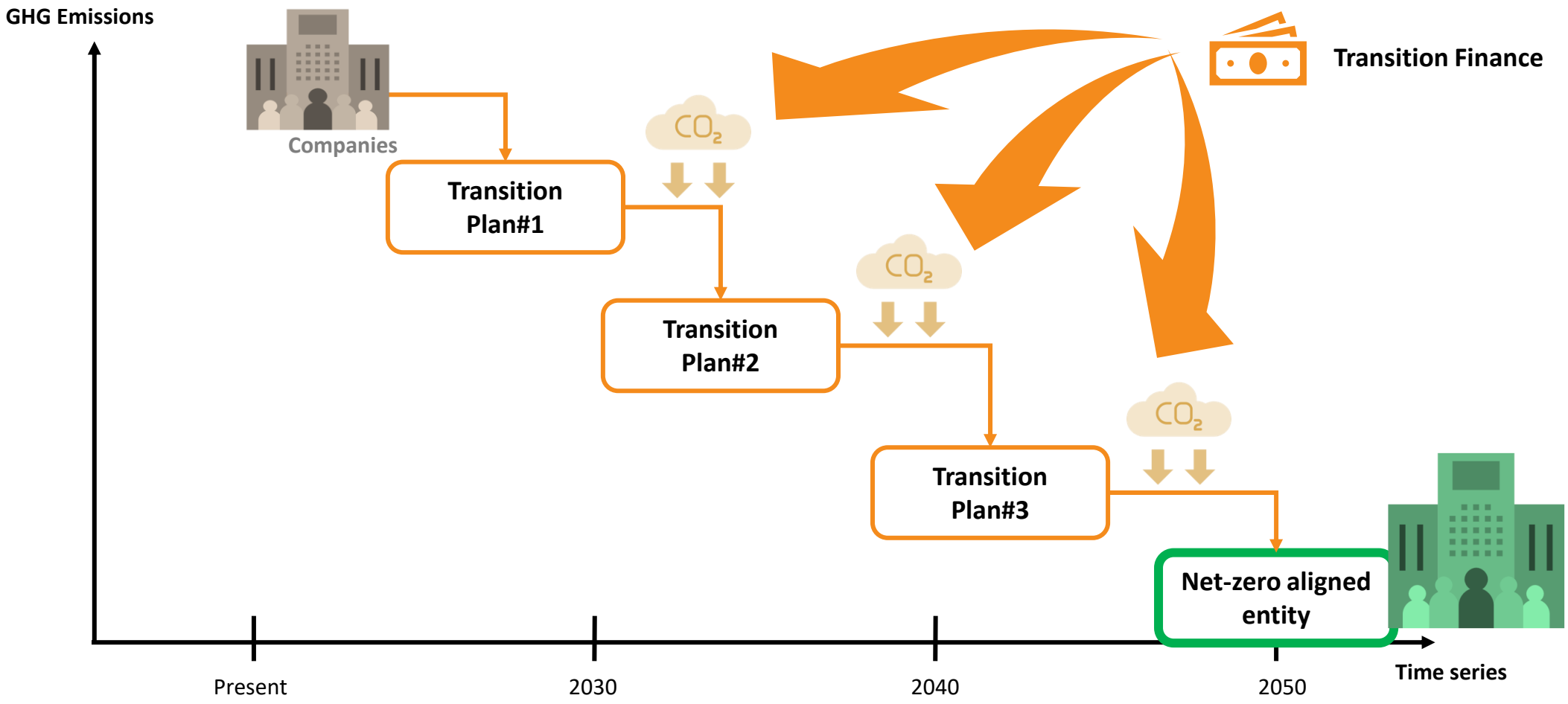
Aligns with future policies and avoids regulatory penalties.

- While Thailand Taxonomy is a powerful tool for promoting sustainability, it cannot be used as a one-size-fits-all solution for all environmental and economic challenges.
- Thailand Taxonomy is not a mandatory list of economic activities for investors to invest in or not invest in.
- There are other instruments that can be used to incentivise toward green investment.


Brown Entity
CO_2
CO_2
CO_2
Transition Plan
Transition Finance
+
Green Technology
Green Entity
Green Finance
+
Green Technology
Net-Zero Aligned Entity

Case study

Companies can develop the Strategic Planning & Transition plan by using Thailand Taxonomy to identify activities for green investment and to attract transition finance



Case study

Retrofitting an Existing Commercial Building to Enhance Energy Efficiency

(For illustration purpose only)

Project Overview:

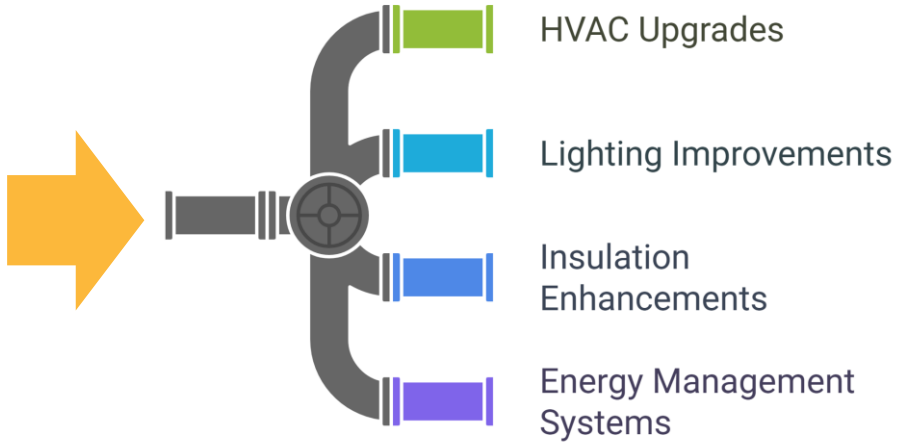
A property development company owns a **20-year-old commercial building complex** in Bangkok. Recognising the need **to improve the building's energy performance and reduce its carbon footprint**, the company proposes a comprehensive retrofit.

The company finds that these activities can substantially contribute to Climate Change Mitigation (EO1) under Thailand Taxonomy:

- ✓ **The retrofit expects to result in a 40% reduction in energy consumption and a corresponding decrease in GHG emissions**, enhancing the building's marketability and demonstrating the company's commitment to sustainability
- ✓ **Retrofitting** existing buildings to improve energy efficiency aligns with the taxonomy's criteria for **amber activities**.

Financing through Transition Bonds

- The investment cost is estimated to be **around 1,000 mTHB.**
- To finance the retrofit, the company **issues a Transition bond**, targeting investors interested in supporting projects that facilitate the shift towards a low-carbon economy.



Case study

Retrofitting an Existing Commercial Building to Enhance Energy Efficiency

(For illustration purpose only)

Do No Significant Harm (DNSH) Ensures that an activity classified as green or amber does not cause substantial harm to any of the other five environmental objectives that are material.

Environmental Objective	Assessment for the Building Retrofit Activities
EO1 Climate Change Mitigation	The retrofit project directly contributes to emission reduction by improving energy efficiency. It aligns with transition finance goals and does not hinder climate action.
EO2 Climate Change Adaptation	The project does not introduce new climate risks. However, adaptation measures such as improved insulation and efficient cooling help increase climate resilience.
EO3 Sustainable Use of Water and Marine Resources	The project includes water efficiency improvements (low-flow fixtures, rainwater harvesting) to reduce consumption, ensuring no negative impact on water resources.
EO4 Transition to a Circular Economy	The project integrates waste reduction measures, such as reusing building materials and responsibly managing construction waste, minimising harm to resource use.
EO5 Pollution Prevention and Control	No hazardous substances or processes are introduced. The project follows waste management protocols and ensures compliance with air and noise pollution regulations.
EO6 Protection and Restoration of Biodiversity and Ecosystems	The retrofit occurs within an urban environment, with no significant impact on biodiversity. Sustainable sourcing of materials ensures no harm to forests or sensitive ecosystems.

Case study

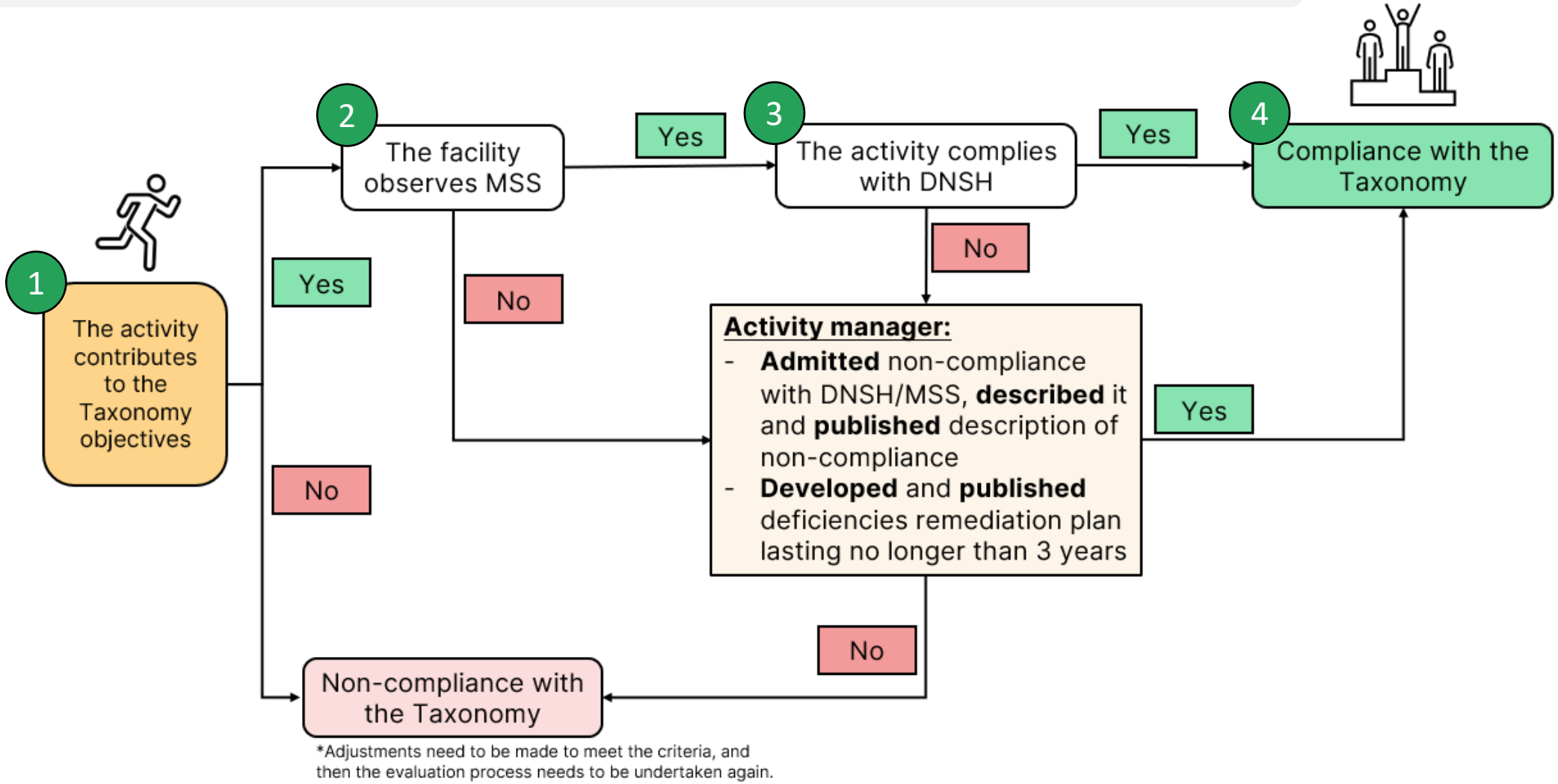
Retrofitting an Existing Commercial Building to Enhance Energy Efficiency

(For illustration purpose only)

Minimum Social Safeguards (MSS) Ensures that companies receiving sustainable finance meet international human rights, labor rights, and good governance standards.

MSS Criteria	Assessment for the Building Retrofit
Human Rights Compliance	The company follows Thai labor laws and international human rights standards (UN Guiding Principles on Business and Human Rights). No forced or child labor is involved.
Fair Labor Conditions	Workers are provided with safe working conditions, fair wages, and social benefits in line with Thailand's labor laws.
Health and Safety Standards	The retrofit project follows national occupational health and safety (OHS) regulations to prevent work-related injuries.
Stakeholder Engagement	The project involves consultations with building tenants and relevant stakeholders, ensuring fair communication and transparency.
Good Governance and Anti-Corruption	The company follows corporate governance best practices, ensuring compliance with anti-corruption laws and ESG reporting standards.

Thailand Taxonomy Compliance Decision Tree



*Adjustments need to be made to meet the criteria, and then the evaluation process needs to be undertaken again.

Part 5

Summary: Key Takeaways

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 classifier of activities into 'good' and 'bad'.
- A tool for assessing the financial or economic characteristics of an activity.
- A tool to suppress certain activities, including those not included in the taxonomy or labelled there as inconsistent with its objectives.
- A tool applicable to all activities that exist in the economy (most economic activities do not affect climate)

Source: Climate Bonds Initiative

ผู้สนับสนุน

ผู้จัดทำ

ที่ปรึกษา

THAILAND TAXONOMY