NOMURA JOURNAL OF ASIAN CAPITAL MARKETS

2022
SPRING
Vol.6/No.2
12

Development of Sustainable Finance Markets toward Achieving the SDGs

NOMURA FOUNDATION

NOMURA JOURNAL
OF ASIAN CAPITAL MARKETS

SPRING 2022 Vol.6/No.2

FOREWORD

Against the backdrop of the United Nations' Sustainable Development Goals (SDGs), awareness of sustainability issues has been increasing globally, and efforts for sustainability have been strengthened in Asia in recent years. Asia is especially prone to natural disasters, and there are concerns that the risk of natural disasters will increase due to the progress of climate change. Asian countries set targets for reducing greenhouse gas (GHG) emissions by 2030, based on the Paris Agreement which sets long-term goals to substantially reduce GHG emissions to limit the global temperature increase in this century to 2°C while pursuing efforts to limit the increase even further to 1.5°C. Furthermore, many Asian countries aim to achieve net-zero GHG emissions by around 2050. In order to achieve these targets, each country in the region is promoting various initiatives including the shift from fossil fuels to renewable energy.

According to a report issued by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in 2019, the Asia and the Pacific region requires an additional annual investment of USD1.5 trillion to achieve the SDGs by 2030, of which USD434 billion per year would be needed for clean energy and climate-resilient infrastructure. Financing from capital markets is becoming more important to meet such enormous investment demand in this region. For example, ASEAN launched the green bond standards in 2017 and the sustainability bond standards in 2018 to facilitate financing from bond markets. The introduction of these standards contributed to the increased amount of green and sustainability bonds. In particular, the issuance of sustainability bonds that are used to respond to both environmental and social issues has been significantly increasing, as more attention has been paid to social issues amid the COVID-19 pandemic.

Banks play an important role in the sustainable finance sector in Asia. Banks are one of the major issuers of green and sustainability bonds as well as huge providers of loans for sustainable assets and businesses in the region. Multilateral development banks (MDBs) are also contributing to the growth of sustainable finance markets. For example, the International Finance Corporation (IFC), a member of the World Bank Group, has helped Asian countries develop sustainable finance frameworks and issue green and sustainability bonds through investments in these bonds.

With the aim of further promoting sustainable finance, some Asian countries launched taxonomies to identify and classify green and/or sustainable activities, which are intended to reduce the risk of "green washing". An increasing number of Asian countries are considering introducing such taxonomies. Moreover, further research and studies on impact measurement are expected, with increasing interest in impact investment toward achieving the SDGs.

This issue of *Nomura Journal of Asian Capital Markets* features articles related to the current status, challenges, and prospects of sustainable finance in major ASEAN countries, as well as IFC's initiatives in sustainable finance in Asia.

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Securities Exchange Initiatives to Promote ESG Bond Markets

Introduction

Sustainable investment that takes into account environmental, social and governance (ESG) factors has been expanding on a global level in recent years. According to a report[1] published by the Global Sustainable Investment Alliance (GSIA) in September 2021, global sustainable investment had reached USD35.3 trillion as of the start of 2020, an increase of 15.1% over the previous two years and 55% over the previous four years.

Bond market–related sustainable investments can be divided into three distinct ESG bond market segments. Green bonds are used to procure funds for green businesses or projects, social bonds fund businesses or projects devoted to social contributions, and sustainability bonds fund both green and social projects' efforts. The world's major securities markets have been actively engaged in efforts to establish and expand these ESG bond market segments. According to the website of the Sustainable Stock Exchanges Initiative (hereafter, the SSE Initiative), 43 securities exchanges have established platforms focused on ESG bonds as of November 30, 2020.[2]

Securities exchanges' efforts to establish ESG bond platforms have been stimulated by the United Nations (UN)-led SSE Initiative, which was inaugurated in 2009 by former UN Secretary-General Ban Ki Moon as a forum for efficient dialog among the world's exchanges with the aim of contributing to the promotion of sustainable investments that will lead to the achievement of the UN's Sustainable Development Goals (SDGs).[3]

The SSE Initiative is a UN Partnership Programme organized by four UN organizations—the UN Conference on Trade and Development (UNCTAD), the UN Global Compact, the United Nations Environment Programme Finance Initiative (UNEP FI), and the Principles for Responsible Investment (PRI). As of November 30, 2021, SSE Initiative membership consists of 110[4] of the world's securities exchanges, including the New York Stock Exchange (NYSE) and the London Stock Exchange Group (LSEG).

In addition to sharing a commitment to promote responsible investment, disclosure of ESG information about listed companies, and improvement of ESG performance, member exchanges regard the SSE Initiative as a forum for information sharing with other participating exchanges. For example, the Luxembourg Stock Exchange (LuxSE) has significantly increased its cooperative activities with other countries' exchanges since signing the SSE Initiative in February 2016.[5] The Japan Exchange Group (JPX) became an SSE Initiative member in December 2017. Soon thereafter, the JPX established its Sustainability Committee in July 2018 and in June 2019 began providing a Japanese translation of the SSE Initiative's "Model Guidance on Reporting ESG Information to Investors" as a reference for listed companies to consider ESG disclosure.

This article presents some examples of major securities exchanges' initiatives to establish platforms specializing in ESG bonds and funds, the special characteristics of those platforms, and some perspectives.

Platforms Specializing in ESG Bonds

Major securities exchanges around the world are introducing platforms specializing in ESG bonds. This article presents the platforms established in four of the world's major ESG bond markets: (1) LuxSE's Luxembourg Green Exchange (LGX), (2) the LSE's Sustainable Bond Market (SBM), (3) Hong Kong Exchanges and Clearing Limited's (HKEX) Sustainable and Green Exchange (STAGE) platform, and JPX's Green and Social Bonds Platform.

LuxSE's LGX

- **Platform for the world's first green bond, issued by the European Investment Bank's (EIB)**

LuxSE established LGX as a platform specializing in sustainable finance in September 2016, just nine months after the Paris Agreement was adopted at COP21 (21st Conference of the Parties to the United Nations Framework Convention on Climate Change) in France in December 2015. The Luxembourg government is engaged in various public-private partnerships related to sustainable finance, and LuxSE's establishment of LGX is an offshoot of the government's efforts.

Listings on the LGX platform initially were limited to green bonds, but issuance was opened up to social bonds and sustainability bonds in May 2017. In addition to bonds, ESG funds, social funds, green funds, etc., are now approved for inclusion on the LGX platform.

As a result, LGX-listed securities have steadily expanded. As of end-2020, 898 sustainable securities had been listed by 148 issuers from 34 countries, with total issuance reaching EUR389.0 billion.[6] Green bonds account for the largest share of issues made to date, with 459 bonds raising a total of EUR182.4 billion. Other issues include 311 sustainability bonds (EUR22.5 billion), 60 social bonds (EUR71.5 billion) and 3 sustainability-linked bonds (EUR1.45 billion).[7]

A major contributor to the expansion in listings of sustainable bonds and funds on the LGX has been the EIB's posting of its Climate Awareness Bonds (CABs) on the platform, beginning with the first CAB listing in 2007, which also was the world's first green bond listing. In addition to its CABs, the EIB has posted all of its Sustainability Awareness Bonds (SABs) on the LGX. The EIB's postings have greatly contributed to the reputation of LuxSE and its LGX as a leading exchange for listing green bonds and sustainability bonds.

- **Full utilization of certification labels, etc.**

As LGX is a platform dedicated to sustainable financial instruments within LuxSE, issuers desiring to have their securities included on the LGX platform must first list the securities on one of the LuxSE's listing venues: (1) the European Union (EU)-regulated Bourse de Luxembourg (BdL) market,[8] (2) the exchange-regulated Euro Multilateral Trading Facility (MTF), or (3) the Securities Official List (SOL).

Listings on LuxSE's BdL market and Euro MTF can be traded within LuxSE. Registration on the SOL is simpler than listings on the LuxSE's two trading exchanges as securities registered on the SOL are not admitted to trading. Listings on the EU-regulated BdL market require submission of a prospectus that will also be used to provide the issuer with an EU passport that enables listings on other securities exchanges in EU countries. The passport, however, does not apply to Euro MTF listings.

Issuers desiring to have their securities posted on LGX also must classify the bonds to be displayed as green, social or sustainability at the time of application. Issuers are required to allocate the funds procured by their bond issues to green, social or sustainability projects that adhere to the bonds' classifications. Fund allocation and project classification must comply with the principles or guidelines outlined in the Green Bond Principles (GBP) and Social Bond Principles (SBP) and Sustainability Bond Guidelines (SBG) established by the International Capital Market Association (ICMA) and/or the Climate Bonds Standard (CBS) established by the Climate Bonds Initiative (CBI). Based on these principles, LuxSE will determine if the bond qualifies as an instrument for financing a green, social or sustainability project.[9]

The decision to approve inclusion in the LGX is made by an LGX team that considers securities listing standards, restrictions on the use of procured funds, reviews by external third-party organizations required by LGX, and the issuer's commitment to submit ongoing disclosure reports.

Issuers desiring to display an ESG fund, green fund, social fund, or sustainability fund on LGX must obtain one of the certification labels for funds specified by LGX (Table 1). The list of certified labels approved by LGX includes ESG labels, microfinance and other labels awarded by the Luxembourg Finance Labeling Agency (LuxFLAG), an independent non-profit organization in Luxembourg, as well labels from labelling institutions in other European countries, such as the French government's Energy and Ecological Transition for the Climate (Transition énergétique et écologique pour le climat, or TEEC) label and Label Investissement Socialement Responsible (ISR), as well as Germany's FNG-Label (Forum Nachhaltige Geldanlagen Siegel).[10] LGX explains that funds that have received a designated certification label are considered as meeting LGX's criteria for sustainable funds.[11]

LGX has adopted a mechanism to confirm if securities on its platform continue to meet its standards, including annual reviews of the security's ability to maintain its certification labels.

LSE's SBM

- **SBM includes a wide range of sustainable bond types**

LSE's SBM was initially dedicated to green bonds when it was established in 2015. However, the range of bonds included on the platform has since been expanded to include sustainability and social bonds. Sustainability-linked bonds were added in June 2020 and transition bonds were included in 2021 (Figure 1). Transition bonds are a subset of green bonds and sustainability-linked bonds that are issued primarily by companies in sectors with high CO_2 emissions.

As of December 1, 2021, the SBM includes 336 bond issues. Green bonds are the most numerous type, with 187 issues (two of which are self-certified green bonds,[12] followed by 33 social bonds, 27 sustainability bonds, and four transition bonds. In addition to those issues, 85 companies have been pre-approved to register all issued bonds on SBM. In October 2021, the Republic of Korea (RoK) issued a EUR700 million five-year sovereign green bond on the LSE and had it registered on the SBM platform. The bond is the first euro-denominated green bond to be issued by an Asian government on the LSE. The RoK's issue continues a recent trend that has seen sovereign issuers selecting the LSE and SBM for their green bond issuance, including Mexico and Egypt, which issued the first sovereign green bond by a government from the Middle East and North Africa.

It should be noted that SBM is a platform that includes bonds listed on various existing LSE primary bond markets in order to promote visibility of sustainable debt finance instruments. It is not a distinct primary market newly established by the LSE.

- **Conditions for admission of securities to SBM**

First, the bond issue must be listed on one of the fixed income primary markets operated by the LSE. The LSE operates three primary bond markets: the Main Market (Regulated Market), the International Securities Market (ISM), and the Professional Securities Market (exchange regulated markets or multilateral trading facilities).

Second, from January 1, 2020, the LSE requires issuers that wish to be admitted to an SBM segment complete the SBM Declaration and Application Form, which includes the disclosure of information and

Table 1: Certification Labels that LGX-listed Funds Must Acquire

Certification Label's Nameable	Country	Established	Outline
ESG Fund Labels			
FNG Label	Germany	2015	Qualitative criteria for sustainable investment funds in German-speaking countries. Labeling is reviewed annually.
Label ISR	France	January 1, 2016	Introduced and supported by France's Ministry of Economy and Finance, this label is awarded after a rigorous review by an independent body and has become an indicator for investors who want to contribute to a more sustainable economy.
LuxFLAG ESG	Luxembourg	May 1, 2014	Awarded to funds that incorporate ESG criteria throughout the entire investment process while screening 100% of their investment portfolio according to one of the ESG strategies and criteria approved by LuxFLAG.
Nordic Swan	Nordic countries	1989	Introduced by the Nordic Council of Ministers for Consumer Affairs as a voluntary ecolabel to be used in Denmark, Finland, Iceland, Norway and Sweden.
Österreichisches Umweltzeichen	Austria	1990	Established by Austria's Ministry of the Environment with the aim of raising environmental awareness in the tourism and entertainment industry. This label is given to accommodation, catering, conference and event planning companies, etc.
Febelfin QS	Belgium	2019	Established by the Belgian Financial Sector Federation (Febelfin) as a label specifically focused on investment trust funds. It sets qualitative criteria for sustainable and social financial products.
Green Funds			
LuxFLAG Climate Finance	Luxembourg	September 1, 2016	At least 75% of the investment product's total assets must be allocated to investments that have a clear and direct link to climate change mitigation and adaptation or cross-cutting activities.
LuxFLAG Environment	Luxembourg	June 1, 2011	Awarded to investment products that invest in environment-related sectors in a responsible manner. Eligibility criteria require funds to have a portfolio in which at least 75% of the fund's total assets are invested in environment-related sectors.
TEEC	France	2015	In response to COP21, France's Ministry for Ecological and Inclusive Transition introduced this label to encourage the creation of green funds and to ensure the quality of all related investment trusts.
Social Funds			
LuxFLAG Microfinance	Luxembourg	July 1, 2006	The primary objective of this label is to reassure investors that the Microfinance Investment Vehicle (MIV) is actually investing, directly or indirectly, in the microfinance sector. Indirect investment means that the MIV can invest in other MIVs that invest more than 50% of their assets in microfinance, rather than lending directly to microfinance institutions (MFIs). Over 60% of the world's qualified MIVs have received the label.

Source: NICMR, based on various materials

documents related to the chosen classification of the bond to be admitted to the SBM.

As shown in Figure 1, the SBM has three broad entrance windows. The first is for bonds that have received a third-party verification aligned with ICMA principles or other eligibility standards that the use of funds is to finance green, social or sustainability-related projects. The second is for transition bonds that are using the bond market to procure funds for transition-related projects, including projects to mitigate climate change. These bonds may be classified as green bonds or sustainability-linked bonds. The third is for corporate bonds issued by companies that can demonstrate that their core business is a green business and generates 90% or more of the company's revenues. Companies that obtain this issuer-level classification will have all bonds issued under this framework admitted to SBM without having to apply for certification each time. In other words, all straight corporate bonds issued by companies generating 90% or more of their revenue from green business will be considered green investments.

Criteria for determining eligibility for inclusion in SBM are at the sole discretion of the LSE.

HKEX's STAGE platform

• A repository of ESG-related information and comprehensive data on the HKEX

The HKEX established its STAGE on December 1, 2020. STAGE is positioned as a platform that serves as a repository for comprehensive data and ESG-related information related to sustainable finance and green finance. STAGE was established to create a comprehensive database of sustainable finance-related products that can be bought and sold on the Hong Kong securities exchange.

HKEX seeks to use STAGE as a platform for education and information exchange on sustainable finance. Accordingly, HKEX is promoting knowledge-sharing and collaborations in the field of sustainable finance between its stakeholders (issuers, investors, communities, and innovators).

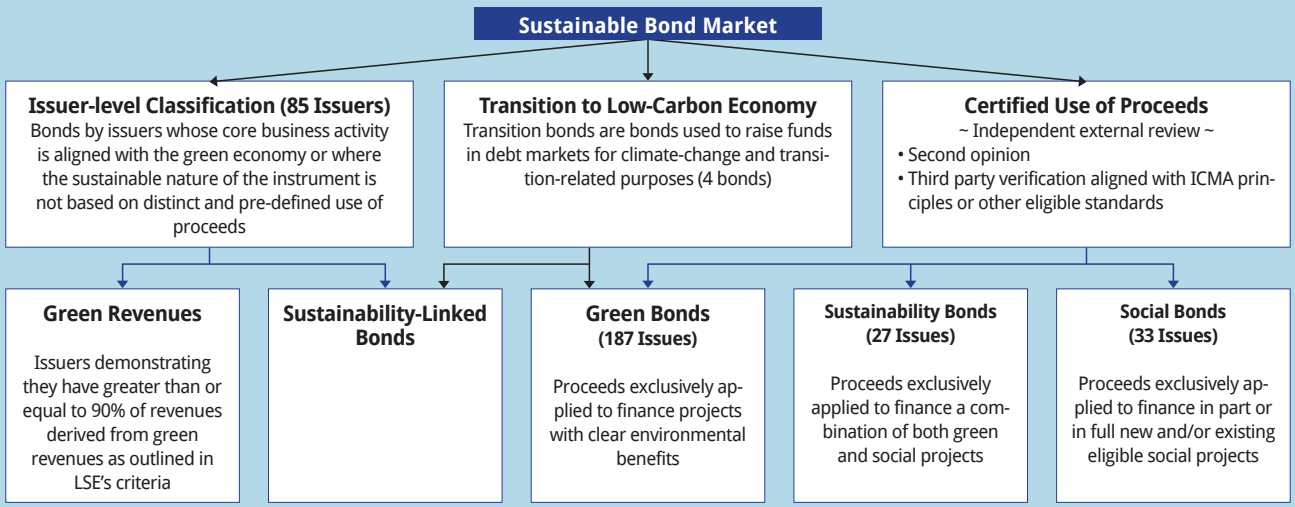
As of December 1, 2021, 84 securities are listed on the STAGE platform, including 69 green bonds, 2 social bonds and 2 blue bonds, 1 sustainable bond and 1 COVID-19 bond, 6 transition bonds, and 3 sustainability-linked bonds. Green bonds account for about 82% of all listed bonds. Listed securities include a wide range of trading currencies, from HKD and RMB to USD and EUR denominated issues.

When the market may grow outstandingly, HKEX has announced that it plans to expand STAGE-eligible products to a wider range of sustainable green finance products other than bonds and exchange traded funds (ETFs), as well as to derivatives linked to sustainability or ESG indexes.

• Conditions for inclusion of securities on STAGE

The first condition for having a security included in the STAGE repository is to list it on HKEX's main bond market. Next, the issuer must fulfill the following five re-

Figure 1: SBM Structure



Note: Issuer and issue numbers as of November 30, 2021.
Source: NICMR, based on LSE Group materials

quirements: (1) clearly designate the classification of the bond (sustainability bond, green bond, or social bond) to be displayed on STAGE, (2) indicate the international standards or principles to which the issued bond complies, (3) submit a document outlining the bond framework, including the details of the selected project, how the procured funds will be managed, and the reporting process, (4) submit a review of the bonds to be listed by an external evaluator, and (5) submit an annual report on the allocation of funds and expected impacts.

JPX's Green and Social Bonds Platform

On January 22, 2018, the Tokyo Stock Exchange (TSE) established its Green and Social Bonds Platform within its TOKYO PRO-BOND Market.[13] As of November 29, 2021, a total of 14 bonds have been included in the platform, including 2 green bonds and 12 social bonds. Both green bond issuers were issued by the Japan Finance Organization for Municipalities, and all the social bonds were issued by the Japan International Cooperation Agency. The TSE's Green and Social Bonds Platform is positioned as a disclosure platform where issuers, at their discretion, post information related to their green bonds and social bonds listed on the TOKYO PRO-BOND Market (Table 2).

Table 2: Bond Issues on TSE's Green and Social Bonds Platform

Listing Date	Issuer	Use of Proceeds	External Reviewer	Other Information
September 28, 2021	Japan International Cooperation Agency (JICA)	Projects with a main objective of promoting gender equality and empowering women	Japan Research Institute, Ltd.	Gender bond (social bond)
June 30, 2021	JICA	Projects supported by JICA's Official Development Assistance (ODA) Loans and Private Sector Investment Finance activities (excluding coal-fired power generation projects)	Japan Research Institute, Ltd.	
February 3, 2021	Japan Finance Organization for Municipalities	Sewerage projects	Vigeoeiris	
December 28, 2020	JICA	Loans to developing countries to support countermeasures against infectious diseases, including COVID-19, and mitigate the impact on small and medium-sized enterprises	Japan Research Institute, Ltd.	Social bond for COVID-19 countermeasures
February 13, 2020	Japan Finance Organization for Municipalities	Sewerage projects	Vigeoeiris	
September 24, 2019	JICA	JICA's finance and investment activities in Africa	Japan Research Institute, Ltd.	Tokyo International Conference on African Development (TICAD) bond (social bond)
8 issues from June 29, 2018 to September 29, 2020	JICA	JICA's finance and investment activities in developing countries	Japan Research Institute, Ltd.	

Note: As of November 29, 2021.
Source: NICMR, based on JPX materials

Key Points for the Future Development of ESG Bond Platforms

The examples above indicate that platforms specializing in ESG bonds tend to be positioned as repositories of information necessary for making investment decisions on sustainable finance-related products in ESG bond markets. The inclusion of ESG bond issues on all the platforms introduced in this article—LuxSE's LGX, LSE's SBM, HKEX's STAGE, and JPX's Green and Social Bonds Platform—requires that the bonds be listed on the existing bond market segment of each securities exchange and that the bonds and their issuers meet all the conditions for inclusion on the market's platform specializing in sustainable bonds. The platforms may be considered an effort to enhance the visibility of sustainable finance-related products listed on each stock exchange. Rather than limiting inclusion on the platform to bonds listed on one specific bond market, as is the case with JPX's platform open only to bonds listed on its TOKYO PRO-BOND Market, most securities exchanges follow the LGX example of opening their ESG platforms to bonds issued on several bond markets.

Investors considering investing in sustainable finance–related products can efficiently access a wide range of investment-related information posted on the ESG bond platform of the related stock exchange. The ability to obtain a wide range of information on sustainable finance–related bonds on each exchange's webpage undoubtedly will help promote the development of the market for such bonds.

However, if many of the world's securities exchanges establish similar platforms, we will want to observe the characteristics that differentiate one securities exchange's platform from those of other exchanges. An example of differentiating characteristics is the LuxSE's LGX platform's inclusion of all CABs and SABs issued by the EIB and its use of existing certification labels as a requirement for listing funds, which makes it easier for issuers to meet LGX's unique requirements for sustainability-related listings.

The development and enhancement of ESG bond platforms can be expected to continue, and another key point to watch moving forward will be how these efforts contribute to expanding the market for sustainability-related securities.

Notes

1 *Global Sustainable Investment Review 2020*, the latest edition of GSIA's biennial review.

2 As per the SSE Initiative website's listing under "Has sustainability bond listing segment" (https://sseinitiative.org/exchanges-filter-search/).

3 Five securities exchanges have been members of the SSE Initiative since its establishment—the USA's Nasdaq exchange, Turkey's Borsa Istanbul, South Africa's Johannesburg Stock Exchange, Egypt's Egyptian Exchange, and Brazil's B3 (BM&F BOVESPA at the time of the SSE Initiative's establishment).

4 As per the SSE Initiative website (https://sseinitiative.org/exchanges-filter-search/).

5 LuxSE has entered into cooperative agreements with other SSE Initiative participating exchanges, including China's Shanghai Stock Exchange and Shenzhen Stock Exchange, Chile's Bolsa de Comercio de Santiago, and Nigeria's FMDQ OTS Securities Exchange.

6 LuxSE, "*Sustainability Report 2020*".

7 The 65 other securities listed on the LGX include 55 ESG funds, 3 social funds, and 7 green funds. (LuxSE, *Sustainability Report 2020*).

8 BdL market listings must be preceded by the filing of a prospectus that conforms to the EU's Prospectus Directive and Transparency Directive and is approved by the Commission de Surveillance du Secteur Financier, Luxembourg's financial regulatory authorty.

9 Chinese domestic green bonds displayed on the LGX must conform to guidelines set by the People's Bank of China (PBOC) or other Chinese regulatory authorities.

10 Funds that have received a certification label other than labels officially recognized by LGX may be approved for inclusion on the LGX platform if an LGX evaluation of the certification label determines that it meets the platform's criteria.

11 LGX may require fund issuers provide other relevant information about their fund in addition to a certification label.

12 Issues by PBOC and the European Bank for Reconstruction and Development (EBRD).

13 The TOKYO PRO-BOND Market is professional-oriented bond market based on the "professional markets system" introduced in a 2008 amendment to the Financial Instruments and Exchange Act. Compared with the main market, the TOKYO PRO-BOND Market reduces issuers' disclosure burden and provides a more flexible framework for bond issuance. Accordingly, the purchase of bonds listed on the market is limited to investors that have qualified as specified investors and to non-residents of Japan.

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IFC Engagement in Sustainable Finance in Asia

Introduction

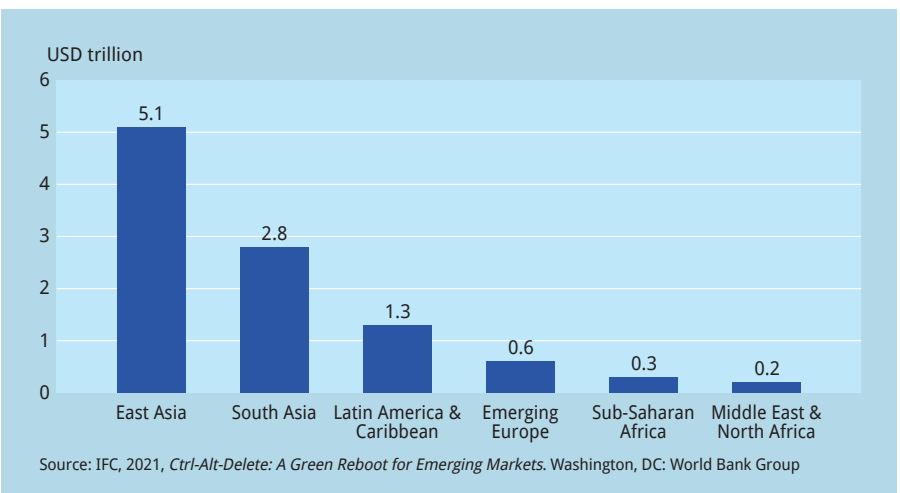
Investments in sustainable finance are a tool to help move the world's economies beyond their dependence on hydrocarbons and prepare for a changing climate and a tool to promote economic development across Asia and beyond. This article will primarily focus on the opportunities for sustainable investment (sustainable, green, and climate-related finance) across Asia. It will begin with an aggregate discussion of the size of the sustainable finance market across key sectors as estimated by the International Finance Corporation (IFC). Then it will discuss the role that IFC has played as a supporter and catalyst for sustainable finance across Asia, including the organization's activities in investment and advisory services. The role of the IFC as an investor and catalyst for investment in the private sector will be essential to help support the transition towards sustainable models of economic growth. The costs of financing this transition exceed what governments can provide and, beyond just financing, the transition will require new and innovative instruments of financing.

Global Opportunities for Sustainable Investment

Supporting investment and channeling recovery funds into climate-smart business in the key sectors across major emerging markets represents a USD10.2 trillion investment opportunity for both the public and private sectors from now until 2030. Across Asia alone, the IFC estimates that the investment opportunities could reach almost USD8 trillion, roughly 80% of the total investment pie in emerging markets.[1] These investments could generate 152 million jobs across Asia and reduce greenhouse gas (GHG) emissions by almost 3 billion tons. The investment, job, and climate impacts of expanding sustainable finance in Asia are the largest of any emerging market region and offer the promise to promote economic development and move the needle on the global effort to mitigate and adapt to a changing climate (Figure 1).

If we look at the market opportuni-

Figure 1: Sustainable Finance Investment Opportunities by Region, 2020-30



Source: IFC, 2021, *Ctrl-Alt-Delete: A Green Reboot for Emerging Markets.* Washington, DC: World Bank Group

ties by major sector, the opportunities are broad-based across the economy. In Asia, IFC estimates that there are over USD1.5 trillion of investment opportunities in green transport over the next decade with between USD500 and USD800 billion of opportunities in de-carbonizing utilities such as water and energy and promoting energy efficiency (Figure 2).

Sustainable financial investments are good economics as well as good for the climate. Global estimates show that every USD1 million spent on renewable energy creates between 7.5[2] and 15[3] full-time jobs.[4] Significantly, renewable energy generates more jobs in the short run than do fossil fuels—even in the middle of a recession—boosting consumer spending and accelerating recovery. Renewable energy investments create jobs across industries, including manufacturing, installation, and services. In addition to job creation, the energy-efficiency sector is highly responsive to new incentives and can scale up readily available technologies, achieving substantial savings and earnings for households and businesses.

The private sector will need to play a critical role in mobilizing finance, driving innovation, and changing business operating models to create and enact the necessary economy-wide adjustments to a changing global climate. This is more critical in the COVID era when governments' fiscal headroom is constrained and must compete with other public spending priorities. On average, public debt-to-gross domestic product (GDP) ratios have increased by ten percentage points since the start of the COVID-19 pandemic. Though private sector debt burdens have risen across a number of sectors in Asia, the private sector is typically more efficient and can deliver with greater flexibility in light of evolving technology.

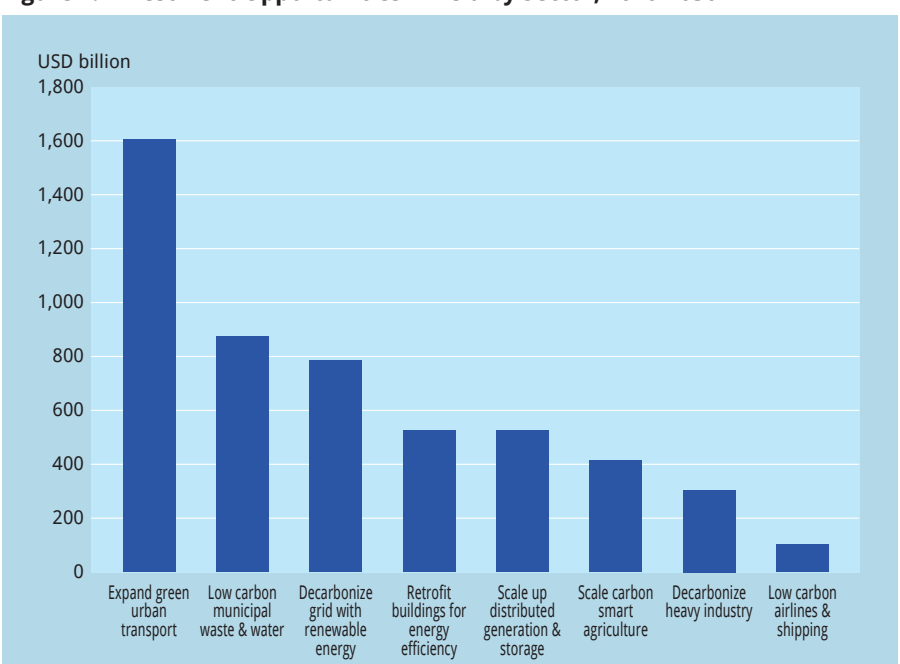
Green finance, or financing by banks and capital markets to climate projects, will be critical to fuel a post-COVID green recovery. Green financial products and instruments will play an essential role across all identified key sectors. These include green bonds and green loans that allocate the use of proceeds to eligible climate investments. New products have been developed, including municipal resilience bonds, sustainability-linked bonds, and loans that offer variable interest rates based on achieving quantified climate results. Transition bonds are emerging as a new product class to help heavy-emitting sectors make a transition to cleaner production practices.

IFC is one of the world's largest private sector financiers of climate-smart projects for emerging markets and is a leader in mobilizing private sector finance. IFC mobilizes private finance for climate projects directly through syndication platforms, green bond funds, and advisory services and indirectly through non-syndicated co-finance. IFC also uses blended concessional finance as a de-risking tool to bridge gaps in commercial markets. These concessional funds can help catalyze private financing that would not otherwise be available to projects with high climate impact.

To scale up green equity and debt financing in Asia, governments across the region should explore the use of blended vehicles in which concessional finance from public and/or development agencies is used to share some of the risks with private sector investors who may otherwise be unwilling or unable to invest. Blended finance is essentially a combination of concessional finance from donors or third parties alongside a project's own account finance and commercial finance from investors to develop private sector markets, address the Sustainable Development Goals (SDGs), and mobilize private resources. Several countries within the region could consider introducing a green investment fund, which would blend concessional finance with private capital to invest in strategic green priorities set by their governments. A structure similar to venture capital or a private equity fund could tap into the growing interest from private sector investors (including foreign investors) in green development projects, including investments targeted towards renewable energy, green infrastructure, and the broader climate actions agenda. This could also unlock investment opportunities that are usually more constrained, such as investments required at the regional and subnational levels. A fund should be set up to help build a pipeline of investable projects, offering technical assistance on the ground to originate and label green projects. And these funds need to be independently managed to benefit from market efficiencies and avoid conflicts of interest.

Globally, IFC has built a robust climate business portfolio over the last decade. In FY21 (ended on June 30, 2021), IFC committed a record USD4 billion for climate projects, representing 32% of its own account commitments, up from 30% in FY20. And between FY21 and FY25, IFC's climate business target is to invest an average of 35% of its own investment in climate. As part of the World Bank Group's Climate Change Action Plan (CCAP) for 2021-2025, which was published in June 2021, IFC is also committed to aligning

Figure 2: Investment Opportunities in Asia by Sector, 2020-2030



Note: The Asian economies covered by this analysis include East Asia & Pacific (China, Indonesia, Philippines, and Vietnam) and South Asia (Bangladesh and India).
Source: IFC, 2021, *Ctrl-Alt-Delete: A Green Reboot for Emerging Markets.* Washington, DC: World Bank Group

85% of new direct investments with the objectives of the Paris Agreement by FY24 (starting July 1, 2023) and 100% of these investments starting in FY26.

In addition to direct climate investments, IFC leverages its more than 750 financial intermediary clients, holding USD5 trillion in banking assets in emerging markets, to expand financing available for climate projects. IFC provides dedicated credit lines for on-lending to climate projects and helps build internal systems, tools, and capacity to grow client banks' green portfolios significantly. In addition, IFC has developed a new approach to greening equity investments in financial institutions (FIs). This approach is designed to increase climate lending and reduce exposure to coal in financial clients where IFC has equity, or an equity-like, exposure.

IFC further supports the establishment of local green finance markets by issuing local currency bonds. It helps banks issue their own green bonds by providing guarantees, acting as an anchor investor, and providing advisory services and tools to help clients develop, issue, and track green bonds. More specifically, this enables emerging market clients to gain access to a wider investor base and paves the way for future issuances without enhancement. IFC will leverage its experience with the financial sector to support the green bond issuances of manufacturing, agribusiness, and commercial services clients. In addition, IFC is developing criteria for its investments in transition bonds and blue bonds.

IFC's Sustainable Activities in Asia

As capital markets are core to achieving climate targets, IFC has been playing a pivotal role, particularly in Asia, in growing these markets not only for green and climate-related financing but also for the broader sustainable finance market. If we just look at the last five years, IFC's commitments in climate finance lending (including own-account lending and mobilization) have grown dramatically from USD396 million in 2015 to USD2.9 billion in 2020, targeting further growth in commitments in climate-related financing to USD3.5 billion during 2020–2025[5] globally.

Sustainable financial policies and appropriate regulatory frameworks are critical to encouraging capital flows to sustainable projects and sectors. Therefore, IFC has been focusing on developing the entire ecosystem to foster sustainable finance in Asia via i) taxonomy development; ii) technical assistance for issuers; iii) green buildings certification; iv) knowledge and capacity building; and v) climate finance regulation. At the same time, many middle-income and emerging economies across Asia have made notable progress on launching and implementing sustainable finance frameworks and practices, enabling them to increase their market resilience and unlock new green and inclusive investment opportunities.

In the sections that follow, we describe three case studies of IFC's commitment to green and sustainable investment that provide concrete examples of the institution's involvement in this critical area.

Indonesia's regulatory framework, green bonds, and green loans

Since 2013, IFC's Environmental and Social Risk Management Program in Indonesia has provided technical assistance and capacity building to the Financial Services Authority (OJK) to develop the country's first-ever sustainable finance framework and corresponding regulations. In 2017, IFC's ESG (Environmental, Social, Governance) partnership with the OJK successfully spearheaded the issuance of Regulation No. 51/2017 on sustainable finance in Indonesia that mandates all FIs to integrate sustainable principles in their business process, including the risk and opportunities associated with climate change by 2024. This was a significant first step towards a multi-year reform that has enabled a positive shift in the behavior of Indonesian FIs to incorporate sustainable practices, strengthen the country's corporate governance framework, and boost the overall green investment climate. As such, seventeen banks reported USD81 billion in sustainable portfolio financing in their 2019 sustainability/annual reports, which represents a 139% increase from 2017.[6]

Moreover, IFC has played a significant role in deepening Indonesia's financial markets, particularly within the sustainable finance space, including green and climate-related instruments. In 2018, IFC supported Bank OCBC NISP (OCBC NISP), a subsidiary of OCBC Singapore, to issue the country's first Green Bond. IFC fully subscribed to the Green Bond and issued a corresponding IFC Komodo Green Bond to fund the OCBC NISP Green Bond investment listed on the London Stock Exchange and Singapore Stock Exchange, attracting a robust investor demand for approximately USD134 million.[7] In 2019, IFC also extended a local currency senior debt facility of USD150 million to Bank BTPN (including a USD50 million green loan) to expand its green financing capacity and increase lending to micro, small and medium enterprises (MSMEs). As Indonesia's capital market continues to evolve, OCBC NISP recently launched a USD200 million sustainability bond program comprising of green and the first-ever gender bonds for USD100 million each. IFC subscribed the entire USD200 million to help expand OCBC NISP's green financing and increase lending to women entrepreneurs.[8] Overall, building sustainability into financial systems not only helps manage environmental, social, and climate risks but also enables greater investment flows, which has undoubtedly deepened the financial market development within Indonesia.

Green loan in Nepal

Asia has a diverse mix of low-income and emerging economies, where awareness in the banking sector remains very limited, particularly regarding climate finance. As such, the sustainable debt market is severely underdeveloped in Nepal, where no labeled green loan or bond has been issued in the market as yet. With actively engaging in such frontier markets, IFC recently provided a 5-year USD50 million senior loan to NMB Bank, of which at least USD6.25 million is carved out for climate-related finance, and the remainder is used exclusively to finance small and medium-sized enterprises (SMEs) in Nepal.[9] This Project supports NMB in building the bank's capacity to identify and evaluate green lending opportunities, increasing its non-hydropower green portfolio by threefold in terms of both volume and value to USD42.4 million over the life of the loan. More specifically, the issuance of green loans to NMB Bank is part of IFC's overarching sustainable finance strategy to strengthen Nepal's broader SME banking sector. This involves earmarking up to USD170 million in loans targeted towards SME lending for up to five banks over the next two years.[10] Further, by providing both financing and a toolkit for local banks to grow their expertise and business in the SME segment, IFC also aims to push broader strategic initiatives such as green and gender financing in this sector. Finally, given the current COVID-19 pandemic, the

loan proceeds will significantly boost the recovery of the bank's SME and climate clients within the country.

Expanding issuance of sustainability-linked instruments

The popularity of green and climate bonds has led to an expansion into broader sustainable instruments, including sustainability-linked bonds, loans, and other products[11] to mobilize capital for sustainable development objectives. The issuance of sustainability-linked products differs from traditional sustainable finance instruments, such as green and climate-related bonds and loans, which are primarily governed by the facility's use-of-proceed.[12] The sustainability-linked products aim to incentivize pre-agreed environmental and social targets by linking pricing, usually interest rates, to their achievement. While the targets for such instruments are aligned with the firm's corporate sustainability strategy, the incentive structures vary, including an increase ("step-up") in the interest rate paid by the firm if the target is missed, a decrease ("step-down") if the target is met, or both.

Though low-and-middle-income countries have seen just 6% of the total issuance of sustainability-linked bonds to date, market demand for such instruments is rising (particularly in Asia, including China, India, Indonesia, and Thailand).[13] This is essentially driven by the urgency and pressure of tackling climate change. Importantly, sustainability-linked financing also offers emerging market companies the potential to quickly, simply, and cost-effectively tap into much-required international capital resources to fund their sustainability transition. While financing such instruments has been at the core, IFC focuses on a holistic approach for its clients, including providing strategic, transactional, and implementation support.

In September 2021, IFC anchored a sustainability-linked bond issuance of Sembcorp Industries in Singapore. This was IFC's first-ever investment in a sustainability-linked bond globally, which was also the first sustainability-linked bond issuance by an energy company in Southeast Asia and the largest issuance (USD500 million) for such an instrument within the region. Besides providing an anchor subscription of USD110 million, IFC also acted as the sustainability coordinator for this bond, which was listed on the Singapore Stock Exchange. As such, it helped Sembcorp preview the sustainability-linked financing framework, including a materiality assessment for the selection of metrics, target benchmarking, implementation action plans, and reporting methodologies. With a 10.5-year tenor, the facility had a coupon step-up/down of 25 basis points linked to achieving a carbon intensity reduction target of 20% by the end of 2025.[14] Overall, this sustainability-linked bond is expected to contribute to Sembcorp's strategic transformation plan to green its portfolio by demonstrating best practices and stimulating other corporates in the infrastructure sector and beyond to adopt similar climate-focused and sustainability strategies, targets, and financing mechanisms.

Conclusions

The private sector will need to play a substantial role in mobilizing finance for sustainable financing if the world's economies are going to make a serious effort to mitigate and adapt to climate change. The investment needs and risks are too large to be met by the public sector alone. Whether through greater private sector involvement or blended financial instruments, private capital is essential. More specifically, local FIs will need to play a central role in mobilizing the necessary private sector financing associated with the region's rapidly increasing climate business opportunities. The investment opportunities and needs for all forms of sustainable financing are greater in Asia than in any other emerging or developing region. And it is expected that FIs (banks) will have to enhance their climate-related loans from 7% in 2017 to at least 30% by 2030 to meet the expected debt financing associated with climate business opportunities. So far, IFC has engaged heavily with the private sector across Asia through various sustainable financing instruments. The institution must continue to play an important role in helping the private sector co-drive the effort to meet the regional (and the global) climate challenges and meet Paris Agreements commitments in the decades ahead.

Notes

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2 Garrett-Peltier, Heidi, 2017, "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model," Economic Modelling, Elsevier, vol. 61(C), pages 439-447.

3 International Energy Agency (IEA) and International Monetary Fund (IMF), 2020, Sustainable Recovery: World Energy Outlook Special Report.

4 IEA, 2020, Green stimulus after the 2008 crisis.

5 IFC Portfolio, 2021

6 IFC and OJK, 2020, "Raising the Bar on Environmental, Social, and Corporate Governance Standards".

7 IFC, 2018, "IFC's Pioneering Komodo Green Bond Raises USD134 Million for Climate Investments in Indonesia".

8 IFC and OJK, 2020, "Raising the Bar on Environmental, Social, and Corporate Governance Standards".

9 IFC, 2020, "Financial Invest Group Asia Climate Finance Investments in FY 2020".

10 IFC, 2020, "Financial Invest Group Asia Climate Finance Investments in FY 2020".

11 Transition Bonds and Blended Finance.

12 IFC continues to follow use-of-proceed for sustainability linked loans and bonds due to its board decision related to Environment and Social performance standards requirements.

13 IFC, 2021, "Sustainability-linked Financing".

14 IFC, 2021, "Sustainability-linked Financing".

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TRIA MUTIARI MEILAN

Sustainable Finance Practitioner

Importance of the Local Touch in Implementing Sustainable Finance in Indonesia

Indonesia's Role in Sustainable Development

Indonesia's involvement in sustainability increased when the country committed to reducing greenhouse gas emissions through ratification of the Paris Agreement, which was reflected in the First Nationally Determined Contribution (NDC) of the Republic of Indonesia in 2016. The Paris Agreement requires Indonesia to outline and communicate post-2020 climate resilience actions in an NDC document submitted to the United Nations Framework Convention on Climate Change (UNFCCC). The targets for reducing greenhouse gas emissions in Indonesia set in the NDC document are 29% unconditional (through own efforts) and 41% conditional (with adequate international support) by 2030. Subsequently, the NDC was updated through the Updated NDC Republic of Indonesia in 2021.

In addition to these provisions, the Indonesian government's considerable commitment to the good of the natural environment is reflected in the Law on Environmental Protection and Management issued in 2009. The law stipulates that every citizen has the right to a healthy environment and that the government is based on principles of sustainable and environmentally friendly development. It also recognizes that the quality of the environment is decreasing, which requires serious and consistent efforts by all stakeholders, and especially that increasing global warming results in climate change, thereby exacerbating the decline in the quality of the environment.

Indonesia has also comprehensively involved all relevant ministries to work together to formulate a pattern for implementing the Sustainable Development Goals (SDGs) through the Presidential Regulation of the Republic of Indonesia in 2017. SDGs are a global action plan agreed by world leaders, including Indonesia, to end poverty, reduce inequality and protect the environment. The SDGs contain 17 goals and 169 targets that are expected to be achieved by 2030. The implementation of the SDGs in Indonesia is carried out by the SDGs Secretariat under the National Development Planning Agency (Bappenas).

The Long-term Development Plan Indonesia for 2005-2025 includes eight national development missions with the sixth mission being to create a beautiful and sustainable Indonesia. This sixth mission, among other objectives, includes:

- Management of development implementation that can maintain a balance between utilization, sustainability, existence, and use of natural resources and the environment;
- Economic use of natural resources and the environment in a sustainable manner; and
- Maintenance and utilization of biodiversity as the basic capital of development.

The National Medium-term Development Plan 2020-2024 prioritizes environmental quality improvement, increasing resilience to disaster and climate change, and low carbon development (Table 1).

At the 26th UN Climate Change Conference of the Parties (COP26), the largest and most important climate-related conference on the planet, held in Glasgow, Scotland, October-November 2021, Indonesia submitted its Long-term Strategy for Low Carbon and Climate Resilience (LTS-LCCR) document which explained targets and plans for climate change mitigation through 2050. Among these commitments is the carbon sink function in the forestry sector starting in 2030 with the potential to achieve net zero emissions in 2060 or sooner. Indonesia is also one of 26 countries that have signed a commitment to harmonize international support for clean energy transition and abandon the use of fossil fuels.

Indonesia will host the G20 Summit in 2022, with one of its priorities to strengthen cooperation in overcoming climate change and promoting sustainable development, as stated by President Joko

Table 1: National Medium Term-Development Plan 2020-2024

Priority Program	Description	Indicator
Priority Program 1: Environmental Quality Improvement	Improving the quality of the environment index by encouraging the improvement of the quality of the environment	Environmental Quality Index (IKLH) target: 69.7 in 2024
Priority Program 2: Increasing Resilience to Disasters and Climate Change	Bappenas analyzes the distribution of priority locations for climate resilience action in 4 priority sectors: marine & coastal, waters, agriculture, health	Reducing gross domestic product (GDP) losses due to disasters and climate change 1.25% to total GDP in 2024
Priority Program 3: Low Carbon Development	5 main strategies for low carbon development in Indonesia to increase economic growth along with reducing GHG emissions by 27.3% in 2024	Emissions reduction target: 27.3% to baseline at 2024 Emissions intensity reduction target 31.60% against the 2024 baseline

Source: Bappenas

Widodo at the Leader Summit on Climate April 2021.

History of Sustainable Finance Implementation in Indonesia

In line with the increasing commitment of the government, the development of sustainable finance, especially in banking institutions in Indonesia, has increased rapidly, especially after the occurrence of the COVID-19 pandemic over the last 2 years. However, the introduction of sustainable finance began almost ten years ago, starting from Environmental Analyst Training program from Central Banks of Indonesia to many bank employees. The pilot project "First Movers on Sustainable Banking", a partnership between The Indonesian Financial Services Authority (OJK) and WWF-Indonesia can be said to be the first milestone in Indonesian banks' commitment to sustainable finance implementation.

The pilot project consists of eight banks representing 46% of national banking assets, namely Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), Bank Central Asia (BCA), Bank Muamalat, BRI Syariah, Bank BJB and Bank Artha Graha Internasional. It is a major step taken by the banks, less than a year after the OJK launched the Financial Sustainable Roadmap on 5 December 2014. This pilot project aims to support banks in preparing their competencies towards the targets in the Financial Sustainable Roadmap. Another project aims to improve each organization's ability to manage environmental, social, and governance (ESG) aspects in its business decisions and to increase the funding portfolio for businesses that implement sustainable practices.

The OJK made sustainable finance mandatory with the issuance of OJK's rule No. 51 of 2017 concerning the Implementation of Sustainable Finance for Financial Service Institutions, Issuers, and Public Companies. Under the OJK's rule, banks are asked to implement at least four main activities, namely the implementation of sustainable finance, the preparation of a sustainable finance action plan, the preparation of a sustainability report, and corporate social responsibility budget allocation for sustainable finance objectives.

In terms of the sustainable finance action plan, banks are asked to implement three main priorities, namely first, innovation of environmentally friendly products and services, and increasing the green finance portfolio, the second, increasing capacity building, and the third, improving organizational governance, risk management, policies or procedures. Particularly, increasing the financing portfolio is a necessity as well as a new opportunity for banks in Indonesia.

Special Characteristics of Indonesia and Indonesian Banking

Indonesia's total area is 5,193,250 km^2, of which 1,919,440 km^2 is land while the sea area is 3,273,810 km^2. There are 17,504 islands in the Indonesian archipelago. Indonesia's geographical conditions are also diverse, with people residing in coastal as well as mountainous areas. With this vast territory, many characteristics affect implementation of the ESG paradigm in the lives of people and businesses, especially in remote areas far from direct government attention, the so-called 3T (Front, Remote, Disadvantaged) population.

Indonesia's geographical resources are a great asset. Its 4,400 rivers have the potential to produce tens of thousands of megawatts of electricity. For example, the Mambremo river in Papua has the potential to produce electricity equivalent to 24 thousand megawatts, and the Kayan river in North Kalimantan can produce around 11-13 thousand megawatts of hydropower.

Indonesia also has the largest area of tropical forest in the world with extraordinary biodiversity (flora and fauna). The forest covers 94.1 million hectares or 50.1% of the total land area. Forests are a source of livelihood for tens of millions of Indonesians, either directly using forest products for their daily needs or through employment in the wood processing sec-

tor. Unfortunately, deforestation still occurs every year. However, based on data from the Ministry of Environment and Forestry (KLHK), Indonesia managed to reduce deforestation by 75.03% in the 2019-2020 period, to 115.46 thousand hectares. This figure is much lower than the deforestation in 2018-2019 of 462.46 thousand hectares.

Based on data from the National Medium-term Development Plan, the sustainable potential of existing resources in the marine and fisheries sector is 53.9 million tons/year consisting of capture fisheries of 6.4 million tons/year, marine aquaculture 46.7 million tons/year, brackish and freshwater fisheries 55.7 million tons/hectare, and aquaculture 1 million tons/year. At the same time, around 40% of coral reefs have been severely damaged, and only about 30% of mangrove forests are in good condition, which has resulted in the decreasing population of fish and other biota. In addition to fisheries, marine resources that have not been developed optimally are biotechnology and other environmental services.

In terms of targets for changing from non-renewable energy to new and renewable energy, Indonesia is experiencing severe pressure because it still relies on fossil fuels. The use of fossil fuels is increasing at the same time that fossil energy sources dwindle. For this reason, the transition from fossil energy use to new and renewable energy is necessary. According to data from the Ministry of Mineral Resources, Indonesia will run out of oil in the next nine years, of natural gas in 22 years, and of coal in the next 65 years.

Based on data from the Population Administration as of June 2021, the total population of Indonesia is 272,229,372 with 137,521,557 men and 134,707,815 women. Of the total 272 million, 56.01% is concentrated on the island of Java, where the Province of West Java is the province with the largest population, 47,586,943 people. The province with the smallest population is North Kalimantan (Kaltara) with 692,239 inhabitants.

Indonesia has 1,340 ethnic groups according to the 2010 Badan Pusat Statistik (BPS) census. The Javanese are the largest ethnic group, accounting for 41% of the total population.

Based on data from the Ministry of Cooperatives and Small and Medium Enterprises in March 2021, the number of micro-, small- and medium-sized enterprises (MSMEs) in Indonesia reached 64.2 million and they contributed 61.07% to GDP or IDR8,573.89 trillion.

Indonesia's unique geographic and demographic conditions create challenges for implementing sustainable finance. Of course, it is not easy to introduce the ESG paradigm, but it also opens up great business and innovation opportunities from these characteristics.

Banking conditions in Indonesia have undergone many changes from time to time. This change was caused by internal developments in the banking world, and the influence of developments outside the banking sector, such as the real sector in Indonesia economic, political, legal, and social. Until now, the health condition of banks in Indonesia is generally still good and is part of the supervision of the OJK. In Indonesia, banking is divided into commercial banks and rural banks (Table 2). Both commercial and rural banks conduct business activities conventionally or based on Sharia principles. The difference with rural banks is that in their activities they do not provide services in payment traffic.

Table 2: Banking Industry Operations by Type of Bank

Indicator	2019	2020	September-2021
Distribution of Funds (IDR Billion)			
Commercial Banks	8,280,812	9,098,135	9,755,519
Rural Banks	144,107	148,709	155,800
Indonesian Obligation (SBI/SBIS)	68,974	18,785	10,611
Source of Funds (IDR Billion)			
Commercial Banks	6,839,563	7,406,325	7,778,785
Rural Banks	123,603	127,522	134,330
Total Assets (IDR Billion)			
Commercial Banks	8,562,974	9,177,094	9,735,389
Rural Banks	149,872	155,075	152,734
Total Banks			
Commercial Banks	110	109	107
Rural Banks	1,542	1,506	1,481
Total Banks Offices			
Commercial Banks	31,127	30,176	29,588
Rural Banks	5,964	5,885	5,850

Note: Distribution of funds includes loans outstanding, internet bank transfers, placement in Central Banks of Indonesia, etc.
Source: OJK

Implementation of Sustainable Finance in Indonesia

Indonesia's unquantifiable natural resources can also be a major force to encourage a greener lifestyle. Banking institutions in particular are required to adopt innovations to encourage improvement towards a greener economy. In carrying out their obligations, banks adopt various products and enhance quality improvement and program targets related to Corporate Social Responsibility and financing and empowerment of MSMEs as well as increasing sustainable financing.

The progress of Indonesian banking cannot be separated from the support of OJK in pushing through regulations. The Sustainable Banking Network (SBN) in 2019 included Indonesia and China in the maturation stage in the context of regulations regarding sustainable finance and being first movers country category.

According to data compiled by the OJK, the value of sustainable financing in Indonesia reached USD55.9 billion or IDR809.75 trillion in 2020, an increase from 2019 when it amounted to around IDR763 trillion or 9% of total financing distributed. In that year, the value of green bonds issued in the domestic market was

USD35.12 million (IDR500 billion) or 0.01% of total outstanding bonds. Meanwhile, global sustainability bonds by Indonesian issuers reached more than USD2.22 billion or around IDR31.6 trillion and the blended finance portfolio received a commitment of USD 2.46 billion or IDR35.6 trillion.

Nearly 50% of banks in Indonesia, which represent 91% of total bank assets, show an increasing commitment to implementing sustainable finance, as measured by their sustainability reports.

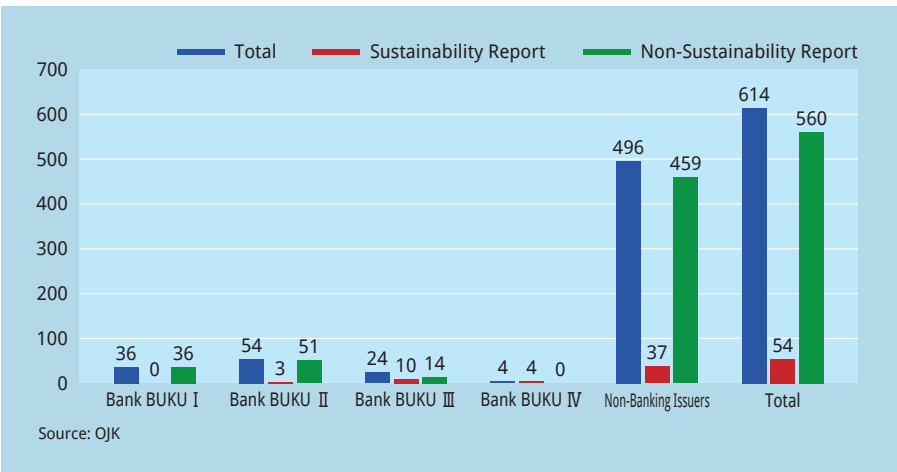
Figure 1 illustrates the comparison between Financial Services Institutions (Banking and Non-Banking) that have published a Sustainability Report (SR) and those that have not published a SR (Non-SR). Banking is divided into 4 categories according to the provisions in Indonesia, namely Commercial Banks for Business Activities (BUKU I to IV) based on core capital.

The many ecosystems involved in the development of sustainable finance in Indonesia will encourage many parties to be involved and will encourage partnerships to tackle the country's climate problems by supporting programs initiated by the government and the private sector.

Fulfilling the financing and investment needs of Indonesia's SDGs (2020-2030) requires around IDR67,803 trillion, with the government providing around 62%, and non-government entities around 38%.

OJK is also developing a blended finance scheme (a financing process involving the private sector and the financial services industry) as an alternative solution for financing various projects to drive an economy that is environmentally friendly but suitable for private investors.

Figure 1: Number of Financial Services Institutions that Issue Sustainability Report



BRI and Bank Mandiri Issue Sustainability Bonds instead of Green Bonds

In 2019, BRI issued a global sustainability bond with a total amount of USD500 million as a sign of BRI's commitment as the first mover in implementing sustainable finance practices in Indonesia. This sustainability bond is an alternative source of BRI funding for MSMEs and will strengthen BRI's business in the MSME segment, which as of December 2018 reached 76.5% of BRI's total loans.

In 2021, Bank Mandiri issued sustainable bonds worth USD300 million, or around IDR4.2 trillion. The funds will be used for social programs and environmentally friendly projects. BRI also complies with the Sustainability Bond Guidelines from the International Capital Market Association (ICMA) and is in line with the Association of Southeast Asian Nations (ASEAN) Sustainability Bond Standards, Green Bond Standards, and Social Bond Standards.

Challenges Faced by Sustainable Finance in Indonesia

Although it is recognized that global investors have shifted their investment to ESG investment, there are still challenges in implementing sustainable finance in Indonesia, especially due to the special circumstances of Indonesia as described earlier. These challenges when viewed from the three main priorities of the sustainable finance action plan are:

Product innovation and increasing financing portfolio

In general, Indonesian banks are still limited in designing special products that are climate-related and environmentally friendly. The OJK categorizes the portfolio increase for green and social financing into twelve categories of sustainable business activities, namely: 1) renewable energy; 2) energy efficiency; 3) pollution prevention and control; 4) management of biological natural resources and sustainable land use; 5) conservation of land and water biodiversity; 6) environmentally friendly transportation; 7) sustainable water and wastewater management; 8) climate change adaptation; 9) eco-efficient; 10) environmentally friendly buildings that meet nationally, regionally, or internationally recognized standards or certifications; 11) business activities and/or other environmentally friendly activities; and 12) MSMEs. Financing of the renewables energy portfolio still faces several constraints, such as the lack of a special guarantee or insurance scheme to cover the risks of financing renewable energy projects.

Issuance of green bonds is still relatively minimal in Indonesia. In fact, this instrument has a fairly large market potential in the country. The number of regular investors who become green bondholders is influenced by how the investment manager carries out promotions, the number of purchases, the country where marketed, the instruments issued, and the stability of the issuing country.

Currently, banks have not yet explored Indonesia's huge natural resource potential, including in the forestry sector, and fisheries as an opportunity for green financing innovation schemes. Product

innovation in climate related areas, both in terms of green savings and services is still limited too. On the other hand, banks are required to increase the adjustment of priority programs towards certain SDGs. Banks are asked to determine the SDGs National Action Plan as part of the document to be submitted by the government.

Encouraging the transformation of public consumption to become sustainably oriented is also a considerable effort for a country such as Indonesia with a population scattered across varied geographic regions.

Capacity building

Capacity building for understanding ESG has been carried out, however, it is still necessary to expand the understanding of sustainable finance beyond certain limited circles within a company.

Given that ESG knowledge is very broad, it is also hoped that awareness can be raised starting from the highest level, namely the board of commissioners, directors, and employees. Implementation can also be carried out through seminars, webinars, and sustainable finance certification. The lack of an understanding of standards related to ESG can potentially lead to management impartiality due to a misunderstanding of the implementation of ESG itself. ESG is often seen as a business obstacle or a source of additional costs that complicate a bank's business processes. This kind of obstacle is commonly experienced by banks that are still in the early stages of implementing ESG. In addition to encouraging capacity building internally, banks also need to encourage literacy for external parties, both customers and the community in their operational areas, so that the sustainability process can be understood by the Indonesian people more broadly.

Alignment of ESG with the company's business and operations

Integrating all aspects of the ESG paradigm into complicated business patterns and banking operations is a complex matter. Regulatory provisions regarding the implementation of ESG are not as detailed as typical regulations. This means that each financial service institution is free to determine its risk appetite and risk tolerance. This is an obstacle to forcing customers to comply with a provision given that they have not reached the same standard or selection level.

The role of the OJK is important and strategic to accelerate the implementation of sustainable finance in Indonesia in line with efforts to restore economic and financial stability in the wake of the COVID-19 pandemic. OJK's four strategic steps for the effective implementation of the principles of sustainable finance and for dealing with issues related to climate change are:

1. Launch Indonesian Green Taxonomy;
2. Develop a risk management framework for the financial services industry and risk-based supervision guidelines for supervisors to implement climate-related financial risks;
3. Develop innovative and feasible project financing or financing schemes; and
4. Increase awareness and capacity-building for all stakeholders.

With OJK's initiation of the National Sustainable Finance Task Force this year, it is hoped that the implementation of sustainable finance will increase, especially with the added pressure of Indonesia assuming the G20 presidency in 2022.

The implementation of a sustainable finance program requires coordination of all parties to ensure integration and synergy among ministries in central and local governments. Good coordination with all agencies can prevent certain common obstacles faced in every development implementation, including weak coordination in data and information management so that targets are missed, weak linkages between planning, budgeting, and implementation processes, weak monitoring, evaluation, and control systems (safeguarding), and lack of coordination between the central and local governments.

Recommendations for the Implementation of Sustainable Finance in Indonesia

With the global pendulum starting to move towards a green economy, Indonesia must immediately adapt to these developments. According to President Joko Widodo, once Europe starts, other countries will start too, so Indonesia must quickly take steps to accelerate the implementation of a green economy according to the direction of the talks at the G20. In the transition toward green energy, Indonesia also has the benefit of abundant natural resources that can be utilized to produce a green economy.

Financial services institutions, especially banks, will be interested to increase their green portfolios, not just as an obligation, but as a necessity. To support this, the following things need to be done.

Alignment of government policies and incentives

Typically Indonesia has adopted policies and incentives through various provisions in presidential, ministerial and OJK regulations. However, regulations need to be harmonized and the government needs to hold a special session to explore the needs of companies and commit to accommodate them in established policies. The government needs to establish official channels to accommodate various existing forum agreements so that sharing activities and webinars make a direct contribution to the implementation of sustainable finance.

Regulations that compel business actors have also begun to be implemented, with among other things the provisions of the Carbon Economic Value (Carbon Pricing) issued by the Government of Indonesia in 2021 and effective from June 2022. In addition, the government also regulates the carbon tax in the Law on the Harmonization of Tax Regulations (HPP). As an initial stage, the carbon tax will be applied to the coal-fired power plant sector.

A level playing field for banking

OJK should set the same level of standards for the implementation of sustainable finance itself. The standard could be derived more technically than the current policy. Regulators must also consistently encourage a change in mindset that environmental and social risk factors are opportunities as well as challenges for the financial services sector. This is to create innovative financing, as well as make a transition from business as usual to a business focused on sustainability. OJK should also encourage banks to innovate green financing, especially to capture business opportunities from sectors that have large natural resources in Indonesia, and to develop social financing for 3T areas with requirements and incentives that need to be adjusted according to local conditions.

Standardization of sustainable finance for institutions and practitioners

a. The participation of the academic

community, especially at the university level, to incorporate knowledge and concepts related to sustainable finance is important for the integration of the ESG paradigm into business and strategic management materials. There are thousands of references that can be used to ensure that ESG is integrated into the educational process so that people are aware of the ESG paradigm from an early age. However, these references need to be combined with local cultural values that are closely related to environmental and social values.

b. Development of standardized national certification for institutions related to sustainable finance such as consultants that prepare sustainability reports, sustainability report assurance, and all professionals or practitioners related to sustainable finance. Indonesia should have an Indonesian National Standard (SNI) which refers to global standards and is adapted to Indonesian conditions.

c. Establishing environmental certification according to industrial sub-sectors, especially for industries that have a significant impact on the environment as a whole.

Support for the development of Green MSME

The government needs to devote more attention to support local green product brands (MSMEs) so that the implementation of ESG can touch the micro level:

a. Provide improvements for products to become environmentally friendly;

b. Provide education, seminars, or collaborations for MSME brands regarding the SDGs;

c. Critically select MSMEs for green financing;

d. Encourage MSMEs to carry out corporate social responsibility on a micro basis in the surrounding environment; and

e. Prepare MSME Green Certification standards with relevant and simpler requirements.

Conclusion

Indonesia's unique characteristics greatly influence the approach of stakeholders in their effort to accelerate the implementation of sustainable finance. This uniqueness must be appreciated and smartly incorporated in the design of programs and regulations as Indonesia continues to strive to meet global standards in the implementation of sustainable finance or ESG. Through the development of ESG in a holistic manner, Indonesia can achieve the SDGs effectively but also in a way that touches all levels of Indonesian society.

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TRIA MUTIARI MEILAN

Sustainable Finance Practitioner

Tria Mutiari Meilan started her career as a banker in 2002 and she has been involved in the development of sustainable finance for more than 8 years. She is currently responsible for designing the ESG policy and strategy development.

Since joining, she has been assigned to various fields at the head office, namely sustainable finance, risk management, human capital development, and consumer banking.

She is active in various sustainability development and discussion activities in Indonesia like Indonesian Sustainable Finance Initiative (ISFI) Forum. She participates in training activities related to sustainability and has a number of certifications both from within and outside the country, including: Global Reporting Initiative (GRI) Certified, Green Finance Specialist Certified, and Trainers of Environmental Analyst Training.

She holds a Bachelor's degree in agriculture from IPB University and a Master's degree in Small and Medium Industry Development Management from IPB University.

PROMOD DASS

RAM Sustainability Sdn Bhd

GLADYS CHUA

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Gradual Ripple to Energetic Wave–Malaysia's Sustainable Finance

Introduction

Rating Agency Malaysia Berhad or "RAM" has a unique vantage point on Malaysia's sustainable finance journey to date given its pioneering roots within the Malaysian capital market as a credit rating agency and in environment, social and governance (ESG) analytics in recent years. RAM was established by Bank Negara Malaysia (BNM), the central bank of Malaysia, in November 1990 as a catalyst for the domestic debt capital market and as the nation's first credit rating agency as part of the "institutional infrastructure" to support the development of Malaysia's bond market. On 1 July 2007, its rating operations were novated to RAM Rating Services Berhad (RAM Ratings). RAM Ratings is a wholly owned subsidiary of the RAM Holdings Berhad. RAM Ratings has rated over USD455 billion of bonds and sukuk in various sectors since inception. On 26 May 2016, RAM Ratings joined the line-up of pioneer credit rating agency signatories to the United Nations-supported Principles for Responsible Investment's (PRI) Statement on ESG in Credit Ratings. RAM Sustainability Sdn Bhd, another wholly owned RAM Group subsidiary is a provider of sustainability services and ESG analytics.

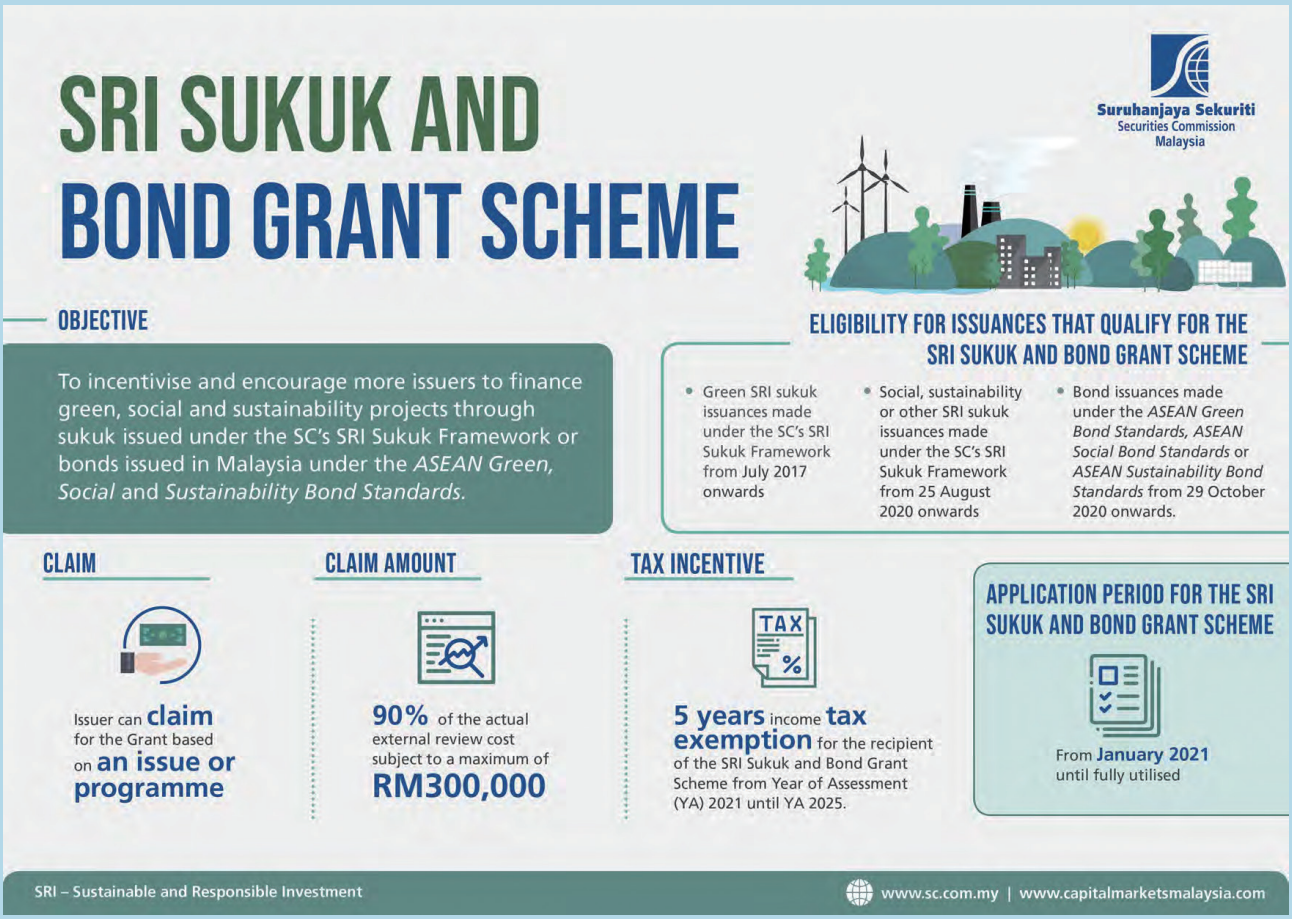
The First Few Ripples–Regulatory Vision and Islamic Finance

Malaysia's visionary regulators and strong foundation in Islamic finance, proactive market players and well-established capital markets provided the foundation for sustainable finance to grow roots. Malaysia is committed to the United Nations' Sustainable Development Goals and is also party to tackling climate change as a Paris Agreement signatory. *Chapter 5: Pursuing Green Growth for Sustainability and Resilience* of the *11th Malaysia Plan*[1] (2016-2020) articulated the early direction of Malaysia's green strategy. In this context, Securities Commission Malaysia's (SC) Sustainable and Responsible Investment (SRI) Sukuk Framework, issued in 2014, had paved the way for the bond market. The government's strategic investment fund, Khazanah Nasional Berhad (Khazanah), took the lead in 2015 and pioneered the Sukuk Ihsan, the world's first SRI sukuk. The Malaysian stock exchange, Bursa Malaysia, a member of the Sustainable Stock Exchanges Initiative, established the FTSE4Good Bursa Malaysia Index in 2014. In another progressive step, all listed companies in Bursa Malaysia commenced sustainability disclosures in annual reports on a staggered basis spanning the 2016-2018 period according to the company's market capitalisation. All these measures had primed the corporate sector for the green finance evolution.

The SC played a key role in the establishment of the ASEAN Green Bonds Standards (issued on 8 November 2017), through the ASEAN Capital Market Forum's collaboration with the International Capital Market Association. This effort initiated channeling of green finance to further fuel ASEAN's growth and create a new ASEAN fixed-income asset class. To invigorate SRI funds in Malaysia, the SC issued Guidelines on SRI Funds on 19 December 2017. This enabled funds to be designated as SRI funds and widened the range of SRI products in the market while attracting investors to the SRI segment.

Meanwhile, BNM had also detailed strategies to strengthen the role and impact of Islamic banking institutions in a sustainable financial ecosystem. BNM had guided the sector through its Strategy Paper on Value-based Intermediation which was published on 20 July 2017 and finalised on 22 March 2018. To spur the green market, the Malaysian government also introduced tax incentives, the Green Technology Financing Scheme (GTFS)[2] and the SRI Sukuk and Bond Grant Scheme[3] (Figure 1).

Figure 1: SRI Sukuk and Bond Grant Scheme



Source: SC

In January 2017, the World Bank, BNM and the SC formed a Technical Working Group to accelerate Malaysia's green finance thrust. This led to the issuance of the world's first green SRI sukuk by Tadau Energy Sdn Bhd on 28 July 2017. Permodalan Nasional Berhad's Merdeka ASEAN Green SRI Sukuk heralded another market first.

Malaysia continued to show strong commitment to fulfill its obligations as a signatory to the Paris Agreement.[4] In April 2021, the government successfully issued the world's first sovereign sustainability sukuk through two tranches totaling USD1.3 billion, with an oversubscription of 6.4 times. In 2022, the government plans to issue sustainability sukuk denominated in Malaysian Ringgit of up to RM10 billion to be channeled to eligible social or environmentally friendly projects.

Ripple to Wave.... SRI Sukuk Framework Kickstarted Momentum

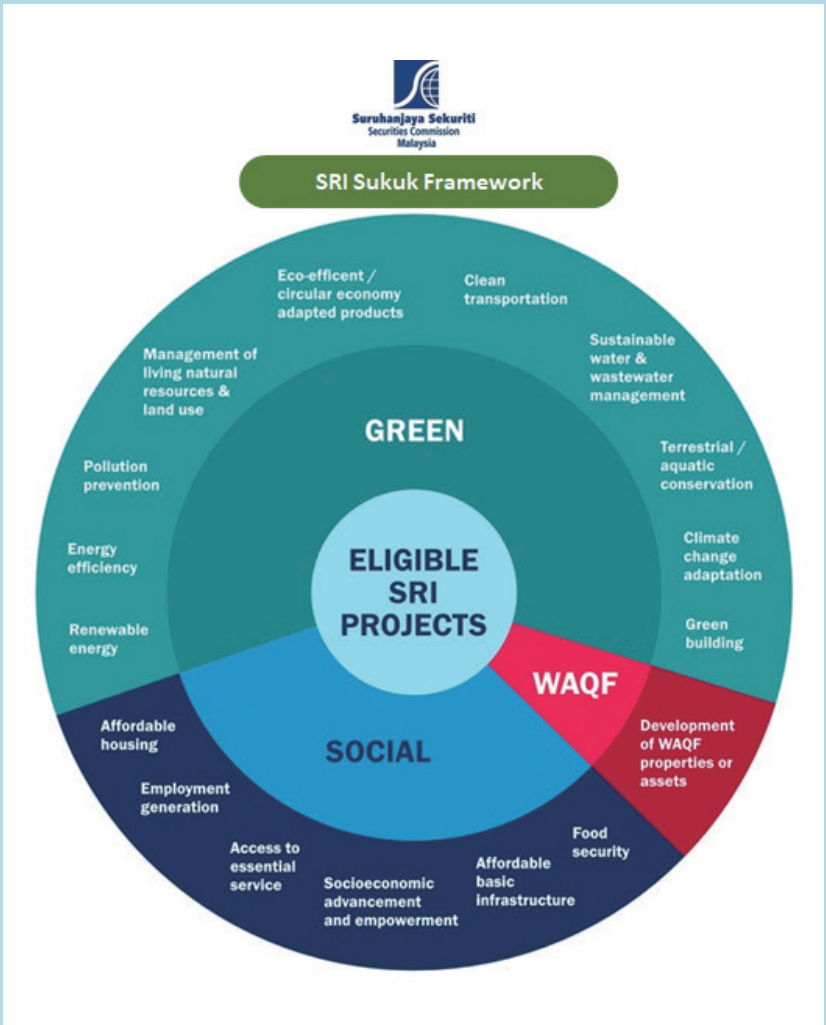
The SRI Sukuk Framework guided Malaysian entities to issue SRI sukuk in the form of green, sustainable, and social sukuk (Figure 2). According to SC published data[5] analysed by RAM, as of November 2021, a total of 23 green-social-sustainability sukuk/bonds had been issued in Malaysia amounting to an estimated RM16.8 billion (Figure 3). These encompassed typically large scale solar-powered projects, green buildings, hydropower facilities, bank green/sustainable finance and education.

In efforts to create a conducive ecosystem and promote sustainable financing, several *Low-Carbon Practices Initiatives* were also included in the recent government of Malaysia (GOM) Budget 2022 as follows:

- To meet the carbon neutral target, the Voluntary Carbon Market (VCM) initiative will be launched under the advocacy of Bursa Malaysia. This initiative acts as a *voluntary platform for carbon credit trading between green asset owners and other entities transitioning towards low-carbon practices*.

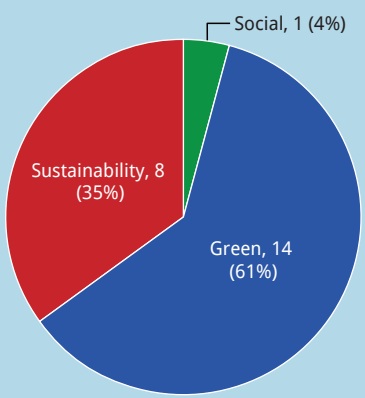
- To help small and medium-sized enterprises (SMEs) adopt sustainable and low-carbon practices such as by increasing the use of sustainable raw materials and renewable energy, *BNM will provide a Low Carbon Transition Facility with a fund value*

Figure 2: SRI Sukuk Framework Summary



Source: SC

Figure 3: Mix of Green, Social and Sustainability Bonds/Sukuk in the Malaysia Market as at end-November 2021



Source: RAM, compiled and interpreted by RAM based on data published by SC

of RM1 billion which will be based on a matching fund arrangement with participating financial institutions.

Key Institutional Investors Synergized the ESG Wave

Three prominent institutional investors, Khazanah, the Retirement Fund (Incorporated) or KWAP and the Employees Provident Fund, became PRI signatories signifying their commitment to a sustainable financial system on a global stage by end-2020. This sent a strong message to the financial ecosystem in Malaysia. The groundwork for this sustainable finance wave had been laid in 2014 when sustainable finance was incorporated into the Malaysian Institutional Investors Code. In April 2021, the SC updated *the Malaysian Code on Corporate Governance* to promote board leadership and oversight of sustainability, sounding a clarion call to the corporate sector in Malaysia.

Visionary Regulators Catalyzing Future Transformation Waves

The formation of the *Joint Committee on Climate Change* (JC3) in September 2019 to pursue collaborative actions for building climate resilience within Malaysia's financial sector was another major milestone. The JC3 is co-chaired by BNM and SC with members comprising senior officials from Bursa Malaysia and 19 financial industry players as well as relevant experts. The JC3's initiatives and priorities are undertaken by its five sub-committees, namely Risk Management; Governance and Disclosure; Product and Innovation; Engagement and Capacity Building; and Bridging Data Gaps.

On 15 April 2021, BNM issued the *Climate Change and Principle-based Taxonomy (CCPT)*. The CCPT aims to guide financial institutions in identifying and classifying economic activities that could contribute to

climate change mitigation and adaptation.

In conjunction with the 2021 United Nations Climate Change Conference (COP26), the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) has reiterated its willingness to contribute to meeting the objectives of the Paris Agreement and to expand and strengthen the collective efforts towards greening the financial system. As a member of the NGFS Steering Committee in supporting the NGFS Glasgow Declaration for COP26, BNM pledged to undertake several initiatives[6] in support of the six recommendations published in the *NGFS First Comprehensive Report on A Call for Action: Climate Change as a Source of Financial Risk* in April 2019.

Notes

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Hang Tight for the Next Tubular Wave.... Transition Finance

Transition finance will be the next major area of growth for both the financial sector and capital markets in Malaysia to support the evolution and transformation of various sectors of the economy in line with the initiatives outlined in GOM Budget 2022 and the global market's aspirations on climate resilience and sustainability. While there is in Malaysia already some foundation in green and sustainable finance, the next 3 years would probably see many regulatory and market initiatives to support transition finance.

PROMOD DASS

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Promod Dass is the Deputy Group CEO of RAM Holdings Berhad and CEO of RAM Sustainability Sdn Bhd.

He leads RAM Group's Sustainability Services and ESG analytics. He has accumulated 25 years in the financial services industry including 21 years at RAM Group.

He is a member of PRI's Advisory Committee on Credit Ratings and is also involved in several other regulator-or industry-led sustainable finance initiatives both in Malaysia and internationally.

GLADYS CHUA

Head of Sustainability Services, RAM Sustainability Sdn Bhd

Gladys Chua is the Head of Sustainability Services at RAM Sustainability Sdn Bhd.

She has led an innovative team driving sustainable finance services for corporate Malaysia since 2016. She has been instrumental in developing the framework for Sustainability Rating which has been used to analyse both listed and non-listed companies.

She brings with her a combination of analytical experience from financial to ESG analysis. Her team is responsible for the provision of industry and entity ESG risk analysis; Sustainability Rating for corporates; second opinion on Green, Social and Sustainability Bonds/Sukuk; climate bonds verification; and training and other tailored sustainable finance services.

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Financing a Greener Future for the Philippines: Mitigating Climate Change through Sustainable Finance

Introduction

Though the effects of climate change are being felt all over the world, the situation is especially urgent in the Philippines. The country's location facing the western Pacific means it is met with an average of 20 typhoons per year,[1] while its archipelagic geography explains its many low-lying coastal communities. With rising sea levels, increasingly severe weather conditions, and warming temperatures, the country is in a highly vulnerable position. Enduring super typhoons sustaining winds from 250 kph to 260 kph such as Goni (2020) and Rai (2021), is becoming the new normal for locals. As such, the country was ranked 9th out of 180 countries most vulnerable to climate-related risks in a 2020 World Risk Report.[2]

Filipinos are already experiencing climate change today. From 2010 to 2019, the Philippines lost PHP463 billion worth of infrastructure, 98 percent of which was caused by climate-induced hazards.[3] The total damage in 2020 alone reached a staggering PHP113.4 billion.[4] Inflation rates have also increased because of typhoons that brought damage and losses to agriculture, with the general price level clocking a 4.5 percent average inflation from January to October 2021.[5]

The country's seas have become a dumping ground for waste. The Philippines is the third largest contributor of plastic waste, with 163 million plastic sachet packets, 48 million shopping bags, and 45 million thin-film bags being used and disposed of each day.[6] Plastic pollution, if left unchecked, stands to pose grave risks for communities, the economy, the environment, and the planet.

Laying the Groundwork

With the passing of the Climate Change Act in 2009, the Philippines established the Climate Change Commission (CCC), the leading policy-making body tasked to oversee development plans towards a more climate-resilient and climate-smart Philippines. The commission is responsible for programs such as Communities for Resilience, which strengthens the capacities of local government units (LGUs), as well as the Greenhouse Gas Inventory, which provides science-based technical information for policymakers.

The CCC is also actively campaigning for a plastic-free Philippines, as it provided expertise in crafting House Bill 9147, the Single-Use Plastic Products Regulation Act. House Bill 9147 was approved by the House of Representatives in July 2021, and is pending passage by the Senate.

This year, the CCC, led by Chair-designate and Finance Secretary Carlos G. Dominguez, facilitated the process that established the country's first nationally determined contribution (NDC) as part of the Philippines' commitment to the Paris Agreement on Climate Change. Though the Philippines is responsible for only 0.3 percent of global greenhouse gas emissions, the country put forward an ambitious commitment to reduce its greenhouse gas emissions by 75 percent by 2030, of which 2.7 percent is unconditional and 72.3 percent is conditional. The said commitment is referenced against a projected business-as-usual cumulative economy-wide emission of 3,340.3 metric tonnes of carbon dioxide equivalent (MTCO2e) for the same period.

With the NDC, the Philippines has set its sights on low-carbon development for the agriculture, waste, industry, transport, and energy sectors over the next decade. With these plans in place, the Philippines is gearing up to become a world leader in the reduction of carbon emissions and waste pollution.

To set these plans in motion, the CCC passed Resolution No. 2021-002 to create the Inter-Agency Technical Work-

ing Group (ITWG) on Sustainable Finance, or Green Force, led by the Department of Finance (DOF) and Bangko Sentral ng Pilipinas (BSP). Composed of government agencies that implement climate-related policy, the Green Force guides the development of environmental policies and facilitates sustainable investments through a whole-of-government, whole-of-country approach.

The ITWG is supported by the government of the United Kingdom (UK) through the ASEAN Low Carbon Energy Programme (ALCEP), a USD1.2 billion global development fund that supports inclusive development in partner countries, and contributes to the United Nations (UN) Sustainable Development Goals (SDGs).

In October 2021, the ITWG launched the Sustainable Finance Roadmap[7] and Guiding Principles,[8] the country's primary blueprint for transitioning to a low-carbon, climate-resilient economy. The master plan addresses policy and regulatory gaps in promoting sustainable investments through finance, implementing sustainable government initiatives, facilitating investments in public infrastructure, and developing projects that promote sustainable financing in the Philippines.

To set the plan in motion across the different regions of the country, the DOF launched the 16 new members of the CCC's National Panel of Technical Experts[9] in October 2021. The consulting body, made up of practitioners, professionals, and academicians from different fields of expertise and representing the various regions of the country, will provide the government with fresh ideas and practical advice based on their grassroots experiences.

Greenifying the Banking System

Banks serve a pivotal role in greenifying financial infrastructures. With the implementation of the Sustainable Finance Roadmap, banks now have a guide for adopting new practices in data collection and the prudential reporting of green and sustainable financing. Banks are now more empowered to execute innovative ways to mobilize funds for sustainable development as well as pandemic recovery.

The Sustainable Finance Roadmap complements the BSP Monetary Board's sustainable finance policy framework,[10] passed through Resolution No. 415 dated March 19, 2020. The resolution lays out the BSP's expectations on the integration of sustainability principles in the corporate governance framework, risk management systems, and strategic management systems for all banks within its scope.

Private banks have also begun implementing their own sustainability initiatives. The Bank of the Philippine Islands (BPI) and Banco de Oro (BDO) have launched Sustainable Energy Finance (SEF) Desks, which are channels for evaluating and monitoring sustainable energy projects. BPI has also created a Sustainable Funding Framework for issuing green, social, and/or sustainability bonds, as well as loans for selected projects. In addition, BPI has adopted voluntary reporting of sustainability performance.

Similarly, the Land Bank of the Philippines (LBP) crafted an umbrella program to cover all of its climate-change related products and services, including the Carbon Finance Support Facility, Renewable Energy Lending Program, and Go Green Inclusive Financing for small and medium enterprises and LGUs. Meanwhile, the Development Bank of the Philippines (DBP) rolled out a Green Financing Program (GFP), which supports environmental protection and the country's green growth strategy.

Disaster Risk Protection

Mitigation and adaptation are necessary to prevent future disasters, and the Philippines is proactive in addressing the costs of climate change. To help support the country's 110 million people from the increasing frequency and intensity of natural disasters, the DOF formulated the Philippine Disaster Risk Financing and Insurance (DRFI) Strategy in 2015. Prioritizing the poor and vulnerable, the DRFI is a framework for implementing financial solutions against natural disasters at national, local, and individual levels.

Under the DRFI Strategy, the Second Disaster Risk Management Policy Loan with a Catastrophe Deferred Drawdown Option (CAT-DDO) supports disaster risk reduction and management by strengthening investment planning and regulation, and enhancing the country's financial capacity to manage natural risk. This is aligned with the DRFI's mandate to develop sustainable financing mechanisms and maintain sound fiscal health.

On the CCC's end, the National Climate Change Action Plan (NCCAP) outlines the country's agenda for adaptation and mitigation for 2011 to 2028. Prioritizing food security, ecosystem and environmental stability, water sufficiency, human security, climate-smart industries and services, sustainable energy, and capacity development, NCCAP details key actions that enhance the capacity and resilience of communities and natural ecosystems to climate change.[11]

Doubly achieving climate mitigation and sustainable transport objectives, the government has been heavily investing in modern infrastructure projects. To date, the Duterte administration's Build, Build, Build (BBB) program has the highest budget allocation on infrastructure across administrations with an estimated budget of PHP8 trillion from 2017 to 2022. The program has overseen and completed the construction of 214 airport projects, 451 seaport projects, 11,340 flood mitigation structures, 451 commercial and social/tourism seaport projects, 222 evacuation centers, 26,264 kilometers of road, and 150,149 classrooms, among others.[12]

In 2019, the World Bank issued two tranches of catastrophe-linked bonds (CAT bonds) to capital market investors in order to provide the country with a maximum insurance coverage of USD225 million (USD75 million for earthquakes and USD150 million for tropical cyclones) over a period of three years.

Another component of the government's overall disaster risk finance strategy, the Parametric Risk Insurance Policy Program enables the Government Service Insurance System (GSIS) to provide catastrophe risk insurance to the national government and participating provinces. The World Bank acts as an intermediary to transfer GSIS's risk to a panel of international reinsurers. Unlike indemnity-based insurance, which makes payments based on actual loss, the Parametric Risk Insurance Policy Program aims to provide immediate liquidity upon the occurrence of severe earthquakes and typhoons.

The Post Disaster Stand-by Loan (PDL) Phase 2, on the other hand, was designed to quickly disburse Japanese funding in support of the government's

response efforts in the event of a national calamity or health emergency. Signed on September 15, 2020, four tranches in the aggregate loan amount of JPY50 billion have since been disbursed through the Japan International Cooperation Agency (JICA). The tranches have been instrumental in helping the government meet its financial requirements as it distributed emergency cash aid to families affected by the Enhanced Community Quarantine (ECQ) and Modified ECQ (MECQ) in the National Capital Region (NCR) and nearby provinces.

The fourth and final tranche amounting to JPY10 billion (or around PHP4.6 billion) was approved by the Japanese government after the declaration of ECQ in the NCR in August 2021.[13]

On the local level are the Local Disaster Resilience Insurance Fund (LDRIF), the 2021 Indemnity Insurance under National Disaster Risk Reduction and Management (NDRRM) Fund, and the Philippine City Disaster Insurance Pool (PCDIP). While all three are designed to act as funding during times of disaster, the PCDIP specifically targets vulnerable cities.

Lastly, on an individual level, the DRFI Strategy broadens private property catastrophe risk insurance and microinsurance coverage. In other words, the DRFI empowers poor and vulnerable households and owners of small and medium-sized enterprises to quickly restore and bounce back after a disaster.

Funding a Low-Carbon Economy

The Securities and Exchange Commission (SEC), through Memorandum Circular No. 9 series of 2019, released guidelines on the issuance of sustainability bonds under the ASEAN sustainability bonds standards. The guidelines also connect local issues with the global green, social, and sustainability bond market. As of September 2021, the Philippines has issued USD4.77 billion in ASEAN-labelled green, social, and sustainability bonds.[14]

Designed to serve the climate finance needs of developing countries, the Green Climate Fund (GCF) is the largest global fund to address climate change. The People's Survival Fund (PSF), meanwhile, is an annual special fund for the adaptation programs and projects of LGUs.

In addition, the government is eyeing the leveraging of the country's greatest asset—its people. The majority of the Philippines' population belongs to the working age cohort of 15 to 64,[15] with a median age of 25. This demographic advantage, in addition to increasing consumption and total output, gives the country greater capacity to operationalize sustainable investments as it gears towards attaining its NDC. Through the Corporate Recovery and Tax Incentives for Enterprises (CREATE) Law, bigger income-tax deductions are provided for labor force training, resulting in a highly-skilled workforce that is fully capable and adapted to green jobs.

Tapping into Renewable Energy

To truly make a dent in carbon emissions, the Philippines must reduce its reliance on coal, which accounts for 46 percent of global carbon dioxide emissions. In 2020, the government enacted a moratorium on greenfield coal power plants to shift investors to clean energy sources and green technologies. Through the moratorium, the Department of Energy (DOE) will no longer issue permits for new coal projects. In addition, coal-fired power plants in Mindanao are slated to be acquired and repurposed to hydropower. With this initiative, more investments are expected to be made by companies that are ready to expand in areas powered by renewable energy.

With the support of the Asian Development Bank (ADB), the Philippines and Indonesia jointly launched the Energy Transition Mechanism (ETM) facility during the 26th UN Climate Change Conference of the Parties (COP26). A public-private finance vehicle, the ETM will reduce coal-fired power generation through accelerated plant retirement and boost the growth of renewable energy in an equitable, scalable, and market-based manner.

The government is set to pilot the ETM project in Mindanao, where the decades-old Agus-Pulangi hydropower plant complex is currently undergoing rehabilitation in order to improve its generating capacity. Ultimately, the government plans to gradually acquire coal-fired power plants in Mindanao and repurpose them through the ETM facility.

There is still a long way to go in the shift to clean energy. The Philippines has vast renewable energy resources that have not yet been fully maximized; it can potentially produce 4,790 megawatts (MW) in geothermal reserves,[16] 10,500 MW in hydropower, 76,600 MW in wind energy, and 4,449.54 MW in biomass projects.[17] The Philippine seas have a whopping theoretical capacity of 170,000 MW,[18] with more than twenty-two potential locations identified by the DOE.

At the same time, many RE projects are already underway, with USD4.8 billion already invested in solar energy projects, USD43 million in waste-to-energy projects, and USD300 billion in foreign investments in the biomass industry.

To continuously attract foreign investment, the Philippine government has introduced incentives such as full foreign ownership, multi-year income tax holidays, and zero duty on equipment imports. Additionally, under the CREATE Law, RE firms are set to benefit from income-tax deductions for research and development activities. This enhanced deduction is designed to boost innovation in areas such as power generation and battery technology.

The RE sector also stands to receive generous, performance-based tax incentives under the Strategic Investment Priorities Plan of the CREATE Law.

During the virtual Philippine Economic Briefing on November 24, 2021, Secretary Dominguez showcased to Japanese investors that, in addition to areas such as infrastructure development, manufacturing, and digital technology, renewable energy is one of the key areas where the Philippines can further strengthen its partnership with Japan. The Philippine business landscape has been vastly transformed through rapid digitalization, the corporate income tax (CIT) reform law, measures to further improve the ease of doing business, and the sustained modernization of the country's infrastructure. Secretary Dominguez stressed how these initiatives, coupled with the decline of COVID-19 infections in the country, are leading to the country's shift to a "new and better" post-pandemic recovery.

Prior to these improved conditions, relations between the two countries were already highly positive. On top of being the Philippines' biggest provider of official development assistance, Japan has supported the country's infrastructure development through 26 ongoing loans for big-ticket

projects. Despite the COVID-19 pandemic, foreign investment inflows from Japan increased by 45 percent compared to the pre-pandemic period, making it the Philippines' second largest source of foreign direct investment (FDI) under the Duterte Administration.

The Philippines at COP26

With Secretary Dominguez leading the delegation, the Philippines was one of the 192 countries that gathered at the COP26 from October 31 to November 13, 2021. Held in Glasgow, Scotland, the conference was an opportunity for world leaders, climate experts, and activists to negotiate and collaborate on how best to accelerate action on reversing the devastating effects of the climate crisis.

The Philippines has shifted global discussions on climate change from a focus on general scientific findings to practical actions that may be immediately undertaken on the ground. Secretary Dominguez also called for climate justice as he delivered the Philippines' national statement: "Those who have polluted and continue to pollute the earth's environment through unthinking industrialization starting two hundred years ago must pay for the grants, investments, and subsidies needed for the most vulnerable countries to adapt to climate change."

In his intervention at a ministerial dialogue on November 4th, Secretary Dominguez emphasized the three-point blended approach to climate finance. While grants ought to be used to improve the capacity of local communities in climate-vulnerable areas, investments should focus on programs and projects that will unlock business opportunities, create new jobs, and lead to energy self-reliance in the long run. Subsidies will help address the financial costs and risks of communities transitioning to a climate-resilient economy.

Secretary Dominguez underscored that multilateral development banks (MDBs) are the best channels for climate finance given their extensive vetting and monitoring processes that would encourage private sector participation. MDBs could also be tapped with the COP for a harmonized set of guidelines to determine the viability and sustainability of climate projects as well as to set transparency and accountability standards.

Conclusion

The Philippines' plans for fighting climate change are certainly ambitious, and the next ten years will be the ultimate test to cut carbon emissions and transition to a low-carbon, climate-resilient society. While the DOF is leading the way, the country will require the active participation of the private sector in mobilizing finance for a green and resilient recovery. The international community, through MDBs and foreign investors, will certainly play an important role. As climate risks continue to compound every year, cooperation between the government and various stakeholders will be key in truly making a lasting difference in the fight against climate change.

Photo 1: Image taken on December 17, 2021, shows houses in Surigao City in Surigao del Norte province destroyed by Super Typhoon Rai (local name Odette).
PHOTO COURTESY: Erwin Mascarinas of Armed Forces of the Philippines

Photo 2: Rescue workers evacuated residents on December 16, 2021, from their flooded homes amid heavy rains brought by Super Typhoon Rai in Cagayan de Oro City.
PHOTO COURTESY: Philippine Coast Guard

Photo 3: The Philippine Coast Guard Aviation Force captured the devastating aftermath of Super Typhoon Rai (local name Odette) during an aerial survey on December 17, 2021, in Surigao City, Surigao del Norte.

Photo 4: The Philippine Coast Guard District Northeastern Mindanao rescued residents of Tubay, Agusan del Norte during Super Typhoon Rai (local name Odette).

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Innovative Finance–the Key to a Sustainable Future in Thailand

Introduction

Sustainable finance in Thailand is coming of age—driven by government initiatives, increased investment in renewable energy and public transport infrastructure, pressure from regulators and investors at home and abroad, and the adoption of environment, social, and governance (ESG) principles by businesses including the banking and financial sector.

In the latest announcement of the Dow Jones Sustainability Indices (DJSI) in 2021, 24 Thai listed companies were selected as members of the DJSI—the highest inclusion among ASEAN economies for an eighth consecutive year.

Sustainability-linked loans (SLL) from companies listed on the stock exchange have been rising and the country has pioneered new forms of sustainable financing, becoming the first Southeast Asian nation to issue a sovereign sustainability bond.

Even the COVID-19 epidemic failed to slow the trend. ESG bond issuance in Thailand is expected to reach THB100 billion (USD3 billion) in 2021, up more than 10% from last year's THB86.4 billion, according to the Thai Bond Market Association.[1] This was a mix of sustainability bonds (THB50 billion), green bonds (THB29.6 billion) and social bonds (THB6.8 billion).

Sustainable finance is also starting to take off across Southeast Asia. Governance, Social and Sustainability (GSS) financing reached a record high of USD2.1 billion in 2020, up 5.2% from the previous year, according to the Climate Bonds Initiative's (CBI) *ASEAN Sustainable Finance State of the Market 2020* report.[2] Singapore continued to lead the region, accounting for 53% of issuance, followed by Indonesia (24%) and the Philippines (9%). Thailand issued 8% of the total. The development of these new kinds of financing instruments is attracting huge interest from investors, companies, and financiers. Given that the market is still in the pioneering stage, Thailand's strong financial sector and its commitment to sustainability of the business sector means Thailand has an opportunity to take a lead in sustainable finance. This in turn will play a critical role in building a sustainable future for all. But regulators, banks, and businesses need to work together to develop the best policy environment and innovative financial instruments that meet social as well as environmental needs and to maintain the trust of investors with good governance and transparency.

Types of Sustainable Finance

Sustainable finance is a diverse and fast evolving area. There are currently a range of instruments available, including the following:

- Green Bonds: Used to finance projects with clear environmental benefits
- Social Bonds: Used to finance projects that address social issues and / or seek to achieve positive social outcomes, especially for a target population (e.g., the poor, vulnerable, unemployed, uneducated, etc.)
- Sustainability Bonds: Used to finance a mix of green and social projects
- Transition Bonds: Used to finance the transition away from carbon-intensive activities towards greener alternatives
- Sustainability-Linked Bonds: Used for general corporate finance, but with set Sustainability Performance Tar-

gets (SPTs) that are in line with a company's overall sustainability goals

- SLL: Loans with linkage to the SPTs as in the case of sustainability-linked bonds.

Putting Sustainable Development on the National Agenda

Sustainable finance cannot be developed in isolation. Fortunately, promoting sustainability is not new in Thailand. The late King Bhumibol Adulyadej pioneered the Sufficiency Economy Philosophy and implemented its principles through a diverse range of projects from the 1970s up until his death in 2016.[3]

This helped provide both ideological inspiration and a practical framework for Thailand's sustainable development. Many Thai companies have supported related projects or initiated their own. With sustainability as one of the pillars of the 20-Year National Strategy Plan (2018-37), the government created a range of sustainable policies focused on creating a brighter future for all.

In 2021 the government launched the Bio-Circular-Green (BCG) economy as a new model for inclusive and sustainable growth. It will focus on leveraging the country's biological and cultural diversity and developing technology and innovation to help Thailand move out of the middle-income trap and become a value-based and innovation-driven economy which is more robust and resilient to future shocks and disruption. The BCG conforms with UN Sustainable Development Goals (SDGs) and aligns with the Sufficiency Economy. It will initially focus on four industries: agriculture and food; medical and wellness; bioenergy, biomaterial and biochemical; and tourism and creative economy.[4]

These industries currently contribute a combined THB3.4 trillion to the economy, about one-fifth of gross domestic product (GDP). The BCG plans to increase this to THB4.4 trillion, or 24% of GDP, within 2026. Additional policies and legal and financial frameworks will be developed to support the strategy.

The government also approved the National Energy Plan 2022 which will require the energy sector to reduce carbon emissions and increase the contribution of clean and renewable energy to new power generation at a minimum of 50%.[5] Prime Minister Prayut Chan-ocha announced Thailand's goals at the 2021 United Nations Climate Change Conference (COP26), saying that Thailand would accelerate its plan to achieve carbon neutrality within 2050 and net-zero emissions by 2065 if it receives "adequate and equitable support for technology, finance, capacity building, as well as cooperation under the convention".

New laws are being developed to support the transition to a more sustainable economy, focusing on areas such as carbon pricing, including the Climate Change Act, Greenhouse Gas Reporting Law, and Emission Trading System Law. Furthermore, a framework has been approved to enable the investment in, and development of, clean energy for electricity generation for use in the Eastern Economic Corridor (EEC), a special economic zone made up of three provinces in eastern Thailand.[6]

The EEC itself is being developed as a smart manufacturing and logistics hub for ASEAN as well as a key driver of the country's transition to industry 4.0 under the Thailand 4.0 policy, which is also focusing on the development of 12 S-curve industries. These are: automobiles, smart electronics, medical and wellness tourism, agriculture and biotechnology, food, robotics, logistics and aviation, biofuels and biochemicals, digital, medical services, defence, and education development.[7] The Board of Investment is offering a range of privileges to attract investment into the EEC.

The EEC will support the broader BCG policy and has also set a net-zero target for its industrial areas to support the SDGs, Paris Agreement and European Union (EU) Green Deal. Smart city projects in the area provide an opportunity to put many of these ideas into action. [8]

Other initiatives to support sustainable development in Thailand include the Department of Alternative Energy Development and Efficiency's plans for an Energy Performance Certificate pilot program targeting up to 30 manufacturing facilities with high greenhouse gas (GHG) emissions.

Thailand's Low Carbon City Program comprises 25 municipalities, most of which plan to make green investments to reduce local greenhouse gas emissions, through initiatives such as waste-to-energy projects. This may be expanded on a provincial level. The country has received support from the World Bank's Partnership for Market Readiness (PMR), a technical assistance program, for this project and to develop carbon pricing instruments to help reduce GHG emissions. It has been recognized as one of the most advanced countries in the region in terms of the development and implementation of carbon pricing.[9]

These government projects and policies are critical for creating not only the policy environment and legal frameworks required to support sustainable development, but also the public spending, infrastructure development and incentives needed to attract the investment without which the country would not be able to achieve the goals established under the BCG and related strategies.

Banks and financial institutions will play a critical role in facilitating financing and investment for projects initiated under these policies and as part of the broader development of sustainable finance in Thailand.

Creating Regulatory Frameworks to Support Sustainable Finance

Thailand's financial regulators are implementing initiatives, policies, and guidelines to support the development of sustainable finance in the country and to ensure banks, financial institutions, listed companies and other businesses adhere to the ESG principles that are essential to the development of a sustainable economy.

The Bank of Thailand, the Finance Ministry's Fiscal Policy Office, the Securities and Exchange Commission (SEC), the Office of Insurance Commission (OIC) and the Stock Exchange of Thailand (SET) have established the Working Group on Sustainable Finance to develop the Sustainable Finance Initiatives for Thailand. This aims to "advance the development and implementation of policies that will direct the future of the Thai financial system towards sustainability". It envisions that the Thai financial sector will play a significant role in financing the real economy's transition towards sustainability and "to effectively manage financial risks stemming from climate change, environmental degradation, governance and social issues." [10]

The Initiatives proposed by the Thai authorities and financial regulators aim for the sustainable transformation of the financial sector by December 2025. Thai

financial institutions are expected to play a crucial role in supporting the real economy in the transition and managing the ESG risks. Five Key Strategic Initiatives (KSI) are detailed in the Initiatives which are: (1) developing a practical taxonomy; (2) improving the data environment; (3) implementing effective incentives; (4) creating demand-led products and services; and (5) building human capital. It is worth noting that this joint effort by the authorities and regulators, built upon technical advice by global institutions such as the World Bank, will provide a good foundation for Thailand's sustainable finance aspirations.

The EU's Green New Deal requires products, including Thai imports, to meet more stringent ESG regulations which may result in many businesses having to invest more in energy reduction and energy efficiency to comply.[11]

Credit ratings agencies, such as Moody's, are also updating their ESG classifications to bring them in line with the current environment, which may affect company ratings in the longer term.[12]

This snapshot helps show how regulatory carrots and sticks are being developed domestically and internationally to incentivise and coerce Thai companies to become more sustainable. The banking and financial sector will also be governed by these changes and will play a key role in helping clients make the required transitions. Nonetheless, a key success factor is to ensure an ecosystem is established that engages all stakeholders with proper design of incentives. One option is to have a platform where capacity building is made available to small firms and entrepreneurs which may have the aspiration but lack the knowledge or resources for the transition to the new sustainable economy.

Sustainable Bonds and Loans Issuance in Thailand

Thai companies have pioneered a range of sustainable finance instruments over the past three years, from green bonds to sustainability-linked bonds. The government was also the first in ASEAN to issue a sovereign sustainability bond, leading the CBI to name the country a Sovereign Green Market Pioneer at the 2021 Climate Bonds Awards.

Bangkok Bank has played a leading role in the development of green finance in Thailand, arranging about 70% of all government and non-government bonds issued since 2019.[13] Three key sustainability bond issuances over the past three years were made by BTS Group Holdings PCL (BTS Group), the Public Debt Management Office and Indorama Ventures. These are covered in more detail below.

BTS Group, the majority shareholder of Bangkok Mass Transit System PCL (BTSC), the operator of the BTS Skytrain and the Bangkok BRT, in 2019 issued Thailand's first Green Bond under the SEC's Green Bond Notification. BTS Group Green Bond, which raised THB20 billion and was eight-times oversubscribed, was issued to finance construction of an extension to the BTS Skytrain and divided into a series of five tenors with semi-annual coupon payment. It received an "A" rating by Tris Rating and complied with the International Capital Market Association's (ICMA) Green Bond Principles and the CBI Climate Bonds Standard, in the low carbon transport criteria.[14]

Since then, BTS Group has issued two more green bonds to finance additional extensions to the mass transport system. In October 2020, its second green bond was more than 3.3 times oversubscribed the initial target issue size of THB5 billion.[15] Then in November 2021, a third green bond was issued raising THB10.2 billion which was more than twice oversubscribed.[16] Bangkok Bank was joint lead arranger on all three BTS Group green bonds.

In 2020, the Thai government's Public Debt Management Office issued its first sovereign sustainability bond totalling one trillion baht to enable the government to meet its funding needs during the COVID-19 pandemic while increasing the diversity of its funding instruments and supporting the SDGs.[17] Thailand was the first Southeast Asian nation to issue such a bond. The funds raised had both green and social components, financing green infrastructure through the Mass Rapid Transit system in Bangkok, as well as social projects to assist with COVID-19 recovery, such as public health measures, job creation programs and local public infrastructure development. The green aspect of the bond was certified against the low-carbon transport criteria of the Climate Bonds Standard.[18] Bangkok Bank was a joint green structuring advisor and joint lead manager.

In November 2021, Indorama Ventures, a Thailand-based global chemical company, issued Thailand's largest sustainability-linked bond worth THB10 billion. The triple-tranche bond was aligned with internationally accepted standards including the ICMA's Sustainability-Linked Bond Principles and the Loan Market Association's (LMAs) Sustainability-Linked Loan Principles. It was the first SLB in Thailand to be offered to both institutional and high net worth investors. The bond is linked to the company's sustainability performance in three key areas: reducing GHG emissions intensity by 10% from a 2020 base by 2025, increasing recycling of PET bale input to 750,000 tons per year by 2025, and achieving 25% renewable electricity consumption in 2030. Bangkok Bank was a joint arranger and joint bookrunner.

Thailand led sustainability bonds issuance across ASEAN from 2015–20, accounting for 40% in cumulative volume, according to the CBI. This reached an all-time high of about 70% in 2020 alone.

Given these positive developments, the number of companies and public-sector organisations issuing sustainable bonds and loans is expected to grow in the coming years.

Developing Financial Solutions to Social Issues

Sustainable finance extends far beyond the issuance of green bonds and loans. Banks and financial institutions, as essential service providers, can support broader social and environmental goals. Notwithstanding issues of governance and ensuring customers and suppliers within its supply chain, or those of its customers, meet ESG requirements to strengthen sustainable economic, environmental and social development, banks can provide financial support during times of crisis as well as leveraging the benefits of digital transformation to expand financial inclusion and access to loans for individuals and businesses.

Banks in Thailand have played a critical role in supporting businesses and people by extending affordable loans during the COVID-19 crisis. The Bank of Thailand the Finance Ministry and the Thai Bankers' Association, introduced a range of measures to support businesses, especially small and medium-sized enterprises (SMEs) and those in hard hit sectors such as restaurants, hospitality and tourism, as

well as working people, many of whom saw a reduction in income or job loss, by providing liquidity for SMEs and retail debtors and easing debt payments.

The ongoing development of digital financial and payment services and electronic Know Your Customer (eKYC) solutions in Thailand has enabled banks to not only help expand financial inclusion, which is a key policy of the government and central bank, it has also helped ensure emergency COVID-19 support payments could be distributed to people rapidly and securely while reducing the incidence of fraud.

This was supported by Thailand's National Digital ID (NDID) platform to provide digital identity authentication and proof of authenticity of a transaction. The first use case for NDID was in the banking industry, enabling new bank accounts to be opened using biometric data (fingerprint, facial recognition) to identify and authenticate people. Once customers have enrolled in the NDID program they can perform cross-authentication with other banks with whom they have a relationship and later with other industries and government agencies.

As with many markets, the pandemic saw the acceleration of cashless payments and digital transactions. In Thailand adoption was further supported by the government's digital welfare payments platform and e-wallet, as part of the national digital payments' strategy. Initially this was used to make the payment of monthly welfare allowances more efficient and to reduce leakage and fraud. While the amounts were relatively small, about USD10-15 a month, it ensured the money was received by the right people, who were also provided with a cash card. This will support sustainability of future financial systems, with more vendors accepting digital payments.

Not only will digital technology enable banks to extend services to unbanked and underbanked people in Thailand, harnessing the power of financial transaction data will enable banks to gain more accurate insights into a customer's risk profile and enable them to provide access to credit and microloans as responsible lenders.

Banks can also play a key role in the development of Open ID as trusted verifiers for both consumers and businesses within the e-commerce and digital finance ecosystem because of their robust security, data protection, KYC and anti-money laundering systems. Not only can banks help retail customers in this area, but they can also enable SMEs to play a more integrated role in ecommerce. Typically small businesses do not have the money or expertise needed to develop and maintain their own customer data protection systems. By acting as their trusted verifier, banks can give them access to wider markets as customers can make online payments with confidence.

These cases demonstrate how technological and financial innovations can help the country speed up financial inclusion amid the crisis and pave the way for the country to use them for sustainable finance, particularly for social purposes.

Opportunities and Challenges Facing the Thai Financial Sector

The rapid development of domestic and international ESG regulations will pose a challenge for a range of businesses that will have to spend an increasing amount of their time, money and resources keeping up to date with the latest developments that could affect their business operations. This could cause issues for banks, as businesses that are unable to make the transition may be less viable and less able to repay loans.

At the same time, this creates an opportunity for banks to go beyond their traditional role as financiers by supporting their customers by providing advice on how to operate effectively and compliantly in the ESG environment. And in the ASEAN context where large conglomerates are undergoing their own transition, their suppliers or buyers in the supply chain will have to follow suit. Financial innovations and solutions can be important tools to support the transition. This will also open up opportunities for start-ups and FinTech firms to fill the technology gap, working side by side with traditional financiers.

Banks in Thailand have an opportunity to develop their expertise as providers of sustainable finance, especially in terms of ESG bonds and loan issuance. As stakeholders and regulators increase their demands for companies to do business in a sustainable manner, companies will be looking for new kinds of financial instruments.

Bangkok Bank, as Thailand's leading corporate bank, is the major financier for large-scale industries such as construction, energy and automotive, and is in the pole position to support Thailand's sustainable development. It can do this by supporting clients to raise finance on the capital markets, invest in carbon credits, and keep abreast of global industry trends and regulations. This includes financing investments in renewable energy and public infrastructure projects, energy efficient manufacturing processes and products, emerging green industries, and business transitions, such as from the production of internal combustion engine vehicles to electric vehicles and batteries.

Furthermore, as the country's most international bank and the 6th largest ASEAN regional bank by assets, the bank's expertise can also support companies operating in other parts of Southeast Asia. This is especially the case for the countries clustered around the Mekong—notably Cambodia, Laos, Myanmar and Vietnam, known as CLMV—and Indonesia. This group of countries has been rapidly developing and has one of the highest growth rates in the world. Within the space of a few short decades, they have moved from predominantly agrarian societies to low-cost manufacturing bases attracting investment from around the globe. Now, with a wave of technological advancements coupled with a heightened focus on environmental and social concerns they can leapfrog ahead to an exciting and sustainable future.

Notes

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Impact Measurements and Standards: Academic and Practical Perspectives

Introduction

Impact investing has fundamentally changed the way investors and enterprises engage in sustainable development. While trillions of dollars are invested in sustainability, we know little about whether these investments make positive changes. Understanding how to measure and assess the investment impact is critical. In this paper, which draws on work done at Singapore Management University,[1] we first discuss the development of the impact investment market. We will next show the differences between current impact measurement and environment, social, and governance (ESG) ratings, including recent research by academics and initiatives by finance practitioners. This article concludes by discussing the challenges impact measurement faces going forward.

Fast-growing Impact Investment Market

The traditional divide between for-profit enterprises seeking financial gain and non-profit organizations seeking social good is becoming blurred. Hybrid organizations that bring together profit-generating operations and social missions such as Socially Responsible Investments (SRIs) and impact investments are increasingly common. Unlike the more mature SRIs that minimize negative impact, impact investment proactively seeks financial returns and positive social and environmental impact.[2] Impact investing has channeled large-scale capital to address those most pressing social and environmental challenges. According to a report released by the International Finance Corporation (IFC), a total of USD2.3 trillion was invested for impact in 2020, accounting for about 2% of global assets under management (AUM). In the 2020 Global Impact Investing Network (GIIN) Annual Impact Investor Survey,[3] Southeast Asia, together with Western, Northern, and Southern Europe, is among the fastest-growing regions, with impact investing funds growing at an annual rate of 23%.[4] Many impact investors have begun to map their activities to the Sustainable Development Goals (SDGs), a set of 17 global goals intended to achieve a more sustainable future (Pineiro, Dithrich, and Dhar, 2018). If achievement of the SDGs is the aim, then the size of the challenge ahead points to an even greater inflow of funds, with one recent estimate stating that the world needs USD5-7 trillion of investment every year to complete the SDGs by 2030.[5]

Perhaps surprisingly, impact investing continued to grow robustly through the COVID-19 pandemic, perhaps due to the out-performance of impact investment funds and the increasing awareness of social challenges such as access to healthcare. While the globe wrestles with its response to the pandemic, it is essential that the finance community systematically support sustainable development and channel capital wisely to impact investments to support a durable, post-COVID economy recovery. For the specific goal of addressing climate change, the need for impact investment funds is urgent for the region of Southeast Asia, where most of the population is living close to low-lying coastal areas, vulnerable to climate risks such as rising sea levels and storms. Moreover, this region is also highly dependent on the agriculture and forestry industries that climate change could negatively affect. Capital markets play a critical role in increasing the flow of funds to sustainable enterprises and increasing their impact. A robust impact measurement framework

could help capital markets allocate investment pools towards a better combination of positive social and environmental impact and financial return.

Move from ESG Ratings to Impact Measurement

Understanding how to measure and assess investment impact is increasingly critical for entrepreneurs and investors. Every investment funds activities that positively and negatively affect people and the planet. More investors want to know not just about their money's financial return but also about what it does for a broader set of stakeholders, for example, whether it helps create jobs or supports automation that replaces human labor. Some may even want to see how the impact of their investments aligns with global standards like the SDGs. The recent GIIN report says that investors surveyed view the 'inability to demonstrate impact results' and the 'inability to compare impact results with peers' as key challenges that they face. Impact investors want to have more detailed social and environmental performance data to understand non-financial information and to have that information be central to their investment process.[6]

From the point of view of companies, some want to report, for example, their total carbon emissions, but it is challenging to identify the carbon emissions produced along supply chains. More ominously, other firms may be greenwashing and investing primarily in green marketing communications with a goal of being perceived as environmentally friendly and socially engaged. Knowing whether or not firms are on track to achieving the SDGs requires robust practices around impact measurement. These practices will help stakeholders make informed decisions about measuring and managing impacts.

Since John Elkington proposed the "triple bottom line" framework, various professional data providers have constructed and developed quantitative metrics of firms' environmental, social, and governance performance. These ratings increasingly shape the investment decisions of institutional investors. Gibson, Krueger, and Schmidt (2020) find that more than half of the equity owned by the institution is held by investors who have signed the Principles for Responsible Investment (PRI), calling for more proper quantitative ESG assessment.

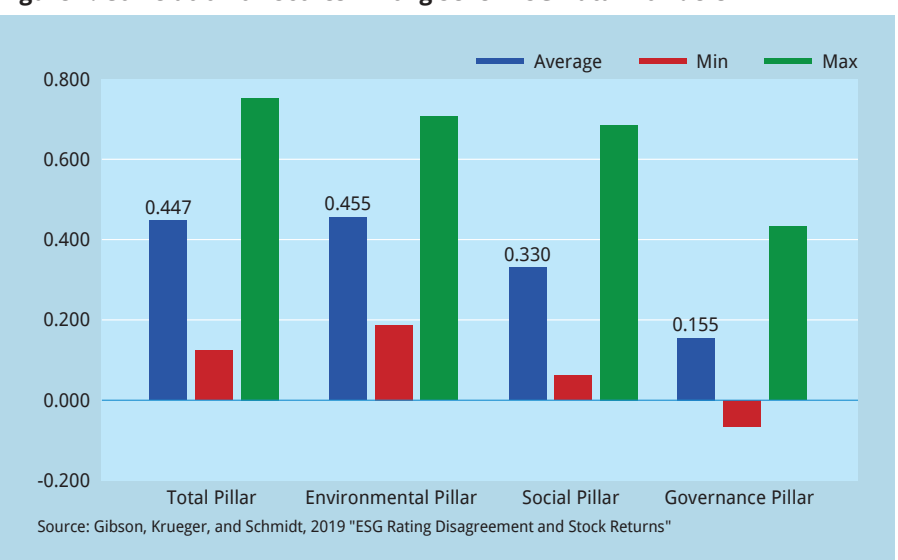
However, unfortunately, we should be cautious about the reliability of current ESG metrics. There are several reasons why the current ESG ratings are insufficient to guide impact investments. First, most current ESG ratings focus on large publicly traded stocks. Some well-known examples include Sustainalytics Company Ratings (covering over 11,000 companies), Refinitiv ESG (formerly Thomson Reuters ASSET4 ESG, with over 7,000 companies), and MSCI ESG STAT (formerly KLD, with over 3,000 US companies). This means that ESG ratings are largely silent with respect to such entities as private companies, start-ups, and projects.

Second, there is limited comparability across the large and growing set of ESG ratings. Ratings are subject to bias and inconsistencies as it is not clear how sustainable performance is evaluated for each existing ESG measurement framework. For example, larger companies may receive better ESG scores because they can dedicate more resources to preparing and publishing ESG disclosures and controlling reputational risks. The location may also make a difference as higher ESG assessments may be given to companies domiciled in regions with higher reporting requirements. Mackintosh (2018) discussed that ESG ratings mainly rely on non-standardized information, and methodologies can be opaque and proprietary, leading to substantial divergence. For example, Figure 1 shows the correlation among seven major ESG data providers analyzed in a recently published study by Gibson, Krueger, and Schmidt.[7] These ESG data providers include Asset 4 (Refinitiv), Sustainalytics, Inrate, Bloomberg, FTSE, KLD, and MSCI IVA. The correlations on the overall ratings and on the three pillar scores average 0.447 and range from 0.124 to 0.752, suggesting that the information from ESG rating agencies is relatively noisy. The figure also shows the magnitude of disagreement across different metrics, with the least disagreement on the Environmental pillar and the greatest on the Governance Pillar.

Moreover, it is challenging to compare different metrics, such as social versus environmental impact, using these ratings. Firms may have set and prioritized various SDG goals. For example, a medical firm may prioritize SDG #3 Good Health and Wellbeing, while an energy firm may rank SDG #7 Affordable and Clean Energy higher. Both firms may also look at SDG #8 Decent Work and Economic Growth. Moreover, the existing ESG ratings are expressed either in letter grades (e.g., D- to A+) or in percentile rank scores, making them difficult to compare or aggregate.

Finally, it is unclear whether and how much data on ESG practices and impact should be disclosed. A sustainability or ESG report should be the key platform for communicating sustainability performance and impact, whether positive or negative, to internal and external stakeholders. However, given the difficulties of defining acceptable errors for non-financial and qualitative information, judging

Figure 1: Correlation on Scores Among Seven ESG Data Providers



Source: Gibson, Krueger, and Schmidt, 2019 "ESG Rating Disagreement and Stock Returns"

which sustainability issues are material remains challenging.

With all these concerns on the current state of ESG ratings, the work of academics and practitioners toward developing a more consistent and complete impact measurement framework is receiving growing attention.

Impact Measurement

In the next section, we will highlight the difference between ESG ratings and impact measurement. A key feature of impact measurement is that it does not focus on input or output, but instead tries to quantify and compare the outcome and impact of an entity's activities. This approach provides a holistic perspective on how the entity (entrepreneurs, asset owners, and fund managers) performs according to SDGs. Meanwhile, instead of just focusing on publicly-listed index companies, impact measurements can be more easily extended to cover a broader set of entities, including private equity, debt, projects, and real assets.

Various impact measurement methods have been developed, such as the GIIN impact measurement scope,[8] expected return (or social return on investment) method, impact multiple of money (IMM),[9] mission alignment method, and experimental or quasi-experimental method. Here we show what we believe are promising examples of current developments in the area of impact measurement.

Harvard Business School's Impact-Weighted Accounts Project

Harvard Business School (HBS) launched its Impact-Weighted Accounts Project in 2019.[10] Impact-weighted accounts are line items on a traditional financial statement but supplement financial health and performance statements by reflecting a company's positive and negative impact on various stakeholders. Central to impact-weighted accounts is the monetary valuation of the social and environmental impact. Such monetization tries to translate all types of social and environmental impact into comparable units so that stakeholders can intuitively understand those impacts. By having these comparable units, stakeholders can aggregate them meaningfully and compare them in their decision-making process. Still in its early days, this project, at the time of this writing, includes 56 companies that have experimented with monetary impact valuation, allowing them to produce environmental or total profit and loss accounts. About 86% of these companies measure their environmental impact, 50% estimate employment/social impact, and 20% estimate product impact.

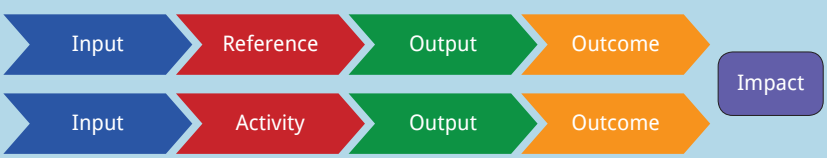
Impact Institute's Integrated Profit Loss Methodology

Impact Institute is a 2018 spin-off of True Price, based in the Netherlands. Like HBS' Impact-Weighted Accounts, the Impact Institute's Integrated Profit and Loss (IP&L) Assessment Methodology provides a rigorous approach to value the impact by extending the traditional financial statements. The IP&L gives an overview of all material impact that results from the organization's activities. This impact is usually expressed in a monetary unit and includes both financial and non-financial value-creation. For example, salaries, taxes, and profits have a positive economic/financial impact while creating job opportunities has a positive social impact. The gender skill gap may have a negative social impact and carbon emission could have a negative environmental impact. This methodology considers the value created for all stakeholders of an organization along the "impact pathway." It maps activities to six capitals (financial, manufactured, intellectual, natural, social, and human) and three domains (economic, environmental and social). Specifically, an impact pathway is a quantifiable chain of effects and counterfactual effects that link an organization's specific activity to its effect on a valuable outcome. Figure 2 provides an overview of how specific inputs and organizational activities lead to outcomes and then impacts.

Input refers to the resources used by the organization. A realized activity is an activity the organization has realized in the reporting period. A reference is an activity that would have otherwise occurred in the chosen timeframe had the organization not undertaken the actual activity. Output is any direct effect of the organization's activity during the reporting period. An outcome reflects the direct or indirect welfare effects of the outputs. An activity's impact is the difference between a valuable outcome of a realized activity and the counterfactual outcome in the reference activity.

As Table 1 shows, an impact is a combination of four types of impact: direct absolute impact, direct marginal impact, indirect absolute impact, and indirect marginal impact.[11] Specifically, an impact is absolute if derived using a "no alternative reference" scenario in the "impact pathway." The marginal impact is derived using an alternative reference scenario. The impact also depends on whether the impact is made through the organization in scope. Thus, the direct impact is created

Figure 2: The Impact Pathway (Adapted from Impact-Weighted Accounts Framework Consultation Draft 2021)



Source: Impact Institute

Table 1: Four Types of Impact

		Type of Reference Scenario	
Organizational Activities in Scope		Absolute Impact	Marginal Impact
	Direct Impact	Direct Absolute Impact	Direct Marginal Impact
	Indirect Impact	Indirect Absolute Impact	Indirect Marginal Impact

Source: Impact Institute

directly by the organization's operations in scope, whereas indirect impact is created by other organizations' operations, such as happening along supply chains.

Challenges Ahead

Work by academics and think tanks must be taken onboard by finance practitioners, which is why, in 2021, the "Banking for Impact" consortium was formed, including HBS, Impact Institute, Singapore Management University's Sim Kee Boon Institute for Financial Economics, together with ABN AMRO, Danske Bank, the Development Bank of Singapore (DBS) and UBS. While this consortium, and a growing number of others, are working towards ways to measure environmental and social impact more rigorously, academics and practitioners have long debated whether sustainability reporting and impact measurement is oversold. There is no doubt that attention to material ESG issues can deliver better social, environmental, and financial outcomes for individual companies. However, we should also pay attention to the risk of introducing a giant new accounting system.

One of the critical issues is whether we can get reliable data and whether an external empowered party can audit the sustainability report. Although 90% of the world's largest companies now produce corporate social responsibility (CSR) reports, a minority of them are assured by third parties. Thus, a lot of the input data might be unreliable. Executives tend to seek a favorable calculation of their company's impact. Some may even use their financial power to influence estimates of corporate impact to make themselves look good.

Moreover, impact accounting requires paying more attention to governance than does financial accounting since there is greater risk for mis-estimating the value of an item on its qualitative attributes. So, the risk of fraud and manipulation would be even higher for impact accounting than for financial accounting. Steadily improving impact data will allow investors and enterprises to better monitor, manage and communicate their contributions to selected SDGs and motivate more significant capital investment.

Another challenge faced by academics and practitioners is the opaque supply chain. For example, to get a complete picture of its carbon footprint, an enterprise needs to measure three greenhouse emissions classified as Scope 1, 2, and 3. Scope 1 emissions are those produced by its own facilities and vehicles and thus under its direct control; Scope 2 emissions are those from purchasing energy, such as electricity, steam, heat, or cooling; and Scope 3 emissions are all other upstream and downstream emissions, including those generated by suppliers and distributors, employees' business travel, and the use of products sold. Given the complexity and vagueness in figuring out upstream and downstream emissions, few companies report Scope 3 data, making it challenging to create a complete picture of the enterprise's emissions. However, we do see some positive progress. Climate TRACE, a coalition funded partly by Google, is developing a satellite-based tool to measure all emissions, including Scope 3, in real-time.

Unlike items, such as inventory and profit that are tabulated in financial statements, almost all ESG impacts do not have an observed price. Thus, accountants will be required to estimate a cost to attribute to these impacts, creating challenges around impact valuation. In conjunction with addressing the pressing global warming issue, many scholars have tried to estimate the price of CO_2, but yet no consensus has been reached. For example, the Biden Administration estimated the social cost of carbon to USD51 per ton well up from the USD1-7 range assigned under the previous U.S. administration, while economists Nicholas Stern and Joseph Stiglitz believe carbon's social cost could be closer to USD100 per ton by 2030.[12] Initiatives in this area have been increasing in Asia recently and the prices they attribute to CO_2 are quite different from American or European estimates. For example, when China launched the world's largest national emissions trading scheme (ETS) in 2021, on opening day the price of CO_2 was CNY49 per ton, or USD7.6, per ton. And according to a non-profit survey by the Chinese business media Caixin, carbon credits will likely be traded around CNY93 (or approximately USD14) per ton by 2030. Such wide differences in valuing impacts creates challenges for the governance of the valuation process.

Most Asian countries are vulnerable to climate change, and many are not ready to respond to its impacts. Low-lying cities like Indonesia's Jakarta are exposed to dramatic increases in temperature and in flood and typhoon risk. At the same time, Singapore has warmed 80% faster than the rest of the region over the past 70 years. The SDGs have mobilized trillions of dollars worldwide to combat climate change and created many opportunities for investors and corporations. However, there is also a mismatch between the SDG targets and impact-measurement practices due to the inconsistency in how ESG impact should be measured and assessed across asset classes, projects, and countries.

Our paper is a call for future research by academics, in close consultation with finance and business practitioners, in the area of impact measurement. Asia must be part of this global dialogue and workstream, including the region's family businesses and offices that continue to express concerns about impact measurement.[13] Asia has unique climate and social challenges, and an assessment and measurement framework that works in the U.S. and Europe may not work in countries in Asia. As we discussed, even for the well-known problem of pricing CO_2, it is hard to reach a consensus. Therefore, a globally standardized impact measurement framework with localization on specific parameters is required for more targeted climate and social solutions in Asia. In the meantime, we suggest that practitioners link impact measurements to findings from academic research and leading policy databases, such as that of the World Bank. Incorporating the SDGs into impact measurement through a more holistic stakeholders' perspective and in a way that is adapted to specific regional requirements is central to moving towards a new sustainability agenda.

Notes

1 Liang, Fernandez, and Larsen (2022) on impact assessment.

2 See O'Donohoe, Leijonhufvud, and Saltuk (2010) for an introduction to impact investing.

3 https://thegiin.org/research/publication/impinv-survey-2020

4 The growing interest in SE Asia is also reflected in the whole sample's investment plans. Over half of respondents (52%) plan to grow allocations to SE Asia over the next five years.

5 https://www.weforum.org/agenda/2021/01/the-sustainable-development-goals-can-get-back-on-track/

6 Investors' need for such non-financial information also was discussed in the report released by the World Bank Council for Sustainable Development (WBCSD 2018): "investors are not getting the sustainability information they want or need to make informed decisions. Reasons for this include the fact that there's too much information across conflicting frameworks and that there are differing definitions for what sustainability is and does from company to company. Plus, investors have difficulty assessing to what extent the information can be relied on."

7 Several academic studies also look into this issue. For example, Berg, Koelbel and Rigobon (2019) decompose ESG rating divergence into scope, measurement and weights. "Measurement" explains 53% of the overall divergence, scope counts for 44% of the divergence and 3% is due to different weights. The authors also show that rating agencies' evaluations in individual categories are influenced by their views of the analyzed company. Also see Chatterji, Durand, Levine, Touboul (2016); Kotsantonis and Serafeim (2019).

8 According to GIIN, the scope of impact measurement includes: (1) setting goals and expectations; (2) defining impact strategies and searching for evidence; (3) selecting metrics and setting targets; and (4) measuring, tracking, using data and reporting

9 See Addy, Chorengel, Collins, Etzel (2019). Also, a monetization framework has been developed by TPG's RISE Fund, which is based on the calculation of an IMM in the spirit of Addy et al. (2019) that quantifies and monetizes an investment's net social and environmental impact.

10 SMU collaborates with Harvard Business School's Impact Weighted Accounts Initiative and the Impact Institute on the 'Impact Weighted Account Framework' (IWAF) project.

11 The Table is modified from Integrated Profit & Loss Assessment Methodology (IAM): Supplement Impact Contribution (Figure 1: Four types of impact), compiled by Impact Institute.

12 https://www.project-syndicate.org/commentary/biden-administration-climate-change-higher-carbon-price-by-nicholas-stern-and-joseph-e-stiglitz-2021-02

13 https://www.ubs.com/global/en/global-family-office/reports/gfo-r-21-4-client.html

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Outside of his activities as an economist, he sits on the board of EMpower, a global philanthropy focused on at-risk youth in emerging market countries. He is also a member of Phillips Exeter Academy's Asia Council and the Exco of the Princeton Alumni Association of Singapore.

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Sim Kee Boon Institute for Financial Economics:
The Sim Kee Boon Institute (SKBI) generates financial economic research through multidisciplinary collaborations involving not only the SMU community, but also research talent from around the world as well as industry and public-sector partners. The Institute focuses on the areas of financial inclusion and literacy, sustainable finance, financial technology, and data and governance. To maintain relevance to finance practitioners and policy-makers, SKBI also adopts a view on Asian and global economic trends.

Singapore Green Finance Centre:
The Singapore Green Finance Centre (SGFC) is an initiative of Imperial College Business School and Singapore Management University, backed by the Monetary Authority of Singapore and leading global financial institutions. The SGFC is building a new ecosystem for sustainable investing in Asia, attracting mainstream investment towards the biggest developmental and economic challenge of our time: climate change. The Centre's academic scholars, governments, policymakers, and finance executives are committed to developing green capital markets in Singapore. They aim to mobilize a growing community of practitioners who are armed with knowledge, hungry for action, and biased towards solutions.

Introducing Nomura Foundation

Nomura Foundation (the Foundation) is a public interest incorporated foundation formed in 2010 from the combined resources of three existing foundations established by Nomura Group, a financial services group comprising Nomura Holdings and its subsidiaries in Japan and overseas. The Foundation aims to support a dynamic and sustainable economy and society by promoting the social science disciplines, enhancing international understanding, and fostering young academic and artistic talent. It focuses on four program areas: Social Sciences, Foreign Student Scholarships, Arts and Culture, and the World Economy.

The World Economy program supports research, conferences, and publications related to the macro economy and capital markets.

In the macro economy area, the Foundation has organized conferences together with experts from the Brookings Institution (US), Chatham House (UK), the Development Research Center of the State Council (China), and Bruegel (Belgium) as well as Nomura Securities and Nomura Institute of Capital Markets Research to share research on such topics as monetary and financial institutions, fiscal stability, and demographic change and sustainability.

Panel Discussion at the 2015 Forum

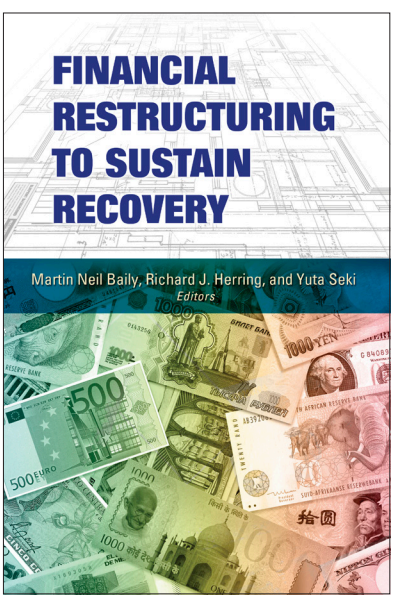
In the area of capital markets, the Foundation has organized conferences and roundtable discussions in conjunction with the Brookings Institution, the Wharton School, the Development Research Center of the State Council (China), China's Center for International Knowledge on Development and Nomura Institute of Capital Markets Research. It has also provided financial backing for several conference volumes published by the Brookings Institution, *Capital Markets in India* published by Sage, Inc., and the quarterly Japanese-language journal *Chinese Capital Markets Research*.

Research papers and presentations prepared for conferences and the content of print publications are available on the Foundation's website http://nomurafoundation.or.jp/en.

With the expanding importance of Asia in the 21st century global economy, the Foundation has been increasing its support of intellectual interactions among experts at think tanks, universities and government agencies in the region. As part of this effort and recognizing the importance of capital market development in promoting economic growth and prosperity in Asian countries, the Foundation started publishing *Nomura Journal of Asian Capital Markets* in 2016.

Cover of *Chinese Capital Markets Research*

Lord Mervyn King at the 2015 Forum



Cover of *Financial Restructuring to Sustain Recovery*

Introducing Nomura Institute of Capital Markets Research

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Nomura Institute of Capital Markets Research (NICMR) was established in April 2004 as a subsidiary of Nomura Holdings to build on a tradition begun in 1965 of studying financial and capital markets as well as financial systems, structure, and trends. NICMR develops original research and policy proposals by specialists based upon knowledge of actual business practice.

NICMR publishes some of its research output in Japanese in *Nomura Capital Markets Quarterly* as well as *Nomura Sustainability Quarterly*, and posts some items in Japanese, English, and Chinese on its website.

NICMR's core mission is to contribute to reform of Japan's financial system and securities market in order to foster establishment of a market-structured financial system. Structural changes, particularly population aging, are having a major impact on Japan's economy and society. Addressing the challenges created by these changes calls for reforming social security, tax, and public finance systems. One of Japan's most valuable resources is the JPY2,000 trillion in financial assets held by households. Establishing a market mechanism-driven money-flow that makes efficient, effective use of these assets is critical to the country's future.

NICMR's research focus extends well beyond Japan to encompass current issues in capital markets around the world. In addition to research offices in New York, London and Beijing, NICMR established a research office in Singapore in 2015 to strengthen its Asian research platform.

The continued growth of Asian economies including China is generating huge funding needs for infrastructure and creating an urgent need for indirect financing systems and robust capital markets in the region. Promoting the development of Asian capital markets is a key for the future of Asian financial systems and economies. Moreover, it is important that Asian perspectives and regional differences are recognized in the post-global financial crisis environment of closer cooperation among financial regulators making rules and global standards.

NICMR's recommendations for developing financial and capital markets in Asia are based on analyses of past experience in developed economies. In particular, Japan offers useful lessons on the importance of direct finance for supporting new businesses and of investment services to cater to the needs of a growing middle class.

NICMR has also been working to strengthen its sustainability initiatives. To this end, it established the Nomura Research Center of Sustainability in December 2019. This research center focuses on objective and practical research into areas of sustainability closely related to the financial and capital markets in major regions including Asia.

As a member of the Nomura Group, a global financial group based in Asia, NICMR strives to contribute to the development of financial and capital markets in Japan and the rest of Asia through fundamental research and experience-based policy recommendations.

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NOMURA JOURNAL
OF ASIAN CAPITAL MARKETS

SPRING 2022 Vol.6/No.2

Publication Date: February 28, 2022
Editor: Nomura Institute of Capital Markets Research
Publisher: Nomura Foundation
Urbannet Otemachi Building,
2-2-2 Otemachi, Chiyodaku, Tokyo 100-8130, Japan
http://www.nomurafoundation.or.jp/en/

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