THAILAND TAXONOMY

Business Guide and Case Studies

September 2025

THAILAND TAXONOMY BOARD

Contents

List of Figures

Thailand Taxonomy

This document represents a business guide aimed at helping the potential users of the Thailand Taxonomy (the 'Taxonomy') in its practical implementation. It is intended to help to check whether an activity, enterprise or company meets the Taxonomy criteria for different environmental objectives ('EO's). The guide also includes case studies describing different ways of applying the Taxonomy for practical use.

1. Defining Taxonomy alignment: Activity level

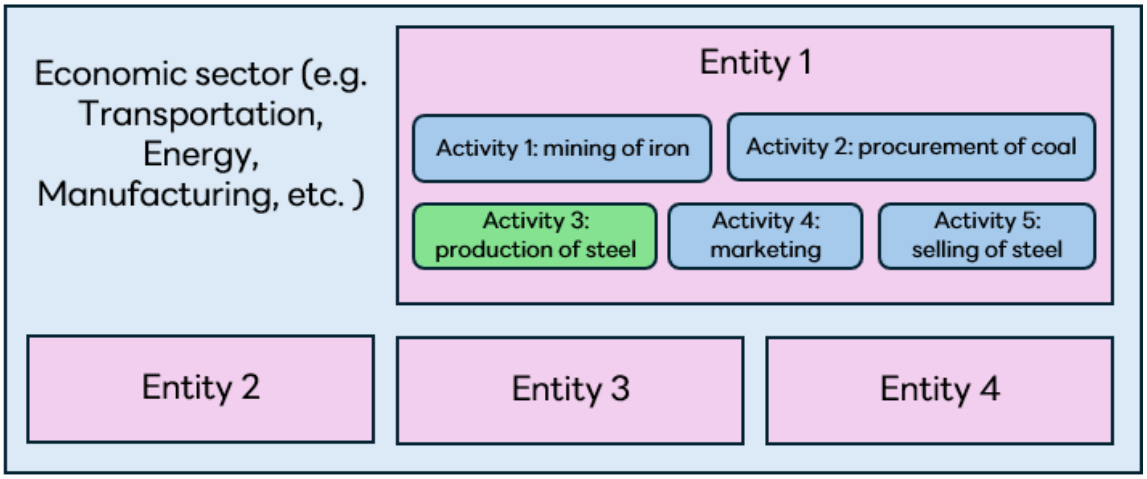
The purpose of the Taxonomy is to allow determination of those economic activities ('activities') that are making a significant contribution to an Environmental Objective or EO ('green'), and activities which support the transition to a greener future ('amber'). This determination follows by the application of Technical Screening Criteria (TSC) which are defined in the Taxonomy.

In common with other major international taxonomies, the Thailand Taxonomy defines TSC the level of the activity, rather than sector or entity. This is convenient because an activity is large enough to be the object of a bond or loan issuance, but granular enough to be separated from similar activities and treated in isolation.

An entity may conduct several different activities, some of which may have a very significant environmental impact (e.g., steelmaking, battery production, power generation), while the environmental effect of other activities is negligible (e.g., management, accounting). Thus, for the purposes of applying TSC, an entity can be broken down into discrete activities as defined by the International Standard Industrial Classification of Economic Activities (ISIC) system. Note that not every activity covered by the Taxonomy has an individual ISIC code. In such cases, the relevant activity is defined in the Taxonomy under its respective sector.

The diagram below illustrates that only certain activities within entities are eligible for Taxonomy alignment, not the whole sector, not the entity as a whole and not all activities within one entity.

Figure 1 Example of the relationship between sectors, entities and activities



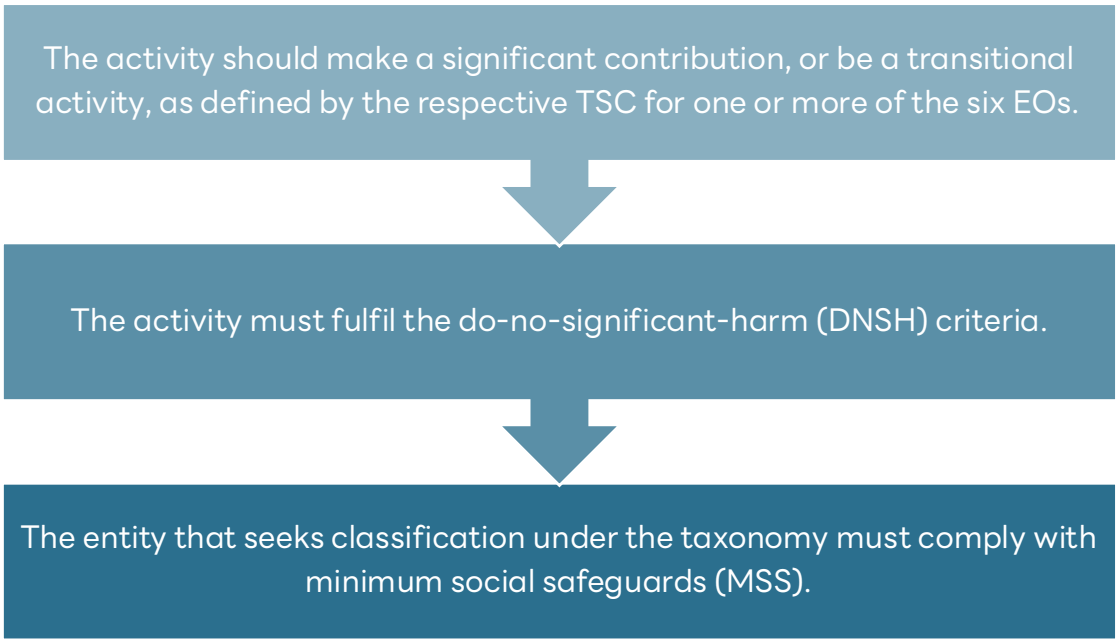
Regarding to Figure 1, Taxonomy eligibility (whether the activity included in the Taxonomy or not, regardless of compliance with criteria):

Activity of the Entity 1	1	2	**3**	4	5
Taxonomy eligibility	No	No	**Yes**	No	No

1.1 Components of Taxonomy Compliance

For activities in all sectors except agriculture, the scheme of compliance with the Taxonomy has three components:

Figure 2 Components of Taxonomy compliance

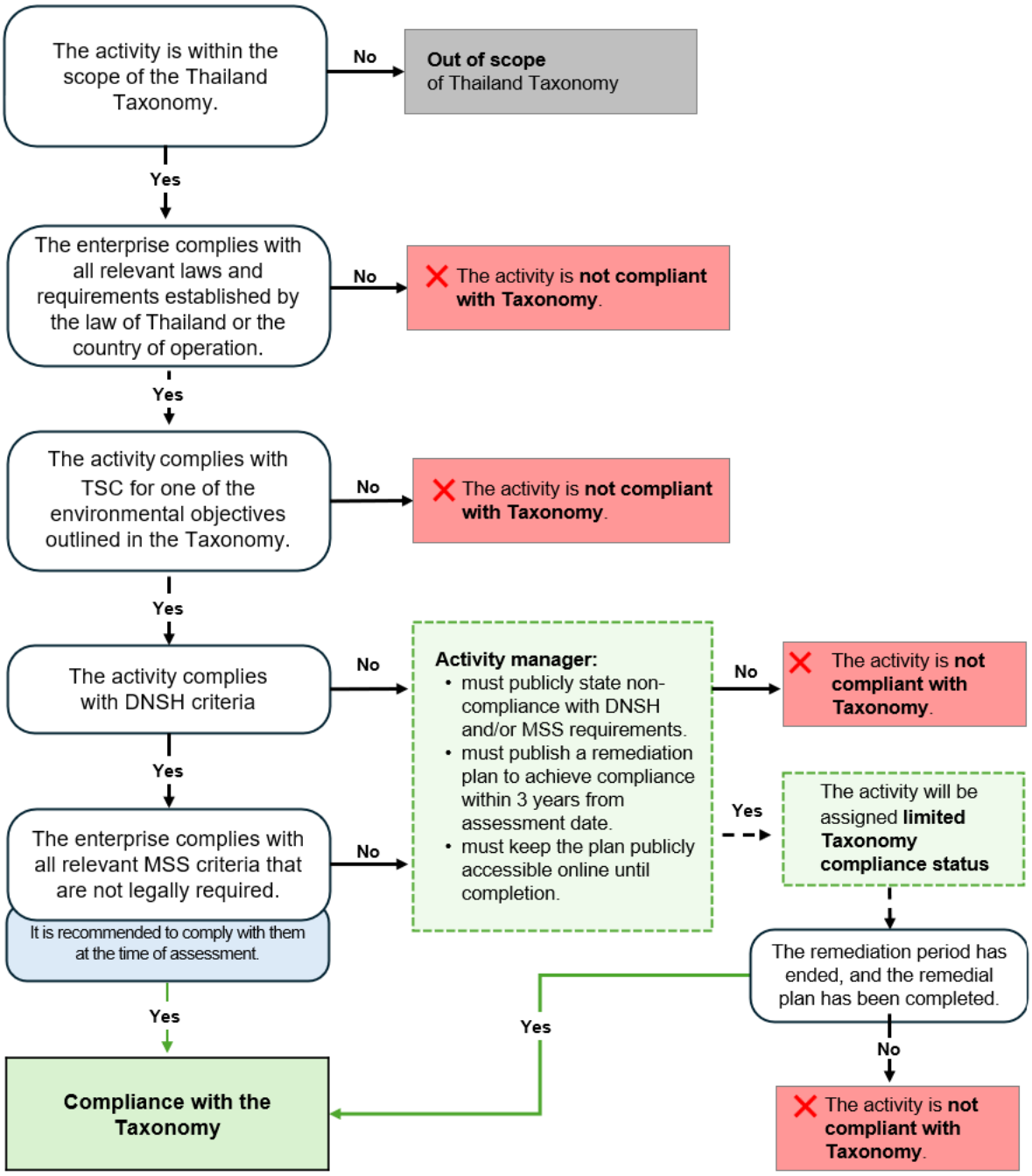


The Thailand Taxonomy is separate from Thailand's national laws. These are generally not mentioned in the Taxonomy, as they should be mandatory whether the Taxonomy is used or not. If some specific laws are mentioned, it means that the user must pay special attention to these particular regulations as they are crucial to the achievement of the stated EO's.

The assessment of whether an activity meets the green or amber TSC under the Thailand Taxonomy must initially be carried out by the activity manage[1].

[1] The activity manager is a person that is seeking alignment with the Taxonomy for a specific eligible activity.

Figure 3 Taxonomy compliance decision tree

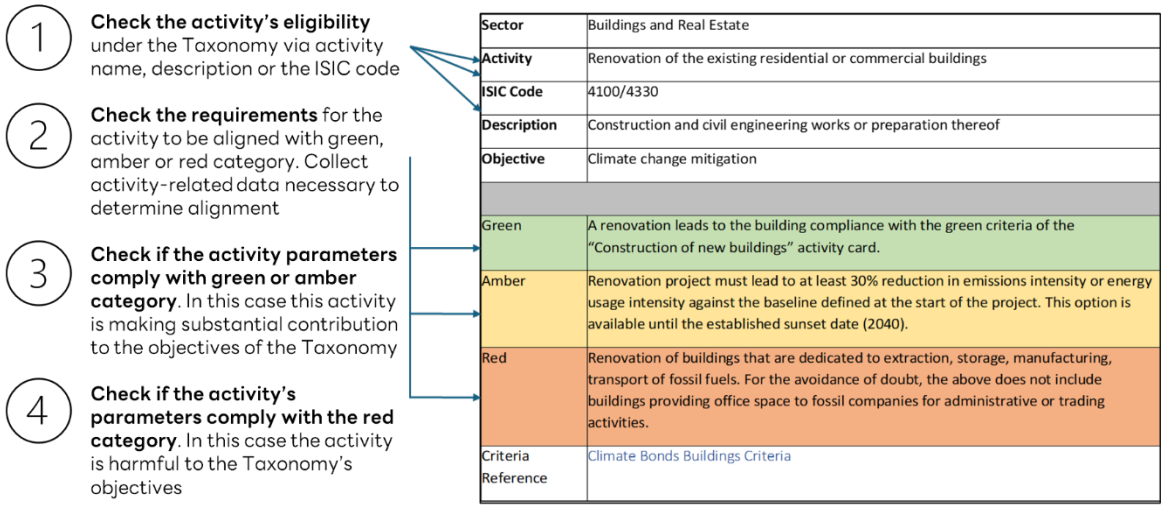


Taxonomy compliance requires adherence to TSC, DNSH, and MSS criteria, all applied at least to the level required by the laws and regulations of Thailand or of the country where the activity takes place. These ensure that an activity, whilst supporting an EO, does not result in significant harm to the other EOs (e.g., while a solar plant may promote decarbonisation, it should not be built in a way which harms ecologically sensitive land). Additionally, the activity may not result in infringement of human and labour rights. Detailed description of DNSH and MSS of all Taxonomy activities can be found in the relevant Taxonomy supplement.

1. Assessment of activities

Thailand Taxonomy adopts a **traffic light system** for classifying and assessing activities according to their contribution to an EO. The traffic light system categorises all activities defined in the Taxonomy into three groups - green, amber (transitional), and red, allowing access to various forms of sustainable financing and facilitating disclosures.

Figure 4 Substantial contribution check scheme



This methodology is relevant for all sectors included in the Taxonomy, except for the agriculture sector, which will be discussed separately.

Note that the Taxonomy allows the assessment of activities (not of entities with multiple separate activities). In the case of an entity with multiple activities, each activity must be assessed individually.

The assessment of an activity's contribution to an EO is conducted as described below:

1. Ascertain if the activity is defined in Taxonomy.
2. If yes, the activity is considered Taxonomy eligible, meaning that it can be assessed against the Taxonomy.
3. Any activity not defined in the Taxonomy is considered out of the scope of the Taxonomy[2].

[2] This does not necessarily imply that the activity is harmful, but rather that it has not yet been included in the Taxonomy and may be included in future revisions.

4. Examine the TSC defined for that activity.
5. Assess the actual or specified performance of the activity for the compliance against the TSC.
    - For currently operating activities, robust and granular data may be required to demonstrate historical compliance with the TSC.
    - For planned future activities, evidence may be required in the form of contract specifications for the equipment or infrastructure to be used for the activity.
    - Where applicable, data verification should be conducted in a manner which is consistent with industry-wide codes of conduct for external reviewers, such as ISSA 5000.
6. On this basis, the activity may be assessed as aligned with the **green**, **amber** or **red** categories (*See a brief of the traffic light system at Thailand Taxonomy Methodological Summary, Introduction part*).

2. Assessment of DNSH and MSS compliance

DNSH and MSS are additional criteria that create necessary guardrails for taxonomies to avoid unwanted negative externalities from activities intended to support an EO. DNSH states that an activity substantially contributing to one objective does not cause harm to any other EO. MSS requires that activities are conducted in line with international treaties protecting social and labour rights and do not do damage to social peace and stability. Additionally, it is very important to note that in complying with all the rules of this Taxonomy, the entity being evaluated must first comply with all laws, regulations and requirements established by the law of Thailand or the law of the country where the activity takes place.

To be compliant with either the green or amber requirements, an activity must either:

- Comply with DNSH and MSS as well as TSC to achieve taxonomy compliance;

OR

- Comply with the TSC, admit non-compliance and deficiencies in DNSH and/ or MSS, develop and publish a remediation plan lasting no longer than 3 years from the date of the assessment to achieve limited taxonomy compliance. The plan must be available for public assessment on a publicly accessible website until its completion.

The DNSH requirements are structured as follows:

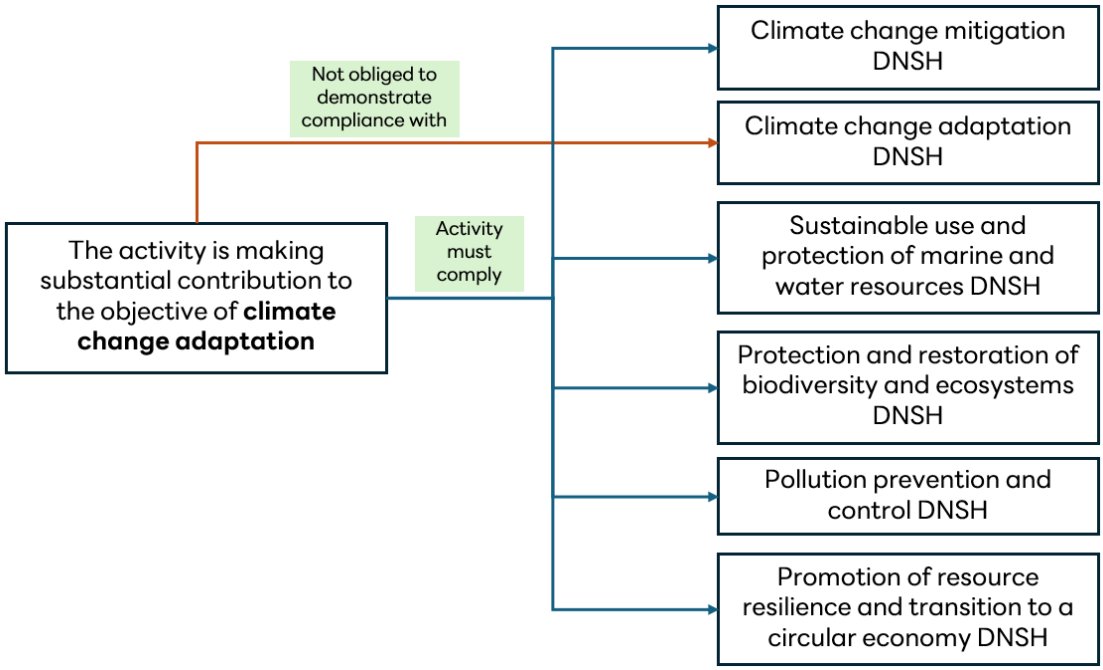
- **General requirements**: these are applied in all cases and are comprised of two parts: (i) assessment of potential risks; and (ii) mitigation of those risks to a point which significant harm no longer occurs.
- **Sector and subsector specific requirements**: which apply to activities on a sector or subsector basis.

Currently, compliance with the DNSH and MSS criteria is mandatory to demonstrate that an activity aligns with the Thailand Taxonomy. These criteria are intentionally broad, incorporating sector-specific details where applicable. This approach ensures the Taxonomy remains stringent, while also enhancing usability and minimizing reporting burdens. In cases where significant harm persists, a three-year grace period from the assessment date is provided to address and rectify any identified harm through a remedial plan.

In practice, this means that if an activity fulfils the TSC for an EO (e.g., EO1 – Climate change mitigation) but does not comply with DNSH against the other objectives (e.g., EO2 – climate change adaptation, or EO3 – sustainable use and protection of marine and water resources), it may still be considered compliant with the corresponding green or amber category if a remediation plan is submitted (refer to Figure 5).

For compliance with MSS the owner of the entity must provide written statement of compliance with all relevant laws, regulations and guidelines listed in the MSS requirements. These statements may be verified by the accepting party in line with the internal procedures and through the financial instrument maturity.

Figure 5 DNSH requirements application scheme example



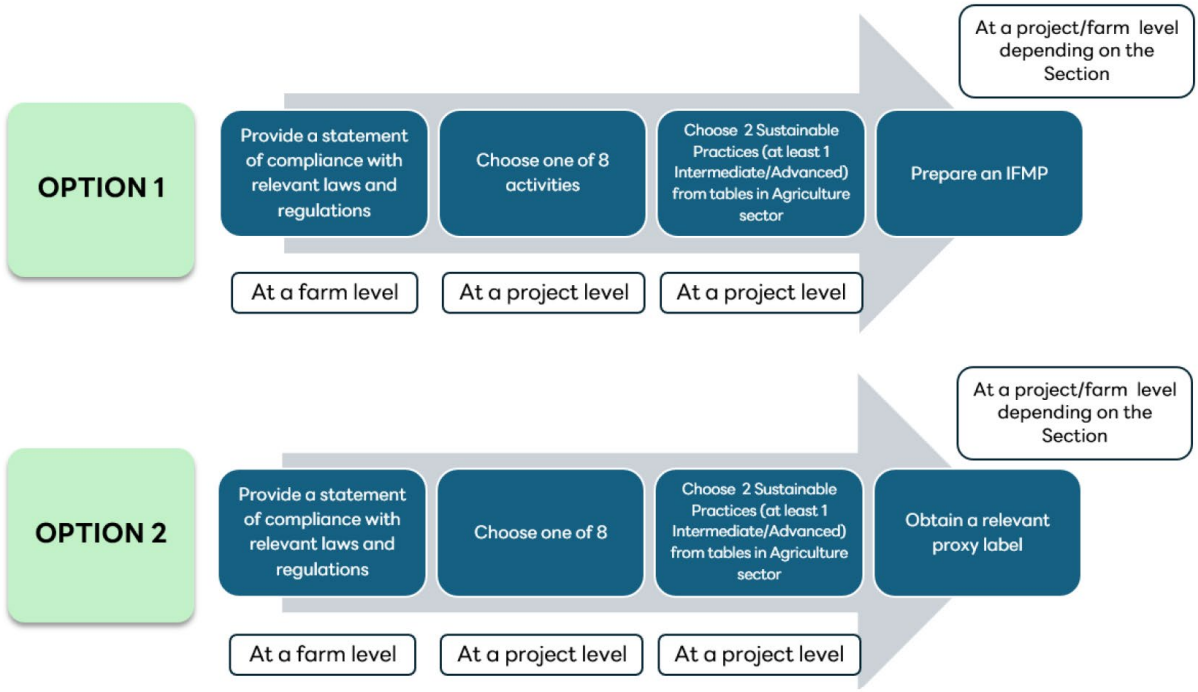
1.2 Agricultural sector: defining Taxonomy compliance

As stated earlier, the mechanism for applying the Taxonomy to the Agriculture sector is different from that of the traffic light system (see the relevant section of the Taxonomy for details of the reasons). Substantial contribution here is defined not on the basis of aligning the activity with the TSC, but on the basis of introducing sustainable agricultural practices. The agricultural sector also has its own DNSH criteria, so activity managers in this sector do not need to follow the DNSH applied to activities in all other sectors of the Taxonomy.

The main application of the Taxonomy in practice in the agricultural sector is its application to the **transformational project.** Such a project implies the transition of the farm from its current state to a more climatically and environmentally sustainable state through the application of sustainable practices, making a significant contribution to the objectives of the Taxonomy and preventing harm to the ecosystem and biodiversity of the production unit.

There are two basic options under which the manager of the farm can align a transformational project with the Taxonomy: through the preparation of Integrated Farm Management Plan (IFMP) and through obtaining relevant international certification.

Figure 6 Agricultural criteria application scheme



Option 1: Compliance through the preparation of IFMP

Step 1. Provide a statement of the farm's compliance with the Thailand's national laws and regulations relevant to the farm.

Even though all activities across all sectors need to comply with national laws and regulations, the idea of this requirement in agriculture is to provide further guidance to financial sector users to check compliance against specific norms (e.g., the farm is not located in a forest or a protected area) before evaluating if it is sustainable.

The relevance of different laws and regulations is defined by the manager of the farm and assessed by the person or agency checking the validity of the alignment.

Step 2. Define the activity to be assessed.

A transformation project can be carried out for the activities that are included in the Annex under the Agricultural section of the Taxonomy:

Crop-specific tables include practices that provide the best results for the specific crops, but the table with general practices for perennial and non-perennial crops, incl. corn, mango, pineapples, banana etc. can be utilised for these crops as well.

Step 3. Select at least two practices from Annex tables in Agriculture sector of Thailand Taxonomy document

For a transformation project to be aligned with the taxonomy, at least two sustainable agricultural practices from the ones listed in the Annex tables including at least one non-basic (intermediate or advanced) practice to be implemented throughout the project.

Step 4. Prepare and adopt an IFMP

An IFMP is a document that confirms that the farm manager:

- Has chosen at least two practices, with at least one of them being non-basic practices and is intended to implement them in a proper manner in order to achieve some results relevant to the objectives of the Taxonomy;
- has not now and will not, by implementing the transformation project, cause significant damage to the ecosystem of the production unit, climate, and the environment as a whole;
- will make a significant contribution to one or more of the objectives of the Taxonomy as part of the transformation project.

An IFMP has no established structure (the structure might be defined either by the farm manager or by the institution verifying the compliance with the Taxonomy), but as a minimum, it includes the following sections:

- Objective of the transitional project;
- Current situation on the farm;
- The nature of transition;
- Expected results of the project;
- Environmental damage prevention measures taken by the farm manager;
- Taxonomy objectives and contribution actions will be taken by the farm manager throughout the project.

A detailed description of the IFMP content can be found in **Integrated Farm Management Plan section of Agriculture sector in Thailand Taxonomy document.**

Option 2: Compliance through obtaining relevant national or international certification

Alternatively, the manager of the farm may choose to substitute the preparation of the IFMP with a credible international or national certification scheme from one of the recognised certification providers. These international certifications include sufficiently stringent requirements comparable in stringency to those required of the farm manager under Option 1. If the production of the farm or the farm itself is certified under one of these, the farm manager does not need to provide an IFMP but still needs to implement at least two practice from Annex tables in Agriculture sector in Thailand Taxonomy document. The list of eligible agricultural certification schemes is given in Table: List of eligible certification schemes of Agriculture sector in Thailand Taxonomy document.

If this option of chosen, steps 1, 2 and 3 are the same as in the Option 1, but the step 4 is replaced by obtaining one of the certificates mentioned above.

2. Taxonomy-aligned expenditures and produces

The main practical application of sustainable taxonomies is to increase the transparency of the financial market and help its participants to establish rules for classifying financial instruments, as well as portfolios and entities. This is crucial, as it directly influences the integrity and credibility of green bonds and green loans, the accuracy of financial statements, and the way products are marketed under green classifications.

Aligned green or amber financial flows for all sectors (other than Agriculture) include respectively:

- Capital expenditures for the development, implementation, upgrade and/or retrofit of equipment or facilities for the conduct of a green or amber activity;
- Operational expenditures related to the conduct of a green or amber activity; and
- Revenues associated with any green or amber activity.

An expenditure is not aligned with green or amber financial flows if it is not pursuant to or does not result from a green or amber activity.

Aligned expenditures for the agricultural sector include:

1. Expenditures required to implement the transformational project, including items and services from the "eligible inputs" column of each table of **Annex in Agriculture sector of the Thailand Taxonomy document**.
2. Expenditures required to implement or maintain activities which make a substantial contribution to measures mentioned in **Table: Examples of sustainable contribution to the objectives of Thailand Taxonomy in Annex in Agriculture sector of the Thailand Taxonomy document**.
3. Revenues coming from selling farm production AFTER the transformational project was completed. Please note that only revenues from farm products that were transformed throughout the transformational project are considered Taxonomy aligned. For example, if the farm grows corn and soy together and the manager carries out a transformational project aimed at increasing bio-fertiliser input for soy (or obtained Roundtable on Responsible Soy certification), only soy and revenues associated with selling soy are

considered Taxonomy aligned. This product Taxonomy alignment lasts two years[3], counting from the date when the transformational project was fully implemented.

DNSH section measures from **Table: Do-No-Significant-Harm Measures in Agriculture sector of the Thailand Taxonomy document** must be implemented BEFORE the start of the transformational project and be continued throughout the project implementation process. Financial inputs required to provide them thus cannot be aligned with the Taxonomy.

[3] Two years limit is meant to incentivise farmers to implement more sustainable practices.

3. Defining Taxonomy alignment: company and portfolio levels

The following description is an example of how the alignment with the Taxonomy can be assessed. It is not a mandatory and any other scheme of alignment check can be utilised. An example of an alternative scheme can be found at ASEAN Capital Market Forum website[4] or in the ICMA Climate Transition Finance Handbook[5].

Alignment with the Taxonomy can be assessed at different levels:

1. **At the activity level**. This is the basic level on which all other levels are built. The scheme for assessment is given in the previous chapter.
2. **At the enterprise level**. At this level, companies/entities could also be assessed for Taxonomy alignment by assessing different activities and/or projects they conduct and aggregating the respective contributions of such activities and/or projects to the Taxonomy.
3. **At the portfolio level**. Portfolios could also be similarly assessed by assessing their underlying investments into different companies/entities and aggregating the respective contributions of such companies/entities to the Taxonomy.

3.1 Assessing the share of revenue coming from aligned (Green and Amber) activities

The assessment of the entity's (an independent organisation that engages in commercial activities for a product) compliance with the Taxonomy generally follows the steps outlined in the previous chapter. However, given that entities may simultaneously conduct different types of business, it is necessary to first conduct a granular breakdown of its operations at the activity or project level. The relevant activities or projects must be assessed individually as outlined in the previous section before entity's level of alignment with the Taxonomy can be determined.

It can be done through the following steps:

[4] ASEAN, "ASEAN Transition Finance Guidance", October 17, 2023, https://www.theacmf.org/sustainable-finance/publications/asean-transition-finance-guidance

[5] ICMA, "Climate Transition Finance Handbook", June, 2023, https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Climate-Transition-Finance-Handbook-CTFH-June-2023-220623v2.pdf

1. Break down entity operations into different economic activities

All entity operations should be broken down into different business lines and economic activities or projects according to the ISIC classification. These activities or projects are attached to the financial flows that may have the form of capital expenditures, operational expenditures, or revenue. Ideally, the activities or projects must correspond to the relevant ISIC codes for easier comparison and mapping to the Taxonomy (which also employs the ISIC codification). However, it is not always a simple process as some activities feature multiple ISIC codes or no code at all. Some interpretation may be necessary, but any assessment should be clear about the base assumptions made.

2. Assess alignment of eligible activities or projects to the Taxonomy

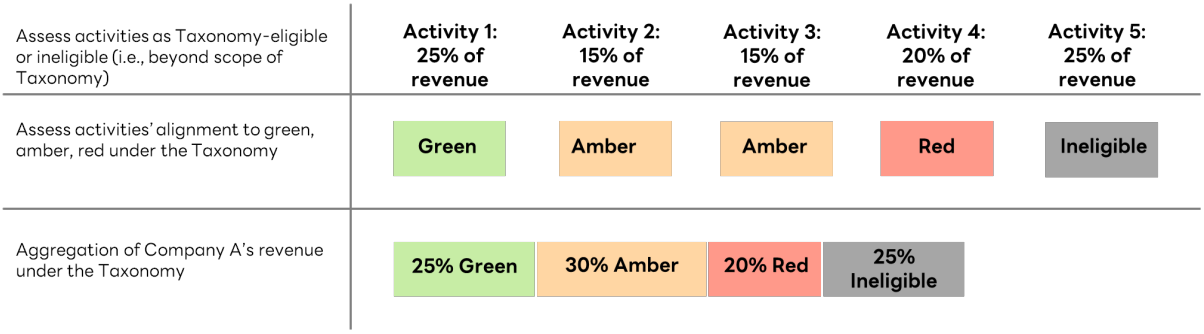
Assess each activity in line with instructions given in the previous chapter.

3. Aggregate alignment of individual activities and/or projects to the entity level

An entity's overall alignment to the Taxonomy can be calculated by taking the total percentage of revenues, capital expenditures, or operational expenditures of relevant activities that are assessed to be green, amber, red, or out-of-scope against the Taxonomy. This aggregated alignment at the entity level must be brought together and may be disclosed in the disclosure report of an entity or for any other purpose.

In the example below, Company A has five business activities which contribute to different proportions of the overall company revenue, and which have been individually assessed for alignment with green, amber, red, or out-of-scope categories of the Taxonomy.

Figure 7 Defining the share of revenue coming from different Taxonomy-aligned categories



The same aggregation methodology could also be applied in determining an entity's Taxonomy-aligned capital or operational expenditures.

3.2 Assessment of Alignment with the Taxonomy at The Level of a Portfolio

Financial institutions may choose to disclose the overall percentage of alignment of their individual portfolios and products to the Taxonomy, which could subsequently inform regulators or the market on the climate/environment-related credentials of a financial product.

It can be done through the following steps:

1. **Break down portfolio into different entities and investments**

All portfolio components should be broken down into the underlying entities and investments – equity or debt.

2. **Assess alignment of individual entities to the Taxonomy**

Refer to the steps from the previous chapter for assessment of each entity. This may require communication with entities to persuade them to provide the relevant information.

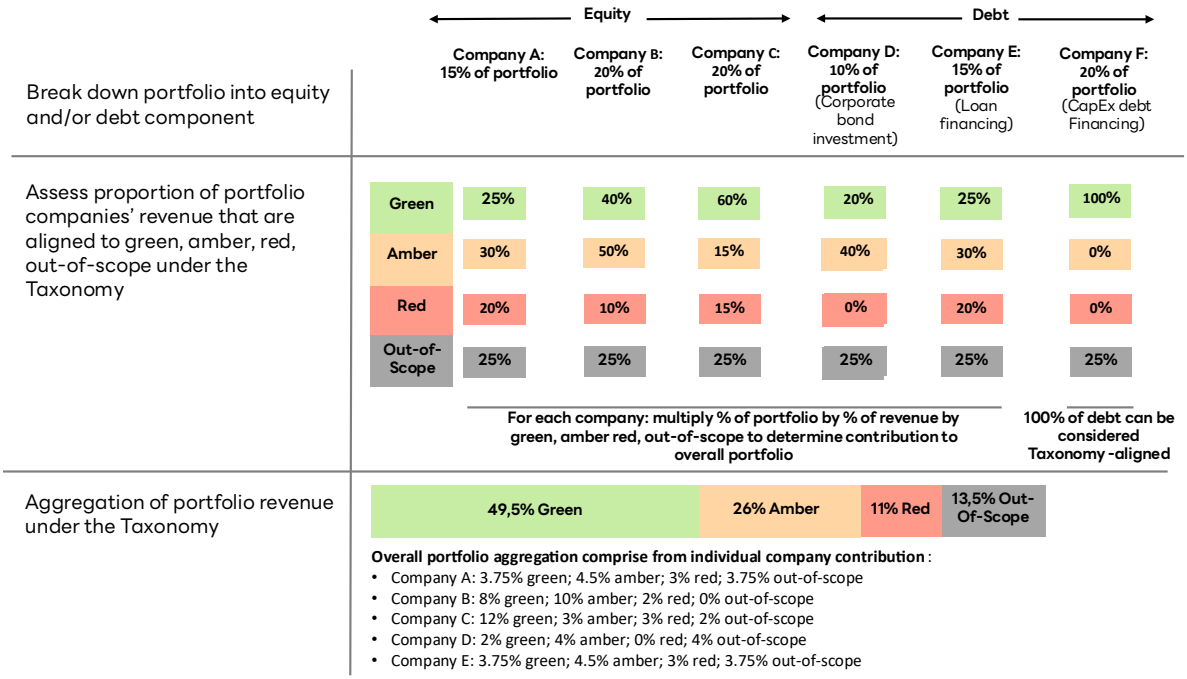
3. **Aggregate alignment of individual activities or projects to the entity level**

A portfolio's overall alignment to the Taxonomy can be calculated by constructing a weighted average for each category (green, amber, red, out-of-scope).

- For **equity** investments, company revenue is used as the main proxy for equity exposure to Taxonomy-aligned economic activities. In order to calculate total portfolio alignment, the calculation is the weight of the asset within the portfolio multiplied by the proportion of the company revenue, which is eligible and aligned with different Taxonomy categories.
- For **debt capital**, the approach is broadly the same as for equity investments, with revenue being used as a proxy for portfolio exposure to Taxonomy-aligned economic activities, where appropriate.
- For **capital expenditures financing**, whereby corporate debt and/or bonds which are being used to fund Taxonomy-aligned projects, those portions of the investment can be classed as Taxonomy-aligned where it commits to meeting the technical screening criteria for the environmental objective at the maturity of the project.

An example is provided below to illustrate the calculation of overall Taxonomy-alignment of a portfolio with different financing components – equity investments in the case of Company A, B, and C; debt capital in the case of Company D and E; and capital expenditures financing in the case of Company F.

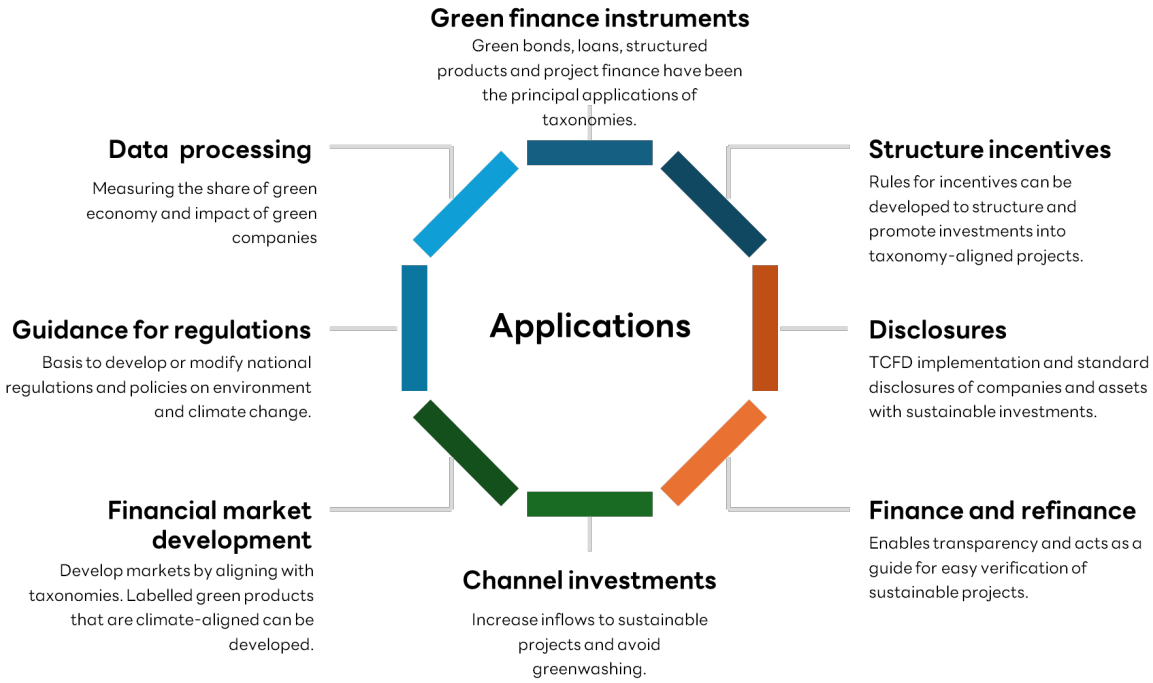
Figure 8 Defining portfolio's level of alignment with the Taxonomy



4. Usability examples and case studies

Thailand Taxonomy may be used for a variety of different purposes associated with confronting climate change and moving the economy towards a more sustainable model. However, it is important to note that a separate legal instrument is needed to make the Taxonomy usable in each sphere of application. The Taxonomy is an "engine" or a "soul" of the green finance system, but it needs supplementary documents, instructions, or pieces of national/international legislation to be connected to the real economy and financial market.

Figure 9 Possible Taxonomy applications



Here are some real-life case studies taken from the reports about Taxonomy application in other countries as well as Climate Bonds' practice. Cases are anonymised to avoid associations and distraction. Hypothetical case is also provided to illustrate the application of the Taxonomy.

It is very important to note that criteria and threshold themselves in the case studies below may differ from the Thailand Taxonomy criteria and thresholds. Cases are given as illustrations based on other countries' examples (they have their own taxonomies with their own criteria and thresholds). They, however, are close enough in methodology and application mechanics to provide valuable case study material.

Please also note that actual specific rules for the application of the Taxonomy for different purposes are not included in the Taxonomy and are not part of it. They have to be defined by the national institutions according to the structure and rules of the different market segments.

Case study 1: Applying Taxonomy to a sustainable vegetable farming project

A vegetable farmer attended a sustainable agriculture seminar, where the farmer learned about the rising global demand for organic and climate-friendly agricultural products. Seeing an opportunity, the farmer decided to transition the farm to sustainable practices. To finance this transition, the farmer needed a loan and approached the local state agricultural bank.

At present, the farmer cultivates various vegetables on a 2-rai plot and is planning to upgrade the agricultural practices by:

1. Adopting soil conservation practices; and
2. Composting, organic and bio-fertilisers

The bank manager informed the farmer that these crops are covered by the Thailand Taxonomy and that the farmer could follow the guidelines in the *Table: Eligible practices for general perennial or non-perennial crops, incl. corn, mango, pineapples, banana etc.* in the Annex of the Agriculture sector. Eligible practices for general perennial or non-perennial crops include all types of vegetables.

Figure 10 Case study 1: A sustainable vegetable farming project

Business profile
Core Business: Cultivation of a variety of vegetables, including tomatoes, peppers, and cucumbers. **Size & Location:** Operates on a 2-Rai plot. **Objective:** Transition to organic practices, obtain eco-certification, and secure a loan by aligning with agricultural Taxonomy.
Defining Taxonomy alignment
The farmer chose to develop an Integrated Farm Management Plan (IFMP) for vegetable production as the main planned improvement for its transformational project. To qualify under the Taxonomy for this IFMP, the farmer must first confirm that the farm: ● Complies with all national laws. ● Significantly contributes to one of the Taxonomy objectives. ● Meets all Do No Significant Harm (DNSH) criteria. ● Prepares an Integrated Farm Management Plan (IFMP).
Adoption of Soil conservation' practices and Adoption of composting, organic and bio-fertilisers

Relevant Sector: Agriculture sector

Relevant activities: Eligible practices for general perennial or non-perennial crops which include all types of vegetables

Taxonomy-aligned assessment: These sub-activities, as part of the IFMP, can be classified as "Green" due to the following assessment.

1. Adoption of sustainable agricultural practices: The farmer identified that applying soil conservation practices, such as minimum tillage, would contribute to climate mitigation objective, by improving soil health and reducing the use of chemicals.
2. Composting, organic, and bio-fertilisers are beneficial both for the farm and the environment because they cut greenhouse gases while improving soils that grow vegetables, reducing reliance on energy-intensive synthetic fertilisers and enhancing long-term soil carbon storage.
3. Meeting DNSH requirements: Evidence gathered demonstrated that DNSH requirements were met, including documentation showing no harmful practices (like prohibited pesticides) were used and natural boundaries were protected.

Report of Taxonomy-aligned expenditures and produce:

1. **Taxonomy-aligned Operational expenditures (OpEx)** are recurring expenses consumed within the current cycle to keep operations going (e.g., seed, feed, fertilizer, fuel, labour, repairs, utilities, insurance, short-term leases). These are expensed in the period incurred. Therefore, the farmer can report any fertilisers, additives or crops that he/she bought to implement practices as procured using taxonomy-aligned OpEx.
2. **Taxonomy-aligned Capital expenditures (CapEx)** *are f*unds spent to acquire, build, or substantially improve assets that last beyond one production cycle (e.g., land, tractors, irrigation systems, barns, orchards). These are capitalized and then depreciated or amortized over their useful life. Therefore, the farmer can report anything of this kind being constructed to implement chosen practices as built using taxonomy-aligned CapEx.
3. **"Taxonomy-aligned revenue"** is the income generated from selling the produce after being certified as Taxonomy-compliant. Within two years, the farmer's vegetable production could be certified as compliant with the Taxonomy, making it eligible for participation in government-supported programs for promoting sustainable exports.

The farmer can also report the revenue from selling the vegetable production as "Taxonomy-aligned revenue" .

It is important to note that only revenues from farm products transformed through the activity are considered aligned. This product-level Taxonomy alignment lasts for two years from the date the transformation project was fully implemented.

Case Study 2: Taking a mortgage to build a house

An activity manager wants to take a green mortgage loan of 20,000,000 Baht to build a house. A local bank offers such a programme, and the manager decides to apply. To obtain the loan, the manager must review the requirements and carefully prepare and collect all necessary information. At the bank, an employee explains that to be eligible for the green mortgage, the building must comply with the Thailand Taxonomy. The bank provides a list of requirements and data that need to be collected and submitted. Together, the manager and the bank employee conduct an initial assessment of the application.

Figure 11 Case Study 2: Taking a mortgage to build a house

Initial assessment stage

Construction of new house

Relevant Sector: Construction and Real Estate sector

Relevant activity: Construction of new buildings

- Mortgage to build a house can be classified as green mortgage if the building complies with the Taxonomy requirements.
- According to the Thailand Taxonomy, to be aligned with the green category, the house should obtain one of national or international green building certification schemes such as Green Star Homes, or by having the building's emission intensity within the green threshold etc.
- DNSH assessment reveals the following major risks that may be associated with this activity and must be carefully monitored:
  - **Adaptation**: lack of resilience to extreme weather events (including flooding) and future temperature rises in respect of internal comfort conditions;
  - **Protection of marine and water resources:** excessive water consumption due to inefficient water appliances;
  - **Promotion of resource resilience and circular economy**: landfill and/or incineration of construction and demolition waste that could otherwise be recycled/reused;
  - **Pollution prevention and control**: presence of asbestos and/or other high-risk substances among building materials; presence of hazardous contaminants in the soil of the building site; inappropriate building location: Impacts on ecosystems if built on greenfield, particularly if in a conservation or high biodiversity value area;
  - **Protection of biodiversity and ecosystems**: indirect damage to forest ecosystems due to use of timber products originating from forests that are not sustainably managed.

Defining Taxonomy alignment

1. To determine whether a house project meets the requirements of the Taxonomy (whether it makes a significant contribution to combating climate change), the owner provides the bank with the certificate of the Green Star Home.
2. A list of measures that will be applied to meet DNSH criteria:

   2.1. **Climate change adaptation**: climate risk assessment was conducted using open-source bases like CLIMADA. It was discovered that the house is planned to be built

in a zone of frequent heatwaves. Additional cooling devices were added to the home, as well as heat-resistant roof tiles, roof overhangs, window overhangs and shutters to prevent excessive sunlight and heat.

2.2. **Protection of marine and water resources**: all water appliances (shower solutions, mixer showers, shower outlets, taps, WC suites, WC bowls and flushing cisterns, urinal bowls and flushing cisterns, bathtubs) within first two classes for water consumption efficiency rating system according to the EU Water Label will be installed in the building.

2.3. **Promotion of resource resilience and circular economy**: the future owner of the house concluded an agreement with a local waste management company that 80% (by weight) of construction and demolition waste generated on the construction site will be prepared for re-use or sent for recycling or other material recovery.

2.4. **Pollution prevention and control**: the future owner of the house presented a list of construction materials to make sure that components and materials will not contain asbestos or other high-risk substances as defined by national law.

2.5. **Protection of biodiversity and ecosystems**: the future owner presented a proof that the future house is not situated in a protected area. The Natura 2000 database was used as a tool to prove it.

Actions and Conclusion

An activity manager interested in obtaining a green mortgage approached a local bank that offers a green mortgage loan programme. The individual submitted all the necessary information as outlined above. The bank reviewed the **Substantial Contribution** and **Do No Significant Harm (DNSH)** criteria and determined that the **Minimum Social Safeguards (MSS)** requirements did not apply in this case, as the applicant was a private individual rather than a legal entity.

After assessing the project, the bank concluded that it was aligned with the Taxonomy and approved the mortgage. Once construction was completed, the bank dispatched a specialist to verify that the building complied with the parameters specified in the original application.

Report of Taxonomy-aligned expenditures and revenue:

For owner of the house: the costs incurred by the owner for the construction of the house (materials, labour, etc.) represent CapEx for the owner in acquiring a fixed asset (the house). Since the construction project is deemed Taxonomy-aligned, the CapEx associated with this construction project can be reported by the owner as Taxonomy-aligned CapEx. The OpEx related to the operation and maintenance of this Taxonomy-aligned house can be reported by the owner as Taxonomy-aligned OpEx.

The Bank: The bank has provided a green mortgage loan. Loans can be aligned with the Taxonomy if they are linked to a Taxonomy-aligned business or project. Since the loan is specifically funding the house building project, which has been determined to be Taxonomy-aligned (Green), the loan itself can be classified as a Taxonomy-aligned financial instrument. A green mortgage loan specifically financing a Taxonomy-aligned building project would contribute to the bank's Taxonomy-aligned portfolio. The bank can report the value of the green mortgage loan as part of its Taxonomy-aligned assets or Taxonomy-aligned portfolio.

It is important to note that Thailand Taxonomy provides guidance on reporting CapEx, OpEx, and revenue for non-financial companies based on their core economic activities and provides guidance for financial institutions based on their portfolio of financed green activities. Therefore, the bank's revenue from interest on the loan, and its CapEx and OpEx related to running the bank's operations (e.g. branches, staff, IT systems, etc.) would not be reported as "Taxonomy-aligned revenue" nor “Taxonomy-aligned CapEx/OpEx”.

Case study 3: Taking a Green Loan to improve Circular Economy for Waste Collection and Transportation

A municipal waste transporter operating in the urban area is seeking a loan to enhance its operations. Upon discovering that a local bank offers green loans for projects aligned with Thailand Taxonomy, the company decided to improve its operations to meet the Thailand Taxonomy requirements. Compliance with Taxonomy would not only make the company eligible for green finance but also unlock access to government incentives and public sector contracts.

However, the company faced a challenge: the households and businesses in the area were not yet segregating their waste at the source, which is a critical requirement for effective waste management. In addition to regular municipal solid waste (MSW), the transporter also collects hazardous waste. The company and the bank employee conduct an initial assessment of the application.

Figure 12 Case Study 3: Taking a Green Loan to improve Circular Economy for Waste Collection and Transportation

Initial assessment stage

Relevant Sector: Waste Management Sector

Relevant activity: Collection and Transport of Waste

- The company's operations involve the collection and transportation of MSW from households, commercial establishments, and public spaces. Currently, most of the waste collected is mixed, leading to inefficiencies in the recycling and recovery process.
- This activity may contribute to the environmental objective **EO4 (Resource Resilience and Transition to a Circular Economy)**, whereas collection and transportation of hazardous waste may contribute to **EO5 (Pollution Prevention and Control)**. Since the intended improvements aims to enhance the resource efficiency of regular municipal waste, the company has decided to focus on meeting the criteria under EO4.
- **To qualify as green project, the company must establish processes in accordance with the TSC and review DNSH criteria for "Collection and transport of waste" activity which includes generic and specific criteria**

Defining Taxonomy alignment and actions

Step 1: Adoption of Best Practices:

The company meets the requirements of the TSC of Taxonomy:

- **Waste Segregation at Source:**
  - **Waste Segregation Responsibility:** Although waste segregation at the source is primarily the responsibility of the waste generators (households and businesses), the waste transporter recognised the need to address this issue to meet the Taxonomy's requirements. The company launched a collaborative program aimed at encouraging households and businesses to start segregating their waste at the source. This program included educational workshops, distribution of colour-coded bins, and an incentive program where households that consistently segregated waste received discounts on waste collection fees. Through this initiative, the company aimed to improve the quality of segregated waste collected and enhance the efficiency of its material recovery processes.
  - The company ensures that waste is segregated at the source by working closely with waste generators. Through its community engagement project, the transporter has seen a significant improvement in the quality of segregated waste

collected, which reduces contamination and improves the efficiency of material recovery processes.

- **Transportation to Recovery Facilities:**
  - The waste is transported to locations designated for material recovery or energy recovery. The company has established partnerships with local recycling centres to ensure that the segregated waste is appropriately processed. Therefore, the segregated recyclable waste is sent to facilities designated for material recovery (recycling plants), and residual waste is eventually to energy recovery (waste-to-energy plants).
- **Emission Regulations Compliance:** The transportation vehicles used by the company conform to national emission regulations, ensuring that the environmental impact of waste transportation is minimized.

Step 2: Risk mitigation activities:

- **Meeting Minimum Social Safeguards (MSS):** To ensure social peace, security, and stability, the transporter must comply with national laws and international labour standards, particularly those set by the International Labour Organization (ILO), ensuring fair wages, reasonable working hours, and safe working conditions. Regular audits by independent third parties should be conducted to maintain compliance. Additionally, the facility should establish clear grievance mechanisms and support worker representation to address concerns and prevent potential violations.
- **DNSH Assessment:** The transporter conducted a Do No Significant Harm (DNSH) assessment as part of its compliance process. The assessment identified a significant environmental risk associated with the waste storage centre, where waste is temporarily stored before being transported to the material recovery facility. Specifically, there was a risk of leachate—a liquid that can cause soil and water contamination—forming at the waste storage centre. Addressing this risk was essential to ensure alignment with the Taxonomy and to avoid environmental harm.
- **As part of the DNSH assessment, the company addressed the identified leachate risk** from the generic waste collection centre by implementing several mitigation measures. These included upgrading the waste collection centre with an impermeable

lining and a leachate collection system to prevent any contamination of soil and groundwater. Additionally, regular monitoring of the leachate levels and quality was instituted to ensure that the system functions effectively and that any potential leaks are detected and addressed promptly.

Step 3: Documentation and monitoring:

- The waste transporter compiled a comprehensive report as supplementary document for loan application that includes:
  - A detailed description of the waste segregation process, including the community engagement project and its impact on improving waste segregation practices.
  - The routes and destinations for waste transportation, ensuring that all waste is directed to licensed recovery facilities.
  - The company's vehicle emission test results, proving compliance with national standards.
  - An internal monitoring mechanism report that ensures there is no illegal dumping during the waste collection and transportation process.
  - Documentation of the risk mitigation activities implemented at the waste collection centre, including specifications of the leachate collection system and monitoring protocols.

Step 4: Submission for green loan:

- With the completed project plan in hand, the municipal waste transporter apply for a green loan. The focus of this loan was on improving the company's contributions to EO4. The bank reviewed the submission, focusing on the substantial contribution requirements, DNSH criteria, and compliance with MSS.
- After thorough evaluation, it was assessed that the project plan was fully compliant with a green classification under the collection and transport of waste activity of the Taxonomy.

Conclusion

As a result of this compliance, the bank approved the green loan, enabling the municipal waste transporter to finance the implementation of its sustainable waste management practices with a focus on EO4. This funding will support the company’s ongoing efforts to

align with the Taxonomy, improve environmental outcomes, and expand its operations in a sustainable manner.

Report of Taxonomy-aligned expenditures and revenue:

The Municipal Waste Transporter: Since the project plan, which encompasses these investments, has been assessed as fully compliant with the green criteria for the "Collection and transport of waste" activity under EO4 and meets DNSH & MSS, the CapEx associated with this specific Taxonomy-aligned project can be reported by the company as Taxonomy-aligned CapEx. Since the company's ongoing operations, modified and enhanced by the project, are now performing the "Collection and transport of waste" activity in a manner deemed Taxonomy-aligned (EO4), the OpEx related to these Taxonomy-aligned operations can be reported as Taxonomy-aligned OpEx. The revenue generated from this Taxonomy-aligned "Collection and transport of waste" activity can be reported by the company as Taxonomy-aligned revenue.

The Bank: the bank can report the value of the green loan provided to the municipal waste transporter as part of its Taxonomy-aligned assets or its Taxonomy-aligned portfolio. The bank would not report the interest income from this green loan as its own "Taxonomy-aligned revenue" or its operational costs associated with managing the loan as Taxonomy-aligned OpEx/CapEx; its green reporting reflects the contribution of this loan to the overall alignment of its lending portfolio.

5. Cross-sectoral applications: From Taxonomy to real business examples

Example 1: Tourism and hospitality sector

Tourism and hospitality are a cornerstone of the Thai economy, but it also presents significant environmental challenges, including high energy and water consumption, waste generation, and impacts on local ecosystems.

This case study examines the potential application of the Thailand Taxonomy to a hotel located in Thailand.

Case study C1: Hotel business

A hotel had been a landmark for decades. However, by early 2025, its traditional charm was tempered by the presence of aging infrastructure. Energy bills were escalating, its water treatment system was nearing the end of its service life, and the guest parking facilities lacked necessary provision to support the growing number of electric vehicles. Recognizing the rising focus of customers on sustainability and the evolving regulatory landscape including the newly launched Thailand Taxonomy, the hotel's management determined that a transition was essential not only to reduce operational costs but also to ensure long-term viability and attracting new environmentally-aware travellers.

Before any investment plans were made, the hotel conducted an initial assessment on their existing operation of the hotel and found that:

- "Operation of hotel rooms": Energy consumption per guest night was high.
- "Operation of carpark": No facilities for green or electric transport.
- "Operations of wastewater treatment plant": Met basic legal standards but wasn't efficient and offered no water reuse.

Figure 13 Case study C1: Hotel business

Thus, this hotel is planning to invest to upgrade the operations of the hotel to be greener, the hotel is planning to invest in 4 main activities:

1. Installation of solar PV system to generate electricity for own-hotel consumption.
2. Repair and improve the Heating, Ventilation, and Air Conditioning for higher energy saving.
3. Installation of infrastructure for charging electric cars using grid electricity.
4. Upgrade the wastewater treatment plant to be able to reuse the **treated effluent for other non-consumptive activities within the hotel**
5. Shift the shuttle bus and limousine fleet composition from 100% ICE to a diversified mix: 50% EV, 40% hybrid, and 10% ICE.

Hotel A wants to check and understand how these activities can be designed and invested to be aligned with Thailand Taxonomy and access for green financing:

Business profile

Core Business: Hotel A is an upscale resort offering accommodation, food and beverage services, spa facilities, recreational activities, and event hosting.

Capacity: 250 rooms (two buildings) and villas.

Market: Primarily international tourists (70%) and domestic tourists (30%).

Mission: To provide exceptional guest experiences while championing environmental stewardship and contributing positively to the local community and ecosystem.

Current Sustainability Initiatives: Water-saving fixtures in some rooms, basic recycling program, "towel and linen reuse" program, some local sourcing for food & beverage (F&B).

GHG emissions hotspots

Scope 1: On-site fuel combustion (i.e., boilers for hot water, gas stoves in kitchens, back-up generators)

Scope 2: Purchased electricity (i.e., air conditioning, lighting, lifts, chillers)

Scope 3: Upstream/downstream activities (i.e., food supply, laundry, guest travel, waste, products)

Defining Taxonomy alignment

1. Installation of solar PV system to generate electricity for own-hotel consumption

Relevant Sector under Thailand Taxonomy: Construction and Real Estate sector

Relevant Activity under Thailand Taxonomy: Installation, maintenance, and repair of special-purpose building equipment

Relevant Environmental Objective under Thailand Taxonomy: EO1 Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" because it complies under Installation of renewable energy equipment, renewable energy charging stations and regulation devices. For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

2. Repair and improve the heating, ventilation, and air conditioning for higher energy saving

Relevant Sector under Thailand Taxonomy: Construction and Real Estate sector

Relevant Activity under Thailand Taxonomy: Installation, maintenance, and repair of special-purpose building equipment

Relevant Environmental Objective under Thailand Taxonomy: EO1 Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" because it complies under Installation of the equipment that decreases building operational emissions and consumption of water, gas, or electricity.

For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

3. Installation of infrastructure for charging electric cars using grid electricity

Relevant Sector under Thailand Taxonomy: Construction and Real Estate sector

Relevant Activity under Thailand Taxonomy: Installation, maintenance, and repair of special-purpose building equipment

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" because it complies under Installation of infrastructure for charging electric cars using grid electricity. For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

4. Upgrade the wastewater treatment plant to be able to reuse the treated effluent for other non-consumptive activities within the hotel

Relevant Sector under Thailand Taxonomy: Waste Management sector

Relevant Activity under Thailand Taxonomy: Construction, extension, upgrade, operation and renewal of decentralised wastewater collection and treatment

Relevant Environmental Objective under Thailand Taxonomy: EO4: Resource Resilience and Transition to a Circular Economy. This Environmental Objective is applicable because the activity aims to recycle treated effluent for non-potable purposes within its own operations, such as landscape irrigation and floor washing, thereby contributing to resource efficiency and circular economy.

Taxonomy-aligned assessment: This activity can be classified as "Green" if it complies with the following criteria:

1. Water is for purposes other than human consumption;
2. Water is suitable for reuse after proper treatment depending on the level of contamination and subsequent reuse purposes in accordance with national regulations.

For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

5. Shift the shuttle bus and limousine fleet composition from 100% ICE to a diversified mix: 50% EV, 40% hybrid, and 10% ICE

Relevant Sector under Thailand Taxonomy: Transportation sector

Relevant Activity under Thailand Taxonomy: Other passenger land transport

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" if the direct (tailpipe) CO_2 emissions of the vehicles are zero. Therefore, in this case, only the purchase of EV can be classified as green, not the hybrid vehicles.

For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

Report of Taxonomy-aligned expenditures and revenue:

Capital Expenditure (CapEx): Capex is the money spent on acquiring, maintaining, or improving fixed assets. The hotel's investment in the solar PV system, HVAC upgrades, EV chargers, and wastewater equipment falls under CapEx, and can be reported as Taxonomy-aligned CapEx.

However, the purchase of EV and hybrid vehicles falls under the "Other Passenger Land Transport" activity in the Transportation sector. But only vehicles with zero direct (tailpipe) CO_2 emissions (the EVs) are classified as Green. Hybrid vehicles (40% of the planned fleet) are not eligible for the Amber category in passenger transport. Therefore, only the CapEx for the EV portion of the fleet can be reported as Taxonomy-aligned Green CapEx.

Operating Expenses (OpEx): OpEx includes shorter-term costs for ongoing operations, maintenance, etc. This would cover the costs of operating and maintaining the newly

installed solar system, upgraded HVAC, EV chargers, and wastewater equipment. OpEx can be reported as Taxonomy-aligned OpEx if the OpEx is associated with Taxonomy-aligned activities or the CapEx plan for these activities.

Revenue: Revenue is the income from the sale of products or services. For a hotel, this is primarily revenue from accommodation, food and beverage, and other hospitality services. The relevant activity for reporting overall revenue alignment for a business operating within a building is the "Acquisition or ownership of buildings" activity in the Construction and Real Estate sector.

This "Acquisition or ownership of buildings" activity can be classified as Green or Amber based on meeting specific TSC, such as operational energy/emission intensity thresholds or compliance with listed green building certifications.

The hotel owner has made significant investments to improve the energy efficiency of the building, including the implementation of HVAC system upgrades and the installation of solar panels. In addition, the hotel has obtained a recognised green building certification, such as TREES Gold or LEED Gold. After evaluation against the "Acquisition or ownership of buildings" criteria, the hotel building's operation is assessed as meeting the Green technical screening criteria for Climate change mitigation. Simultaneously, the hotel owner confirms compliance with DNSH principles (e.g., related to water efficiency and pollution prevention) and demonstrates adherence to MSS (e.g., respecting human rights and labour standards). In this example, the activity that is aligned is the "Acquisition or ownership of buildings," which represents the fundamental operation of the hotel business that generates all of its revenue (from rooms, events, restaurants, etc.). Since the entire operational revenue of the hotel is derived from the single activity ("Acquisition or ownership of buildings") that has been assessed as Taxonomy-aligned, the hotel owner can potentially report 100% of the hotel's overall revenue as Taxonomy-aligned revenue.

However, if the investments made by the hotel (solar, HVAC, etc.) to improve the building's overall environmental performance, cannot enhance the building's operation high enough to meet the criteria for the "Acquisition or ownership of buildings" activity, the hotel owner cannot report any hotel revenue as Taxonomy-aligned.

Example 2: Food and beverage sector

The food and beverage sector is a major pillar of the Thai economy, contributing significantly to both domestic GDP and export earnings, and supporting millions of jobs across agriculture, processing, and services. However, it also poses substantial environmental challenges, including high greenhouse gas emissions from livestock and rice production, intensive water and energy use, and considerable food and packaging waste.

This case study explores the potential application of the Thailand Taxonomy to a food processing facility operating in Thailand.

Case study C2: Sugarcane and sugar factory

A sugar manufacturing business is exploring ways to improve its environmental performance and potentially access sustainable finance by investing in specific activities.

At present, this sugar manufacturing business has main activities as follows:

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

Figure 14 Case study C2: Sugarcane and sugar factory

The sugar manufacturing business is planning to make several investments to improve its operation to be more sustainable and seeks to understand how these planned improvements can be aligned with the Thailand Taxonomy. The planned activities are:

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

Business profile
Core Business: Its operations encompass the entire process from farming the cane to producing refined sugar. (Sugarcane cultivation, industrial processing of the cane, generating energy from sugarcane residue (bagasse) for factory operations, managing wastewater from the process, packaging the final sugar product, and maintaining its factory infrastructure.) • Medium-sized factory located in a province known for sugarcane cultivation in Thailand. • The company cultivates a significant portion of its own sugarcane on surrounding land and purchases cane from local contract farmers.
GHG emissions hotspots
Scope 1: On-site farming operations (e.g., N_2O from fertiliser use, emissions from agricultural machinery), combustion of bagasse for energy, on-site transport, and wastewater treatment. **Scope 2:** Purchased electricity (e.g., for powering machinery, lighting in factory and offices, especially during off-season or when cogeneration output is insufficient). **Scope 3:** Supply chain and logistics (e.g., emissions from contract farming, transportation of sugarcane from contract farms and harvested cane to the mill, production of packaging materials, and distribution of sugar).

Defining Taxonomy alignment

1. Install drones and precision agriculture equipment to decrease inefficiencies and save resources

Relevant Sector under Thailand Taxonomy: Agriculture sector

Relevant Activity under Thailand Taxonomy: Sustainable production of sugar cane

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation and E02: Climate Change Adaptation

Taxonomy-aligned assessment: the farm prepares a list of documents that needs to prove that the transformational project that it wants to implement complies with the Taxonomy. First, the farm checks whether it complies with all relevant national laws and regulations regarding the type of production. The farm provides a statement of compliance with them, listing all relevant laws for the accepting party to review. After that, the farm selects the practice from the relevant activity table (Table 11 of the Agricultural annex for sustainable sugarcane production), provides its description and reference to the Taxonomy document. After that, the farm prepares an Integrated Farm Management Plan (IFMP) which includes a statement of substantial contribution to the Taxonomy objectives prepared in line with the examples provided in the Taxonomy and a statement of compliance with all relevant DNSH requirements. All these documents are submitted to the accepting party.

Report of Taxonomy-aligned expenditures and produce: Inputs required to implement this transformation such as drones, auxiliary equipment, precision agriculture equipment and training can be procured, and the funds that were used to procure them can be labelled as "Taxonomy-aligned CAPEX."

Ongoing operating expenses related to these specific practices can be reported as Taxonomy-aligned OpEx. Revenues coming from selling the farm products (sugarcane in this case) after the transformational project is completed can be reported as Taxonomy-aligned revenue. However, only revenues from farm products that were transformed throughout the transformational project are considered aligned. This product-level alignment lasts for two years after project completion, after which the farm must repeat or implement new

practices to maintain the status. If the farm grows other crops, only the revenue from the compliant sugarcane would be aligned.

2. Acquisition and replacement of freight transport with electric vehicles (EVs)

Relevant Sector under Thailand Taxonomy: Transportation sector

Relevant Activity under Thailand Taxonomy: Freight transport by road

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" if it complies with the following criteria: direct (tailpipe) CO_2 emissions of vehicles are zero AND vehicles are not dedicated to fossil fuel transport. To be Taxonomy-aligned, the owner must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

Report of Taxonomy-aligned expenditures and revenue:

The expenditure for acquiring and replacing the freight transport vehicles with compliant EVs can be reported as Taxonomy-aligned CapEx. Operating expenses for these specific compliant EVs (e.g., maintenance) can be reported as Taxonomy-aligned OpEx. If the activity of providing freight transport using these compliant EVs is considered Taxonomy-aligned (Green), then a proportion of the net turnover derived from this specific aligned activity can be reported as Taxonomy-aligned revenue.

3. Improve and upgrade equipment/machines in the factory to save energy

Relevant Sector under Thailand Taxonomy: Manufacturing sector

Relevant Activity under Thailand Taxonomy: Auxiliary transition activity

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment: This activity can be classified as "Green" or “Amber” if it complies with the following criteria under the activity card in that Taxonomy: Introduction of energy efficiency and decarbonisation measures in manufacturing

activities not specified in the Thailand Taxonomy. To be Taxonomy-aligned, the owner must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

Report of Taxonomy-aligned expenditures and revenue:

Expenditures for these energy-saving equipment upgrades can be reported as "Taxonomy-aligned CapEx" if they contribute to meeting the Green or Amber criteria for this auxiliary activity and comply with DNSH/MSS. Operating expenses associated with these upgraded machines and the relevant operational changes can be reported as Taxonomy-aligned OpEx.

Revenue reporting is linked to the overall sugar manufacturing business. The Taxonomy-aligned revenue is the proportion of turnover from aligned activities. If these energy efficiency improvements, combined with other potential measures, lead to the *entire sugar manufacturing activity* being assessed as Taxonomy-aligned (SBTi trajectory for Green, OR one of the two options for Amber) under this auxiliary activity, then a proportion of the total revenue from the sugar manufacturing business could be reported as Taxonomy-aligned.

4. Construction a cogeneration of heat and power plant using baggage residual from the factory

Relevant Sector: Energy sector

Relevant Activity: Cogeneration of heating/cooling and power using renewable sources of energy

Relevant Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment: To be aligned, this plant must meet the specific TSC defined for this type of energy generation. These criteria cover:

- **Types of feedstocks:** All types of biomasses are eligible with these exceptions:
  - Wood (and all woody biomass) except for those produced in line with Forestry Criteria of the Taxonomy
  - Third generation biofuels (algae)

- Biodegradable Municipal Solid Waste (MSW), including sewage sludge and food waste

- **Feedstock Sustainability:** Requirements to ensure the biomass (bagasse) is sustainably sourced. Feedstocks used for production should comply with the guidelines from one of the following bodies:
  - Program for the Endorsement of Forest Certification Scheme (PEFC)
  - Forest Stewardship Council (FSC);
  - Biomass Biofuels voluntary scheme (2BSvs);
  - Bonsucro;
  - International Sustainability and Carbon Certification (ISCC)
  - International Sustainability and Carbon Certification (ISCC Plus) (For products outside the energy sector);
  - Roundtable of Sustainable Biomaterials (RSB)
  - Round Table on Responsible Soy (RTRS)

- **GHG Emissions:** Lifecycle emission intensity meets thresholds for Energy Sector

	2022-2025	2026-2030	2031-2035	2036-2040	2041-2045*	2046-2050*
Green Activities	100	100	100	100	50	
Amber Activities	381	225	191	148	N/A	N/A
Red Activities	>381g	>225g	>191g	>148g	>50g	>50g

Status Potential: Aligned (potentially Green or Amber depending on the specific TSC defined for this activity) if relevant TSC and DNSH/MSS are met or planned for remediation.

Report of Taxonomy-aligned expenditures and revenue:

The expenditure for the construction of this cogeneration plant can be reported as Taxonomy-aligned CapEx if the completed plant meets the Green criteria for this activity and complies with DNSH/MSS criteria. Ongoing operating expenses for running the compliant cogeneration plant are eligible as Taxonomy-aligned OpEx. The revenue generated by this activity (e.g., selling excess power/heat back to the grid) can be reported as Taxonomy-aligned revenue if the activity is assessed as Green.

5. Upgrade the wastewater treatment plant to be able to reuse the treated effluent for other non-consumptive activities within the factory

Relevant Sector under Thailand Taxonomy: Waste Management sector

Relevant Activity under Thailand Taxonomy: Construction, extension, upgrade, operation and renewal of decentralised wastewater collection and treatment

Relevant Environmental Objective under Thailand Taxonomy: EO4: Resource Resilience and Transition to a Circular Economy. This Environmental Objective is applicable because the activity aims to recycle treated effluent for non-potable purposes within its own operations, such as floor washing and cooling system, thereby contributing to resource efficiency and circular economy.

Taxonomy-aligned assessment: This activity can be classified as "Green" if it complies with the following criteria:

1. Water is for purposes other than human consumption;

2. Water is suitable for reuse after proper treatment depending on the level of contamination and subsequent reuse purposes in accordance with national regulations.

For this activity to be considered aligned with the Taxonomy, it must also comply with Do No Significant Harm (DNSH) criteria and Minimum Social Safeguards (MSS).

Report of Taxonomy-aligned expenditures and revenue:

The expenditure for upgrading the wastewater treatment plant can be reported as Taxonomy-aligned CapEx if the completed, upgraded plant meets the criteria for the relevant wastewater activity and complies with DNSH/MSS criteria. Operating expenses for running the compliant, upgraded wastewater treatment plant are eligible as Taxonomy-aligned OpEx.

Reusing treated effluent primarily results in cost savings (reduced water procurement) rather than direct revenue generation. While the activity itself (treating and reusing water) might be Taxonomy-aligned, the revenue alignment would typically depend on the alignment status of the overall entity's primary revenue-generating activity (sugar manufacturing). Therefore, there is no Taxonomy-aligned revenue to be reported for this activity.

Case study C3: A fossil fuel company

Context: The underlying science-based approach dictates that, to achieve the Paris Agreement goals and avoid severe climate change impacts, all fossil fuels must be phased out as soon as possible. Therefore, activities related to the extraction, transport, or storage of hydrocarbons, or the production of components for these processes, or any other type of industry promoting the use of hydrocarbons and their derivatives (e.g. internal combustion engine vehicles), are generally not eligible for recognition under certain transitional activities. Assets dedicated to supporting the fossil fuel sector, such as those for exploration or production, are not compliant. Activities involving electricity generation from coal are explicitly noted as being in the Red List.

Given this, the primary activities of an oil & gas or fossil fuel extraction/production company would likely be classified as non-compliant (red) or be outside the scope of aligned activities. However, given that the Taxonomy evaluates specific activities or projects, rather than an entire company or entity, such a company can still participate in and contribute to sustainable finance through investments and activities in other areas covered by the Taxonomy as the case study below.

Consider a major energy company operating in Thailand, whose core business traditionally revolves around the exploration, production, and distribution of oil and gas. Recognising the global shift towards a low-carbon economy and the strategic initiatives in Thailand, the company decides to diversify its investments and operations to include Taxonomy-aligned activities.

The company reviews the Thailand Taxonomy to identify activities that align with the Taxonomy's environmental objectives. The company finds several relevant areas:

1. Renewable Energy Generation: Investing in and operating solar power generation, wind energy generation, or other renewable sources like marine energy generation or bioenergy generation. These activities make a substantial contribution to Climate change mitigation by providing near-zero emission energy.
2. Low-Carbon Transportation Infrastructure: Investing in and developing infrastructure such as electric vehicle (EV) charging stations or infrastructure facilitating the use of Sustainable Aviation Fuels (SAFs). These are enabling activities that support the decarbonization of the transport sector.

3. Manufacturing of Green Technologies: Investing in facilities that manufacture renewable energy technologies, low-carbon technologies for transport (like EV components), or energy efficiency equipment for buildings. These are enabling activities.
4. Retrofitting of Existing Buildings: Investing in improving the energy efficiency and climate resilience of their own office buildings. This falls under the Construction and Real Estate sector

Figure 15 Case study C2: Sugarcane and sugar factory

Business profile
The core business of the company is in fossil fuels, activities directly related to oil and gas extraction, transport, or processing which could be classified as Red or fall out of scope for Green or Amber alignment under the Thailand Taxonomy. However, the company can still participate in the sustainable finance market and contribute to Thailand's climate goals by investing in and undertaking other economic activities that are covered and aligned with the Taxonomy.
GHG emissions hotspots
Scope 1: Fugitive emissions from oil and natural gas extraction, processing, and transport and Direct combustion of fuels.

Scope 2: Purchased electricity and potentially heat used in the company's various operations, from extraction sites and processing plants to administrative offices.

Scope 3: Downstream emissions from the combustion of the oil and gas products that the company sells.

Defining Taxonomy alignment

1. Renewable energy generation

Relevant Sector under Thailand Taxonomy: Energy sector

Relevant Activity under Thailand Taxonomy: Solar energy generation and Wind energy generation

Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment:

Solar energy generation and Wind energy generation are specific economic activities listed under the Energy sector of the Thailand Taxonomy.

- For Solar energy generation, the criteria state that all energy generation is eligible for the Green category. The Red category applies to Solar power plants dedicated to support fossil fuel infrastructure.
- For Wind energy generation, all electricity generation activities from onshore and offshore wind power plants are eligible for the Green category. The Red category applies to wind power plants dedicated to support fossil fuel infrastructure

To achieve full compliance with the Taxonomy, in addition to meeting the substantial contribution criteria (being classified as green or amber), activities must also comply with DNSH criteria for other environmental objectives and meet MSS requirements. For energy sector activities like solar and wind, there are generic DNSH criteria applicable to most environmental objectives, as well as specific criteria related to promoting resource resilience and circular economy (e.g., ensuring high durability and ease of dismantling/recycling for installations). Compliance with relevant Thai regulations and international principles is part of MSS.

Report of Taxonomy-aligned expenditures and revenue:

The Taxonomy criteria for these activities cover "Construction and operation". The Taxonomy can be used to evaluate the alignment of financial flows (CapEx, OpEx, revenue) or the entire project. For example, investing in a project to construct a solar power plant can be aligned if it meets the criteria. When investing in or operating these facilities, the alignment can be assessed based on whether the specific activity meets the green criteria. The alignment can also be aggregated at the company level based on the proportion of revenue or CapEx from aligned activities.

2. Low-carbon transportation infrastructure

Relevant Sector under Thailand Taxonomy: Transportation sector

Relevant Activity under Thailand Taxonomy: Enabling infrastructure for low-emission transport

Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment:

Enabling infrastructure for low-emission transport" includes various types of infrastructure that enable and support low-carbon transportation.

- For road transport, this explicitly lists electric charging points and electricity grid connection upgrades.
- For airports, this includes electricity charging. Additionally, "Infrastructure facilitating the use of sustainable aviation fuels (SAF)" is specifically listed as an activity related to SAF under the context of the Taxonomy.

For the activity "Enabling infrastructure for low-emission transport," the specified criteria within the Taxonomy classify it as Green. However, if this infrastructure dedicated solely to the support of internal combustion engines vehicles or the transport/storage of fossil fuels (including parking facilities and fossil fuel filling stations) is considered Red (non-compliant).

For an activity, project, or entity to be fully compliant with the Taxonomy, in addition to meeting the substantial contribution criteria (Green or Amber), it must also comply with DNSH criteria for other environmental objectives and meet MSS requirements.

Report of Taxonomy-aligned expenditures and revenue:

Once the activity (investing in/operating EV charging or SAF infrastructure) is determined to be aligned (Green + DNSH + MSS), a company can report the proportion of its relevant financial flows as Taxonomy-aligned.

Capex: For investing in low-carbon transportation infrastructure like building EV charging stations or SAF infrastructure, the CapEx spent on the construction, modernization, acquisition of equipment (like chargers or SAF handling systems), and necessary grid upgrades would be eligible to be reported as Taxonomy-aligned, provided the resulting infrastructure and the activity of operating it meet the Green criteria and DNSH/MSS requirements. For corporate debt or bonds funding a specific Taxonomy-aligned project (like constructing a new charging hub), 100% of the investment can be classified as Taxonomy-aligned if it commits to meeting the criteria upon the project's completion.

Opex: For the operation of EV charging stations or SAF infrastructure that meets the Taxonomy's alignment criteria, the OpEx related to the day-to-day servicing and maintenance could be reported as Taxonomy-aligned.

Revenue: For a company operating aligned EV charging stations or SAF infrastructure, the revenue generated from providing these services (e.g., charging fees, service fees for SAF handling, or related services directly enabling the use of low-carbon transport) can be reported as Taxonomy-aligned, based on the proportion of this revenue relative to the company's total revenue.

For a specific project (e.g., building a new EV charging station), the turnover associated with the project is not classified as aligned during the project timeframe. However, upon completion, if the project/activity meets the Green criteria and DNSH/MSS, the company can claim 100% of the turnover associated with that project as Taxonomy-aligned.

3. Manufacturing of green technologies

Relevant Sector under Thailand Taxonomy: Manufacturing sector

Relevant Activity under Thailand Taxonomy: Enabling activities

Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation

Taxonomy-aligned assessment:

Investing in facilities that manufacture renewable energy technologies, low-carbon technologies for transport (like EV components), or energy efficiency equipment for buildings falls under the Manufacturing sector.

To be classified as Green, the specific manufacturing activity must meet the detailed technical screening criteria outlined in the Taxonomy for that activity.

- For manufacturing renewable energy technologies, the activity must manufacture technologies that meet the Green criteria of the respective energy sector activities in the Taxonomy.
- For manufacturing low-carbon transport technologies, the activity must manufacture low-carbon transport vehicles or their key components, fleets, or vessels that meet the Green (or Amber) criteria of the Transport sector in the Taxonomy. This includes components intended solely for vehicles fulfilling the Taxonomy criteria.
- For manufacturing energy efficiency equipment for buildings, the activity must manufacture specific products or their key components listed in the Taxonomy that are necessary to support Taxonomy-aligned building activities. This often requires complying with the highest energy efficiency standards defined by national or international labels (e.g., Energy Label No.5 Three Stars rating or Energy Saving Label).
- For manufacturing batteries, the activity must involve manufacturing rechargeable batteries (including from secondary raw materials), repurposing batteries, or recycling end-of-life batteries.
- For manufacturing other low-carbon technologies, the activity must manufacture household goods meeting the highest performance level of the national energy efficiency scheme or Energy Saving Label rating system **or** technologies demonstrating substantial life cycle GHG emission savings compared to alternatives

In addition to meeting the specific Green criteria, the activity must also comply with DNSH criteria for other environmental objectives (Climate Change Adaptation, Sustainable Use of Water, Circular Economy, Pollution Prevention, Biodiversity) and Minimum Social Safeguards (MSS) requirements.

Report of Taxonomy-aligned expenditures and revenue:

CapEx: Capital expenditure is related to the Taxonomy-aligned activity or a credible plan to reach alignment. Investing in facilities that manufacture these green technologies – including costs for construction, modernization, acquisition of manufacturing equipment, and supporting infrastructure – can be reported as Taxonomy-aligned CapEx, provided the resulting activity meets the Green criteria, DNSH, and MSS. If corporate debt or bonds are used to fund a specific project to build such a manufacturing facility, 100% of that investment can be classified as Taxonomy-aligned if it commits to meeting the technical screening criteria upon project completion.

OpEx: Operating expenditure is associated with the Taxonomy-aligned activity or the CapEx plan. OpEx for day-to-day servicing, maintenance, and other direct expenses necessary for the continued and effective use of assets in the Green-classified manufacturing facility can be reported as Taxonomy-aligned OpEx, provided the activity meets the Green criteria, DNSH, and MSS.

Revenue: Net turnover is derived from products or services from activities that are aligned with the Green technical screening criteria. Revenue generated from selling the manufactured renewable energy technologies, low-carbon transport technologies/EV components, energy efficiency equipment for buildings, or batteries can be reported as Taxonomy-aligned revenue, based on the proportion of this revenue relative to the company's total revenue. For a new project (e.g., building a new manufacturing line), the revenue generated by that project is not aligned during the project timeframe, but upon completion, if the project/activity meets the Green criteria, 100% of the turnover associated with that project can be claimed as Taxonomy-aligned.

4. Retrofitting existing building

Relevant Sector under Thailand Taxonomy: Construction and Real Estate sector

Relevant Activity under Thailand Taxonomy: Renovation of the existing buildings

Environmental Objective under Thailand Taxonomy: EO1: Climate change mitigation and EO2: Climate change adaptation

Taxonomy-aligned assessment:

The renovation activity can be classified as Green, Amber, or Red, based on meeting specific technical screening criteria for each objective.

Green Category:

- For Climate change mitigation: A renovation project is classified as Green if it leads to the building complying with the Green criteria for "Construction of new buildings". This can be demonstrated by either:
    - Meeting the specific declining emission intensity thresholds calculated for Thailand's buildings based on decarbonisation pathways, aiming for net-zero by 2050; or
    - Meeting the requirements of certain internationally recognised green building certifications that are used as proxies for emission intensity, such as TREES Gold or Platinum with a 30% improvement over ASHRAE 90.1, LEED Gold or Platinum with a 30% improvement over ASHRAE 90.1, or others like EDGE Certified (in developing countries including Thailand). The latest version of the certificate must apply.
    - A whole life carbon assessment (WLCA) of the building must also be conducted and reported, although the current Taxonomy version doesn't include WLCA-based criteria.
- **For Climate Change Adaptation:** A renovation project is classified as Green if it incorporates adaptation solutions that substantially reduce the most important material physical climate risks identified for the building. This requires performing a robust Climate Risk and Vulnerability Assessment (CRVA) using internationally recognised methodologies. The adaptation solutions must use best practice climate projections, not adversely affect others' adaptation efforts, favour nature-based solutions where possible, be consistent with relevant plans, and be monitored.

Amber Category:

- For Climate change mitigation: Renovation projects can be classified as Amber if they lead to at least a 30% reduction in GHG emissions intensity or energy use for buildings

under 10,000 m², or a 20% reduction for buildings 10,000 m² or larger, compared to baseline levels at the start of the project.

Red Category:

- Renovation of buildings specifically dedicated to the extraction, storage, manufacturing, or transport of fossil fuels is considered harmful (Red) for Climate change mitigation. However, buildings providing office space for administrative or trading activities of fossil fuel companies are *not* considered Red.

In addition to meeting the specific Green or Amber technical criteria for the chosen objective(s), the renovation activity must also comply with DNSH criteria for the other environmental objectives and meet Minimum Social Safeguards (MSS) requirements.

Report of Taxonomy-aligned expenditures and revenue:

CapEx: Investing in the renovation project itself – including costs for performance upgrades, new equipment installation (like energy-efficient systems, insulation, renewable energy equipment, EV charging infrastructure in the building), or adaptation solutions – can be reported as Taxonomy-aligned CapEx. If the investment is funding a specific renovation project aiming to achieve Taxonomy alignment, 100% of the investment in that project can be classified as Taxonomy-aligned, provided it commits to meeting the technical screening criteria upon completion.

OpEx: The operating expenditure associated with the renovated, Taxonomy-aligned office building – such as costs for ongoing maintenance and building management necessary to ensure the continued and effective use of the upgraded assets – can be reported as Taxonomy-aligned OpEx. This would apply if the building, after renovation, meets the criteria for mitigation or for adaptation.

Revenue: Revenue reporting is based on the proportion of net turnover derived from products or services from aligned activities. For a company's own office building, which is typically a cost/asset supporting the company's main revenue-generating activities rather than generating external revenue itself, CapEx and OpEx are the more direct and relevant metrics for reporting Taxonomy alignment.