Provisional translation

FRTF: Fundamental Review of Transition Finance

Japan Public-Private Working Group's Report on Scaling "Inclusive" Transition Finance in the ASEAN Region July 2025

Table of Contents

List of Abbreviations

Official name/Japanese name	Abbreviation
Organization for Economic Cooperation and Development	OECD
Glasgow Financial Alliance for Net Zero	GFANZ
Association of Southeast Asian Nations	ASEAN
Nationally Determined Contributions	NDC
Climate Transition Finance Handbook	CTFH
International Capital Markets Association	ICMA
International Sustainability Standards Board	ISSB
Sustainability-Linked Bonds	SLB
Asia Zero Emission Community	AZEC
Japan International Cooperation Agency	JICA
Official Development Assistance	ODA
Loan Market Association	LMA
Just Energy Transition Partnership	JETP
Asian Development Bank	ADB
Japan Bank for International Cooperation	JBIC
Nippon Export and Investment Insurance	NEXI
Task Force on Climate-Related Financial Disclosures	TCFD
Network for Greening the Financial System	NGFS
Green Transformation	GX
Organization for the Promotion of Decarbonized Economic Transformation	GX Promotion Organization
26 Conference of the Parties to the United Nations Framework Convention on Climate Change	COP26
G20 Sustainable Finance Working Group	SFWG
International Energy Agency	IEA
Greenhouse Gas	GHG
ASEAN Capital Markets Forum	ACMF
ASEAN Transition Finance Guidance	ATFG
International Finance Corporation	IFC
Multilateral Development Banks	MDB(s)
Second Party Opinion	SPO
Managed Phase Out	MPO
Enhanced Gas Recovery	EGR
Credit Guarantee and Investment Facility	CGIF
Energy Transition Mechanism	ETM
Asia Transition Finance Study Group	ATFSG

Executive Summary

In order to steadily reduce global greenhouse gas emissions toward the realization of the Paris Agreement, it is important not only to further promote green investment, but also to proactively provide financing for the transition to decarbonization of the entire economy, including sectors where emissions reduction is complex (the so-called Hard-to-Abate sectors). Based on this recognition, the Government of Japan has formulated the "Basic Guidelines"[1] on transition finance and has contributed to the development of the transition-labeled bond and loan market. Internationally, the importance of "transition finance" has been increasingly recognized in various fora such as the G7, the Organisation for Economic Co-operation and Development (OECD), and the Glasgow Financial Alliance for Net Zero (GFANZ). However, there is not yet a common international strategy to respond to the financing needs of emerging and developing countries and it remains an urgent unaddressed issue. Against this backdrop, this report presents a renewed approach to transition finance that addresses the financing needs in Asia, particularly among the Association of Southeast Asian Nations (ASEAN) region.

The characteristics of Asia include: (1) continued population growth and economic expansion, leading to a rapid increase in energy consumption; (2) difficult to meet this growing energy demand with renewable energy alone; and (3) a high proportion of emissions coming from Hard-to-Abate sectors, especially manufacturing sector. Even under this challenging backdrop, each country has set NDCs and long-term targets under the Paris Agreement. Achieving these targets will require the mobilization of enormous amounts of capital[2], said to be on the order of several hundred trillion yen(trillions of dollars), and it is necessary to attract funds from outside of the region, including Japan. Meanwhile, international financial institutions, including Japanese banks, have set targets for financed emissions, and when investing in Asian projects, it is sometimes necessary to provide external explanations regarding the alignment of such investments and loans with the Paris Agreement. Therefore, the challenge is mobilizing finance to a wide variety of projects while taking into account their credibility to contributing to the goals of the Paris Agreement.

How, then, should transition finance be (re)defined in light of these objectives? The "Basic Guidelines" currently referenced in Japan were developed in alignment with the International Capital Market Association (ICMA)'s Climate Transition Finance Handbook (CTFH), which is designed with the capital (bond) market in mind. However, given that capital markets in Asia are still developing and the majority of financing is conducted through bank loans, and that many companies are unlisted, the reality is that many companies and projects in Asia requiring transition finance differ from the cases envisaged by the CTFH and Japan's "Basic Guidelines." Of course, it is desirable for many financial products compliant with the ICMA CTFH and the "Basic Guidelines" would emerge, but the scale of funding that can be supplied by such products is limited compared to the large-scale funding needs mentioned above and is utterly insufficient from the perspective of moving closer to achieving the goals of the Paris Agreement. In Asia, it is evident that mobilizing as much finance as possible for initiatives that improve the current situation and

[1] "Basic Guidelines on Climate Transition Finance 2025 edition" [in Japanese] (the Ministry of Economy, Trade and Industry, March 2025)

[2] The International Energy Agency (IEA) estimates that total energy investment in 2030 and 2035 will range from approximately US $110 billion to US $270 billion and from approximately US $120 billion to US $290 billion for each scenario, respectively. Other estimates range from the International Monetary Fund (IMF) "Asia's emerging market and developing economies need investment of at least $1.1 trillion annually to meet mitigation and adaptation needs." and the Group of Asian Investors on Climate Change (AIGCC) "Investment opportunities to achieve net zero energy supply in Asia range from US $26 trillion (2°C scenario) to US $37 trillion (1.5°C scenario) in 2020 – 2050."

contribute to the realization of NDCs and long-term goals is crucial, even in cases that are not fully consistent with the "Basic Guidelines" at present. This is the main issue discussed and addressed in this report.

If the scope of activities considered as "transition finance" is too broad, there are concerns about "carbon lock-in" and "greenwashing", and it is necessary to address these concerns seriously to ensure the credibility of transition finance that has been built up to now. Nevertheless, a strict interpretation of transition finance and an outcome of not providing funds to activities that do not align with it may have the unintended consequences on the transition of the real economy, and may lead to a state of financial carbon leakage, resulting in a polarization between "financial institutions and investors who strictly demand environmental credibility" and "financial institutions and investors who prioritize economic returns without considering environmental effects." International financial initiative such as GFANZ have also raised the issue that, in order to promote pragmatic and orderly decarbonization, it is important to provide finance in line with the efforts of industry, and especially to support initiatives in emerging economies. Financial institutions have also emphasized the role of engagement (rather than divestment), and discussions are underway on how to scale the investment and lending necessary for transition in emerging economies.

Based on these considerations, this report frames transition finance in two layers. The first is the market for "labeled" financial products. For such products traded in the market, addressing concerns about greenwashing is critically important, and it is the common understanding that Asian issuers to continue to follow the ICMA principles and guidance, with the expectation that Japan's experience with the "Basic Guidelines" will be shared globally. In fact, there are already cases in Asia where companies have disclosed their transition finance frameworks and transition strategies based on the ICMA CTFH, and it is expected that this trend will be further expand in line with the mandatory disclosure of climate-related information under the International Sustainability Standards Board (ISSB). At the same time, it is necessary to pay attention to the differences between the Japanese and wider Asian markets, such as the expected issuance of Sustainability-Linked Bonds (SLBs) and the fact that alignment with the Paris Agreement will be judged from the perspective of consistency with each country's NDCs. It is also necessary to foster common international understanding that transition eligibility varies greatly depending on the circumstances of each country or region, and in the case of cross-border investments and lendings, eligibility should be judged according to the situation of the recipient country or region (ie. the demand side), rather than the location of the funder (ie. the supply side).

The second layer is the re-defined additional layer in "transition finance," which includes the provision of funds required at the country, regional, or sectoral level—such as the initiatives that contribute to the realization of each country's NDCs and long-term goals—mainly through loans. For example, even if a company is unable to formulate its own transition strategy meeting the "credibility" criteria, if it is part of the country's strategy in achieving the national NDCs and long-term goals, or to related power/energy development plans, or if it is the undertaking initiatives that are clearly superior compared to the business standard of the sector, it may be warrant to judge transition eligibility by considering these circumstances, subject to the use of funds, and post-financing follow-ups. In the case of use-of-proceeds financing, an approach of judging eligibility based on a list of "possible transition technologies," such as roadmaps and technology lists, may also be effective. In fact, some Asian financial institutions have developed frameworks based on such criteria. In Asia, efforts that contribute to the realization of each country's NDCs and long-term goals should be broadly regarded as "transition finance," and an approach that accelerates the

provision of funds to such areas is important for promoting decarbonization of the real economy. In this report, the newly defined approach of promoting the provision of funds to more broadly support the transition of the real economy is referred to as an “Inclusive Approach,” and the means of ensuring the credibility of such transition finance are discussed.

When adopting an Inclusive Approach to transition finance, it is important to monitor and follow up through close communication with borrowers via engagement by financial institutions, including measures addressing carbon lock-in risk. At the same time, it should be recognized that efforts by individual projects, private companies, and financial institutions alone are insufficient to generate the necessary financial flows for a system-wide transition, including addressing carbon lock-in; robust national institutional and policy frameworks are indispensable. From this perspective, for large-scale projects requiring cross-border investments and lendings, it is effective to promote financing thorough the public and private collaboration/partnership after confirming such plans through intergovernmental dialogue. In Japan, private companies and financial institutions are promoting projects that contribute to the transition of the region within the framework of the Asian Zero Emissions Community (AZEC). Through this partnership framework, Japan will contribute to transition finance in Asia through the Inclusive Approach, along with the government-level dialogue on transition implementation, technical and financial cooperation, and private-sector collaboration, including official development assistance (ODA) by the Japan International Cooperation Agency (JICA) and financing by government-affiliated financial institutions such as the Japan Bank for International Cooperation (JBIC) and Nippon Export and Investment Insurance (NEXI).

Furthermore, the G7 countries, including Japan, have committed in the “G7 Elmau Leaders’ Communiqué to end new direct public support for the international unabated fossil fuel energy sector by the end of 2022, except in limited circumstances clearly defined by each country consistent with a 1.5°C warming limit and the goals of the Paris Agreement.[3] Based on this agreement, Japan is confirming alignment with the 1.5°C target and the goals of the Paris Agreement. The Japanese government can and will complements the Inclusive Approach transition support by the private sector including and financial institutions by ensuring the credibility of transition at the government level.

In order to accelerate the flow of funds to transition in Asia, it is also extremely important to foster a common international understanding. Transitions in emerging economies are currently being discussed at the ICMA and the Loan Market Association (LMA). Internationally, initiatives such as the Just Energy Transition Partnership (JETP) and support programs by the Asian Development Bank (ADB) are also underway. In these fora , we expect that the re-scoped transition finance, including the Inclusive Approach, will be agreed as the basis of financing transition projects, not limited to ICMA-based approaches, and that complementing the credibility of the public and private sectors is important for this. Going forward, we hope to proactively share the contents of this report will be disseminated with the expectation that discussions will advance in a way that funds will be widely provided to support the transition of the real economy in Asia.

[3] Agency for Natural Resources and Energy of Japan Website （Japanese Only）

[Introduction] Purpose and Overview of this Report

Purpose of this Report

To achieve steady emission reductions while pursuing economic growth, it is important to appropriately appreciate not only “green” but also “transition” and “innovation” initiatives, and to encourage the provision of finance. Based on this understanding, Japan has, from the early stages, championed the importance of transition finance in the global fora through close collaboration between the public and private sector, and has taken a pioneering role in developing the environment for transition finance markets domestically. As transition finance has grown in Japan and the Japanese government has issued its sovereign Climate Transition Bonds, the concept of transition finance has gained global recognition and awareness. At the same time, there have been various works shown globally on the definition and interpretation of transition finance. For example, there is a trend led by the UK to emphasize transition planning at the entity level, and an approach led by the EU to position transition finance within taxonomies at the activity level.

In this context, many actors, including governments, have begun to conduct rulemaking, such as attempts to include transition finance in taxonomies. Financial institutions and corporates are also accelerating efforts to organize and publicize their approaches to transition finance. Against this backdrop, there are growing expectations for transition finance in Asia, including through initiatives such as AZEC[4] and the Asia GX Consortium[5]. On the other hand, there are challenges regarding whether the interpretation and operationalization of transition finance that has become established in Japan can be applied outside of Japan, and it is necessary to clarify how Japanese firms and financial institutions should implement transition finance for non-Japanese firms and projects. In fact, discussions on transition finance are being held at the LMA, and the ICMA has begun discussions on transition finance in emerging and developing countries. Therefore, it is necessary to revisit, frame and share Japan’s perspectives.

Based on discussions at the Japan Public-Private Working Group’s Report on Scaling “Inclusive” Transition Finance in the ASEAN Region [6], which was launched including the public and private sectors in response to these concerns, this report focuses on AZEC partner countries[7] in Asia, and presents how transition finance should be implemented from the perspective of accelerating the supply of financing to the transition of the real economy, and how Japan can contribute to the transition of the real economy in the Asian region through an all-Japan approach.

[4] Asian Zero Emissions Community (AZEC)
[5] “Announcement of the Establishment of Asia GX Consortium”
[6] Subworking Group on Transition Finance Promotion in Asia
[7] AZEC Partner Countries: Australia, Brunei, Cambodia, Indonesia, Japan, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam (alphabetical order)

Structure of this report

This report aims to re-define and reposition transition finance to realize a pragmatic transition in Asia.

First, it takes stock of global trends in decarbonization, outlines the way transition finance has been developed in Japan as a global leader, and presents various international definitions (Chapter 1).

Then, it summarizes the current state of decarbonization in Asia—specifically, the NDCs and long-term strategies of each country, industrial structure, energy mix, and the stage of capital market development—and demonstrates the importance of transition finance, with an emphasis on credibility, to expand the supply of financing from the overseas for the decarbonization in Asia (Chapter 2). Based on this importance, it outlines the multiple interpretations of the transition concept and the various challenges, including financial and non-financial aspects, in promoting transition finance (Chapter 3). It also discusses the need to reframe transition finance in a broader context, rather than assuming only labeled bond markets, in the context of scaling transition finance in the future (Chapter 4).

Finally, the report discusses the initiatives necessary to realize the approaches mentioned above. Specifically, it proposes that the Government of Japan, using intergovernmental initiatives such as AZEC, strengthen engagement with the partner governments in developing transition strategies and roadmaps, project pipeline development and progress management, and policy framework. Through these initiatives, Japan will make efforts to create an environment conducive to accountability in the global market for private financial institutions and corporates, and to ensure accountability to global investors and stakeholders (Chapter 5).

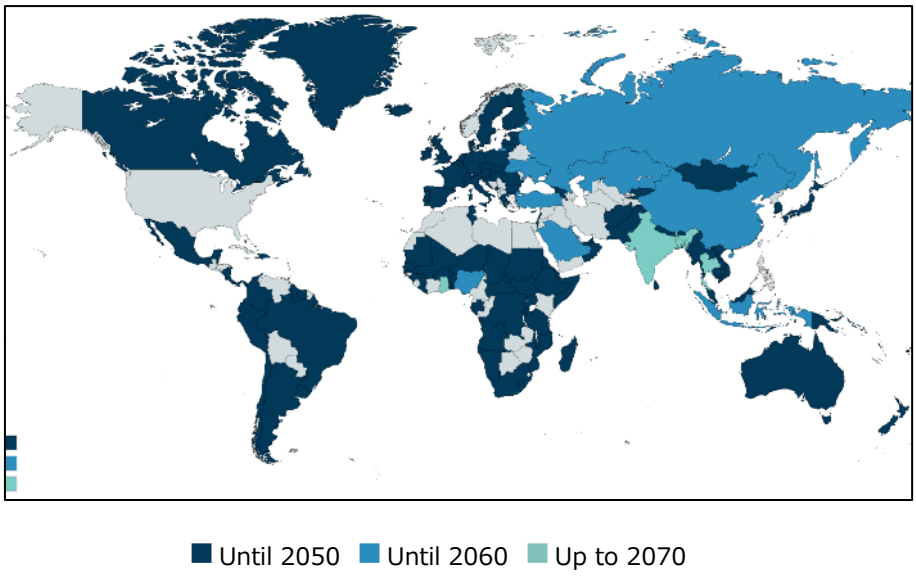
This report aims to establish an “Asian model” of transition finance for decarbonization in Asia, and to show the direction of policies, institutions, and practices for supporting the Asian transition through public-private partnerships.

[Chapter 1] Global Decarbonization Trends and Various Transition Finance Concepts

1.1 Global Decarbonization Trends

With the adoption of the Paris Agreement in 2015, the long-term global goal of keeping the increase in global average temperature well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C became the common goal for the COP signatories. As of February 2025, 146 countries and regions have declared carbon neutrality (CN) targets,[8] and CO2 emissions from these countries account for about 70% of global emissions.[9]

[Chart 1] Countries and Regions Announcing Time-Limited CN (February 2025)



Source: Compiled based on government websites, UNFCCC NDC Registry, Long term strategies, World Bank database, etc.

In Europe, following the Draghi Report in September 2024[10], there has been a strong focus on strengthening industrial competitiveness. The "Clean Industrial Deal"[11] announced by the European Commission in February 2025 emphasizes the dual pursuit of decarbonization and industrial competitiveness, while maintaining climate targets. In the United States, the Trump administration declared its withdrawal from the Paris Agreement immediately after taking office in January 2025, showing a negative stance on climate change measures at the government level. Nevertheless, within the U.S., large-scale investments in decarbonized power sources and the development of decarbonization-related products, especially by companies such as GAFAM[12], have continued, reflecting a growing trend of simultaneously addressing industrial competitiveness and climate change.

---

[8] the Ministry of Economy, Trade and Industry counts countries and regions that have declared carbon monoxide based on their long-term strategies submitted to the United Nations and their carbon monoxide declarations (as of February 13, 2025)

[9] Based on IEA (2024), Greenhouse Gas Emissions from Energy 2024 Edition, energy-related CO2 emissions are counted.

[10] The Draghi report on EU competitiveness (European Commission, September 2024)

[11] Clean Industrial Deal (European Commission, February 2025)

[12] Abbreviation for U.S. tech giants Google, Amazon, Facebook, Apple, and Microsoft.

Turning to the financial sector, since the adoption of the Paris Agreement in 2015, a series of initiatives have been launched under the leadership of then-Bank of England Governor Mark Carney, including the Task Force on Climate-related Financial Disclosures (TCFD) for corporate information disclosure, and the Network for Greening the Financial System (NGFS) for developing guidance and climate scenarios for financial authorities. The launch of the Glasgow Financial Alliance for Net Zero (GFANZ) at COP26 in 2021 further accelerated the trend of financial institutions taking the lead in encouraging industry and government to achieve the goals of the Paris Agreement. However, following Russia's invasion of Ukraine in 2022, there has been a heightened recognition of the importance of stable energy supply, and, coupled with global inflation, the financial sector has recently shifted from leading industry in decarbonization by setting high targets to supporting industry's decarbonization efforts in a manner compatible with economic viability.[13]

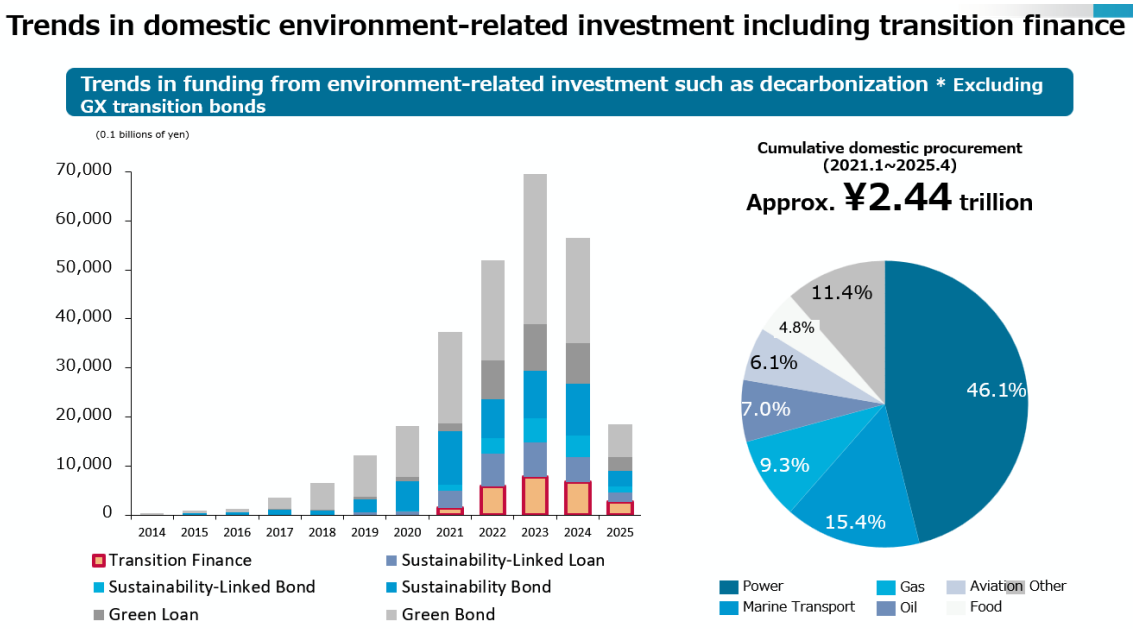
In this context, since 2022, Japan has adopted the concept of "Green Transformation (GX)," aiming to achieve the three goals of stable energy supply, economic growth, and decarbonization simultaneously. Even as the global landscape evolves dramatically at times, Japan has consistently maintained its position of promoting GX policies toward the goal of carbon neutrality by 2050. In 2023, Japan established has structured the "Pro-Growth Carbon Pricing Concept" through the GX Promotion Act and the GX Promotion Strategy, and has developed Sectoral Investment Strategies in 2023, issued the Japan Climate Transition Bonds from 2024, and launched the GX Acceleration Agency. In 2025, Japan also formulated the 7th Strategic Energy Plan and the GX2040 Vision, and revised the Plan for Global Warming Countermeasures including new reduction targets (NDCs) for fiscal years 2035 and 2040. Through these measures, Japan has linked climate change-related goals based on the Paris Agreement with concrete policies, and has consistently and integrally presented the government's medium- to long-term goals, plans, and specific policies.

[13] For example, GFANZ released a press release titled "Statement from GFANZ Leadership" on December 31, 2024. GFANZ effectively relaxed its membership requirements, saying, "The Glasgow Financial Alliance for Net Zero (GFANZ) going forward will allow any financial institution working to mobilize capital and lower the barriers to financing energy transition to participate." On January 2, 2025, the company released a press release titled "GFANZ Will Restructure and Shift Its Focus on Addressing Barriers to Mobilizing Capital." It said it would shift its focus to addressing investment in emerging economies, and it also announced cooperation with MDBs. In April 2025, NZBA announced a change of policy in a press release titled "Net-Zero Banking Alliance renewes mandate with increased focus on unlocking opportunities for financing real economy decarbonization." At the same time, NZBA revised its target setting guidelines for member banks. The 2024 version required the banks to align themselves with the 1.5°C target, but in the 2025 version, they returned to align themselves with the Paris Agreement target.

1.2 Various concepts of transition finance

In implementing GX policies, Japan has developed the transition finance market to improve the financing environment for high-emission companies that require significant investment. Specifically, in 2021, Japan formulated the "Basic Guidelines on Climate Transition Finance" (hereinafter, the "Basic Guidelines"[14]) as a practical guidance for practitioners, and has promoted the development of the transition finance environment in Japan through inter-ministerial and public-private collaboration, including the development of sector-specific technology roadmaps, follow-up guidance, and support for project development through model and subsidy projects.

[Chart 2] Transition finance in Japan

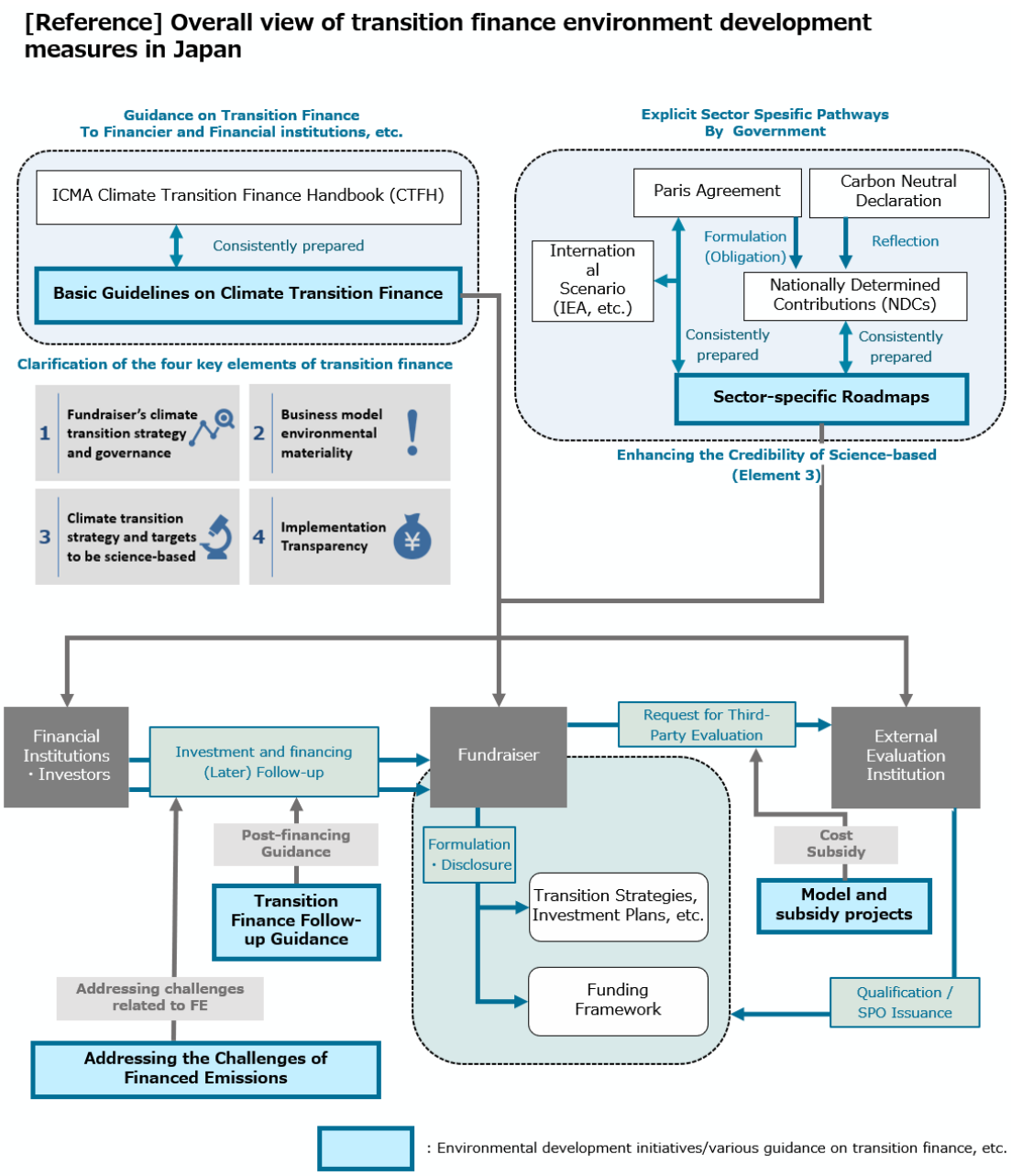


Note 1: Based on the Ministry of the Environment Green Finance Portal, company releases, and other information released by the Ministry of Economy, Trade and Industry as of April 2025
Note 2: Other industries include heavy industry, metals, automobiles, steel, chemicals, finance, and cement

These practices are fundamentally aligned with the ICMA's Climate Transition Finance Handbook (CTFH). Currently, in Japan, "transition finance" often refers to finance centered on financial products with a transition label.

[14] "Basic Guidelines on Climate Transition Finance 2025 edition" [in Japanese] (the Ministry of Economy, Trade and Industry, March 2025)

[Chart 3] Development of an environment for transition finance in Japan



Source: [2025] Basic Guidelines for Climate Transition Finance

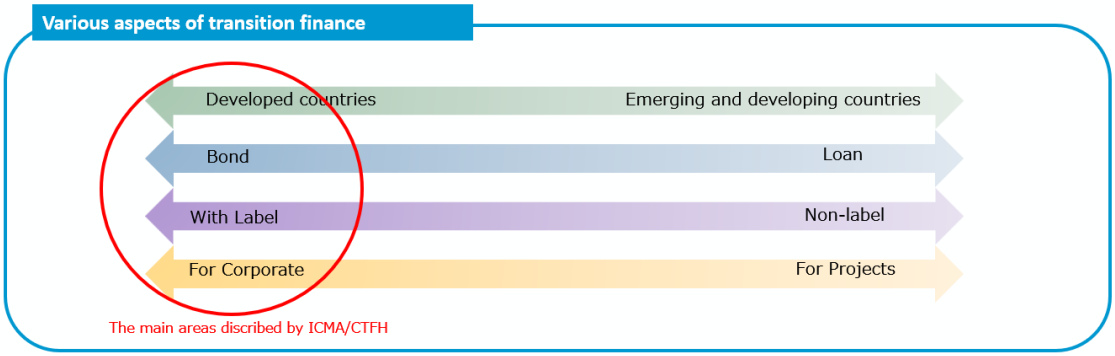
Outside of Japan, “transition finance” has been defined and framed in various ways. For example, the OECD (2022) describes it as “one tool within the broader sustainable finance toolbox to be deployed to make finance and the real economy consistent with the temperature goal of the Paris Agreement.”[15]The G20 Sustainable Finance Working Group (SFWG)[16] defines it as " financial services supporting whole-of-economy transitions towards lower and net-zero emissions and climate resilience in a way that is aligned with the goals of the Paris Agreement and the 2030 Agenda for sustainable development."[17] In addition, various financial institutions conduct financing under the name of “transition finance,” and regions/counties such as Asia, the UK, and the EU have also defined their own approaches to transition finance.

It is important to note that the entities and methods envisaged for transition finance differ depending on the context. As shown in Chart 4, when the term “transition finance” is used as a general term, the methods for ensuring its credibility may differ depending on the region (developed, emerging, or developing countries), the financing method (bonds, loans, labeled or non-labeled), the use of funds (general corporate purpose or project-specific), and the financing entity (operating company or special purpose company (SPC)). In Japan, transition finance with the ICMA CTFH labelling is designed for capital market transactions, and is mainly used by large corporates in developed countries participating in capital markets.[18] As will be discussed later (see Chart 10: Financing Means and Breakdown in ASEAN Countries), indirect financing (bank lending) is mainstream in Asia, and it is often the case that financing in which foreign financial institutions participate is project finance. Therefore, applying the ICMA CTFH principles word-by-word may not fit the on-the-ground situation in Asia. Indeed, the ICMA considers transition finance as “encompassing a wide variety of concepts,” and it is necessary to consider transition finance within a broader concept[19], especially when considering “how to accelerate financing for the transition of the entire real economy,” including utilization in the regions where the capital market is relatively small and how we finance for SMEs. Based on this awareness, this report considers transition finance broader than the CTFH scope and the Basic Guidelines, and proceeds with the discussion by broadly including (1) entities and initiatives that are difficult to finance with existing climate-related financing instruments, and (2) financing that meets the reliability/credibility criteria through evaluation based on long-term plans and strategies.[20]

---

15 OECD Guidance on Transition Finance (OECD, March 2022)
16 G20 Sustainable Finance Working Group (G20 Website)
17 2024 G20 Sustainable Finance Report (Group of 20 Sustainable Finance Working Group, September 2024)
18 ICMA and other forums are also discussing expanding the scope of transition finance to emerging countries and SMEs in this regard.
19 "Transition Finance in the Debt Capital Market"(ICMA, February 2024) “Transition finance as a concept covers different objectives and ambitions”
20 Therefore, this report is not confined to the world of labeled finance and ESG finance. As mentioned below, it is of course important that the ESG finance market expand further, but the report focuses more on how to provide funds to those who do not belong to the ESG finance market with reliability.

[Chart 4] Various aspects of transition finance



[Chapter 2] The current situation in Asia and the role of transition finance

In Chapter 1 discussed the need to redifine transition finance from a broad perspective. Based on this premise, this chapter first summarizes the current situation in Asia in terms of energy and decarbonization, and then shows what role transition finance can play.

This section covers Asian countries, namely AZEC partner countries such as Indonesia, Vietnam, Thailand, Malaysia, and the Philippines, whose emissions are particularly large or are expected to increase in the medium term.

[Chart 5] Current Status of Major Asian Countries (Emissions, NDCs, etc.)

#		Indonesia	Vietnam	Thailand	Malaysia	GHG emissions
GHG Emissions		1.328GtCO2-eq (2019)	0.726GtCO2-eq (2020)	0.250GtCO2 (2022)	0.241GtCo2 (2022)	0.204GtCO2-eq (2020)
Power Configuration (2021)		Coal 61%	Coal 45%	Coal 20%	Coal 48%	Coal 58%
		Gas 17%	Gas 10%	Gas 62%	Gas 32%	Gas 18%
		Renewable energy 19%	Renewable energy 45%	Renewable energy 18%	Renewable energy 19%	Renewable energy 22%
2030 NDC	Unconditional	31.89% reduction from BAU	15.8% reduction from BAU	30% reduction from BAU	45% reduction in unit consumption (2005 level)	2.71% reduction from BAU
	Conditional	43.20% reduction compared to BAU	43.5% reduction compared to BAU	40% reduction compared to BAU	Identical	75.0% reduction compared to BAU
CN target		2060	2050	CO2:2050 GHG: 2065	2050	- (None)
Inward Direct Investment (2022)		$22 billion	$17.9 billion	$9.9 billion	$17.1 billion	$9.2 billion
Required Investment (NDC)		Approx. $281 billion	Approx. $21.7 billion to Approx. $86.8 billion	—	—	Approx. $72 billion
Required investment (2050 etc.)		—	—	—	Approx. 1.2 trillion ringgit	Approx. 20 trillion peso (REF Scenario)

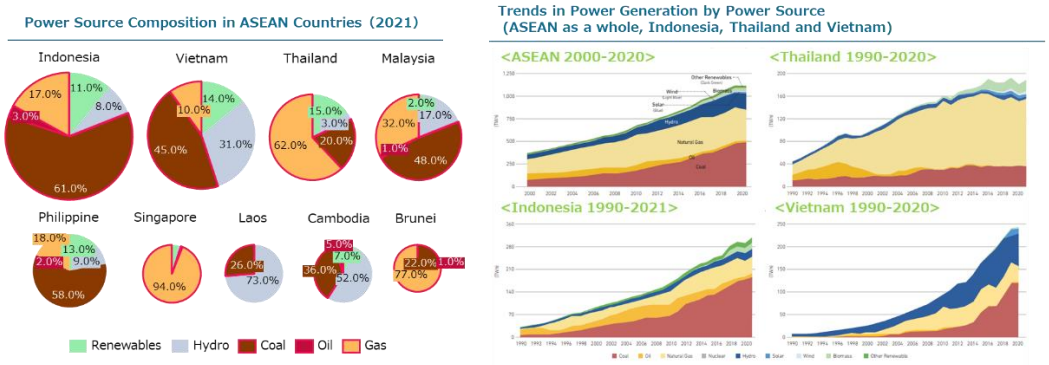
Source: Compiled from various public information sources

2.1 Current Status of Asia

1) Energy Demand

In many Asian countries, population growth and economic growth continue and expected to last for the decades to come[21, 22]. This has led to increased energy demand. For example, electricity generation in Indonesia and Vietnam has expanded rapidly over the past decades.

Figure 6: Breakdown and Trends in Power Generation by Power Source in ASEAN Countries



Source: the Ministry of Economy, Trade and Industry Energy Situation in Southeast Asia

The increased electricity demand in Asian countries has been met mainly by coal-fired power[23] (except for Thailand, which is experiencing population decline and relies mainly on gas). As a matter of fact, there are a number of relatively new coal-fired power plants in the region. While these countries have announced or plan. to halt new coal plant construction and phase out existing plants, the target for complete abolition is between the 2040s and 2050s. Since coal-fired power supports increased energy demand, short-term decommissioning is challenging.

---

[21] According to the UNDP projections, the population of many countries will increase by about 10~20% by 2050, except for Thailand, which is on the decline. According to the IMF projections, GDP per capita is expected to increase from 19% (Thailand) to 41%(Philippines and Vietnam) between 2022 and 2029.

[22] According to the IEA's World Energy Outlook 2024, in Southeast Asia, population growth and GDP growth (approximately 3 times) toward 2050 are assumed, and an increase in energy demand is included in the Stated Policies Scenario.

[23] With the exception of Thailand, which is mainly gas-fired power generation and has seen a slow increase in power generation, the increase in power generation in the past has been driven by an increase in coal-fired power generation. Looking at the power mix, in Indonesia, demand for electricity has increased steadily over the past 30 years, and coal-fired power generation has increased. In Vietnam, hydropower generation has also increased, but coal-fired power generation has increased rapidly in the last decade. In Thailand, on the other hand, gas-fired power generation and renewable energy have increased, while coal-fired power generation has remained flat.

[Chart 7] Coal-fired power capacity and average age in major ASEAN countries (2021 years)

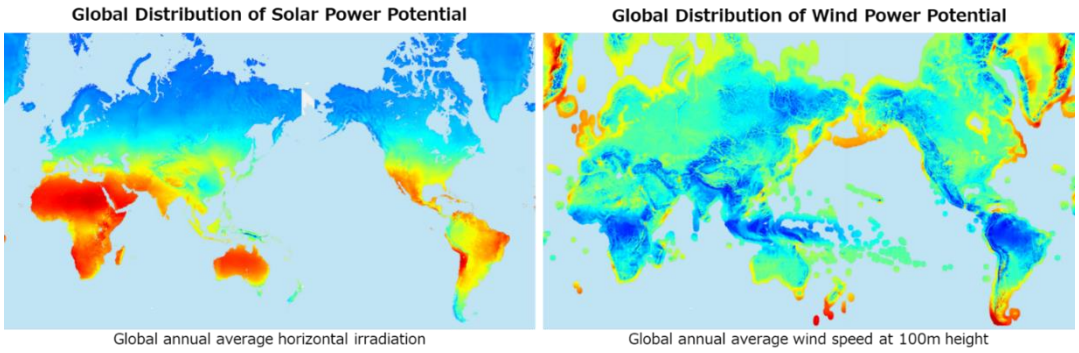
Country	Capacity	Average years
Indonesia	35GW	13
Vietnam	23GW	8
Malaysia	14GW	13
Philippines	11GW	13
[Reference] Japan	55GW	25
[Reference] Europe	184GW	34
[Reference] North America	244GW	41

Source: Coal in Net zero Transitions (IEA, April 2022)

Even with the introduction of renewable energy to meet the electricity demand, it is difficult to completely replace existing thermal power plants in the short term. Renewable energy resources are unevenly distributed, and ASEAN countries are not always suitable places for renewable energy generation[24]. Given the increase in electricity demand and the varying status of grid development in these countries, it is unrealistic to meet this growing demand solely by introducing large amounts of renewable energy, providing stable energy supply for the purpose of "just transition" (see Column 1). Gas-fired power is expected to play an important role as a transition technology that is currently available, and as a means of securing balancing capacity for maximizing renewable energy integration (see Column 4 for details and reliability assurance).

Although the above is just one aspect of the current situation in Asia, considering the circumstances of each country, it is unpractical for these countries to achieve decarbonization in a single step. Therefore, long-term decarbonization pathways and plans must be developed according to the characteristics of each region. These include NDCs and power development plans in each country, but there are still issues to be addressed (see below).

[Chart 8] Regional ubiquity of renewable energy reserves



Source) "Global Atlas" IRENA

[24] "The feasibility of introducing solar and wind power in ASEAN countries" (Japan Institute of Energy Economics, July 2025) assesses the feasibility of introducing solar and wind power generation, taking into account barriers to introduction.

2) Advancement of Industrial Structure

Part of the increase in energy demand mentioned above is due to the development of heavy industry in line with economic growth. Asia, as the "factory of the world," has a higher share of manufacturing than other regions. The industrial sector currently accounts for 28% of ASEAN's energy-related CO2 emissions. Energy consumption in energy-intensive industries accounts for 60% of the total industrial sector. According to the International Energy Agency (IEA) [25], ASEAN's industrial value added is expected to grow at an average annual pace of 3.5% until 2050, exceeding the global average of 2.2%.

In particular, all industrial subsectors in ASEAN are expected to grow faster than the global average. For example, steel production, mainly in Indonesia and Vietnam, is expected to almost triple by 2050, and the chemical industry is expected to almost double by 2050. These industries require a lot of heat and consume a lot of energy in the manufacturing processes, making it particularly difficult to reduce GHG emissions. If the current technology remains the same, they will be the main cause of the increase in GHG emissions in Asia. In addition, the demand for electricity is expected to increase globally with the advancement of DX (Digital Transformation) and GX, such as data centers and semiconductor factories, and it is also expected to increase sharply in Asia.

At the same time, globally, there is a movement to make sustainability disclosure mandatory following the establishment of the ISSB standard, as well as a movement to disclose Scope 3 emissions and set climate change-related targets. For example, Apple in the United States has set its target to "become carbon neutral across its entire business, manufacturing supply chain, and product life cycle by 2030" and has been calling on its supply chain companies to decarbonize, aiming for 100% renewable energy by 2030[26]. According to a survey of Japanese companies, there are an increasing number of cases in which companies are required to measure and report GHG emissions in their supply chains. It can be said that Asia, which plays a major role in the global manufacturing supply chain, may be starting to face demands regarding decarbonization from the perspectives of strengthening its international competitiveness[27].

25 Southeast Asia Energy Outlook 2024 (IEA, October 2024)
26 "Apple requires global supply chains to decarbonize by 2030"(Apple, October 2022)
27 "2023 White Paper on Small and Medium Enterprises"(SME Agency, June 2023)

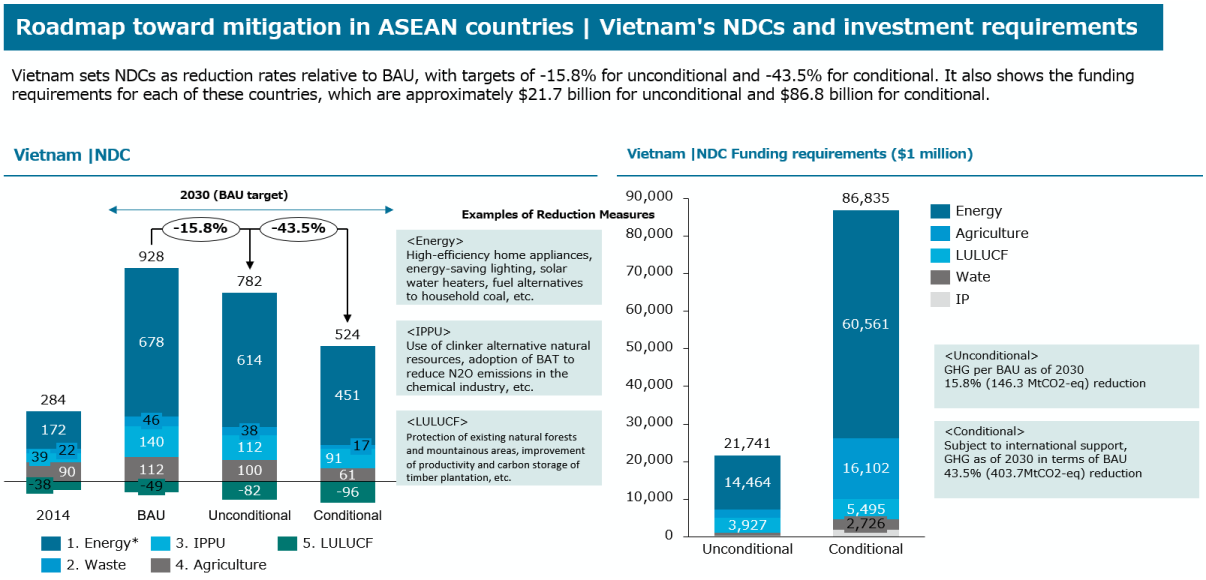
2.2 Measures to expand demand and supply of funds to realize the goals of the Paris Agreement

1) Scale of Demand for Funds by Country

Given these circumstances, five countries mentioned above have made national commitments to climate change countermeasures, and all have formulated energy development plans based on the NDC under the Paris Agreement and the net zero target. Since population growth and economic growth are expected to continue in these countries, their BAU emissions will increase significantly if decarbonization measures are not taken. Therefore, while advanced countries like Japan and EU set NDCs as emission reduction rates from a base year, many Asian countries with continuing economic growth set NDCs as reduction rates relative to BAU (so overall emissions are often higher in 2030 than in the NDC base year).

For implementing such NDCs, these countries have a large demand for finance. For example, Indonesia's Third Biennial Update Report (BUR3) published in 2021 reported that it requires approximately 281.2 billion dollars in total, and approximately 245.99 billion dollars in the energy sector, including renewable energy generation and high-efficiency coal-fired power generation. Vietnam's NDC, updated in 2022, indicated a need for either 21.7 billion or 86.8 billion dollars, depending on whether international support is available (unconditional: 15.8% reduction from BAU, conditional: 43.5% reduction from BAU[28].

[Chart 9] Vietnam's NDC and Funding Demand



Source: SOCIALIST REPUBLIC OF VIETNAM (2022/10) Adapted from NATIONAL DETERMINED CONTRIBUTION (NDC) (UPDATED IN 2022)

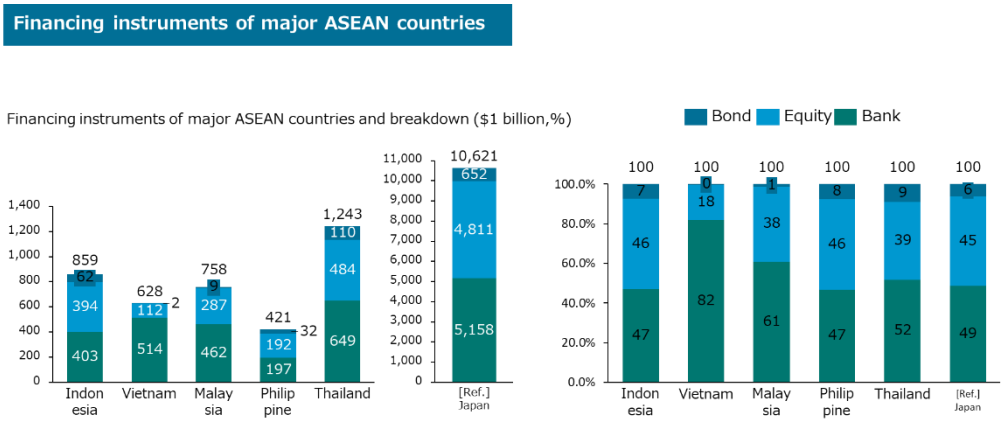
[28] "Updated Nationally Determined Contribution (NDC) of Vietnam"(Government of Vietnam, 2022)

2) Financier's perspective

There is no question that a large amount of funding is required for the transition, and it is necessary to provide funds from both the public and private sectors. However, since many Asian countries are in the phase of graduating from ODA and it is difficult to expect a significant increase in the supply of public funds, attracting private funds (sometimes by leveraging public funds in a catalytic manner) poses an significant challenge.

Moreover, for many Asian countries with small domestic capital markets, it is important to have access to overseas private capital to fill the funding gap for transition-related efforts (of course, as a medium- to long-term initiative, local capital markets should be developed). At the same time, however, financial institutions and investors outside the region increasingly have their own climate change-related goals and policies, and when they make investments and loans, they are increasingly required to be accountable to their global stakeholders to determine whether or not these goals and policies go against these goals or what their impact is.

[Figure 10] Financing Instruments and Breakdown of ASEAN Countries



Source: Corporate Bond Markets in Asia (OECD, 2024)

The table below summarizes project financing performance and climate change-related targets of major Japanese and global financial institutions, which are major private sector financing providers. From this table, it is obvious that the screening criteria for decarbonization by financial institutions are becoming stricter. For example, many financial institutions set reduction targets for financed emissions (Scope 3 Category 15), which is the attribution of emissions of their borrowers, and some also set reduction targets for exposure to high-emission sectors, including the fossil fuel sectors such as oil and gas. For this reason, Asian corporates are increasingly required to be accountable for their climate change strategies, especially if they with to attract investments and loans from financial institutions outside the region (such as responding to and explaining concerns about stranded assets and carbon lock-in). Ensuring such accountability and credibility is also an issue for Japanese financial institutions when they participate in the Asian transition.

[Figure 11] Project Finance Performance and Investment and Loan Policies of Major Banks in Japan and Other Countries

Name of financial institution		Country	Project Finance Performance *		Oil and Gas Targets, Policies, and Exclusion Rules * *
Global MLA Ranking (2024) *			M$	Number of Origins	
1	MUFG	Japan	26,171	196	Target to reduce financial carbon dioxide emissions in the oil and gas sector by 15~28% from 2019 levels by 2030.
2	SMBC	Japan	21,676	158	In addition to the FE target by 2030, an environmental and social risk assessment will be carried out when considering support for projects in which funds are directed to oil and gas PL businesses.
3	Santander Corp & Invest Bkg	Spain	16,420	119	New upstream oil and gas customers (excluding renewable energy conversion) and PJs related to oil extraction in the Arctic are designated as "Prohibited Activities."
4	Societe Generale	France	16,165	147	Targets include reducing oil and gas exposure by 80% from 2019 levels by 2030. Companies with revenues exceeding 30% from Arctic oil and gas, Oil Sandoz, etc., are subject to exclusion.
5	Credit Agricole CIB	France	14,416	140	75% reduction in absolute emissions across S1 to S3 in the oil and gas sector by 2030. Oil and gas extraction PJs are subject to exclusion.
6	Natixis	France	13,862	109	Inclusion includes financing for shale oil, oil Sandoz and heavy crude oil extraction and production facilities.
7	BNP Paribas SA	France	13,108	114	Reduced financial exposure to gas extraction and production by more than 30% from 2022 levels by 2030. Stops financing new oil and gas fields.
8	Mizuho	Japan	11,821	105	Reduce upstream oil and gas FEs by 12~29% from 2019 levels by 2030.
9	ING	Netherlands	11,415	104	Reduce upstream oil and gas exposures by 19% from 2019 levels by 2030. Also include oil Sandoz, shale gas, etc., as "restricted activities."
10	BBVA	Spain	11,294	94	Companies with more than 10% oil and gas exploration, transportation, and production activities in the Arctic and Oil Sandoz are eligible for exclusion.
Other Financial Institutions					
—	Morgan Stanley	United States	—	—	Reduce energy end-use unit emissions by 10~19% from 2019 levels and operations by 12~20% by 2030. Exclude new Arctic oil and gas development.
—	JP Morgan Chase	United States	—	—	Reduce energy end-use unit emissions by 36% from 2019 levels and oil and gas operations by 45% by 2030.
—	ANZ	Australia	—	—	Reduce FE in the oil and gas sector by 26% from 2020 levels by 2030. Companies that earn more than 10% from unconventional oil and gas production are excluded.
—	DBS	Singapore	—	—	Reduce FE of the oil and gas sector, including upstream and downstream, and integrated companies by 28% from 2021 levels by 2030.

Content with "*" and leftmost rankings are from "Project Finance", MUFG Bank's website (last reference date: April 10, 2025). Other rankings are based on information released by each company and the Agency for Natural Resources and Energy (June 2024) "Direction of resource development in light of the international situation concerning fossil fuels."
**: based on publicly available information by each company, regarding oil/gas-related targets and directions, exclusion criteria, etc.

2.3 Transition Finance Initiatives in Asia

Clearly, interest in “transition finance” is growing in Asia, and some progress has been made in transition finance. The ASEAN Transition Finance Guidance (ATFG) developed by the ASEAN Capital Markets Forum (ACMF) is noteworthy (published in October 2023, Version 2 released in October 2024)[29]. Based on the common aspects of existing international guidance on transition finance, it aims to create a framework that is suitable for ASEAN firms to utilize. It classifies transition finance at the asset and firm levels. For transition finance at the asset level, it specifies the provision of funds to assets and activities in accordance with a taxonomy or roadmap. For transition finance at the firm level, it specifies the provision of funds to firms that are already aligned or in alignment with the 1.5°C trajectory, are already aligned or in alignment with the Well Below 2°C trajectory, or aim to align within the next 2 years.

Individual companies and financial institutions are also making various efforts[30]. Since 2020, financial institutions such as DBS (Singapore), UOB (Singapore), and Maybank (Malaysia) have developed frameworks for transition finance, which sets out criteria for determining what constitutes transition financing. Based on this framework, Toyota Financial Services Singapore (Singapore, Automobiles) and Bangchak (Thailand, energy company) have announced their transition finance transactions. In July 2024, Tenaga National, Malaysia’s largest state-owned power company, announced its transition finance framework for net zero by 2050. This is the first such case among ASEAN power companies, and it is noteworthy that eligible projects are classified as green, transition, or social, and that gas-fired power generation, for example, is classified as transition depending on its efficiency.

While ICMA’s CTFH is often referred to as a relevant international standard in these developments, it is not necessarily required to be consistent with the CTFH in the above-mentioned efforts, especially in relation to loans (not bonds). This report redefines transition finance in a way that includes various initiatives in the Asian region as mentioned above.

---

[29] “ASEAN Transition Finance Guidance” (ACMF, October 2023), "ASEAN TRANSITION FINANCE GUIDANCE VERSION 2"(ACMF, October 2024)

[30] "Sustainable & Transition Finance Framework & Taxonomy"(DBS, March 2022), Transition Finance Framework (Maybank, December 2023), Toyota Financial Services Singapore signs maiden transition finance facility with DBS Bank to support its carbon neutrality efforts(DBS, September 2021), "UOB extends Bangchak group THB 6.5 billion loan for Thailand's first SAF plant"(Bankchak, December 2024), TRANSITION FINANCE FRAMEWORK (Tenaga Nasional, July 2024), etc.

Column 1: Just Transition

The concept of “just transition” was first proposed by the International Trade Union Confederation (ITUC) at COP15 in 2009, and was included in the preamble of the Paris Agreement adopted at COP21 in 2015, stating that “the just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities are essential.” In 2016, the International Labor Organization (ILO) published the “Guidelines for a just transition towards environmentally sustainable economies and societies for all”[31], initially focusing on labor transition.

Decarbonization involves a shift in the industrial structure from a fossil-fuel-centered economy since the Industrial Revolution, and there are many impacts beyond labor transition. The World Bank’s 2024 “Just Transition Taxonomy”[32] report included themes such as vulnerable groups and local communities in addition to labor. The “Facility-level Just Transition Guidelines for Banks”[33] prepared by Climate Finance Asia in 2025 is a set of guidelines for banks and borrowers to implement a just transition following the phase-out of coal-fired power plants, and it also covers themes such as energy security and energy poverty.

While just transition has its origins in the discussion of labor transition, it is gradually spreading to areas beyond labor. To decarbonize society as a whole, in addition to labor transition, energy security and energy access are also issues must be considered. This recognition is embedded in the GX approach of achieving decarbonization, economic growth, and energy security simultaneously. It is difficult for a single entity or company to resolve these issues alone, and transition strategies at the local community and national level are important. Therefore, from the perspective of just transition, it is necessary to consider the involvement of the national government, especially in holistic policy framework.

---

[31] "Guidelines for a just transition towards environmentally sustainable economies and societies for all"(ILO, February 2016)
[32] Just Transition Taxonomy 2024 (World Bank, June 2024)
[33] "Facility-level Just Transition Guidelines for Banks"(Climate Finance Asia, April 2025)

[Chapter 3] Diversity and Challenges of Transition Finance

In Chapter 2, the necessity of transition finance in Asia was discussed. The term “transition finance” is a broad concept, and there may be differences in the technologies and timeframes assumed by different parties involved in this debate. In addition, when actually being implemented as a project, different challenges are faced depending on the target technologies and projects. Furthermore, there are various cases of financing strategies for transition finance. In this chapter, we reconfirm the diversity of the targets and financing methods of transition finance, and summarize the issues of each.

3.1 Diversity of Transition Technologies

First, it should be noted that the timeframes and challenges assumed differ depending on the technologies considered as transition technologies. Among those considered as transition technologies, for technologies and initiatives that have already been widely commercialized at present—such as energy conservation, grid enhancement, and fossil fuel-related technologies (e.g., gas-fired power generation intended as a switch from coal)—the business risks and returns are relatively predictable, as there are financial track record to date. On the other hand, new technologies and markets, such as hydrogen/ammonia, CCS, and floating offshore wind power, are currently in the research and development stage, and there are technological risks. In addition, the feasibility of such technologies depends largely on the institutional design and legal development of the entire project implementation country, including how to absorb additional costs, policy support to secure business viability, and the development of new infrastructure. Therefore, in the following, we classify the issues into existing technologies and new technologies.

3.1. 1 Diversity of Transition Technologies: Existing Technologies

In promoting “transition finance” in Asia, while new technologies currently in the development stage are included in the medium- to long-term, it is realistic to focus on existing technology projects with a proven track record for projects that are currently progressing. However, projects that utilize existing technologies and are not classified as green (ie. non-pure renewable energy projects) may raise concerns about carbon lock-in and greenwashing, and the financiers may be required to be accountable by various stakeholders.

For example, projects currently progressing in Asia include the development and strengthening of transmission networks and pumped storage power plants or storage batteries to expand the introduction of renewable energy, the phase-out of coal power plants, development of gas-firing related facilities, and conversion from fossil fuel to lower/zero-carbon alternatives. However, to proceed with these projects, in addition to the business viability, environmental accountability may be required regarding the alignment with the decarbonization strategy. In the case of transmission networks, for example, even if they contribute to the expansion of renewable energy, they may also be used for the transmission of electricity derived from fossil fuels, so the reduction timeline and the share of fossil fuel-derived electricity may become a point of discussion. In addition, even in the case of fuel conversion such as replacing diesel with renewable energy, there are still issues such as the use of diesel when renewable energy is not in operation and the use of gas as a backup power source. Although these projects are genuine efforts to improve the current situation and are unquestionably necessary for the transition of society-as-a-whole, they may not be

convincing to some stakeholders (as they are not regarded as pure-green) and are difficult to promote even if there are business cases.

3.1. 2 Diversity of Transition Technologies: New Technologies

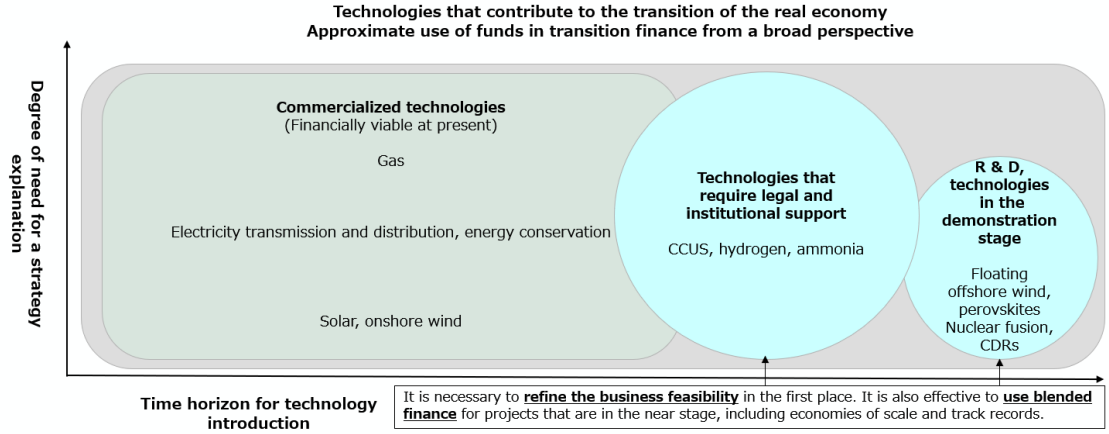
For transition finance targeting new technologies such as hydrogen, ammonia, and CCS, the primary challenge is securing business viability, which become a hurdle that goes beyond reliability. The provision of finance to projects that have not secured business viability, whether they are for transition or not, cannot be a sustainable flow of funds from a risk/return perspective (except philanthropic capital).

This is a common issue worldwide, but in developed countries, policy framework is relatively advanced. For example, under the “Pro-Growth Carbon Pricing Concept,” Japan is developing an emissions trading system, implementing a support system that focuses on price differentials based on the Hydrogen Society Promotion Act, and an advanced CCS support project, promoting individual measures such as feed-in tariffs (FIT), feed-in premiums (FIP), and the Long-Term Decarbonized Capacity Auction. On the other hand, in emerging and developing countries, the direction of policy measures by the government is not always clear, and the risks to future business viability and the feasibility of initiatives are relatively high. Therefore, even if the direction of cooperation is agreed at MOUs, there are some cases in which financing is not feasible (i.e., not bankable) at the stage of securing business viability. In such cases, the business viability itself is the issue rather than the “finance ability”, and technological development and national policy framework need to be discussed first from the viewpoint of enhancing business viability. In this report, we focus mainly on how to accelerate the provision of financing as “transition finance” for projects that can achieve business viability, and discuss separately from the issue of achieving business viability in the first place (however, it should be noted that the feasibility of a project is judged on a case-by-case basis, because the use of blended finance (see Column 2) is also effective for projects that are marginally bankable, including economies of scale and track records, and because it is possible for investors and financial institutions with different risk profiles to provide finance to syndicate risks.).

[Figure 12] Transition Finance and Diversity of Transition Technologies

Diversity of transition finance and transition technologies

When transition finance is viewed as financing the transition of the real economy, there is a gradient of technologies that can contribute.
1. From R & D, to technologies that require institutional support, to technologies that have already been commercialized, there is a gradient.
2. From technologies that are in the green stage at the asset level to technologies that require a strategy explanation, such as avoiding carbon lock-in.



Subject		Financial Viability	Non-Financial Viability
New energy / New technology	Hydrogen, ammonia, CCS, etc.	△: Demand risk, price risk, technology risk, etc. → The government needs to develop systems such as price difference support and carbon pricing.	△: It is necessary to explain that co-firing is not carbon lock-in.
	offshore wind, perovskites, etc.		○
	Conversion of the manufacturing process itself	△: Technology development stage	○
Existing technology	Fossil fuels (Fuel-containing conversion)	○: Currently, there are projects on a commercial basis	△In particular, it is necessary to explain issues such as consistency with 2050CN and carbon lock-in.
	Transmission network	△: In the case of a large-scale project across regions and countries, is it necessary to examine the system development and the mechanism of recovery by electricity charges?	○: However, if fossil fuel-derived power sources are also used, it is necessary to sort them out.
	Energy conservation	○: At present, there are projects on a commercial basis	○: Regarding new investment in energy-saving equipment, there is also a view on the amount of contribution to reduction (increase in FE)
	Renewable energy	○: It is easy to attract investors, but the return may be small.	○

*It is important to note that this is an example of the current thinking and will change depending on future technological developments and supply chain developments.

Column 2: Expansion of Blended Finance

To improve the financial risk/return of a project, financial enginnerings are also important, based on a broader policy framework in the host country. Blended finance is attracting attention in the field of GX.

Blended finance is a method of providing finance by combining public and private funds. The sources of funds include multilateral development banks (MDBs) such as the International Finance Corporation (IFC) and ADB, and private financial institutions such as banks and insurance companies, as well as funds including government agencies and philanthropic organizations in each country. In general, for the risks that private financial institutions cannot underwrite, providers of concessional funds, mainly public funds, provide financial solutions through subsidies, equity investments, debt guarantees, and the purchase of securities and bonds. If the financial risk/return balance improves, the supply of funds from private financial institutions can accelerate as a consequence.

In the fields of new technologies and GX described in 3.1.2, the importance of blended finance has been advocated because, while large-scale and long-term funding is necessary, there are cases in which private finance alone cannot underwrite the risks due to high uncertainties in technology and demand. In Europe and the United States, GX investment promotion measures that combine financial support such as subsidies, equity investments, and debt guarantees with financial instruments have been introduced to overcome uncertainties that have not been addressed before. In Japan, the GX Acceleration Agency has been established as an organization to take the risks away from private financial institutions through debt guarantees and equity investments in addition to subsidies provided by the government.

When providing concessional funds, it is important to consider how to crowd-in private finance, leverage them, and maximize an impact. There are two possible roles of concessional funds: (1) to immediately mobilize a large amount of funds by making it bankable with public funds when it is marginally bankable, and (2) to mobilize funds for projects that may be less bankable than (1) in the future by creating a track record. The role of blended finance is also attracting attention in the Asian transition. Given the limited availability of concessional funds and the amount of funds, it is important to show an improvement in returns for case (1) and to mobilize other private financial funds by accumulating a track record for case (2). In other words, in promoting transition finance in the form of blended finance, it is critically important to crowd-in private finance by supplementing the predictability of the transition, including the development of policy framework in host countries. In this sense, in expanding blended finance, it is important to present a transition story that includes the development of institutional policy in addition to concessional finance.

3.2 Diversity of Transition Finance

In addition to the diversity technologies in the context of transition finance described in Section 3.1, a characteristic of transition finance is the diversity of the specific financing strategies. The diversity of financing strategies is described below.

3.2.1 Transition Finance as a Financial Instrument

First, on the diversity of transition finance as a financial instrument. Among the green finance instruments, financial instruments which specify the use of funds, such as green bonds and green loans, have been developed as a method for determining eligibility at the asset and activity level. On the other hand, in the case of transition finance where the issuer seeks to raise funds for projects aimed at implementing a net-zero strategy consistent with the goals of the Paris Agreement, it is necessary to assess the credibility of the transition strategy. As a result, there is a mix of approaches: some, like conventional green bonds, focus on the evaluation and analysis of assets, while other cases where greater emphasis on the evaluation and analysis of the company's overall strategy. In this regard, the ICMA's CTFH and the Basic Guidelines do not specifically distinguish the factors to be met for either asset financing or entity-level finance financing. Indeed, the ASEAN Transition Finance Guidance (ATFG) distinguishes between the two in its guidance. In practice, there are transition labels, green labels, and sustainability-linked labels. Because of this complexity, it is difficult for investors to determine transition eligibility on their own, and certification by a third-party organization is often required.

Each region has its own characteristics as to how transition finance is funded. In Europe, funding is mainly conducted with sustainability-linked labels, and in Japan and China, funding is often conducted with transition labels that designate how the funds are used.

It should be noted that in Asia, ESG bond markets and labeled capital markets are still developing. The ESG bond market in ASEAN accounts for about 5% of the total corporate bond market, but considering that it accounts for about 20% of the total corporate bond market in Europe and Japan, it is still a developing market.[34] In addition, as mentioned above (see Chart 10: Financing Instruments and Breakdown in ASEAN Countries), equity finance and loans from banks account for far more than bond issuances. Of course, even though the ESG bond market is currently on an expansion trend, there is a risk that defining only labeled financial instruments as transition finance will not fully meet the demand for finance, given that it will take time for capital markets to develop.

3.2.2 Adopting Transition Finance by Asian Financial Institutions

As described in the previous chapter, the provision of funds as "transition finance" in Asia is not limited to labeled financial instruments. In addition to the approach in which corporates formulate transition plans and disclose them to the outside stakeholders to raise funds, there are leading cases where financial institutions develop framework articulating what they consider to be transition finance, and based on this, they categorize certain loans to activities and companies that meet these criteria as "transition loans." This trend has recently been observed not only in Asian

[34] AsianBondsOnline、"2025 Outlook Sustainable bond supply to hold steady amid divergent regional trends"（MOODY's）

financial institutions but also by European/American financial institutions. These initiatives do not necessarily require a firm's transition plan but instead use a variety of other methods to determine transition eligibility.

For example, there are various approaches to determining whether a firm is compliant with the transition pathway: (1) if it is not currently aligned with the 1.5°C or 2°C target but will commit within a few years (e.g., ATFG), (2) if it significantly exceeds the industry standard or improves the unit intensity (e.g., DBS), and (3) if it is aligned with each country's net zero target (e.g., UOB), even if direct alignment with the Paris Agreement is unclear. In addition to the approach of (1) being consistent with a roadmap or taxonomy (e.g., ATFG), there are also other approaches to determining the eligibility of assets/activities, such as (2) meeting the activities specified by the financial institution (e.g., UOB, DBS, Maybank), and (3) having a higher degree of decarbonization than the industry average (e.g., DBS).

When considering the scope of transition finance, it is important to note that there are various approaches to transition finance that differ from those of ICMA-based financial instruments.

[Chapter 4] A Renewed Approach to Scale Transition Finance in Asia

Chapter 2 detailed the situation in Asia and highlighted the necessity of reframing transition finance from the perspective of financing the transition of the real economy. Chapter 3 summarized the diversity of transition finance technologies and financing strategies. .This chapter reexamines how transition finance should be reframed from the perspective of financing the transition of the real economy in Asia. Furthermore, it discusses the importance of policy framework in host countries to improve the credibility of initiatives, financial risk/return, and other investment-related issues.

4.1 Phase of Transition Finance in Asia

As discussed in Chapter 2, there is a large demand for finance in Asia, and it is necessary to mobilize all available funds, including outside-the-region funds, in order to achieve the NDCs and long-term goals. As outlined in Chapters 2 and 3, there are already various moves to promote “transition finance” among corporates, banks, and investors, and various tools are being used for determining transition eligibility.

In light of these circumstances, it is crucially important to provide funds to “activities that contribute to the transition of the entire economy” in order to achieve the Paris Agreement, not only by limiting the financing by strictly applying the ICMA CTFH, but also by providing finance to improve the current situation and contribute to the realization of the NDCs and long-term goals. Of course, it would be ideal for high-emission companies in Asia to have goals, strategies, and governance systems that are consistent with the CTFH and the Basic Guidelines, but it is not realistic for all corporates to meet these conditions in the short term. From the perspective of accelerating the provision of funds, measures to ensure the credibility of the transition that do not depend solely on the strategies of companies engaged in transition efforts should also become mainstream tool, as is already being adopted by ASEAN financial institutions.

On the other hand, there are two concerns regarding an overly broad range of activities as “transition finance”. One is “greenwashing.” Since transition efforts are often medium- to long-term projects, there is a risk that, over time, activities may not be conducted over time, contrary to the intentions of financial institutions and investors who agree with the objective of a project being consistent with the Paris Agreement and needed for achieving its goals. This is particularly concerning in the context of bond issuances, which is traded in the capital market. Another concern is “carbon lock-in”. In particular, for infrastructure that may be used for decades to come, there is a risk that the current technology will be “locked-in” in the future (when there are better available alternatives). Therefore, it is necessary to check whether the technology to be deployed in the project is currently viewed as the best available technology for which there is no alternative, and whether there is the flexibility to upgraded as technology advances in the future. This point is recognized as a common issue regardless of the form of financing such as bonds or loans. Nevertheless, not providing finance because of these risks will not solve the fundamental problem. In international financial initiatives such as GFANZ, the view of the role that financial institutions are required to play in decarbonization efforts has changed over the past few years. From the view that financial institutions can and must “lead” decarbonization efforts and, in some cases, stop or limit the flow of funds to “force” the certain industries to change their behavior, to the view where the genuine efforts of industry as important in advancing practical decarbonization, and that financial institutions should work with industry to channel funds to decarbonization efforts

in the real economy. If financing is not made because of concerns about greenwashing and lock-in, there is a substantial risk that funds will not flow to the efforts necessary to improve the current situation, and the current situation will rather be "locked-in" from a macro perspective, thus delaying the realization of the carbon neutrality target as a result. In order to change economic activity itself toward a decarbonized society, it is important for financial institutions and investors to mobilize funds for activities to realize NDCs and long-term goals.

With this awareness, the proposed framework consists in the following two layers:

- **1) Transition Finance as Labeled Financial Instruments:**
  In the case of labeled finance, which recognizes environmental impact and is given preferential evaluation over ordinary investments, there is a strong demand from investors to ensure reliability in the sense that it is not violating greenwashing (that is, that the values it claims are definitely realized). In this asset class, finance has to be conducted in accordance with the ICMA's CTFH and other guidelines or/and Basic Guidelines (ICMA-based), even the consequence is that the financing volume would be limited as a result of such application.
- **2) Inclusive Approach Transition Finance:**
  In the case of non-labeled financial instruments, the need to respond to greenwashing can be managed, but responses to concerns about carbon lock-in are still required as in 1). Even if it does not depend on the strategy of the corporate it is required to assess the transition eligibility in the context of national NDC or other objective targets.

The following sections discuss the detailed parameters for each of these categories.

4.2 Expansion and challenges of transition finance as labeled financial instruments

Labeled financial instruments (transition labels, green, sustainability, sustainability-linked bonds (GSS bonds), etc.) are tools to enhance transparency and accountability for both investors and corporates and are considered effective tools to accelerate the supply of funds from the institutional investors. With such a broad investor base as a source of funds, it is not desirable for the standards to be fragmented by region, and it is ideal that the credibility of the label be ensured, and the market will develop in line with the ICMA CTFH.

At the core of this process is the development of transition strategies by corporates. In Asian countries, non-financial information disclosure initiatives such as the ISSB are also being undertaken[35]. If implementation of information disclosure and the development of transition plans is widely adopted in each country, funding based on transition strategies may be promoted. In particular, if transition labels or transition themed finance became mainstream, they could become a model for the entire Asian region and attract more funds from institutional investors. In fact, since the publication of the ASEAN Transition Finance Guidance by the ACMF, Tenaga National and Wasco[36] have published transition finance frameworks that refer to the ICMA CTFH. These companies have obtained Second Party Opinion

[35] For example, in Singapore, listed companies are required to disclose Scope 1 and Scope 2 emissions from 2025, and Scope 3 emissions from 2026. In Malaysia, disclosure of Scope 3 emissions will become mandatory from 2027

[36] Sustainable & Transition Finance Framework（Wasco, December2024）

(SPO) of the frameworks in accordance with global practices, and initiatives similar to those promoted by Japan are starting to sprout in the ASEAN regions through the leading examples.

It should be noted however that in the ASEAN region we may see the development of transition finance market that is different from Japan in the following aspects:

First is regarding how to evaluate targets. In Asia, it is necessary to reconsider the Paris Agreement alignment in each context.[37] Looking at the scenarios of the IPCC, achieving carbon neutrality by 2050 is not necessarily a prerequisite, and the Paris Agreement sets out not only the 1.5°C target but also the 2°C target. In particular, from the perspective of providing private finance to emerging and developing countries, it should be noted that if the decision on whether or not to provide finance is based solely on the consistency of the 1.5°C target, no financing will be provided to the activities that improve the current situation, resulting in an unintended consequence in terms of decarbonization of the economy as a whole[38]. The alignment with the 2050 carbon neutral target of Japanese financial institutions, as financier, and corporates, may become a practical hurdle. It should be made clear that institutions are pursuing their target through the support of corporates (borrowers) transition not aiming to achieve the target through divestment. There may be measures such as (A) making a breakdown assessment of financed emissions, considering the situation in the country concerned, and (B) considering ways to offset the entire portfolio of financial institutions by investing in technologies such as DAC and CCS.

Second: about the label. While in Japan, the market for transition labels has grown, in ASEAN SLBs are a funding method that continues to attract attention, as evidenced by the issuance of the sovereign SLBs by Thailand. With reference to the ICMA CTFH, it is also conceivable that funding focused on the reliability of transition strategies could be developed as a sustainability link or social label. In Japan, there are cases where transition finance is conducted with SLBs or green labels, so it is important that funding focusing on transition strategies will expand, and it does not necessarily have to be in the form of labeled financial instruments.

Third: taxonomy. In Japan, corporates, financial institutions, and external evaluation institutions often determine transition eligibility by referring to the “Basic Guidelines” and the “Sector-specific Technology Roadmaps” depending on the industry in question. In Asia, however, there is an ongoing effort create capital inflows by ensuring a certain level of credibility in terms of the greenness of the use of proceeds through taxonomy. In particular, the ASEAN taxonomy has an “amber” category in addition to the “green” category, and it is conceivable that transition finance will develop by referring to the “amber” category. On the other hand, the EU taxonomy was originally formulated in a manner consistent with the EU’s overall goals and various climate change policies, and the Japanese

---

[37] For example, in addition to the NZE scenario, the IEA presents multiple scenario analyses, such as the APS scenario (which projects a 1.7°C temperature increase by 2100 with 50% confidence in WEO2024). Taking into account individual circumstances, it is possible that consistency with scenarios other than the NZE scenario may also be considered.

[38] The Paris Agreement states that efforts should be made to keep the increase in global average temperature well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C. In addition, the IPCC Sixth Assessment Synthesis Report indicates that, in order to limit the temperature rise to 1.5°C above pre-industrial levels by the end of this century, it is necessary to achieve net zero global CO2 emissions around 2050. It should be noted, however, that what is mentioned here is CO2 emissions, and net zero GHG emissions is not required.

roadmap was formulated in consideration of consistency with the NDC and the GX Promotion Strategy. In order to enhance the credibility of the ASEAN taxonomy, it is important not only to establish thresholds for each sector/activity, but also to link them with environmental and industrial policies to achieve the thresholds.

When cross-border investments and loans are made, one important question is whether the decision should be made based on the taxonomy or roadmap of the country or region to which the fund provider is based or where the fund is raised (ie. origin of the fund or destination of the fund) Since transition eligibility varies greatly depending on the situation of the country or region, it is often impractical to judge the transition eligibility of emerging and developing Asian countries to which investments and loans are made based on the criteria of developed countries, where investors and financial institutions are located. Transition eligibility should be judged according to the situation of the country or region to which investments and loans are made (ie. destination of the funds).

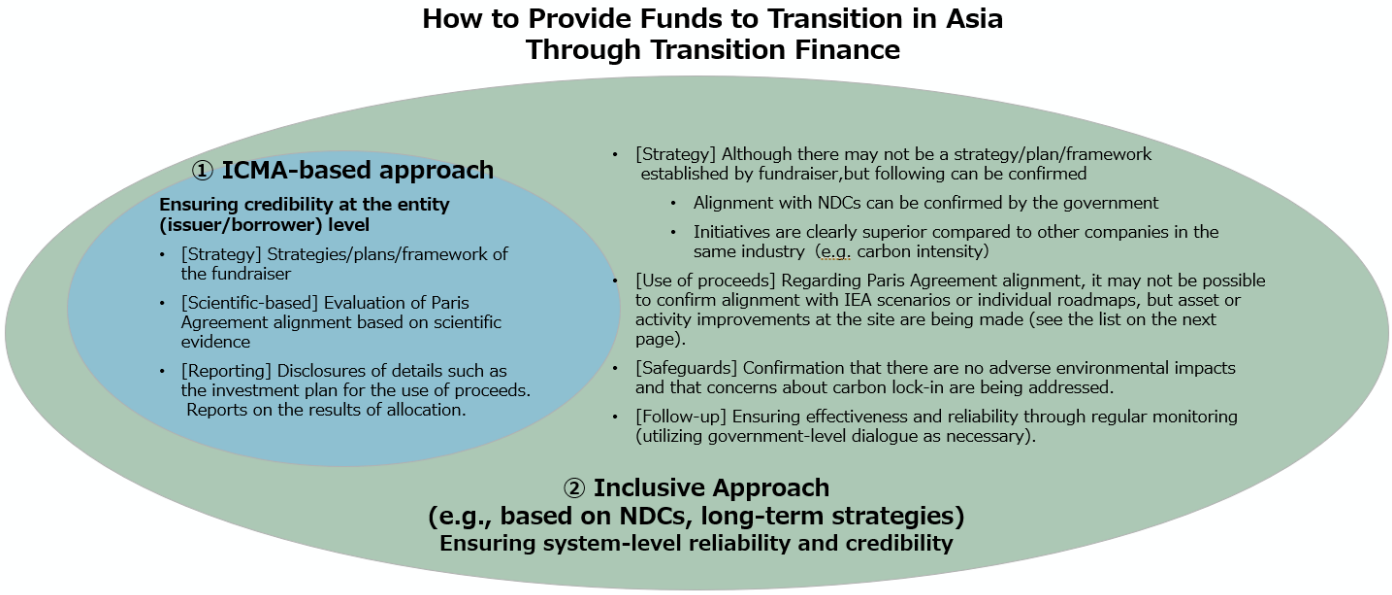
While ICMA-based transition finance is often discussed in this report, the number of companies in Asia, where capital markets are relatively sub-scale, that can raise funds through labeled finance consistent with international standards is limited. Develop an environment for the development of local capital markets is an important agenda from a medium- to long-term perspective, other tools of funding should also be considered.

4.3 Transition finance with "Inclusive Approach"

Transition finance, as a labeled financial instrument, can be described by financing based on the credibility of the corporate (issuer), i.e., the appropriateness of the target, strategy, and governance. However, the lessons learned in Japan show that fundraisers are currently limited to large companies which have the capacity to disclose their robust governance, strategies, and science-based targets. If the insufficient disclosure of such information makes it impossible to provide funds for transition activities that are important in achieving NDCs, the consequence is that the number of corporates that can meet these conditions would be considerably limited. Labeled financial instruments alone are far from sufficient as a means of mobilizing funds to fill the gap between countries' enormous financial needs for achieving NDCs and long-term goals, and the provision of funds in other forms is crucial. This paper will tentatively refer to this scope of transition finance as an "Inclusive Approach"., in the sense that the provision of funds is not solely based on the reliability of individual companies' transition strategies, but rather on the overall needs of countries, regions, and industries.

Of course, while it is clear that the amount of funds that are required in terms of the economy as a whole is enormous, it is necessary to assess the eligibility and credibility of transition when making investments and loans to individual businesses and companies (otherwise, the concern of carbon lock-in, which effectively entrenches on existing technologies and hinders the achievement of targets, cannot be addressed.). If it is not possible to rely on the strategy of the corporate (borrower) fund-raiser, it is necessary to make judgment about the eligibility of transition by referring to objective pathways and targets. The key question is how reliability is assessed? Looking at the current situation in Asia, one possible way is to promote projects with supplemental judgement by financial institutions and governments about credibility and eligibility of transition. In this case, the following three points are considered.

[Chart 13] Approach to transition finance in Asia



1) Strategy Evaluation

In order to determine the credibility of transition pathways, it is desirable for corporates to have their own strategies and receive evaluations on them. However, if difficult, it is possible to determine eligibility by confirming the positioning of the use of proceeds in light of macro strategies[39] such as NDCs, long-term targets, energy development plans, and sectoral technology roadmaps. For example, in the case of large-scale investments such as energy infrastructure, which are often projects at the national level, it is possible to supplement reliability assessment by confirming their consistency with national NDCs and long-term strategies by governments. In such cases, it is important for private companies and financial institutions that projects are specifically positioned in national framework, policies, and plans. From the viewpoint of attracting investment, it is desirable that host countries formulate their plans based on the recognition of such aspects. In the "G7 Elmau Accord[40]," G7 countries, including Japan, committed to ending new direct public assistance to the international fossil fuel energy sector for which no emission reduction measures have been taken by the end of 2022, with some exceptions. Based on this agreement, Japan has provided support from the viewpoint of consistency with the 1.5°C target and the Paris Agreement targets. This can be seen as a government-level complement to ensuring the credibility of transitions, in response to the inclusive approach taken by private companies and financial institutions.

[39] The macro perspective here can include not only the national level, but also the level of local governments within a country, or, in the case of ASEAN, a regional level.

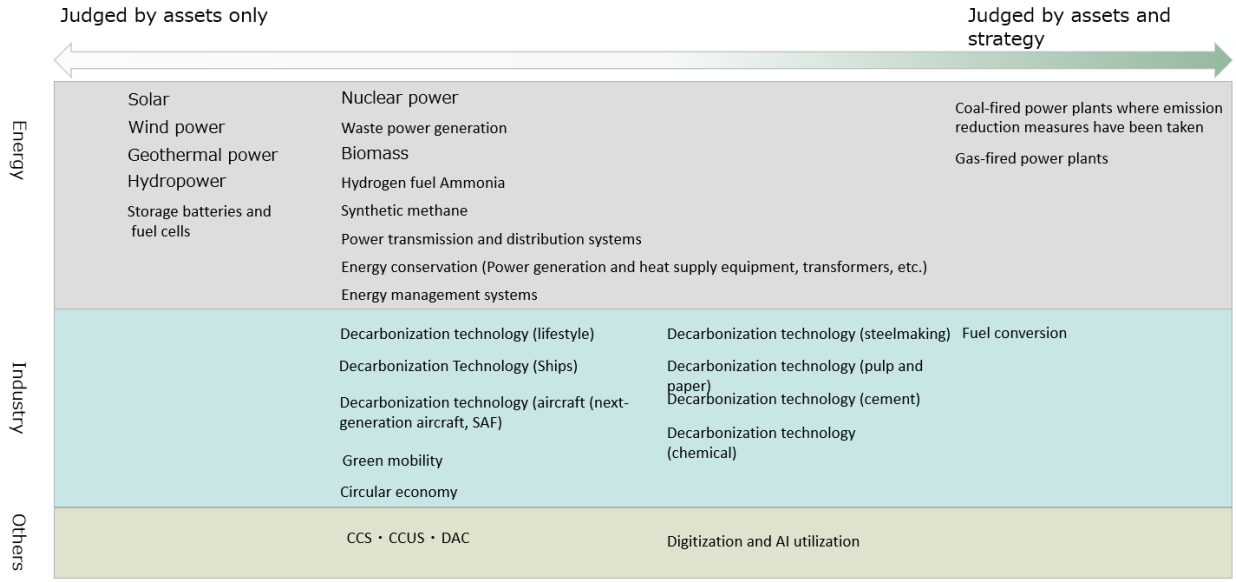
[40] The relevant section of Paragraph 18 of the G7 Elmau Leaders' Communiqué dated June 28, 2022 "recognising the importance of national security and geostrategic interests we commit to end new direct public support for the international unabated fossil fuel energy sector by the end of 2022, except in limited circumstances clearly defined by each country consistent with a 1.5°C warming limit and the goals of the Paris Agreement"

In reality, some argues that 2°C target cannot be reached through adding up each country's NDCs, and it can be argued that it is not sufficient to judge eligibility based solely on consistency with the NDCs and national targets and plans formulated based on the NDCs. However, it is extremely difficult to objectively judge whether a particular country's NDCs and national plans are consistent with the Paris Agreement temperature targets, taking into account the country's unique circumstances. Therefore, there is a risk that the provision of funds may be excessively restrained if operating companies and financial institutions take a conservative decision. The Paris Agreement Conformity Confirmation Principles among Multilateral Development Banks (MDBs) also stipulate that NDC consistency should be confirmed, and it would be practical to judge that compliance with the policies of governments committed to the Paris Agreement is justified[41]. In cases where national plans do not explain individual technologies, it may be supplemented by evaluating, as some Asian financial institutions have already adopted, whether or not the activities are superior in terms of unit costs and other factors compared with domestic and foreign peers, and the rate of improvement from past performance.

In the case of use-of-proceeds based financing, rather than corporate financing, such as project financing, there is a debate as to the extent to which the strategy of the corporates needs to be assessed, or whether the confirmation of assets and use of funds described below is sufficient. For example, financing assets that fall under the category of green projects contributes to the transition of the economy as a whole, so eligibility can be judged solely by the evaluation of the assets. In addition, under the principle of confirming the alignment of the Paris Agreement among MDBs (see Column 3), a Universally Aligned List has been published, and activities included in this list are deemed to be consistent with the Paris Agreement without confirming their strategic nature (how they will be used). In light of these points, it is unlikely that major issues will arise if transition assets that are clearly expected to have a positive impact on the environment, such as energy conservation, power grid development, and waste power generation, are broadly qualified as transition assets based on the characteristics of the assets, without strictly assessing the strategy of the business entity. On the other hand, especially in the case of fossil fuel-related activities, it is necessary to understand the strategy of the country or business operator from the viewpoint of lock-in concerns and position it as a transition. In the case of the decarbonization of manufacturing processes, where decarbonization is promoted over time through a combination of multiple technologies rather than a single technology, it is clearly important to look at the overall strategy. The necessity of how to look at the strategy differs depending on the nature of the asset. The gradients described above are organized in Figure 14 below.

[41] Furthermore, regarding whether each country's NDC is sufficient in relation to the global temperature goals set by the Paris Agreement, the Agreement requires all countries, including major emitters, to submit and update their reduction targets every five years. It also stipulates that these targets must represent a progression beyond previous ones. In addition, the Paris Agreement provides for a global stocktake every five years to assess the overall progress of climate change measures worldwide, and requires countries to report on their implementation in a common but flexible manner and to undergo review.

[Figure14] Gradient between asset and strategy (example)



*Note that this is an example of current thinking and will change with future technological developments and supply chain developments.

2) Assessment of assets and technologies

In the case of use-of-proceeds financing, how is the eligibility for the use of proceeds assessed? Unlike green projects, whose environmental impact is easy to judge, transition projects face a high hurdle for individual companies to make a prima facie statement about their transition eligibility. In Japan, the practice of formulating technology roadmaps for each sector with the participation of academia on a public-private platform has been established. However, formulating such roadmaps often takes time, and whether or not the public and private sectors can agree on a roadmap depends largely on the relationship between the respective governments and the industry and financial sectors. There is also a movement to establish a taxonomy in ASEAN. However, since the starting point for decarbonization varies depending on the size of the company as well as the country and region it is located in, having to meet a certain threshold by a certain time limit discourage investment and lending, and thus slows down transition.

In order to supplement these points, some Asian financial institutions have designated specific technologies and initiatives that qualify for transition (such as a green category). Based on Japan's experience, this report summarizes the fields and technologies that will be needed in Asia's decarbonization as follows. This list is not exhaustive and does not exclude other fields. In addition, it is necessary to judge whether or not an asset or technology can be considered as a transition in each case according to the context. However, it can serve as a reference when considering whether or not an asset or technology can be considered as a transition.[42]

[42] In addition, the technology list being developed by ERIA (Technology List and Perspectives for Transition Finance in Asia: TLP) is also an initiative that enumerates technologies contributing to the transition and can be used as a reference. The TLP consists of a "Comprehensive List" and a "Deep Dive." In particular, the "Deep Dive" provides detailed analyses of around 50 technologies—especially those that are difficult to support through green finance—divided into hard-to-abate sectors and the energy sector.

[Figure 15] Non-Exhaustive Transition Technology List

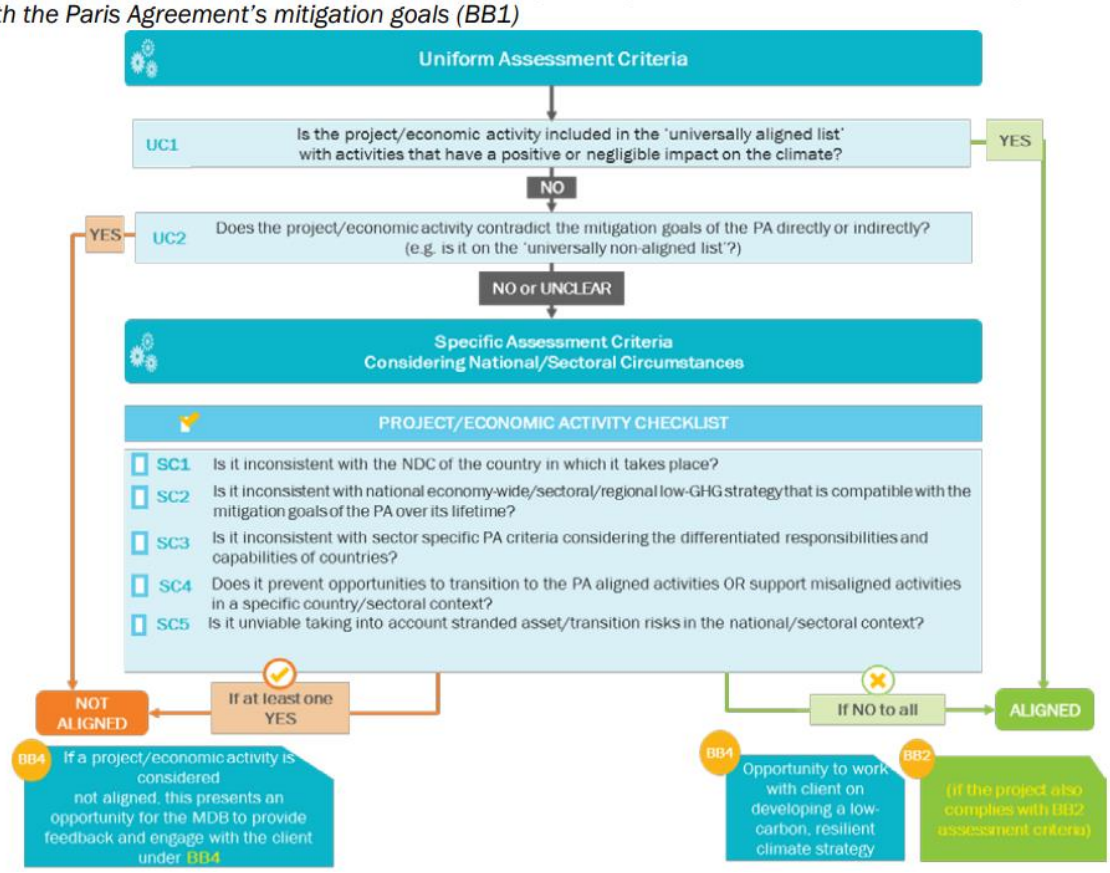
Clean Energy	- Solar power generation - Wind power generation - Geothermal power generation - Biomass power generation and biofuel production - Hydroelectric power generation - Nuclear power generation - Production, transportation, supply, and utilization of hydrogen and fuel ammonia - Synthetic methane (e-methane) production and utilization - Distributed power generation (including microgrids, on-site generation) - Other clean energy (e.g., ocean energy, temperature difference energy, etc.)
Fossil Fuel	- Coal-fired power generation with emission reduction measures (e.g., CCUS, ammonia co-firing, biomass co-firing) - High-efficiency gas-fired power generation and cogeneration (e.g., CCGT, cogeneration systems, hydrogen co-firing) - LNG receiving and regasification facilities (e.g., FSRU)
Power Grid / Power Systems	- Power transmission and distribution systems - Energy storage systems (e.g., batteries) - Fuel cells - Transformers and grid equipment
Energy Efficiency	- Waste-to-energy utilization (including waste power generation) - Energy-efficient industrial parks and equipment (e.g., district heating and cooling, HEMS, BEMS, top-runner equipment) - Other energy-saving power generation and heat supply systems
Industrial Decarbonization	- Decarbonization and energy-saving technologies in steelmaking processes - Decarbonization and energy-saving technologies in chemical and petrochemical manufacturing - Decarbonization and energy-saving technologies in pulp and paper production - Decarbonization and energy-saving technologies in cement manufacturing - Green mobility (e.g., EVs, FCVs, public transport electrification) - Decarbonization and energy-saving technologies in aviation - Decarbonization and energy-saving technologies in shipping - Decarbonization and energy-saving technologies in daily life sectors (e.g., buildings, appliances) - Decarbonization and energy-saving technologies in other industries - Fuel switching (e.g., conversion from coal and oil to natural gas, hydrogen, ammonia, etc.) - Resource conservation, effective utilization of waste heat and exhaust gases - Circular economy initiatives (e.g., recycling, resource circulation)
Other GHG Reduction	- CCS / CCUS (Carbon Capture, Utilization and Storage) - BECCS, DACCS, and soil carbon sequestration - Digitalization and AI utilization for energy management and emissions reduction - Other measures to reduce methane, CFCs, N2O, and other non-CO2 GHGs (including those related to agriculture)

Column 3: Paris Agreement Alignment Assessment at Multilateral Development Banks (MDBs)

Multilateral Development Banks (MDBs), including the World Bank, jointly committed in 2017 under Article 2.1 of the Paris Agreement to "align financial flows with the goals of the Paris Agreement." In 2023, they published the "Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment,"[43] which set out the principles for their alignment methodology. This assessment is conducted from both the "mitigation" and "adaptation" perspectives, but the decision-making process for "mitigation," which is particularly relevant to transition finance, is as shown below (Chart 16). The process first checks whether the activity is included in the Universally Aligned List and then confirms alignment with the NDC of the country where the project is implemented.

[Chart 16] Joint Methodological Principles for Assessment of Paris Agreement Alignment at MDBs

Figure 1. Decision-making approach for determining the alignment of direct investment lending operations with the Paris Agreement's mitigation goals (BB1)



Source: Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New operations（World Bank, June 2023）

Activities included in the Universally Aligned List[44] are considered aligned with the Paris Agreement without the need to confirm the overall strategy (i.e., how they will be utilized).For the confirmation of strategic alignment, in

[43] Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New operations （World Bank, June 2023）

[44] Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New operations List of Activities Considered Universally Aligned with the Paris Agreement's Mitigation Goals or Not Aligned with the Mitigation Goals （World Bank, June 2023）

addition to the NDC, consistency with the country's overall, sectoral, or regional low-GHG strategies is also considered, taking into account the specific circumstances.
The Universally Aligned List includes, for example, renewable energy, "electricity transmission and distribution" in the energy sector, and "non-energy-intensive industry (excluding chemicals, iron and steel, cement, pulp and paper, and aluminum)" in the manufacturing sector.

Of course, these are joint principles for MDBs, and the detailed methodology may be adjusted by each institution according to its own approach. However, at a minimum, the points above are considered to be compatible with the Inclusive Approach discussed in this report.

3) Safeguards

Whether on a strategic or asset basis, it is necessary to confirm that projects do not have a negative impact on the environment (Do No Significant Harm) as a fundamental premise. In particular, ASEAN is regarded as a hotspot from the viewpoint of biodiversity, and this should be taken into consideration.

Furthermore, especially for projects that continue to use fossil fuels, it is necessary to confirm the premise that there are no other technically or commercially viable alternatives, and then consider how to address concerns about carbon lock-in. Given the current situation in Asia, investment and loans for high-efficiency gas-fired power generation can be considered as a transition, but it is also necessary to confirm measures to avoid carbon lock-in while currently using fossil fuels, such as the use of hydrogen and ammonia and CCS in the future.

However, there are significant practical issues regarding the extent to which these measures should be assessed, and the reality is that concerns about carbon lock-in are a major hurdle in scaling transition finance (see Column 4).

The first issue is how and to what extent to confirm "lock-in avoidance." For example, to demonstrate the avoidance of carbon lock-in at the asset level, capital investment and investment returns for the introduction of CCS and co-firing of hydrogen and ammonia could be included in the legal documents. However, it is not realistic to include all of them in the legal documents when it is not clear who will bear the additional cost and how Alternatively, on an entity basis, if the company tries to demonstrate the avoidance of carbon lock-in, it may be necessary to make the company promise to purchase carbon credits in the future. However, it does not make business sense for the company to commit itself when the future carbon credit price is unknown. Therefore, for projects with a long transition period, it is more practical to first confirm the direction of measures to avoid carbon lock-in as a policy for the future and to confirm them through continuous engagement or monitoring, rather than making the company commit itself in the legal documents. Furthermore, there are many issues regarding the avoidance of carbon lock-in that cannot be resolved solely by individual projects. For example, with regard to the introduction of CCS and hydrogen/ammonia, economic viability cannot be ensured by individual projects alone. Therefore, it is necessary to consider these issues together with regulations and government support measures while working with economies of scale at the national or regional level. These issues largely depend on the design of the national policy framework as a whole rather than on the private sector alone. Therefore, in addition to continuous engagement monitoring of the private sector, it is important to understand whether the government has a clear policy to avoid carbon lock-in, such as the introduction

of CCS and hydrogen/ammonia, and the progress of these policies. However, since it is unpractical for individual private financial institutions to obtain official commitments from governments, it is extremely useful for the government (e.g. Japanese government) to confirm and follow up on these commitments while making use of intergovernmental dialogue.

The second issue is how soon should the lock-in be resolved. In Asia, there are some countries that have not set a 2050 carbon neutral target as a government, and from the perspective of consistency with the Paris Agreement, their target may be acceptable. On the other hand, in the case of infrastructure projects that span several decades, the project duration may exceed 2050, and therefore, the alignment (or misalignment) with the 2050 carbon neutral target of Japanese financial institutions and operating companies that provide funds may become an issue. In this regard, as mentioned above, the concept of transitioning the real economy has to be the number one priority (not paper decarbonization), and it should be made clear that private finance pursues net zero target by supporting corporates' (borrower) transition strategies, rather than through divestment. Private finance is encouraged to pursue net zero target through continuous engagement and follow up, not by terminating relationship, engagement and finance, and (A) conduct a breakdown assessment of their financed emissions, taking into account the situation in the country concerned, and (B) consider ways of offsetting them through DAC and CCS.

4) Follow-up

Given that transition is a dynamic process, the concept of follow-up is very important in transition finance, such as monitoring through the engagement of financial institutions and confirming the progress of projects and implementation of policy framework in the intergovernmental dialogues. As will be discussed in detail in Column 4, steady progress is being made toward the implementation of technologies that do not result in carbon lock-in. However, it is difficult to seek a perfect carbon lock-in countermeasure at the time of investment decisions given the uncertain institutional and economic outlook for the future. In addition, with regard to transition finance, including R&D, the expected schedule and the actual schedule have to be revisited. Therefore, even if a complete transition plan is developed, including addressing carbon lock-in concerns, whether it will be implemented with certainty depends largely on the situation of society as a whole, and transition may not proceed as planned. Even if an absolute strong commitment is required in advance to avoid such a situation, there will be strong concern for when the project will not be finance. Rather, what is needed is to pursue decarbonization of the real economy by adopting BAT at the time of investment and loan decisions, and closely monitor through engagement as a financier, but also utilizing intergovernmental dialogue.[45] From this point of view, the Follow-Up Guidance has been formulated for promoting transition finance in Japan, and it will be useful to share this method in the Asian context as well.

[45] In Asia, where there are many relatively new coal-fired power plants and energy demand is expected to continue growing, it is urgent to expand electricity supply from the perspective of improving energy access. Given this situation, addressing carbon lock-in cannot be achieved overnight, and it is important to establish follow-up mechanisms at the system-wide level. As mentioned above, it should also be noted that, with regard to intergovernmental frameworks, the concept of follow-up—such as the updating of NDCs and the global stocktake under the Paris Agreement—has already been incorporated.

Column 4: Summary of Issues on Carbon Lock-in

Carbon lock-in is one of the greatest concerns in promoting transition finance. This column summarizes the key considerations regarding carbon lock-in. Carbon lock-in generally refers to a situation where high-emission infrastructure or assets continue to be used even though lower-emission alternatives exist, thereby delaying or hindering the transition to decarbonization.[46]

1) Use of Fossil Fuels in Energy Infrastructure

The issue of carbon lock-in is particularly significant for energy infrastructure projects with long investment recovery periods. The handling of coal-fired power, which is said to account for 30% of global CO2 emissions, is an unavoidable topic. In Asia, the presence of relatively new coal-fired power plants is often pointed out as a state of carbon lock-in.

The main challenges are:

A) How to decarbonize existing coal-fired power plants, and

B) How to position the construction of new gas-fired power plants.

A) How to decarbonize existing coal-fired power plants

For existing coal-fired power plants, it is widely recognized that, in Asia—where population growth and economic expansion are ongoing—improving energy access and ensuring stable supply are major issues, and it is important to proceed with decarbonization in a managed manner (so-called Managed Phase Out, MPO). In June 2022, GFANZ published a report titled “The Managed Phaseout of High-emitting Assets,” initiating discussions on how to prevent the lock-in of existing high-emission assets. Financial approaches include mechanisms such as the Energy Transition Mechanism (ETM[47]) led by the ADB. In MPO discussions, replacing coal-fired power with renewables is often considered, but given the role of coal as a baseload power source and the need for balancing power after the introduction of renewables, the solution is not simple. In March 2024, the IEA’s report “Accelerating Just Transitions for the Coal Sector” highlighted four key measures:① Repurpose: Changing the use from baseload to balancing power,② Retrofit: Retrofitting with CCUS technology,③ Retrofit: Modifying for co-firing with low-emission fuels such as ammonia or biomass,④ Retire early: Early retirement.

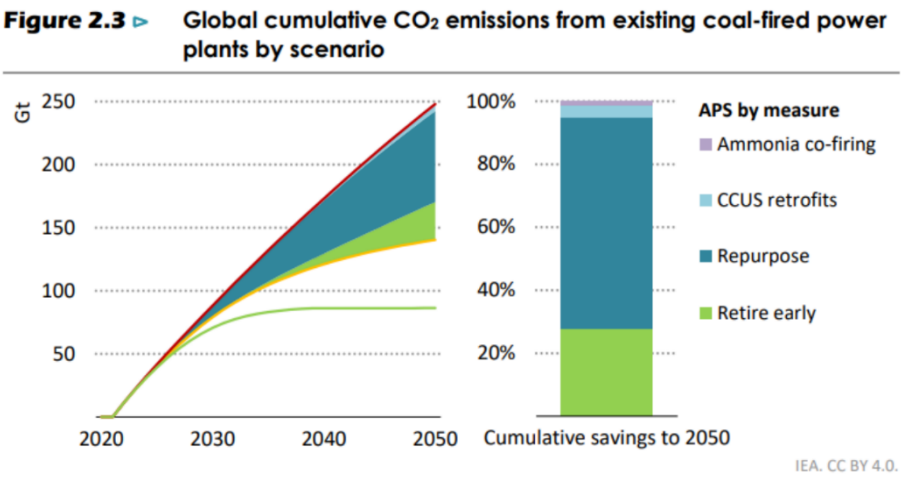
When considering MPO as a target for transition finance, it is important to inclusively take these points into account.

---

[46] It should be noted that the use of fossil fuels does not automatically and immediately lead to concerns about carbon lock-in. Even in the scenarios presented in the IPCC Special Report on 1.5°C, it is not assumed that the use of fossil fuels will be reduced to zero by 2050; rather, a certain level of fossil fuel use is anticipated.

[47] ADB Website

[Figure17] Global cumulative CO2 emissions from exiting coal-fired power plants by scenario



Source: Accelerating Just Transitions for the coal sector（IEA, March 2024）

B) How to position the construction of new gas-fired power plants

For new gas-fired power plants, carbon lock-in is also a concern. The key question is whether there are technically and commercially available lower-emission alternatives. As discussed in Chapter 2, Section 1, in emerging and developing countries such as those in Asia, energy demand is rapidly increasing, and the situation differs from that in developed countries. While the maximum introduction of renewables should be pursued, from the perspective of stable energy supply and just transition, there are limits to the scale and variability of renewables as baseload power sources. In regions where electricity demand is increasing, it is difficult to meet the growing demand with renewables alone, and gas-fired power is expected to play a role as a large-scale baseload power source and as balancing power necessary for the spread of renewables.[48] Of course, not all gas-fired power should be treated the same. It is necessary to consider whether more efficient technologies are available within gas-fired power, and whether there are lower-carbon utilization methods for the same gas-fired power. Even after gas facilities and equipment are

[48] With regard to LNG, concerns have also been raised about methane leakage throughout the supply chain. Methane, the main component of natural gas, is said to have a global warming potential 84 times greater than CO2 over a 20-year period and 28 times greater over a 100-year period, making the reduction of methane leakage a critical issue. In July 2023, Korea Gas Corporation (KOGAS) and JERA launched the "Coalition for LNG Emission Abatement toward Net-zero (CLEAN Initiative)," an initiative aimed at reducing methane emissions. This initiative collects and visualizes information on methane emission management and reduction efforts for each LNG project and has established a system for sharing best practices. The number of LNG companies participating in the CLEAN Initiative has been increasing year by year, reaching 27 as of June 2025. At the time of the CLEAN Initiative's establishment, the governments of Japan, the United States, South Korea, Australia, and the European Commission issued a joint statement expressing their support for the initiative. As of June 2025, 19 international organizations, associations, and companies—including 12 major LNG producers that account for 40% of global LNG production—have expressed their support for the initiative. In the CLEAN Initiative Annual Report published in October 2024, the United Nations Environment Programme International Methane Emissions Observatory (UNEP-IMEO) reported research findings that the methane intensity of LNG imported to Japan and South Korea in 2022 was 0.2% and 0.19%, respectively. These values meet the international target for methane intensity of 0.2%, indicating progress in efforts by LNG producers.
Furthermore, according to the IEA's June 2025 report "Assessing emissions from LNG supply and abatement options," the average life-cycle carbon intensity of LNG-fired power generation is calculated to be about 25% lower than that of coal-fired power generation.

introduced, there are pathways to lower-carbon use through the utilization of carbon-neutral fuels such as methanation and biofuels, and further decarbonization can be promoted by additional investments in hydrogen/ammonia co-firing or dedicated facilities and CCS equipment, making it possible to avoid “lock-in” and continue efforts toward decarbonization. Business feasibility, including legal and regulatory frameworks, is currently being examined.[49]

＜Hydrogen and Ammonia＞

Southeast Asian countries are considering the introduction of new energy sources such as hydrogen and ammonia in the power sector to promote decarbonization in line with their net zero declarations. Singapore, which is most advanced in this area, has announced a policy to replace up to 50% of its power mix with hydrogen by 2050 under its National Hydrogen Strategy, aiming to reduce dependence on gas-fired power. Singapore plans to import hydrogen from neighboring countries and produce green hydrogen using domestic renewables. Indonesia, under its National Energy Plan, is planning to establish itself as a hydrogen hub. Vietnam, in its 8th National Power Development Plan (PDP8) released in May 2023, aims to achieve about 70% renewables in its power mix by 2050 and to shift about 5% of its power mix to hydrogen. Japanese companies are also participating in several cooperation projects in line with these developments.[50]

Ammonia is attracting attention not only as a fuel for co-firing or dedicated use in coal-fired power(①) but also as a hydrogen carrier, given the difficulties in storing and transporting hydrogen due to its low energy density under standard conditions. The hydrogen density per unit volume of ammonia[51] is 17.8%, about 2.8 times that of methylcyclohexane (MCH), another hydrogen carrier. In Singapore[52] and Thailand[53], feasibility studies for power plants using 100% ammonia as fuel have begun, and efforts to use ammonia as a power generation fuel are progressing.

---

[49] With regard to gas, it should be noted that, in addition to the perspective that it is necessary for achieving the transition, there is also the perspective of energy security. From the standpoint of ensuring Japan’s energy security, there may be cases where it is necessary for Japanese companies to participate in upstream and midstream gas projects, and some AZEC projects also include such initiatives. In this report, discussions on the eligibility of transition and the necessity from the perspective of energy security are addressed separately.

[50] In Singapore, in August 2023, a consortium of Mitsubishi Heavy Industries and IHI was awarded a contract by a government-affiliated company for a large-scale power plant capable of co-firing up to 30% hydrogen (scheduled to begin operations in the first half of 2026). Additionally, JERA and Mitsubishi Heavy Industries agreed to jointly study an ammonia-fired power plant with another government-affiliated company, further accelerating efforts in Singapore to transition away from gas-fired power generation. In Indonesia, although no projects have reached FID (Final Investment Decision), several projects are at the feasibility study stage, including Mitsubishi Heavy Industries’ launch of FS (feasibility studies) for co-firing green hydrogen and ammonia, as well as biomass co-firing and dedicated biomass power generation in November 2022. In Vietnam, in October 2023, JERA agreed to cooperate with Vietnam Electricity (EVN) in formulating plans that include power generation projects using hydrogen.

[51] Ammonia (NH_3) can be liquefied under mild conditions—at atmospheric pressure at -33°C, or at room temperature at 8.5 atmospheres—which are comparable to the liquefaction conditions for LPG. Even when used as a hydrogen carrier, large-scale transportation is possible by utilizing existing ammonia transport vessels and storage facilities.

[52] "Keppel, MHI and DNV Sign Agreement to Explore Adoption of Ammonia-fired Gas Turbine on Jurong Island(Mitsubishi Heavy Industries, September 2022)

[53] “PTT and Mitsubishi Heavy Industries Asia Pacific to Explore 100% Ammonia Gas Turbine Powered Generation in Thailand”（Mitsubishi Heavy Industries, March 2024)

＜CCS＞

Southeast Asia has many depleted oil and gas fields, offering significant CO2 storage potential, and CCS/CCUS is expected to play a major role in decarbonization[54]. Indonesia and Malaysia, among others, are expanding CCS/CCUS projects using depleted or currently producing oil and gas fields, and are considering becoming “CCS hubs” for the region, including accepting CO2 from abroad. Natural gas produced in Southeast Asia generally has a high CO2 content, and CCS is effective both as a means of disposing of CO2 produced together with natural gas and as a technology for Enhanced Gas Recovery (EGR) by injecting CO2 into underground gas reservoirs to increase gas productivity (CCUS[55]). In June 2021, Japan’s Ministry of Economy, Trade and Industry established the “Asia CCUS Network” with 10 ASEAN countries, Australia, and the US, and under AZEC, agreement was reached on the formulation of CCS technical standards (June 2024), promoting industry-government-academia cooperation in this field.[56]

Thus, Southeast Asian countries are, to varying degrees, pursuing initiatives for hydrogen and CCS as the next step after gas-fired power, and the expansion of new energy and CCS to avoid lock-in is also important from the perspective of expanding Japanese GX technologies, markets, and supply chains. For Japanese investors and financial institutions, it is important to support the introduction of gas-fired power if necessary, while continuously monitoring and engaging to ensure that measures such as the future use of hydrogen and ammonia are being pursued to avoid lock-in, thereby supporting efforts toward decarbonization.

2) Use of Fossil Fuels in Industrial Private Power Generation

Aside from the discussion of large-scale energy infrastructure with long investment recovery periods, there are cases where manufacturing companies use on-site power generation facilities and transition to lower-carbon fuels while still using fossil fuels. For example, in Japan, there are cases of switching from coal-fired on-site power generation to gas, and further to the introduction of cogeneration facilities, as well as cases where on-site power generation is replaced with renewables while continuing to use fossil fuels as backup power. Even in such cases, concerns about carbon lock-in may arise, but since the investment recovery period is often shorter than for energy infrastructure, replacement is easier if technology advances in the future. For these technologies, it is important to confirm (1)

---

[54] The Asia CCUS Network (as described later) estimates the total CO_2 storage potential across ASEAN to be 190 billion tons. For reference, Japan’s CO_2 emissions in fiscal year 2023 were 1.017 billion tons (the Ministry of the Environment)

[55] For example, in Indonesia, the Tangguh LNG project—which began production in 2009 and has supplied large volumes of LNG to Japan (with an annual LNG production capacity of 11.4 million tons)—has started additional development work to maintain and expand natural gas production by reinjecting CO_2, which is produced alongside natural gas, into the gas reservoirs of the natural gas fields. The aim is to begin reinjection by 2030, and once started, this will be the first large-scale CCS/CCUS project in Southeast Asia and the second in the Asia-Pacific region after Australia’s Gorgon LNG project. In addition, Japan’s INPEX, as the operator, is leading the Abadi LNG project (with an annual LNG production capacity of 9.5 million tons) planned for the Masela Block offshore eastern Indonesia, where the development plan—including CCS—has been approved by the Indonesian government alongside the construction of the LNG plant. This project aims to start production in the early 2030s and plans to reinject CO_2 produced alongside natural gas.

[56]At the ministerial meeting in January 2025, agreement was reached on efforts to implement CCS/CCUS, including the promotion of zero-emission thermal power generation using hydrogen, ammonia, and CCUS. At the same time, Japan and Singapore (August 2024), as well as Japan and Malaysia (January 2025), each agreed to cooperate on cross-border CO_2 transport.

whether there are technically and commercially available lower-emission alternatives at present, and (2) whether there is a technical and commercial outlook for further improvements in the future, and to encourage further improvements through monitoring and follow-up.

[Chapter 5] Expanding Transition Finance in Asia

In Chapter 4, we discussed the approaches to transition finance in Asia. In this chapter, we summarize the necessary actions for further expansion of “transition finance” to accelerate Asia’s transition.

5.1 Importance of Policy Measures in Each Country and Region

First, in order to expand transition finance in the form of labeled financial products, it is necessary to develop the local capital marke. In addition, the implementation of climate-related disclosure based on ISSB and other standards may lead to the development of ESG markets, and therefore timely adoption within each country are strongly encouraged. Furthermore, it is important to increase the number of institutional investors and financial institutions in each country and region who find value not only in short-term financial returns but also in medium- to long-term value creation, infrastructure development, and market development . Sovereign wealth funds such as Temasek in Singapore and Danantara in Indonesia are expected to play a significant role.

Based on the Inclusive Approach discussed above, which seeks to broadly capture the demand for transition finance and channel funds to necessary projects, the transition strategies of host countries—including NDCs, national long-term plans, power development plans, and sectoral roadmaps—are of critical importance, alongside disclosure efforts by corporates. In particular, to avoid future carbon lock-in, the feasibility of introducing advanced technologies such as hydrogen, ammonia, and CCUS depends largely on the overall policy framework and industrial policy of each country. In many Asian countries, energy access and energy poverty remain pressing issues, and a Just Transition must address not only labor transition but also poverty alleviation and energy security. Support from local communities and national governments is essential to address these issues, and the development of national strategies that incorporate the Just Transition perspective is required.

Therefore, host governments are expected to promote policy framework (including NDCs and long-term plans such as power development plans, roadmaps, and legal frameworks) and project risk reduction measures (such as government guarantees and targeted support) to expand transition finance, and to demonstrate clear commitment to realizing these plans and targets. At the same time, while the formulation of transition plans toward long-term net zero targets is advocated in guidance such as GFANZ with respect to corporate governance, in line with the trend of climate-related disclosure based on the ISSB and other standards, similar international guidance for the formulation of transition plans at the national level has not necessarily been sufficiently established.. Therefore, deepening discussions at the national level on the establishment of long-term mitigation and adaptation targets, and building a standard content of transition plans at international negotiations such as the COP, will help clarify government commitments and promote transition finance.

5.2 Need for International Understanding and Support

In order to scale the flow of funds to transition-related initiatives as discussed above, it is important not only to have efforts in host countries, but also to foster a common international understanding of transition finance, including the Inclusive Approach, and to actually create cross-border flows of funds.

First, for labeled financial products, it is necessary to enhance institutional investors' understanding on the importance of transition. Fund managers are required to prioritize the interests of their clients who entrust and delegate funds, and sustainability is increasingly being incorporated into investment decisions by many asset managers. In order to further increase the flow of funds into the transition asset class, it is necessary to send signal to asset managers that "transition is also part of sustainability and can be a path to realizing medium- to long-term impact." In addition, for the further development of domestic capital markets in Asian countries, frameworks such as the Credit Guarantee and Investment Facility (CGIF) can be utilized, and it is expected that ESG markets, including transition finance, will be fostered. In the context of green bonds, the improvement of interoperability between the taxonomy of the region where investors and financial institutions are located and the taxonomy of the investment/loan in the destination is important theme in the case of cross-border investments and loans, and similar issues are raised for transition as well. In this regard, since transition eligibility varies even more than green regarding local contexts, it is often difficult for investors and financial institutions in developed countries to judge the transition eligibility of emerging and developing Asian countries based on the standards of their own region. Therefore, it is necessary to foster international understanding that transition eligibility should be judged according to the situation of the country or region to which the investment or loan is given (i.e. destination). Currently, ICMA is discussing transition finance for high-emitting sectors, while keeping in scope the expansion of transition finance in emerging and developing countries. It is expected that discussions will progress in a more pragmatic direction, such as by taking a flexible approach to balancing the confirmation of assets and strategies between use-of-proceeds and general-purpose financing.

Transition finance should be discussed globally as a wider concept as the Inclusive Approach, rather than limiting it to labeled financial products. Fora such as the LMA and GFANZ are expected to address transition finance in emerging and developing countries, including loans. Specifically, it is important to foster international understanding regarding (1) the scope of use-of-proceeds financing, and (2) how to address carbon lock-in in fossil fuel projects. In addition, initiatives that support specific projects, such as ADB's Energy Transition Mechanism (ETM) and the Just Energy Transition Partnership (JETP), are currently focused only on coal retirement and renewable energy introduction. However, a broader understanding of transition—including lower-carbon infrastructure and industrial decarbonization—is needed. For example, in the case of ADB's ETM, issues include the need for alternative baseload power, financial resources for early retirement, and incentives for private companies. To further expand ETM in the future, it will be necessary to discuss how to position gas-fired power as an alternative baseload power source to coal, and how to support measures for decarbonization while utilizing coal-fired power (see also Column 4). To accelerate the transition, it is necessary to strengthen international support in a way that inclusively recognizes measures that contribute to the transition of the economy as a whole, including lower-carbon energy infrastructure and manufacturing decarbonization.

5.3 Japan's Contribution

How can Japanese corporates, financial institutions, and the government contribute to Asia's transition through transition finance? Historically, Japan has built close economic ties with the Asian region, especially ASEAN, through direct investment, the development of manufacturing supply chains, and infrastructure development, in

addition to development assistance by the Japanese government. In 2024, direct investment flows from Japan to ASEAN reached 4.2 trillion yen, making it an important region with strong geographical and economic ties to Japan. Major Japanese financial institutions have invested in local financial institutions in Asian countries and have built partnerships with local major companies, banks, and governments. Many large-scale infrastructure projects currently operating in Asia, including energy infrastructure, involve Japanese companies and financial institutions. Against this background, Japan has announced the AZEC initiative, which aims to achieve both economic growth and decarbonization in Asia, and has promoted policy coordination and specific projects. The number of cooperation projects, including MOUs (Memoranda of Understanding) between governments, companies, and financial institutions in Japan and each country under the AZEC framework, exceeds 350, including 121 announced at the 2024 AZEC Summit. From the perspective of promoting these projects, the following summarizes how Japanese corporates, financial institutions, and the government can contribute through transition finance.

1) Role of Companies:

From the perspective of Japanese companies, there is a room to contribute to decarbonization in Asia by providing transition technologies and know-how developed in Japan (such as energy conservation, high-efficiency power generation technology, power grids, resource recycling technology, geothermal power generation, LNG utilization, waste treatment and waste to power generation, etc.). In addition, for new transition technologies and businesses that are currently being promoted for domestic decarbonization (such as decarbonization of manufacturing, and new technologies like hydrogen, ammonia, and CCUS), building supply chains that include Asia as well as Japan can lower overall costs and lead to business that contributes to emissions reductions both domestically and regionally. In many cases, manufacturing supply chains span Asian countries, and in such cases, efforts to reduce Scope 3 can also contribute to decarbonization in Asia. At the same time, from the perspective of Japanese companies, transition-related projects in Asia are always exposed to competition. In order to compete with lower-priced technologies and products with lower environmental value, it is necessary for the business environment in the partner country to recognize environmental impact. In Japan, efforts are being made to create a market in which environmental impact is recognized, such as carbon pricing and support for early investment. However, in order to deploy GX-related technologies and products in Asia, a similar business environment needs to be developed and improved.

2) Role of Financial Institutions and Institutional Investors:

Japanese financial institutions and institutional investors are more probable, in the context of relationship with the Japanese corporate clients, to contribute to transition finance mainly by identifying projects and providing risk capital in line with the business strategy of Japanese corporates outside of Japan[57]. It may be worth distinguishing the expected roles in the domestic (i.e. Japanese) market and in the Asian market are different. In the domestic market, they often engage in long-term relationship with corporates clients, including projects other than transition-related, and in some cases are deeply involved in the development of long-term strategies. In the overseas markets, however, they are exposed to competition with local and international financial institutions. If Japanese financial institutions are the only ones to require higher level of environmental compliance than others, there is a risk of financial carbon

[57] However, major Japanese megabanks are investing in local financial institutions, building partnerships with major local companies, banks, and governments, and are also working to expand business with non-Japanese companies.

leakage, and it is important to consider transition eligibility assessment lens reflecting the policies of communicating sufficiently with local companies and governments.

In this context, initiatives such as the Asia Transition Finance Study Group (ATFSG), in which not only Japanese financial institutions but also local and international financial institutions including those in Asia participate, to share cases and challenges of transition finance are extremely useful. Japanese financial institutions have long-standing relationships with high-emission companies and have contributed to the growth of the transition bond and transition loan markets, so this know-how is also useful in the Asian markets. Furthermore, in October 2024, the Asian GX Consortium was established as a forum for promoting transition finance with the participation of financial regulators from Japan and ASEAN.

Through such fora, we expect to develop a common understanding of transition finance with the governments and financial institutions of partner countries in ASEAN. By raising awareness of transition finance within the Asian region through such initiatives, we envisage connecting the financing demand in transition finance as a financial product with domestic capital. In addition, transition finance often involves long-term and highly uncertain projects, and risk management may be more complex than in ordinary finance. In this context, blended finance with government-affiliated institutions such as JBIC, NEXI, and JICA plays a significant role, and it is effective to confirm the strategies of partner countries and businesses in combination with the supply of concessional funds.

3) Role of the Government of Japan:

The role of the local government is significant in transition finance, and private corporates and financial institutions have pointed out the high hurdles of dealing directly with the government. From this perspective, it is effective to engage in this topic in the intergovernmental dialogue frameworks such as AZEC, confirm a certain level of commitment, identify projects that contribute to the transition, and strengthen support including capacity building. Specifically, it is possible to accelerate the realization of individual projects by utilizing bilateral dialogue with AZEC partner countries under the Japan's AZEC framework. Currently, under the leadership of JBIC and the Japanese government, efforts are being made to promote specific AZEC-related projects in frameworks that include both the public and private sectors, such as the "AZEC/GX Promotion Working Team" (Japan-Vietnam), the "AZEC Japan-Philippines High-Level Coordination Dialogue" (Japan-Philippines), and the "AZEC Japan-Indonesia Joint Task Force" (Japan-Indonesia). In such fora, we can discuss the transition strategies of the country as a whole. In addition, it is important to promote capacity building for the sophistication and implementation of decarbonization strategies in each country through support for master plan development by JICA[58], and the development of technology lists and roadmaps by ERIA.

[58] For example, JICA has supported the formulation of Bangladesh's Master Plan, referring to roadmaps foreach power generation method (such as hydrogen co-firing around 2035) as assumptions for the power mix and projected scenarios in 2050. "Integrated Energy and Power Master Plan (IEPMP) 2023"(Government of Bangladesh, etc., June 2023)

[Chart 18] Regional Transition Support through AZEC

Promoting policy dialogue with member countries to realize concrete projects under the AZEC initiative

Thailand

- Launched AZEC-SAVE Platform (Smart and Advanced Value-Chain for Environment) for promoting energy efficiency (April 2025).

Vietnam

- Established AZEC/GX Promotion Working Team (WT) (July 2023).
- 15 Japan-Vietnam cooperation projects were agreed at the Japan-Vietnam Summit (April 2025).

Philippines

- Established AZEC Japan-Philippines High-Level Coordination Dialogue with DoE (April 2024).
- Holding seminars to promote Japanese technologies contributing to decarbonization in Philippines (February and March 2025).

(photo) AZEC-SAVE Launching Ceremony

Malaysia

- Confirmed with Prime Minister Anwar the importance of strengthening power grids, including the ASEAN Power Grid, as a pillar of AZEC cooperation(October 2024).

Indonesia

- Established AZEC Japan-Indonesia Joint Task Force (JTF) (September 2023).
- Concluded Approx.$370M project financing for Muara Laboh Geothermal Power Expansion Project (Sumitomo Corp & INPEX) (January 2025) .

(photo) the Muara Laboh Geothermal Power Project

[Conclusion]

As discussed above, what is most important for the realization of a decarbonized society is the transformation of the real economy and businesses. It is difficult to jump directly to green initiatives, but there are many necessary efforts to improve the current situation in light of national policy goals, and it is crucial to create and scale the flow of funds to these efforts through transition finance. Especially in emerging and developing countries, there are funding needs that cannot be fulfilled by existing approaches to green finance in developed countries, and it is important to share with the international community that responding to these needs leads to actual efforts toward a decarbonized society. In addition, in mobilizing funds from outside the region, it is necessary to share with the host country and businesses that certain accountability is required, such as the fact that the initiatives are necessary to achieve the goals of the Paris Agreement, and to ensure credibility through public-private partnerships.

Of course, it should be noted that ensuring the credibility of transition finance in this way does not immediately lead to the realization of actual projects. In order to realize a project, it is necessary to ensure business viability as a prerequisite, but for new technologies and new energy, there are transition technologies and projects that cannot be economically viable without policy support and regulation as a package. The concept of transition is broad and has various timelines, so it is important to actively promote what can be done now, while taking stock of what can be realized in the short term and what will be a medium- to long-term issue. By taking a broader view of transition finance, it is hoped that the concept will further develop as a framework for public-private partnerships to promote various transition initiatives in an inclusive manner while enhancing their credibility.