



# Transitioning Towards Environmental Sustainability Under the New Thai Financial Landscape



BOT Directional Paper  
on Financial Landscape  
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## Executive summary

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Thailand is currently confronted with rapidly worsening and more severe environmental changes—including natural disasters, PM 2.5 air pollution, and pressure from international trade policies in pursuit of transition towards becoming low-carbon economies. At the same time, Thailand's economic structure continues to rely on coal and oil-generated energy, and employs traditional technologies that are not yet as environmentally friendly as they should ideally be. Therefore, in order for the Thai economy to transition towards becoming more environmentally-friendly, and to reach the goal of achieving carbon neutrality by 2050 and net-zero emissions by 2065 as pledged by the government, there needs to be a clear directional plan that takes into consideration both the timing and speed of such transition, so as to be appropriate for the context and readiness of Thailand's economy and society.

A key challenge in steering the Thai economy to prepare for environmental changes is making investments to cope with natural disasters, which requires a significant amount of funds. Meanwhile, market mechanisms do not yet provide adequate incentives for various sectors, particularly SMEs, to make timely transitions, due to a lack of access to environment-related data that can be used to evaluate environment-related opportunities and potential risks, as well as to embed environmental aspects into their decision-making and operational costs. As a result, the degree of transition-readiness varies across different sectors, and actions are implemented at different times, thus impacting their short and long-term competitiveness to varying degrees.

Given the financial sector's fundamental role in allocating resources to the economy, it also serves as a critical driver in allocating capital to the business sector, especially SMEs, to invest in technologies that will transform their business operations to cope with environmental changes in a timely manner. Therefore, the Bank of Thailand (BOT), as a supervisory authority overseeing the financial sector, particularly financial institutions, hereby sets the direction to support the financial sector's role in better serving the needs of all sectors in the following ways:

1. Reducing disparities in each sector's readiness to transition, by setting up a joint working group comprising the public and private sectors, as well as financial institutions to establish the "Thailand Taxonomy" as a common guideline by which activities can be classified as environmentally-friendly, that can also be used as reference and to ensure common understanding. To begin, activities important to the Thai economy with high rates of greenhouse gas (GHG) emissions, namely the energy and transportation sectors, will be classified, followed by agricultural and industrial sectors by the end of 2023.

2. Fixing information asymmetry by collaborating with other agencies to develop a national-level platform for environment-related data, in order to ensure sufficient data availability to support the classification of activities according to the Thailand Taxonomy, as well as to support the development of financial products and services. The development of such data platforms is scheduled to start in the fourth quarter of 2022.

3. Expediting the financial sector in incorporating environmental aspects into their operations in a standardized manner. On this, a policy statement on internalizing environmental and climate change aspects in financial institution business will be issued in the third quarter of 2022. Also, financial institutions will be encouraged to devise an "industry handbook", by the second quarter of 2023, to be used as the minimum standard in risk management, in order to ensure that the financial system can sufficiently allocate capital and offer financial products and services to serve the business sector's environment-related needs—especially those of SMEs.

4. Creating the right incentives to encourage financial institutions, the business sector, and consumers to recognize the urgency of making environment-related transitions, as well as to alleviate the costs that may incur—both in terms of operational and risk costs. For example, by providing environment-related guarantee mechanisms and financial support for the certification of environmentally-friendly activities. The review process for such incentivizing measures is set to begin in the fourth quarter of 2022.

5. Improving knowledge and skills of the financial sector's personnel resources by jointly developing courses together with experts from domestic and international

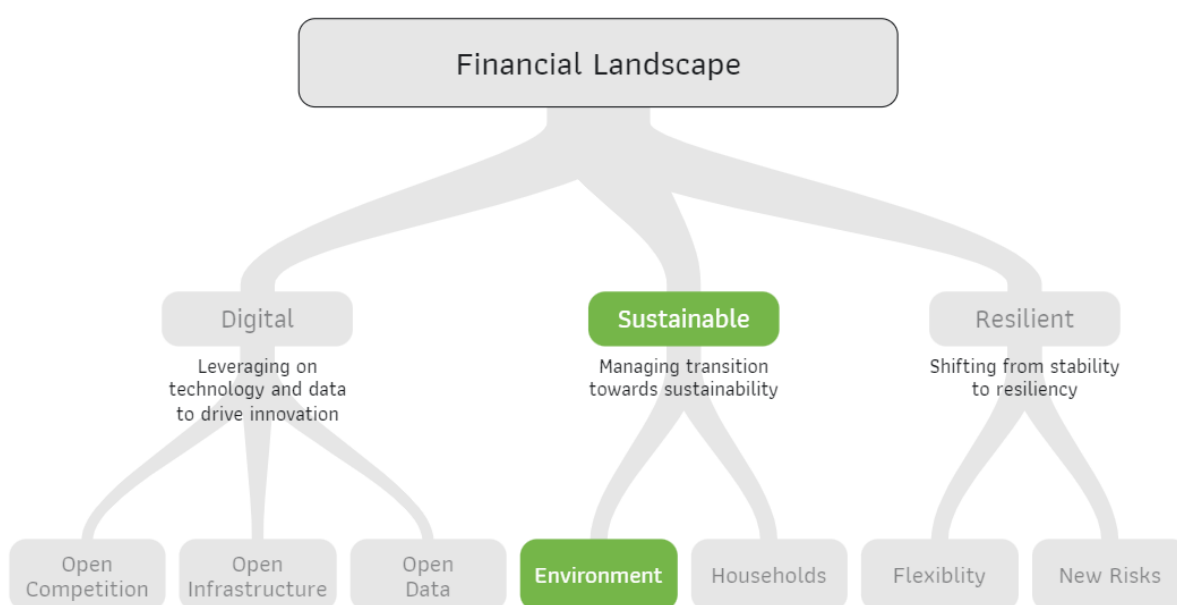
agencies. This will raise the level of awareness and understanding, and hence improve their capability in assessing environment-related opportunities and risks as well as in providing advisory support to businesses.

If the financial sector can achieve its intended outcomes, it will support **all sectors** in gaining better understanding, enabling them to classify environmentally-friendly activities based on a common guideline, and have access to environment-related data to be used in their decision-making—such as in policymaking, strategy planning, or risk management. As for the **public sector**, they will be able to conduct policies appropriate for the country-specific context and can better connect to different economic sectors by utilizing the Thailand Taxonomy as a common guideline, with sufficient data availability to back their policy actions. Meanwhile, **financial institutions** will gain credibility, and be able to offer financial products and services that serve the needs of the business sector in their transitioning, at prices that appropriately reflect actual costs and risks. On the other hand, the **business sector** will be able to better compete by transforming their supply chain and operational procedures to be in line with international standards. **SMEs** will become aware of their own gaps in transitioning and have access to funding sources at costs that are not too burdensome, thus enabling them to stay viable in an environmentally-friendly economy. Lastly, **investors and the public** will have access to disclosed and standardized data that can facilitate their decision-making in investments and consumption of financial products and services that promote environmentally-friendly activities.

In order to achieve tangible outcomes from steering the economy to address environmental changes, all sectors—public, private, and financial sectors—must take a continuous and integrated approach in their cooperation. Importantly, the public sector must play a key role in: setting the direction and timeframes within which transition should occur (reference pathway) for each sector; and expediting the development of necessary infrastructure to support market and pricing mechanisms wherein the externalities of environmental impact are priced-in, such that all sectors can accordingly plan their operations and resource allocation—which, in turn, will pave the way towards achieving the country’s environmental and socio-economic goals in a sustainable manner.

# I. Introduction

By issuing this Directional Paper on transitioning towards environmental sustainability under the new Thai financial landscape, the BOT aims to set out the strategic direction for every sector—in particular, the financial sector—in order to accelerate their transition and to develop the necessary infrastructure to adapt to environmental changes, especially climate change. **This is part of the overarching effort in repositioning the Thai Financial Landscape,<sup>1</sup> which aims to strike a balance between promoting innovation and managing risks in order to support the transition towards a digital and environmentally-friendly economy.**



The key objective for actions on environmental sustainability is to enable the financial sector to: (1) be prepared to systematically handle environment-related opportunities and risks and (2) support the business sector in transitioning and reducing environmentally-unfriendly economic activities in a timely manner. To ensure that the directions, approaches, and timeframes outlined in this Directional Paper are clear and practical, the BOT has taken into consideration:

- **Feedback from stakeholders and the public** from the public hearing on the Financial Landscape in February 2022. (Details in Box 1)

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<sup>1</sup> For further details on the Financial Landscape Consultation Paper, see <https://www.bot.or.th/landscape/files/consultation-paper-en.pdf>

- **Thailand's country-specific context and readiness** to achieve the goal of carbon neutrality by 2050 and net zero emissions by 2065.
- **International standards, approaches, and experiences** to monitor the developments and evaluate the pros and cons of different countries' approaches to be applied to Thailand's context.

### Box 1 Summary of feedback on environmental sustainability from the public hearing (February 2022)

Overall, it is agreed among all sectors that **environmental problems need to be urgently addressed, and that Thailand should have an integrated, clear, and practical direction and approach in order to achieve its environmental targets (net zero emissions)**. The **business sector** views that in order to adapt and remain viable over the long term, it is necessary to adjust their business models, sourcing of raw materials, and manufacturing technologies, all of which require high-cost investments that would take a long period to breakeven. Therefore, supporting financial products and services, as well as assistance measures by the government, should be provided, especially for SMEs, who have limited funds, resources, and expertise. The **financial sector** wants to have an environmental approach that is standardized and consistent, and expects to see the public sector set a clear direction and timeframe (reference pathway) for transition in each economic sector towards achieving net zero emissions, as well as to create incentives to follow such pathway. Meanwhile, awareness among the **business sector and the general public** should be raised, to stimulate their investment appetite in and consumption of environmentally-friendly products.

For these reasons, mobilizing the country's efforts for environmental sustainability requires a collaborative approach, particularly on policies and measures from the government that will allow the country's goals to be met. However, during such a transition, there should be a combination of both incentives and penalties (carrot and stick) to help alleviate any burden or costs that may incur as the business, financial sectors, and the public undergo transition; as well as revisions of rules and regulations to foster environmentally-friendly business conduct.

## Box 1 Summary of feedback on environmental sustainability from the public hearing (February 2022) (cont.)

### **Recommendations on building a financial ecosystem that supports environmental sustainability**

- **Establishing an environment-related taxonomy**—to be completed within 1-2 years—to support the government’s policies, business operations, and for environment-related fund-raising purposes. Such taxonomy should: **(1) be aligned with international standards and also the country-specific context**, particularly on the goal to achieve net zero emissions; **(2) consider social issues** e.g. human rights; **(3) reflect the views of all sectors**, to allow it to be applied consistently in both financial and non-financial sectors; and **(4) be transparent and credible**, to prevent over-exaggerations of having made environment-related efforts (greenwashing).
- **Setting an approach on achieving sustainability and data disclosure standard for financial institutions, in alignment with international standards**, such as the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and standards of the International Sustainability Standards Board (ISSB). Also, **technology should be utilized to support such data disclosure, including the use of a data platform** that connects with various agencies’ own databases, in order to help investors better assess and manage environment-related opportunities and risks.
- **The public sector and regulators should take measures to help reduce costs/create opportunities for environmentally-conscious financial institutions and businesses**, such as by 1) providing financial support for transition 2) lowering the tax burden 3) providing low-interest loans (soft loans) 4) adjusting the weightage in the calculation risk-weighted assets to differ from current regulations 5) subsidizing the cost of hiring a verifier and 6) creating a ranking of organizations based on their sustainability-related performance, using a standard that reflects the context of an emerging market.
- **Expediting Environmental, Social, and Governance (ESG) knowledge-building for personnel in the financial sector and financial service users**, by creating a network and central agency to promote knowledge exchange and cooperation.



## II. Challenges facing Thailand from environmental problems

**Environmental change, especially climate change—which is rapidly gaining pace and becoming more severe—is one of the problems causing impact and damage to the economy and people’s well-being.** It also poses 2 key risks:

**1. Physical risk** caused by natural disasters that may inflict loss and damages on assets . Thailand is among the countries with the most likelihood of being severely impacted by natural disasters and pollution. For instance, the major flood in 2011 caused a total loss and damage of 1.4 trillion baht,<sup>2</sup> while Thailand’s capacity in handling natural disasters is quite low, ranking 39<sup>th</sup> out of 48 countries.<sup>3</sup> If Thailand does not adapt, it is projected that climate change may cause the country’s Gross Domestic Product (GDP) to decline by 43.6 percent by 2048<sup>4</sup>. For that reason, in order to cope with such risks, Thailand must make substantial infrastructure investments, such as water resource management. Also, to contribute to the reduction of such risks, at the COP26 meeting, Thailand has pledged to raise its Nationally Determined Contribution (NDC)<sup>5</sup> target to 40 percent by 2030 and has announced its targets and plans to elevate its efforts in combating climate change, with the goal of achieving carbon neutrality by 2050 and net zero emissions by 2065.

**2. Transition risk** to the economic system, caused by the process of making adjustments to tackle climate change, which, in turn, may increase potential losses from changes in various aspects, such as: the consumer and investor values; the development of information technology (IT); rules and regulations, such as investment policies, budget allocations, tax collection, international trade policies to address environmental issues and transition towards a low-carbon economy e.g. the EU’s Carbon Border Adjustment

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<sup>2</sup> Thai Flood 2011 by the World Bank  
<https://documents1.worldbank.org/curated/en/677841468335414861/pdf/698220WP0v10P106011020120Box370022B.pdf>

<sup>3</sup> Global Climate Risk Index 2021 by Germanwatch <https://www.germanwatch.org/en/19777>

<sup>4</sup> The economics of climate change: no action not an option by Swiss Re Institute (2021)  
<https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>

<sup>5</sup> NDC means each country’s determined level of contribution in GHG emission reduction.

Mechanism (CBAM) and the USA's polluter import fee. In response to such risk, all sectors therefore should expedite their transitions, while being mindful of the following:

- **Large corporates, particularly those that are in traditional industries and are resource-intensive** may find it increasingly challenging to raise funds abroad, as environmental concerns are becoming a crucial decision factor for investors e.g. international coalition of large financial businesses committed to achieving net zero emissions by 2050.<sup>6</sup> However, in 2021, only 16 Thai companies have announced their intention to achieve net zero emissions in order to prepare themselves for business transformation, manage investors' expectations and respond to public pressure to push large corporates to play a key role in achieving net zero emissions.<sup>7</sup> This comprises disclosing direct emissions under scope 1,<sup>8</sup> indirect emissions from purchasing electricity under scope 2,<sup>9</sup> and emissions from the company's value chain under scope 3.<sup>10</sup>
- **SMEs** are in the vulnerable group as they lack resource, knowledge and understanding in making appropriate transitions, which may potentially impact their competitiveness and viability. Environment-related policies are likely to have a direct impact on businesses in the trade and manufacturing sectors,<sup>11</sup> especially those that are in the value chain of large corporates that are being pressured by international policies. Moreover, **businesses in the agricultural sector**, which employs 33.2 percent of the total workforce,<sup>12</sup> may face pressure from the environmental policies of other countries due to their high methane gas emissions, while also having to adapt to be prepared for increasingly severe natural disasters.
- **Households** will face a higher cost of living, especially through energy costs, which will pose more adverse impact if preparations are not made in advance.

<sup>6</sup> Glasgow Finance Alliance for Net Zero (GFANZ)

<sup>7</sup> efinanceThai (2021), shares of environmentally-conscious Thai companies  
[https://www.efinancethai.com/efinReview/efinReviewMain.aspx?release=y&name=er\\_202112031050](https://www.efinancethai.com/efinReview/efinReviewMain.aspx?release=y&name=er_202112031050)

<sup>8</sup> Scope 1 refers to the direct GHG emissions from an organization's activities e.g. fuel combustion in machineries, vehicles, or chemicals from wastewater treatment or leaks from the organization's activities etc.

<sup>9</sup> Scope 2 refers to an organization's energy indirect GHG emissions e.g. from the purchase of electricity to be used by the organization.

<sup>10</sup> Scope 3 refers to other indirect GHG emissions that occur from assets not owned or controlled by the organization, or emissions of stakeholders not within the organization e.g. purchasing raw materials from an operator in the supply chain, transporting goods in vehicles not owned by the organization, use of equipment etc.

<sup>11</sup> The trade and manufacturing sectors account for 51.4% of SME GDP (information from the Office of SMEs Promotion (OSMEP), 14 October 2017, [Getting to Know Thai SMEs](#))

<sup>12</sup> National Statistical Office, Labor Force Survey Quarter 4: October-December 2021

Furthermore, the life quality of households may be impacted by the highly volatile climate and natural disasters, which will further exacerbate the inequality problem in Thai society.

- **The financial sector** environmental and climate change risks may impact the business of financial institutions, as their customers may be impacted to the point that they are unable to service their debt, or may lead to increased price volatility of the financial institution's financial instruments. In addition, natural disasters such as floods may inflict damage on financial institutions' assets and resources, such as buildings, equipment, and personnel resources, hence leading to higher operational risk. The financial sector therefore must enhance its capacity in evaluating risks and opportunities from environmental changes.

**In addressing and managing the two risks mentioned above, the aspects of timing and speed need to be taken into consideration.** On this, the Network for Greening the Financial System (NGFS) has assessed the impact under different climate scenarios (Appendix 1). It was found that early and gradual transitions (scenario: orderly) would result in a smooth transition with low physical and transition risks. Under this scenario, although the short-term economic impact may be greater than when the transitions were to be sudden and disorderly (scenario: disorderly), the long-term impact is relatively much lower. On the contrary, if there is no transition or transition is too slow (scenario: hot house world), it is estimated that global GDP would fall by 25 percent by the end of the century.<sup>13</sup>

**For Thailand, to ensure that environmental actions and socio-economic transitions are smooth and do not have widespread negative repercussions, it is necessary to consider the country-specific context—especially the Thai economic structure** that still relies heavily on coal and oil-generated energy, which accounts to approximately 60 percent of total energy consumption,<sup>14</sup> and most industries still employ traditional technologies. Taking such action therefore requires a large-scale restructuring of the economy, in terms of modifying business models, making new investment plans for the business sector and fund allocations in the financial sector. Hence, implementing early action and setting a clear direction in both the (1) environmental and (2) socio-economic

<sup>13</sup> NGFS Climate Scenarios for central banks and supervisors (June 2020) <https://www.ngfs.net/en/ngfs-climate-scenarios-central-banks-and-supervisors>

<sup>14</sup> Thailand Third Biennial Update Report under the United Nations Framework Convention on Climate Change [http://climate.onep.go.th/wp-content/uploads/2021/01/BUR3\\_Thailand\\_251220-.pdf](http://climate.onep.go.th/wp-content/uploads/2021/01/BUR3_Thailand_251220-.pdf)

aspects would provide the Thai economy sufficient time to adapt and set plans for business operations and investments accordingly. In this regard, transitioning of the economy still faces the following key challenges.

- (1) Market mechanisms do not efficiently reflect environment-related opportunities and risks (market failure), resulting in price-setting and costs that do not incentivize the various sectors to transition.** Such market failure has 2 main causes: environmental impact (externalities) not being factored into the cost of businesses' operations; and the lack of sufficient information needed in order to determine how environmentally a business is (information asymmetry).
- (2) Actions aimed towards achieving environmentally-friendly activities are inconsistent and not implemented at the same time on a system-wide basis, creating competitive disadvantages in both the short and long term.** Businesses are not motivated to transition, because being the first to do so may result in a loss of their current market share (first-mover disadvantage).
- (3) Uneven impact and readiness to transition across different business sizes,** especially for industries that still utilize environmentally-unfriendly technologies. Moreover, SMEs still face resource constraints that hinder them from effectively managing environment-related issues.
- (4) Investments in natural disaster management requires a substantial amount of funds.** Hence, the private sector alone may be unable to allocate funds as needed, and returns from such investments may not be commercially worthwhile.
- (5) Policy coordination across different sectors is yet to be harmonized.** Since environmental problems entail structural problems that are complex and interconnected among different economic sectors, successful policy implementation therefore cannot be achieved by a single agency or economic sector.

### III. Role of the financial sector in responding to environmental changes

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**The financial sector has an important role in allocating funds to the economic system, and therefore is critical in supporting businesses and households to adapt during the transition period.** In doing so, this should not increase debt servicing risks to financial institutions to the extent that would jeopardize financial stability in the long term, and should create new environmentally-friendly investment opportunities to facilitate economic restructuring. In contrast, if the financial sector does not help promote and support the business sector in responding to climate change in a sustainable manner, the financial sector itself will lose business and investment opportunities that would allow it to properly diversify its own risks.

**Therefore, international financial supervisory authorities have begun taking serious action on this matter,** particularly in developed economies such as those in the European Union, the United Kingdom, and Singapore, where they have enforced standards on environmental actions—especially for the purpose of safeguarding financial stability from environmental risks. In addition, they have developed the necessary infrastructures, such as databases and standards for the verification of green economic activities, to build an ecosystem that is sustainable in the long term. Meanwhile, in countries that are still reliant on manufacturing industries as their main economic growth drivers, such as Malaysia, more emphasis is placed on financial support measures to enable businesses to transition away from environmentally-unfriendly economic activities, rather than focusing on immediate transition toward green standards alone (inclusivity).

**Thai financial supervisory authorities<sup>15</sup> have initiated action on this matter, taking into account the Thai context on sectors that need to expedite their transition,** as set out in the Sustainable Finance Initiatives for Thailand,<sup>16</sup> with particular focus on 3 main areas:

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<sup>15</sup> Thailand's 5 financial supervisory authorities are: the Fiscal Policy Office (FPO), the Securities and Exchange Commission (SEC), the Office of Insurance Commission (OIC), the Stock Exchange of Thailand (SET) and the BOT.

<sup>16</sup> Sustainable Finance Initiatives for Thailand: Sustainable\_Finance\_Initiatives\_for\_Thailand.pdf (bot.or.th)

**1) Soundness or stability of the financial system:** According to an estimate by Moody's,<sup>17</sup> around 15-30 percent of total banking system loans across the ASEAN region are made to carbon-intensive industries that have high transition risks. Therefore, **the financial sector should play an important role in facilitating the economic transition to mitigate risks to both the financial sector itself and the system's long-term stability, through mobilizing capital towards supporting transition.** To this end, financial products and services must meet the needs of the business sector, in terms of costs, capital amount, as well as other conditions that would support their transition path towards a green economy efficiently and without causing widespread negative repercussions. Furthermore, the financial sector should demonstrate its commitment, disclose its environmental actions, and also enrich the environment-related data ecosystem which is crucial in the evaluation of environmental risks and opportunities.

**2) Creation of new investment opportunities in new technologies and business models:** This includes supporting new investment opportunities, such as investments in accordance with the BCG model. The Board of Investment (BOI) estimates that Thailand's BCG industries will account for 25 percent of GDP by 2025.<sup>18</sup> Hence, having a taxonomy that classifies economic activities based on their environmental impact would help stimulate potential investors' interest in investing in green activities.

**3) Supporting vulnerable and affected groups in transitioning,** including knowledge-building and providing financial support to the business sector, in particular, to SMEs that are highly vulnerable. According to a survey by the SME Climate Hub,<sup>19</sup> 48 percent of surveyed SMEs cited a lack of funds as the barrier preventing them from reducing their GHG emissions.

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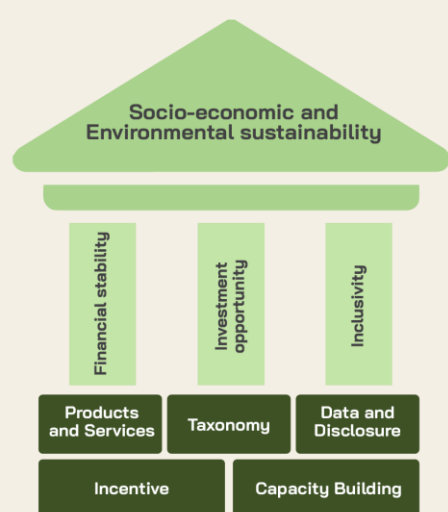
<sup>17</sup> Moody's (21 March 2022), Research Announcement: Moody's – ASEAN banks making progress, but face challenges to decarbonize finance [https://www.moodys.com/research/Moodys-ASEAN-banks-making-progress-but-face-challenges-to-decarbonize--PBC\\_1322651?cid=YJZ7YNGSROZ5414](https://www.moodys.com/research/Moodys-ASEAN-banks-making-progress-but-face-challenges-to-decarbonize--PBC_1322651?cid=YJZ7YNGSROZ5414)

<sup>18</sup> BangkokBizNews (22 November 2021), BOI sees strong trend in BCG investments –almost THB 700 billion support requested over 6 years <https://www.bangkokbiznews.com/business/973244>

<sup>19</sup> SME Climate Hub (23 February 2022), Survey: small businesses face recurring barriers to carbon reduction <https://businessclimatehub.org/sme-survey-barriers-to-climate-action/>

## IV. The BOT's approach in tackling environmental changes

### Box 2 Key elements in managing the impact of climate change for the financial sector



#### What we wish to see

- ✓ The financial sector can systematically evaluate environmental impact (opportunities and risks) as part of their decision-making and operational processes.
- ✓ Adequate offerings of necessary financial products/ services to encourage or support the business sector to adapt, especially during the transitional period.

#### What we do not wish to see

- ✗ Financial institutions' actions disincentivize, or impede, the transition of the economy—by either underestimating risks to the extent that undermines financial stability, or overestimating risks, thus creating green bubbles and leaving behind businesses that are still in transition.

**With the goal of supporting the Thai financial sector in addressing environmental changes and better serving the needs of businesses in their transitions, the BOT will prioritize establishing the following 5 key building blocks:** (1) Products and services: Adjusting financial institutions' business operations to promote green financial products and services that meet the needs of the businesses; (2) Taxonomy: classification of economic activities based on their environmental impact; (3) Data and Disclosure: systematic and accessible environmental data platforms and setting disclosure standards for financial institutions; (4) Incentive: supporting and incentivizing environmental actions in the financial sector; and (5) Capacity building: enhancing the knowledge and skills of personnel in the financial sector. These building blocks are in line with the Sustainable Finance Initiatives for Thailand mentioned in Section III, with desired and undesired outcomes as summarized in Box 2.



Building Blocks	Challenges	Intended outcomes	What Thais will gain
<b>① Products and services</b>	<ul style="list-style-type: none"> <li>● Environmental impact not reflected in operational costs.</li> <li>● Discrepancy in each financial institution's environmental actions.</li> </ul>	Financial institutions systematically incorporate environmental aspects into their decision-making and business-as-usual processes.	<ul style="list-style-type: none"> <li>● The business sector can access the financial products and services that serve their needs in environment-related transitioning.</li> <li>● Financial institutions are trusted by customers and investors, given their good environmental risk management.</li> </ul>
<b>② Taxonomy</b>	Uneven transition within the business sector.	Thailand has a common classification system for environmentally-friendly economic activities that is aligned with international standards and Thailand's own context. It can be used as reference in the development of products, data disclosure, and also in creating incentives, in a consistent manner across different sectors.	<ul style="list-style-type: none"> <li>● The business sector can make transition plans that are in line with the set environmental targets.</li> <li>● The financial sector can more precisely allocate capital to environmentally-friendly activities.</li> </ul>
<b>③ Data and disclosure</b>	Information asymmetry in accessing and allocating capital.	Thailand has a central environment-related data system that connects and can be utilized by both financial and non-financial sectors, to support environmental actions.	Every sector can access and utilize quality environmental data that is robust and sufficient for the evaluation of opportunities and risks in their decision making process.
<b>④ Incentive</b>	Cost of transition in each sector.	Financial institutions offer a diverse range of financial products at incentivizing prices, in order to support the cost burden of businesses to adapt during the transition period.	The business sector, particularly SMES, have lower cost of transition, and therefore are encouraged to adapt and survive in the long term.
<b>⑤ Capacity building</b>	Unpreparedness of each sector.	Financial institutions personnel have adequate expertise and skill for managing environmental risk.	The business sector, particularly SMEs, can obtain advisory support from financial institutions that serve their need in transitioning towards environmental sustainability.



## Products and services: Adjusting financial institutions' operations to promote green financial products and services that serve the needs of businesses

Presently, environmental impact is not yet incorporated into the costs of financial institutions' operations. Since these operations vary across different financial institutions and are not standardized, it is therefore necessary to raise the standard of financial institutions' operations to support environmental sustainability—by taking into consideration the principles and implications of opportunities and risks and integrating them into their end-to-end business process, which includes setting up a governance structure, strategic planning, risk management processes, and disclosing data to the public. Ultimately, this would encourage the financial sector to adequately offer a diverse range of financial products and services that can serve the needs of the economy as it transitions towards becoming an environmentally-friendly economy. That said, in raising such standards, finding a balance between international standards and the readiness of financial institutions and the Thai economy must be a key consideration.

### Intended outcomes

1. The Thai financial sector is committed to addressing environmental problems, while providing financial products and services that serve the needs of businesses and incentivize them to transition appropriately, both in terms of speed and timing.
2. Financial institutions have governance structure and operational frameworks to support their environmental actions throughout their end-to-end process, which are aligned and fitting with their corporate culture, business type, complexity, and risks exposures (risk proportionality). In turn, this will enable them to develop green financial products and services, have in place mechanisms to evaluate environmental and climate-related opportunities and risks—including by conducting climate scenario analysis and stress testing—and transparently disclose data to the public.

## Course of action

1. **The BOT, as the supervisory authority overseeing financial institutions, will issue a policy statement on internalizing environmental and climate change aspects in financial institution business**, by the second half of 2022. It will help communicate the BOT's expectations, and can be used by financial institutions as a reference in enhancing their internal end-to-end process, which includes their strategic planning and assessments of the effectiveness of their environmental actions, establishing risk management procedures and tools, as well as disclosures on environmental actions. This is aligned with the principles from the Basel Committee on Banking Supervision (BCBS)<sup>20</sup> and policy direction of supervisory authorities in other countries. (Details in Appendix 2)

Later on, the BOT will consider issuing additional regulations, policy statements, or guidelines in the relevant areas, so as to ensure that financial institutions' operations adhere to international standards or any future direction by the BCBS and/or the International Sustainability Standards Board (ISSB) (details in Appendix 3). Nonetheless, the application of such standards will have to consider the context of Thailand as well as the financial institutions' costs, risks, and readiness.

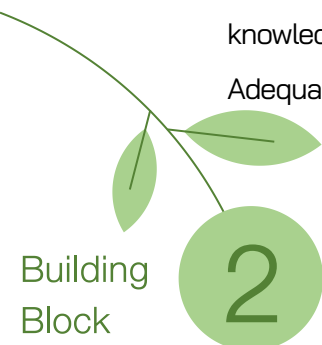
2. **The BOT will support the development of an 'industry handbook' for financial institutions** by the first half of 2023 to set in-depth guidance to facilitate actual implementation, provide financial institutions with benchmarks to measure the progress of their environmental actions, and promote financial products and services in order to adequately allocate funds to meet the needs of the business sector.

3. **The BOT will continuously assess and monitor the progress of financial institutions' environment-related management** in the second half of 2023, and will consider incorporating environment-related factors into the overall evaluation of each financial institution's supervisory composite rating, in accordance with the risk-proportionality principle by the end of 2024.

4. **The BOT will develop a framework for climate scenario analysis and stress testing.** In the initial phase, a pilot exercise with large financial institutions will be conducted by the end of 2023, and will later expand to include all Thai commercial banks by 2024. The exercise will begin

<sup>20</sup> Basel Committee on Banking Supervision (BCBS) issued the Principles for the effective management and supervision of climate-related financial risks on 15 June 2022 to be used by financial institutions as reference in the management of climate-related financial risks.

with a climate scenario with high impact to the country, so that financial institutions can identify and assess exposures in their portfolios, prepare data systems, and enhance their personnel's knowledge, prior to incorporating this into their day-to-day business operations and Internal Capital Adequacy Assessment Process under Pillar II.



## **Taxonomy: classification of economic activities based on their environmental impact**

Given that different sectors do not yet share a common understanding of environmentally-friendly activities, efforts to mobilize environmental actions, particularly capital allocation, are not yet on-target. Consequently, this may lead to greenwashing and inadequate allocation of capital for businesses in their transitional activities. For this reason, there needs to be a standard (taxonomy) by which economic activities are defined and classified based on their environmental impact. This would ensure a common understanding among the public, business, and financial sectors, and also serve as reference in the process of policymaking, strategic planning, and development of businesses' products and services in a standardized and consistent manner. In turn, this would help each sector in evaluating its environment-related performance and formulating plans to adapt during the transitional phase, to be suitable and well-timed under Thailand's context.

### **Intended outcomes**

1. Thailand has a taxonomy that serves as a common guideline in classifying environmentally-friendly activities that is internationally accepted and also suited for Thailand's context, particularly in terms of setting appropriate timeframes during the transition period.
2. The taxonomy is used as reference by the financial, public and private sectors in their work processes and in undertaking environmentally-conscious business. Financial institutions can also implement it in developing their products and services, risk assessments, and environment-related data disclosures. Moreover, the public sector and regulators can utilize it to devise environment-related incentives that are appropriate for

each business type; while the private sector can use it to assess its readiness and plan its environment-related transitioning.

## Course of action

**1. The BOT, at the helm of the Thailand Taxonomy Board,<sup>21</sup> aims to establish a principle-based taxonomy.<sup>22</sup>** In the initial phase, the focus will be on achieving an environmental objective<sup>23</sup> of climate change mitigation. In doing so, it will consider conditions and indicators that are transparent and in line with Thai businesses' early-stage status and ability to adapt—both in terms of timing and speed—so as to prevent future greenwashing problems. In addition, it will also focus on achieving consistency with the ASEAN taxonomy<sup>24</sup> and comparability to other standards of other countries in the ASEAN region. (Details in Appendix 4)

**2. The Thailand Taxonomy Board will gradually issue specific details for each economic sector depending on necessity and urgency, while considering the potential impact and each sector's readiness to adapt.** To start, economic activities with high GHG emissions, such as the energy and transportation sectors, will be classified. Also, they are fundamental activities that connect to and provide mechanisms for GHG emissions in other sectors' activities. For later phases, it is planned that further specific details for the agricultural, industrial, and other economic sectors will be issued.

In this regard, the BOT, together with the relevant agencies such as the TGO and SEC, will consider setting up an agency or developing personnel resources to perform as local verifiers for environmental standards, in a sufficient number to meet the market's

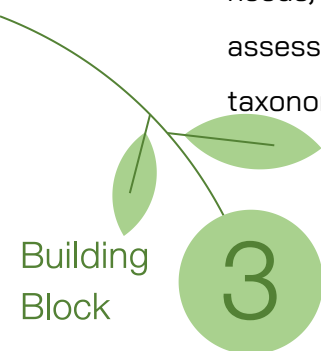
<sup>21</sup> The BOT has established Thailand Taxonomy Board to develop a classification system of economic activities deemed as environmentally-sustainable (Thailand Taxonomy). The Board comprises agencies from both the public and private sectors to ensure all sectors' views are reflected. In the initial phase, the Thailand Taxonomy Board comprises representatives from: the FPO, BOT, SEC, OIC, SET, Office of Natural Resources and Environmental Policy and Planning, Department of Alternative Energy Development and Efficiency, Energy Policy and Planning Office, Office of Transport and Traffic Policy and Planning, Thailand Greenhouse Gas Management Organization (Public Organization) (TGO), Board of Trade of Thailand, Federation of Thai Industries, Thai Bankers' Association, Association of International Banks, and Government Financial Institutions Association.

<sup>22</sup> In the initial phase, activities will be classified into 3 groups: (1) green activities: Green List; (2) transition activities: Amber List; (3) brown activities: Red List, later followed by assessments on whether such activities Do No Significant Harm (DNSH) or lead to widespread social impact, and what remedial measures can be taken, so as to be able to accurately classify environmentally-friendly activities.

<sup>23</sup> Other countries' taxonomy, including the ASEAN Taxonomy, cover 4 main environmental objectives, namely: (1) Climate Change Mitigation (2) Climate Change Adaptation (3) Protect Biodiversity and (4) Promote Resource Resilience.

<sup>24</sup> The ASEAN taxonomy is a common taxonomy for ASEAN Member States. It was developed by the ASEAN Taxonomy Board (ATB), which is a Board established under the oversight of ASEAN Finance Ministers and Central Bank Governors. Thailand's representatives in the working group are the BOT, SEC and OIC.

needs, in order to facilitate the business sector, particularly SMEs, in gaining access to assessments of environmental standards for each economic activity, in line with the taxonomy, and at appropriate costs.



### **Data and Disclosure: systematic and accessible data platforms, and financial institutions' data disclosure standards**

Information asymmetry is one of the main obstacles to actions on environmental sustainability. Because of this, numerous sectors lack sufficient information for their decision-making and in supporting their work operations. The BOT therefore plans to develop a national-level environment-related data ecosystem that is accessible to all sectors to be utilized to their full potential. This would help improve the quality of environment-related data in accordance with good data governance principles, in terms of (1) data availability (2) data comparability and (3) data reliability. As a result, data obtained from different agencies would be transparent, verifiable, ready-to-use for in-depth analytics, and also have a common standard that would facilitate better data connectivity and comparability.

#### **Intended outcomes**

1. Financial institutions clearly, continuously, and sufficiently disclose their environment-related data, especially those related to climate change in order to facilitate the public in their investment decisions or in choosing financial services, as well as to ensure consistency and comparability with international standards. For example, those of the Task Force on Climate-related Financial Disclosures (TCFD),<sup>25</sup> BCBS and ISSB.

2. The Thai financial sector has in place an infrastructure that integrates all environment-related data required for financial institutions' evaluation of opportunities and risk management. Such data infrastructure is connected to the environment-related databases of other government agencies—such as the Ministry of Natural Resources and Environment, Ministry of Energy, Ministry of Transport—and is also open to the public and private sectors to be utilized for business decisions, strategic planning, development of

<sup>25</sup> The TCFD's framework on data disclosure covers 4 main aspects: (1) Governance around climate-related opportunities and risks; (2) Strategy over the short, medium, and long term; (3) Risk Management; and (4) Metrics and targets.

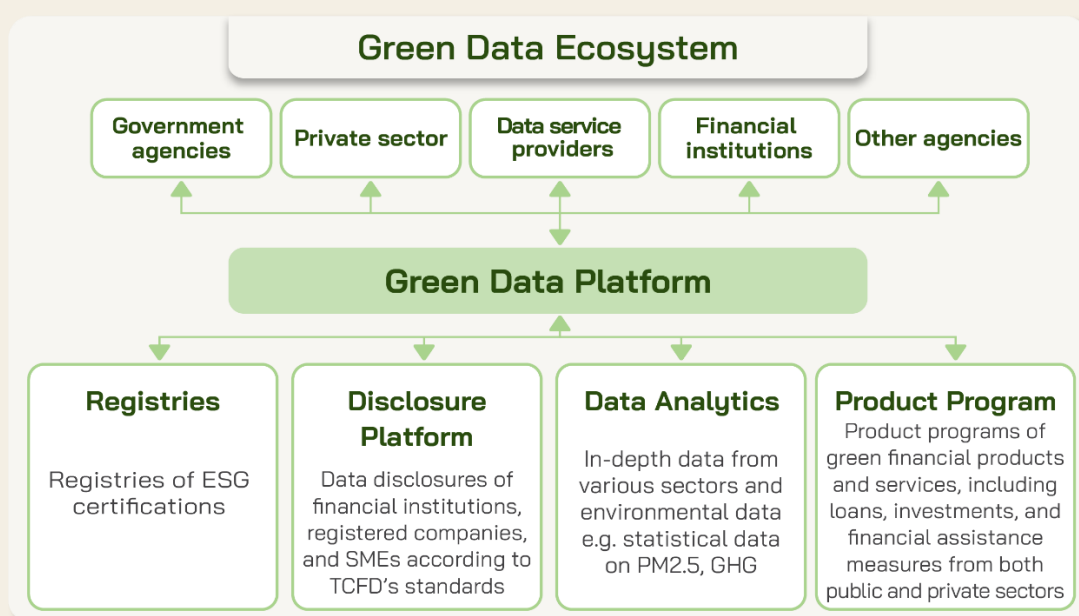
products and services, risk management, as well as to support the public sector's regulatory activities and policy actions. As a result, this would help mitigate the information asymmetry problem across all sectors in the long term.

## Course of action

1. **The BOT will set environment-related data disclosure standards for financial institutions in the second half of 2022.** This will be in line with the TCFD's data disclosure recommendations, to provide financial institutions with standardized environment-related data that can be compared with other domestic and international financial institutions.<sup>26</sup> In the first phase, Domestic Systemically Important Banks (D-SIBs) will be expected to disclose such data in 2024, and other financial institutions will then be expected to do so in 2025.

2. **The BOT will collaborate with the relevant agencies in both public and private sectors to integrate and develop a national platform for environment-related data ("green data platform"),** with the goal of ensuring that there is sufficient data for Thailand and the financial sector, and so that every sector can utilize it in their environment-related operations and risk management. The main components of this data platform are as shown below in Box 3.

### Box 3 Concept of the green data platform



<sup>26</sup> At present, jurisdictions in which financial institutions must mandatorily disclose data in accordance with the TCFD's standard include: the UK (2022), Japan (2023), Singapore (2023), New Zealand (2023), Hong Kong SAR (2025).

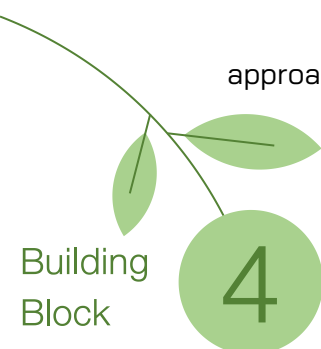
**(1) ESG registries platform** that contains data on the ESG certifications of companies and projects from the relevant certification bodies, as well as the key indicators used to provide such certification.

**(2) Disclosure platform** that contains data disclosed by registered companies and financial institutions in accordance with international disclosure standards, such as those of the TCFD, in order to allow easier cross-comparisons. In the next phase, this may expand to also include SMEs.

**(3) Data analytics platform** that contains in-depth environmental data sourced from various sectors, such as weather conditions and GHG emissions, for the purpose of environment-related data analytics and also for policymaking.

**(4) Product program platform** that contains information on financial products and services i.e. product programs, and also environment-related assistance or support measures provided by government agencies or financial institutions to the business sector.

The above approach in developing a data platform system is consistent with the approach of other countries in developing their data platforms. (Details in Appendix 5)



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## Incentive: to support and incentivize environmental actions in the financial sector

Given the impact from environmental policies, pressure from the international community, and the continuous announcements of net zero emission targets by large corporates, Thai businesses—particularly SMEs that are in the supply chain of the manufacturing, service, and export sectors—must expedite their transition and raise the standard of their environmental actions, so as to avoid falling behind the curve or being barred from participating in the supply chain. As SMEs face high cost barriers in their transitioning, they require financial support that adequately meets their needs. Meanwhile, financial institutions are still unable to properly evaluate environmental risks and impact. As a result, their price-setting behaviors do not reflect risks or clearly differentiate environmentally-friendly activities from environmentally-unfriendly activities. It is therefore necessary to create incentives to encourage the business sector to transition,

and so that financial institutions can sufficiently allocate capital and offer financial products and services to accommodate such transition.

## Intended outcomes

1. Businesses, especially SMEs, have access to capital at reasonable costs and are able to adapt promptly throughout the transitional period. They can also withstand pressure from the international community and their upstream companies in the supply chain who want to push SMEs to set net zero emission targets and disclose their GHG emissions.
2. Financial institutions have a diverse range of financial products, offered at costs that incentivize businesses to transition and help alleviate their cost burden during the transitional period. The mechanisms or measures to incentivize financial institutions and the business sector incorporate a combination of carrot and stick approaches that do not result in market distortions in the long run.

## Course of action

**Research and analyze options to create incentives that are appropriate for Thailand's context, in order to encourage financial institutions and the business sector to transition towards more environmentally-friendly activities.** In setting such incentives, the following principles will be considered:

- **In the transitional phase:** As businesses, especially SMEs, face high transitional costs during this period, the BOT will use rewarding measures (carrot) to help lower: (1) operating costs of the business sector e.g., by providing financial support for investments and verifying data disclosures, and providing low-interest loans; and (2) cost of risks faced by financial institutions e.g., by having guarantee mechanisms or low-interest source of funds.

- **In the long run:** Granted that Thailand will already have the infrastructure it needs to accommodate environmental actions in this period, resulting in an efficient functioning of market mechanisms, the BOT may place greater emphasis on implementing mandatory requirements penalties (stick). For example, risk-related regulations to accurately reflect environmental risks. (Details on international incentivizing measures in Appendix 6)



Building  
Block

5

## Capacity Building: enhancing knowledge and skills of the financial sector's personnel

Capacity building for directors, executives, and staff in the financial sector to create understanding on sustainability, climate change, and environmental issues, in order to enable them to assess and manage risks and also evaluate business opportunities.

### Intended outcomes

1. The Thai financial sector has in place knowledge management systems that adequately prepares it for environmental changes, and has mechanisms to continuously and systematically develop the knowledge and skills of personnel in the financial sector.
2. Financial institutions have personnel resources that are equipped with knowledge and expertise, in a number that is enough to enable them to properly manage and assess risks from environmental changes, both at the transaction and portfolio levels, in line with the complexity of their operations, as well as to classify activities according to the taxonomy in a standardized manner.

### Course of action

**The BOT will collaborate with other relevant domestic and international agencies—in the public and private sectors, financial institutions, and regulators in the financial and non-financial sectors—to develop courses and workshops** on managing environmental risks. In the initial phase, the main focus will be on data disclosures based on the TCFD's framework and conducting impact assessments through conducting scenario analyses and stress testing. Furthermore, communication tools will be developed to ensure effective communication with the public and business sectors, particularly SMEs, through financial knowledge-building initiatives and other channels of the BOT and its partners, in order to raise public awareness on environmental changes.

## V. Engaging all sectors to mobilize actions in response to environmental problems

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The BOT recognizes that steering the economy towards an environmentally sustainable growth path can only be achieved through a collaborative effort from all sectors, part of which is driven by the financial sector. The success of such endeavor would, however, also require laying down the country's groundwork in the following aspects:

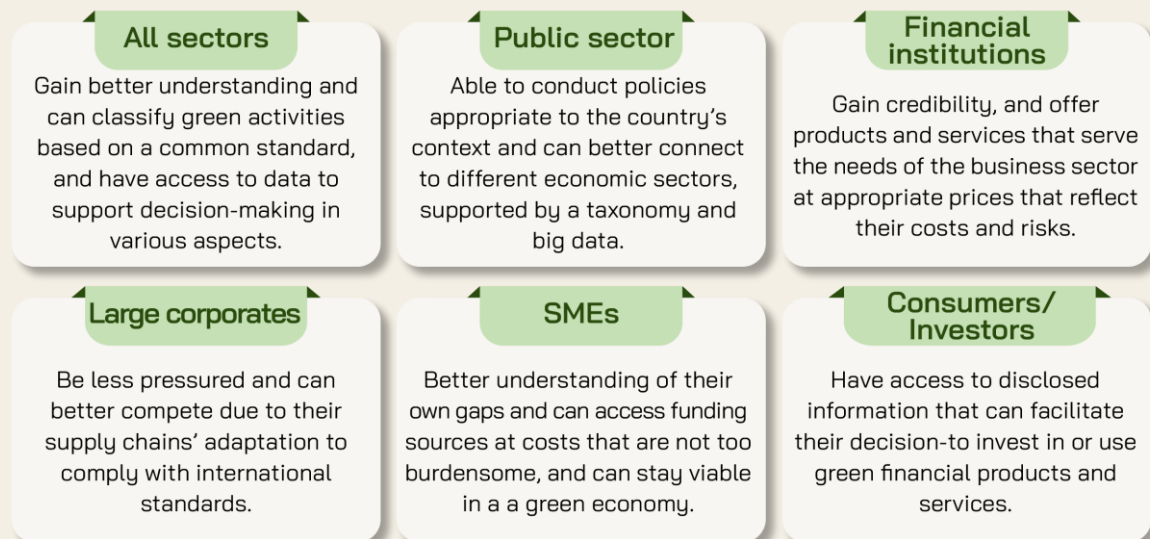
- (1) Setting the direction and approach in managing environmental risks (reference pathway) at the national-level** so that each sector can prepare for their transition in a timely manner e.g. setting GHG emission targets for each key economic sector in each period.
- (2) Expediting the development of price mechanisms wherein externalities of environmental impact are priced-in**, so as to prevent market distortions in businesses' investment planning and capital allocation that would prevent the country from achieving its environmental goals. Examples of pricing mechanisms include charging for GHG emissions through collecting carbon tax or having a carbon credit market like in many countries in Europe and Asia.
- (3) Issuing policies or measures to serve each business sector's different needs**, especially of SMEs, and also to incentivize all sectors to transition. For example, tax deductions and financial support for businesses in both financial and non-financial sectors.
- (4) Investing in the necessary infrastructure to adapt in response to climate change** and minimize potential losses from natural disasters, such as the impact of floods on communities and agricultural areas
- (5) Collaborative effort across all sectors** including the public sector, regulators, business and household sectors, to set a clear direction and environment-related targets that considers both opportunities and potential impact. Also, the public sector must effectively communicate so that all sectors understand and recognize the urgency of this matter. On this, emphasis should be placed on tactical areas that will

create a ripple effect leading to larger-scale reforms, such as by giving more weight to economic sectors that would enable further changes.

In this regard, the BOT stands ready to closely cooperate with all sectors by: **conducting in-depth research** to assess the severity and forms of economic impact from environmental change, in order to raise awareness and catalyze transition; **jointly developing key infrastructures** to support better functioning of market mechanisms that reflect the cost of environmental impact from business operations e.g., developing data platforms to help set plans in line with the country's targets, cooperate with the public sector in various aspects to set clear environmental targets and explore different approaches—both carrot and stick—through a **combination of measures including fiscal and financial measures**, as well as industrial and environmental policies. Henceforth, such concerted effort will pave the way for Thailand to achieve its environmental and socio-economic goals in a sustainable manner.

## VI. What success looks like

### Box 4 What success looks like



The BOT expects that by following the approaches outlined above, the financial sector will be able to support the smooth and timely transition towards an environmentally-friendly economy, so that every sector can cope with risks arising from environmental and climate change in a timely manner. (Details in Box 4)

**The transitional phase is the time for businesses to transition, but investment in new technologies has high risks and costs, while data and tools to evaluate opportunities and risks are not yet fully developed.** As for financial institutions, they must take into account their environmental impact into their operations and decision-making process by recognizing their own exposure to and vulnerabilities from environmental risks. Also, the financial sector must play a key role in supporting or encouraging the business sector to transition to environmentally-friendly (green) activities or reduce their environmentally-unfriendly (brown) activities. As for the financial sector, they have access to databases and tools to systematically and seriously evaluate environment-related opportunities and risks. They are also able to distinguish green and non-green activities in their loan portfolios, enabling them to set environmental targets—such as by setting a target

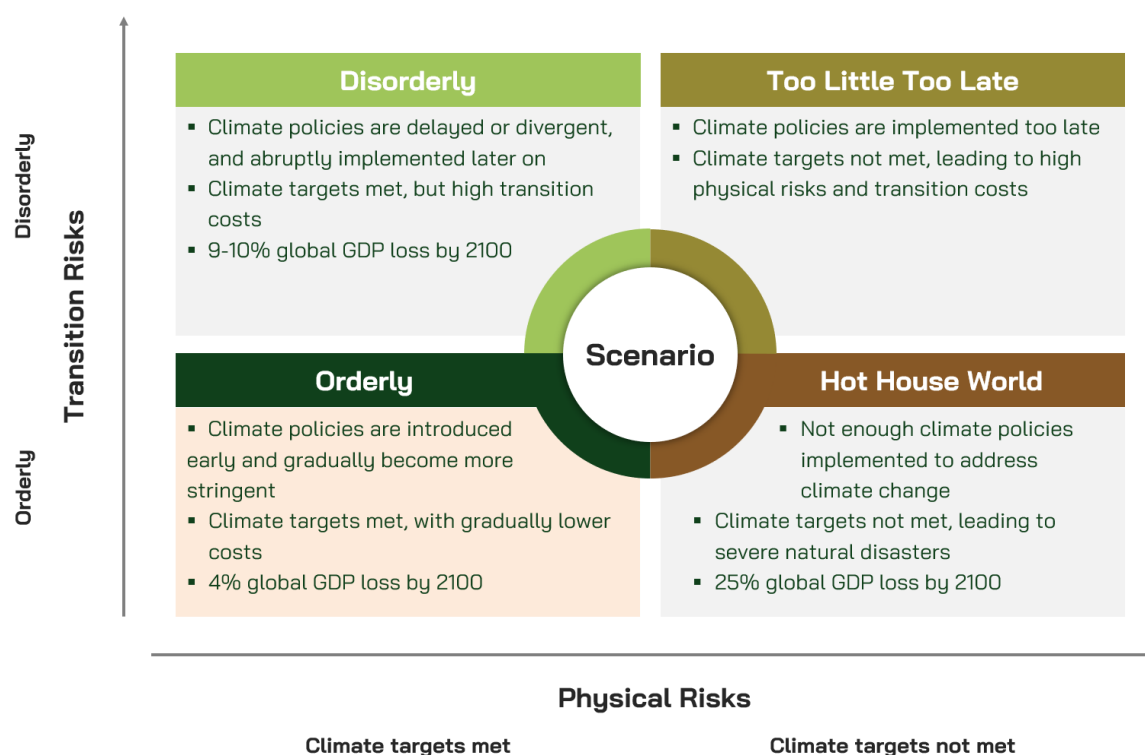
share of the loan portfolio to support green activities—and are able to offer financial products and services to accommodate the business sector’s transition plans.

**In the new normal phase, wherein market mechanisms function properly, and prices and costs reflect actual risks and take into account various impact to the environment, and data and tools are readily available:** financial institutions must be able to incorporate environmental impact into their operations and decision-making. On this, they should be able to properly identify, assess, measure, and mitigate risks at both transaction and portfolio levels, and incorporate it into the price-setting structure. In turn, this would become part of the market mechanisms that incentivize businesses to transition away from brown activities and support the country in achieving its environmental target by leveraging on the fundamental elements—data ecosystem, assessments and certification of green activities, and personnel resources in the financial sector.





## Appendices

## Appendix 1 NGFS climate scenarios and expected outcomes



Source: NGFS Climate Scenarios for central banks and supervisors (June 2020)


## Appendix 2 Approaches in setting environment-related practices for financial institutions in other countries<sup>27</sup>

Country	Implementation	Approach and progress
 (Bank of England: BOE and Prudential Regulation Authority: PRA) April 2019	Issued guidelines and conducted supervisory dialogue for periodic monitoring. Progress on implementation was expected by the end of 2021.	<ul style="list-style-type: none"> <li>BOE/PRA: reviewed financial institutions' implementation plans (October 2019) and found that board of directors and senior management have recognized the importance of the issue. However, improvement is needed in the area of risk management, particularly on scenario analyses, which will be the main focus in the next phase.</li> <li>ECB: in 2021, financial institutions were asked to self-assess how their practices</li> </ul>
 <b>European countries</b> (European Central Bank: ECB) November 2020		

<sup>27</sup> Every country's regulations or guidelines are similar as they aim to enhance financial institutions' readiness in adapting to the environmental and climate-related risks in 4 key aspects: (1) governance; (2) strategy; (3) risk management; and (4) disclosure.

Country	Implementation	Approach and progress
		align to the guidelines. It was found that most European financial institutions are aware of the impact of the risks, and have set plans accordingly. However, many areas need to be improved in order for them to fully comply with the guidelines. The ECB aims to elevate its monitoring through its supervisory process in 2022.
 <b>The Philippines</b> (Bangko Sentral ng Pilipinas: BSP) April 2020	Issued regulations to be enforced, with a 3-year transition period for financial institutions.	<ul style="list-style-type: none"> <li>- The BSP issued additional guidelines on Environmental &amp; Social risk management, with emphasis on credit and operational risks (October 2021)</li> </ul>
 <b>Singapore</b> (Monetary Authority of Singapore: MAS) December 2020	Issued guidelines and conduct supervisory dialogue for periodic monitoring. The guidelines come into effect by June 2022.	<ul style="list-style-type: none"> <li>- A joint task force between the MAS and the Association of Banks in Singapore issued an industry handbook that compiles examples on best practices and further elaborates the principles of the guidelines (January 2021)</li> <li>- In 2021, the MAS assessed the progress made according to the guidelines, and identified key challenges in the areas of data and tools for the evaluation of environmental risks, and expertise of personnel in the financial sector.</li> </ul>
 <b>Australia</b> (Australian Prudential Regulation Authority: APRA) November 2021	Issued guidelines to be used as reference by financial institutions.	<ul style="list-style-type: none"> <li>- In 2022, APRA conducted a voluntary self-assessment survey to assess the progress made in aligning practices to the guidelines. It was found that financial institutions have made considerable progress, especially in the areas of governance and disclosure. However, fully embedding climate risk across their risk management framework remains as a key challenge.</li> </ul>



Country	Implementation	Approach and progress
 <b>Malaysia</b> (Bank Negara Malaysia: BNM)	Published draft policy document for public consultation in December 2021. The effective date of the document was set to be within 2-3 years, depending on the topics, once issued.	- In progress

### Appendix 3 Progress in financial supervisory actions on environmental and climate-related aspects at the international level








#### Capital requirements

- The BCBS is currently reviewing approaches to incorporating climate-related risks as part of financial institutions' capital adequacy assessments. A key challenge is the sufficiency of data that can be used for the assessment of environmental impact in a forward-looking manner. Also, climate-related risk is highly volatile and uncertain, which distinguishes it from other financial risks.
- Financial supervisory authorities in many countries, such as those in Europe, use Pillar 2 under the Basel III framework to require financial institutions to incorporate environmental aspects as part of their risk management and capital adequacy assessment processes. This is appropriate for the current environment, due to its flexibility and principle-based nature, and also because it has no impact on the minimum capital requirement. In like manner, the BOT has revised its supervisory regulations on capital adequacy under Pillar 2 to account for Environmental, Social, and Governance (ESG) factors, effective as from 1 January 2022.

#### Disclosure

- The BCBS is currently reviewing approaches on data disclosures under pillar 3 of the Basel III framework to include environmental aspects, to be implemented in conjunction with those of the International Sustainability Standards Board (ISSB) established under the International Financial Reporting Standards (IFRS) Foundation—so that financial institutions' data disclosures will be in line with the sustainability data disclosures based on international accounting standards.

## Appendix 4 International approaches in developing a Taxonomy








	 EU	 ASEAN	 China	 Singapore	 Malaysia	 Indonesia	 Thailand (planned)
Environmental objectives							
Climate change mitigation	✓	✓	✓	✓	✓	✓	✓ (Early 2023)
Climate change adaptation	✓	✓	✓	✓	✓	✓	✓ (Later phase)
Protection of biodiversity	✓	✓		✓	✓		✓ (Later phase)
Promotion of resource resilience, or efficient and sustainable use of resources	✓ <sup>28</sup>	✓ <sup>29</sup>	✓	✓	✓		✓ (Later phase)
Pollution prevention and control	✓		✓		✓		✓ (Later phase)
Transition to circular economy	✓		✓				
Implementation method							
Mandatory enforcement	✓		✓ <sup>30</sup>				
Voluntary basis		✓ <sup>31</sup>		✓ <sup>31</sup>	✓ <sup>31</sup>	✓ <sup>31</sup>	✓

<sup>28</sup> For the EU, this objective is specific to the sustainable use and protection of water and marine resources.




<sup>29</sup> ASEAN Member States have incorporated the transition to circular economy into this objective.

<sup>30</sup> Currently only applies to Green Bonds and Green Credit.

<sup>31</sup> ASEAN, Singapore, Malaysia, and Indonesia support the use of the Taxonomy in the financial sector as the first priority.

	 EU	 ASEAN	 China	 Singapore	 Malaysia	 Indonesia	 Thailand (planned)
Classification method and number of sectors in the taxonomy							
Classification of economic activities	✓	✓	✓	✓	✓	✓	✓
Metrics & Thresholds	✓	✓	✓ <sup>32</sup>	✓			✓
Number of economic sectors in the Taxonomy <sup>33</sup>	13	6	National classification	8	8 <sup>34</sup>	12	4 (2023)


## Appendix 5 Approaches in developing ESG information/data platforms in other countries

Country	Conducted by	Approach in developing an ESG data platform
 Singapore	Monetary Authority of Singapore (MAS)	- Developed the Greenprint Platforms to aggregate ESG data on a national-level. It includes a registry platform and disclosure platform, and is also accessible to different stakeholder groups. The platform also includes a marketplace that connects green fintech and green technology providers to investors, financial institutions and corporates.
 UK	UK Government and the Financial Conduct Authority (FCA)	- No national-level data platform, but the FCA is considering to extend its regulatory perimeter to include ESG data and ratings service providers.
 Japan	Japanese government and Japan's	- The Japanese government developed a Climate Change Adaptation Information Platform (A-PLAT) to be a national-level platform that aggregates information, indicators, and

<sup>32</sup> Source: OECD's Developing Sustainable Finance Definitions and Taxonomies .


<sup>33</sup> The determination of economic sectors depends on the country or region-specific context, but most of these taxonomies cover the following sectors: (1) energy; (2) transportation; (3) agriculture, forestry, and fishing; (4) manufacturing; (5) telecommunications; (6) waste management; and (7) construction.




<sup>34</sup> Malaysia does not specify the economic sectors, but gave 8 economic sectors as examples.

Country	Conducted by	Approach in developing an ESG data platform
	Financial Service Authority (JFSA)	<p>adaptation measures to climate change. Also, climate change-related related information of other Asia-Pacific countries is also included (AP-PLAT).</p> <ul style="list-style-type: none"> <li>- The JFSA developed an ESG platform to be a registry and to aggregate information on ESG-related bonds. It is also drafting a Code of Conduct for ESG Evaluation and Data Providers, to be used for the supervision of ESG data and ratings service providers to ensure that their operations are up to a common standard.</li> </ul>
 <b>Canada</b>	Canadian Government and Environment and Climate Change Canada (ECCC) and Statistics Canada	<ul style="list-style-type: none"> <li>- Established the Canadian Centre for Climate Services (CCCS) to be the center for climate data from across Canada and provide tools to facilitate climate scenario design.</li> <li>- In the process of establishing the Canadian Centre for Climate Information and Analytics (C3IA) to be a hub-and-spoke type data platform that connects climate, economic, industrial and financial data, from both from the public and private sectors.</li> </ul>
<b>Nordic countries*</b>	Central/local governments of Nordic countries	<ul style="list-style-type: none"> <li>- Foster digital green transition by developing data infrastructure (Open Green Data Portal) under the oversight of the central government. The portal covers data from sectors such as the energy, transport, agriculture, forestry sectors, etc.</li> </ul>

\* Here, "Nordic countries" are Finland, Sweden, and Denmark

## Appendix 6 Incentivizing measures in other countries

Country	Examples of mechanisms or measures to support environmental action
 <b>UK</b>	<ul style="list-style-type: none"> <li>- Corporate Bond Purchase Scheme (CBPS), in pursuit of a secondary monetary policy objective to support the transition to a net zero emissions economy, with a target to reduce the weighted average carbon intensity (WACI) of the CBPS portfolio by 25% by 2025, and reach net zero by 2050.</li> </ul>

Country	Examples of mechanisms or measures to support environmental action
 <b>Singapore</b>	<ul style="list-style-type: none"> <li>- Green Loan and Sustainability-Linked Loans/Bonds Grant Scheme to support businesses and banks by defraying the expenses of validating green and sustainability credentials.</li> <li>- Solution providers (data) for Green FinTech or Green Tech in the areas of capital, research, and improving personnel knowledge.</li> <li>- Green Investments Programme (GIP) that places funds with asset managers. The first investment is a USD 100 million placement (out of USD 2 billion) in the Bank for International Settlements (BIS) Green Bond Investment Pool (GBIP).</li> </ul>
 <b>China</b>	<ul style="list-style-type: none"> <li>- Launched a Carbon Emission Reduction Facility (CERF) to offer low-interest rate loans to financial institutions at a financing rate of 1.75% (while the financing rate of the medium-term lending facility (MLF) is at 2.95%). The facility aims to support businesses' improvement in energy efficiency, use of renewable energy, and development of green technologies.</li> </ul>
 <b>Japan</b>	<ul style="list-style-type: none"> <li>- The Bank of Japan's Climate Lending Facility provides financial institutions with zero-interest loans (to end in 2023, with a possibility to be extended to 2030) for green bonds/loans, sustainability-linked bonds/loans with climate-change related targets, and also climate-change transition. Participating financial institutions are required to disclose targets and results in accordance with the TCFD, and will be able to reduce the cost of holding excess reserves that are currently subject to a negative interest rate.</li> </ul>
 <b>Malaysia</b>	<ul style="list-style-type: none"> <li>- Low Carbon Transition Facility (LCTF)<sup>35</sup> (Total size of RM 2 billion— with RM 1 billion allocation from Bank Negara Malaysia and RM 1 billion from participating financial institutions) to provide SMEs in all sectors with financing for working capital and capital expenditure for obtaining sustainability certification, increasing the use of sustainable materials for production, and improving energy efficiency. The financing size per SME is up to RM 10 million, with a financing rate of up to 5% p.a., (inclusive of any guarantee fee (if any)), and financing tenure of up to 10 years. The facility will remain available until full utilization.</li> </ul>

<sup>35</sup> BNM introduced 2 facilities under BNM's Fund for SMEs: 1) RM 1 billion Business Recapitalisation Facility (BRF) and 2) RM 1 billion LCTF. <https://www.bnm.gov.my/-/new-bnm-funds-sme-brf-lctf>

