HOW CAN PRIVATE SECTOR FINANCIAL INSTITUTIONS

ACCELERATE GREEN FINANCE AND TRANSITION TO A LOW CARBON ECONOMY IN SOUTHEAST ASIA?

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GREENING THE FINANCIAL SYSTEM

Accelerating green finance in emerging markets.

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BACKGROUND

Green finance growth in Southeast Asia is urgent and inevitable

The ASEAN region[1] is considered to be the world's fifth largest economy, and with Southeast Asia comprising 10% of the world's population it has continued to be an attractive investment destination thanks to accelerating industrialization[2]. Southeast Asia accounts for 20% of the world's biodiversity in just 3% of global landmass[3]. That contributes to strong economic growth but brings with it serious environmental and social risks that need to be carefully managed.

Green Finance Opportunities in ASEAN, a collaborative report published by DBS and the United Nations in 2017 found that Southeast Asia is considered more vulnerable than average to climate change and large biodiversity losses. The report also found that climate change would reduce the region's gross domestic product by 11% by 2100 and would be accompanied by potential annual health costs of USD280 billion caused by air pollution from coal-fired power plants[4]. Six of the 20 countries forecast to be most heavily exposed to climate risks were Indonesia, Thailand, Myanmar, Malaysia, Vietnam and Philippines.

To manage environmental, social, climate and transition risks effectively, it is imperative to measure baseline greenhouse gas (GHG) emissions on a national level to align the Nationally Determined Contributions (NDCs) targets pledged to support the Paris Agreement. The voluntary targets include identification of mitigation and adaptation projects that create opportunities for investment.

Across Southeast Asian countries, energy, agriculture, and forestry are common sectors for climate mitigation while adaptation sectors include water security, biodiversity, public health, poverty reduction, gender equality, food production and livelihood improvement. Such projects are capital intensive and require heavy funding. Enabling policies to support these ventures are still in their infancy and many have yet to offer up the proof points investors need to make decisions.

[1] Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam
[2] The ASEAN Secretariat (2019), ASEAN Integration Report (2019)
[3] Southeast Asia's Green Economy: Pathway to Full Potential | Bain & Company
[4] Green Finance Opportunities in ASEAN

As of August 2020, the voluntary NDCs of ASEAN countries that include mitigation and adaptation sectors submitted to UNFCC Secretariat are as follows:

Table 1. Voluntary Nationally Determined Contributions (Southeast Asia countries)

Country	Unconditional NDC	Conditional NDC	Mitigation Sectors	Adaptation Sectors
Indonesia	29% below business as usual (BAU) by 2030	Up to 41% below BAU by 2030	Energy, waste, industrial processes, and product use (IPPU), agriculture and forestry	Agriculture, water, energy security, forestry, maritime and fisheries, health, public service, infrastructure, and urban systems
Philippines	2.71% reduction from BAU level by 2030	72.29% reduction from BAU by 2030	Energy, forestry, transport, industrial processes, waste, and agriculture	Agriculture, cross-cutting, environment, water, social development, energy, health, and coastal zones
Thailand	20% reduction from BAU level by 2030	Up to 25% from BAU by 2030	Economy-wide	Water management, agriculture and food security, public health, biodiversity, tourism, and disaster risk reduction
Vietnam	8% reduction versus BAU by 2030	25% reduction on BAU by 2030	Energy, agriculture, land use, land-use change and forestry (LULUCF), and waste	Food security, energy, water, poverty reduction, gender equality, social security, public health, livelihood improvements and the protection of natural resources
Lao PDR	34% reduction versus 2020 baseline scenario by 2030	increase forest cover to 70% of land area	Energy, forestry, land use change, agriculture, waste and transport	Agriculture, forestry, water, urban areas, infrastructure and public health
Bhutan	Maintain carbon neutrality, including land use, land-use change and forestry (LULUCF).	Not specified	Agriculture, energy, forestry, transport, and waste	Disaster risk management, energy, environment, health, forestry, transport, urban areas and water
Mongolia	Not specified	14% reduction compared to BAU by 2030	Energy, construction, transport, agriculture, industry, and waste	Pastureland, forestry, water, livestock, crop farming, disaster management and healthcare
Vanuatu	Not specified	Not specified	Energy: Electricity sub-sector	Agriculture, coastal zone, environment, health, land use, land-use change and forestry (LULUCF), tourism, and waste

Source:https://www.ndcs.undp.org/content/ndc-support-programme/en/home/our-work/geographic/asia-and-pacific.html

THE ROLE OF PRIVATE SECTOR FINANCIAL INSTITUTIONS

Private sector institutions should be a catalyst for green finance and a risk management safeguard in financial value chains

The transition to a low carbon economy will need extensive private sector engagement because public finance will not be enough to achieve agreed NDCs. Public finance was estimated to contribute 75% of the initial capital with 25% from private finance. But public green finance contributions are now expected to fall to around 40% while private finance increases to 60%, reversing the initial estimate in 2016[5].

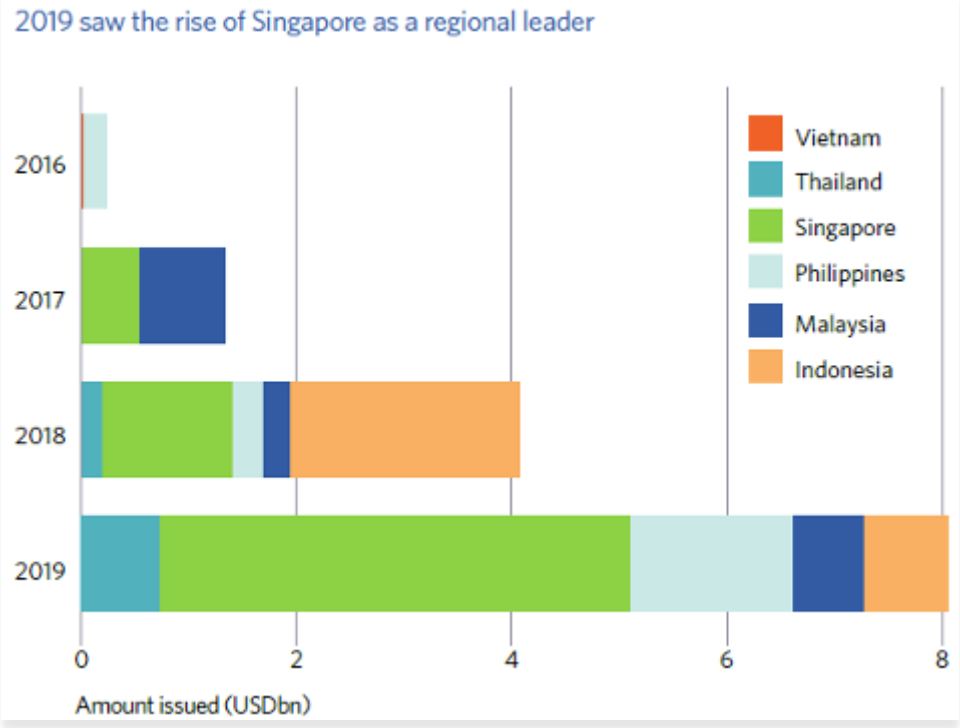
Policymakers should encourage private sector investment to help achieve Southeast Asia's ambitious target. Green finance from private institutions is gaining traction in Southeast Asia thanks to its track record of earning economic returns from addressing climate change. Continuous ESG and sustainability work is essential for FIs in Southeast Asia to ensure their financial stability. This is especially important in light of the COVID-19 pandemic that has demonstrated the importance of greener economies to prevent business disruption and strengthen corporate sustainability.

Notably, every $1 million invested in renewable energy and energy efficiency is expected to create 7.49 full time jobs from renewables and 7.72 full-time equivalent jobs from energy efficiency versus 2.65 from fossil fuel production. This means each $1 million switched from fossil fuel to green energy would create a net 5 new jobs[6].

Findings such as these highlight the significant role private sector financial institutions can and must play in the transition of the Southeast Asia region to a low carbon economy. By accelerating sustainable finance, impact investing, and the development of innovative instruments to finance climate change mitigation and adaptation, FIs can support growth, promote resilience, and drive the transition to greener economies.

[5] Green Finance Opportunities in ASEAN
[6] Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model.

In 2019, issuance of notable bonds reached USD8.1billion under the ASEAN Green and Sustainability Bond Standards, almost double 2018's USD4.1 billion with significant support for buildings and renewable energy.[7]



Source:https://www.climatebonds.net/resources/press-releases/2020/04/climate-bonds-initiative-launches-asean-green-finance-report-2019

Issuing high-quality green and sustainable debt assists nations to meet their sustainability commitments, which in turn helps them to address NDC goals, improve their sovereign risk ratings, and attract investment that prioritizes environmental and social benefits.

Adopting sustainable finance frameworks that serve as a baseline for private sector financial institutions to issue thematic bonds, which are intended to fund social and environmental projects, diversifies the pool of borrowers and manages the transition risks that can result in stranded and devalued assets.

[7] https://www.climatebonds.net/resources/press-releases/2020/04/climate-bonds-initiative-launches-asean-green-finance-report-2019

Potential investment opportunities in the green economy

Southeast Asia countries provide significant investment opportunities in renewable energy sector that will transform nations to low carbon economy. Each SEA country has its own peculiarities in terms of potential investment disclosures – based on maximum potential renewable energy resource capacities, baseline and NDC targets.

Investment opportunities are derived based on potential capacities multiplied with benchmark capital expenditure per megawatt of RE technology type as presented below as of 2020.

Renewable Energy Technology Type	Projected Capital Expenditure per MW (in Millions, USD)
1. Solar	0.7 – 0.9
2. Hydro	2.5 -3.5
3. Wind	3 – 3.5
4. Geothermal	4 – 4.5
5. Biomass	2 – 2.5

- PHILIPPINES

A. Based on Grid Planning and Competitive Renewable Energy Zones (CREZ) in the Philippines study conducted by USAID, NREL, Department of Energy and National Grid Corporation of the Philippines in 2018, the following are the maximum potential resource capacities and projected range of investment.

Resources	Maximum Potential Capacity	Projected Range of Investment (in Billions, USD)
Solar	58,000 MW	40.6 – 52.2
Wind	94,000 MW	282 - 329
Geothermal	365 MW	1.5 – 1.6
Hydro	655,000 MW	1,638 – 2,293
Biomass	374 MW	.7 - .9
TOTAL	807,739 MW	1,962.8 – 2,676.7

Source: CREZ Report | Department of Energy Philippines (doe.gov.ph)

B. Based on National Renewable Energy Program report as of December 2019, the following are the 2030 NDC Renewable Energy target capacities which totals to 31,776 MW.

Resources	2030 NDC Target Capacity	Projected Range of Investment (in Billions, USD)
Geothermal	495 MW	1.9 – 2.2
Wind	5,882.48 MW	17.6 – 20.6
Hydro	12,556.06 MW	31.4 – 43.9
Solar	12,421.54 MW	8.7 – 11.2
Biomass	421.26 MW	.3 - .4
TOTAL	31,776 MW	59.9 – 78.3

Source: NREP presentation deck in Allotrope facilitated webinar in March 12, 2021

VIETNAM

A. Based on Report on PDP8 Workshop presentation deck in July 2020, the following are the maximum potential resource capacities and projected range of investment.

Resources	Maximum Potential Capacity	Projected Range of Investment (in Billions, USD)
Wind	377,000 MW	1,131 – 1,319
Hydro	4,300 MW	10.8 - 15
Solar	434,000 MW	304 - 391
Biomass	13,700 MW	27.4 – 34.3
TOTAL	829,000 MW	1,473.2 – 1,759.3

Source: Report on PDP8 Workshop July 2020

B. Based on 2016 Vietnam revised National Power Development Master Plan ("PDP VII") for the 2011- 2020 Period, the following are the NDC targets set in PDP VII for renewable energy for 2030.

Resources	2030 NDC Target Capacity	Projected Range of Investment (in Billions, USD)
Wind	6,000 MW	18 - 21
Hydro	27,800 MW	69.5 – 97.3
Solar	6,000 MW	4.2 – 5.4
TOTAL	39,800 MW	91.7 – 123.7

Source: Renewables in Vietnam: Current Opportunities and Future Outlook (vietnam-briefing.com)

INDONESIA

Based on Implementation of Nationally Determined Contributions: Indonesia Country report of 2017, the following are capacities of various renewable energy resource and equivalent projected range of investment by 2030.

Resources	2030 NDC Target Capacity	Projected Range of Investment (in Billions, USD)
Geothermal	28,000 MW	112 - 126
Hydro	75,000 MW	187.5 – 262.5
Biomass	33,000 MW	66 – 82.5
TOTAL	164,000 MW	365.5 - 471

Source: Indonesia First NDC - UNFCCC https://www4.unfccc.int › sites › Indonesia First

THAILAND

Based on Renewable Energy Outlook report of International Renewable Energy Agency (IRENA) with Thailand's Ministry of Energy, the increase of 30% target capacity in renewable energy in 2036 constitute as follow.

	2036 NDC Target Capacity	Projected Range of Investment (in Billions, USD)
Biomass	7,400 MW	14.8 – 18.5
Hydro	3,282 MW	8.2 – 11.5
Wind	3,002 MW	9 – 10.5
Solar	6,000 MW	4.2 – 5.4
TOTAL	19,684 MW	36.2 – 45.9

Source: Renewable Energy Outlook: Thailand (irena.org)

Lao PDR

Based on USAID-NREL collaboration with the Lao People's Democratic Republic's (Lao PDR's) Ministry of Energy and Mines on identifying renewable energy opportunities for the Lao People's Democratic Republic, the following are the 2030 NDC targets and its corresponding projected range of investment.

Resources	2030 NDC Target Capacity	Projected Range of Investment (in Billions, USD)
Small Hydro Power	2,000 MW	5 - 7
Wind	73 MW	.2 - .3
Solar	511 MW	.4 - .5
Biomass	1,467 MW	2.9 – 3.7
Geothermal	56 MW	.2 - .3
TOTAL	4,107 MW	8.7 – 11.8

Source: Identifying Renewable Energy Opportunities for the Lao People's Democratic Republic | USAID-

TURNING RISKS INTO OPPORTUNITIES

Climate risk management an essential element in financial value chains

Risks from climate change generate significant business opportunities, accordingly financial institutions should spearhead the adoption of climate change risk management. This form of mitigation requires FIs to help carbon-intensive industries to manage GHG emissions and support them in the transition to renewables without compromising energy security.

In 2020, eastern Asia-Pacific[8] nations' economic expansion exceeded the combined growth of the rest of the world, the World Economic Forum reported. It projected that Asia's gross domestic product will constitute 60% of global growth, derived primarily from China, India, and Southeast Asia.[9]

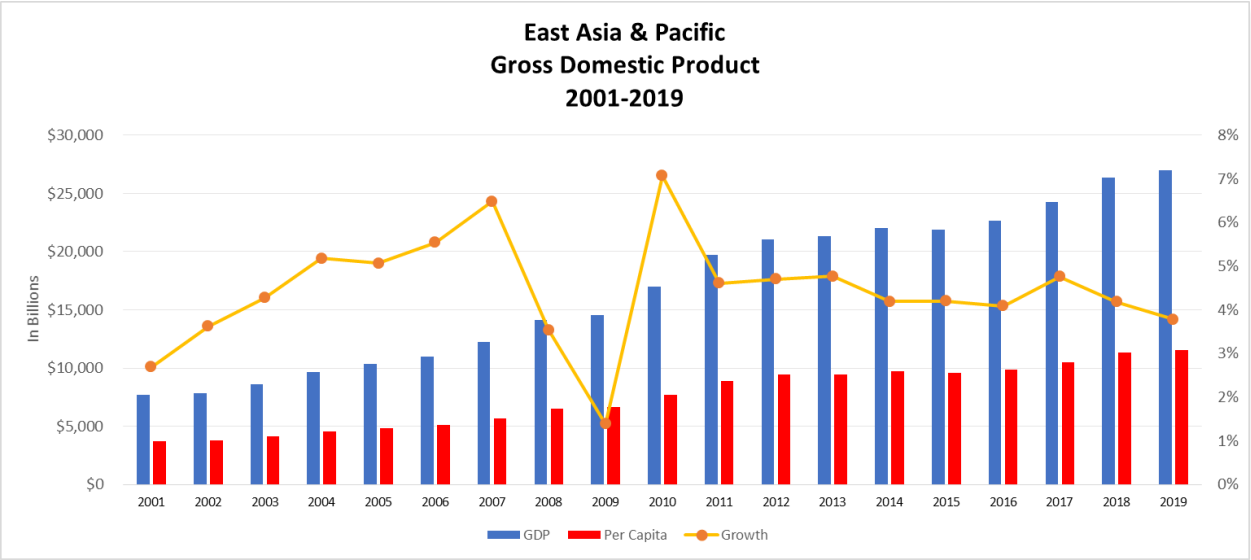
The charts below depict robust GDP growth from 2001 to 2019, excluding the decline in 2009 when the global financial crisis slowed Southeast Asia's exports to the United States and Europe, but GDP bounced back in 2010 and has grown steadily since then.[10]

Chart 1. World, OECD, and East Asia & Pacific GDP Growth (2001 – 2019)

Source: Data by World Bank

[8] East Asia-Pacific includes Southeast Asia, the Pacific Island countries, China, and Australia.
[9] WEF: In 2020 Asia will have the world's largest GDP.
[10] East Asia & Pacific GDP 1960-2021

Chart 1. World, OECD, and East Asia & Pacific GDP Growth (2001 – 2019)

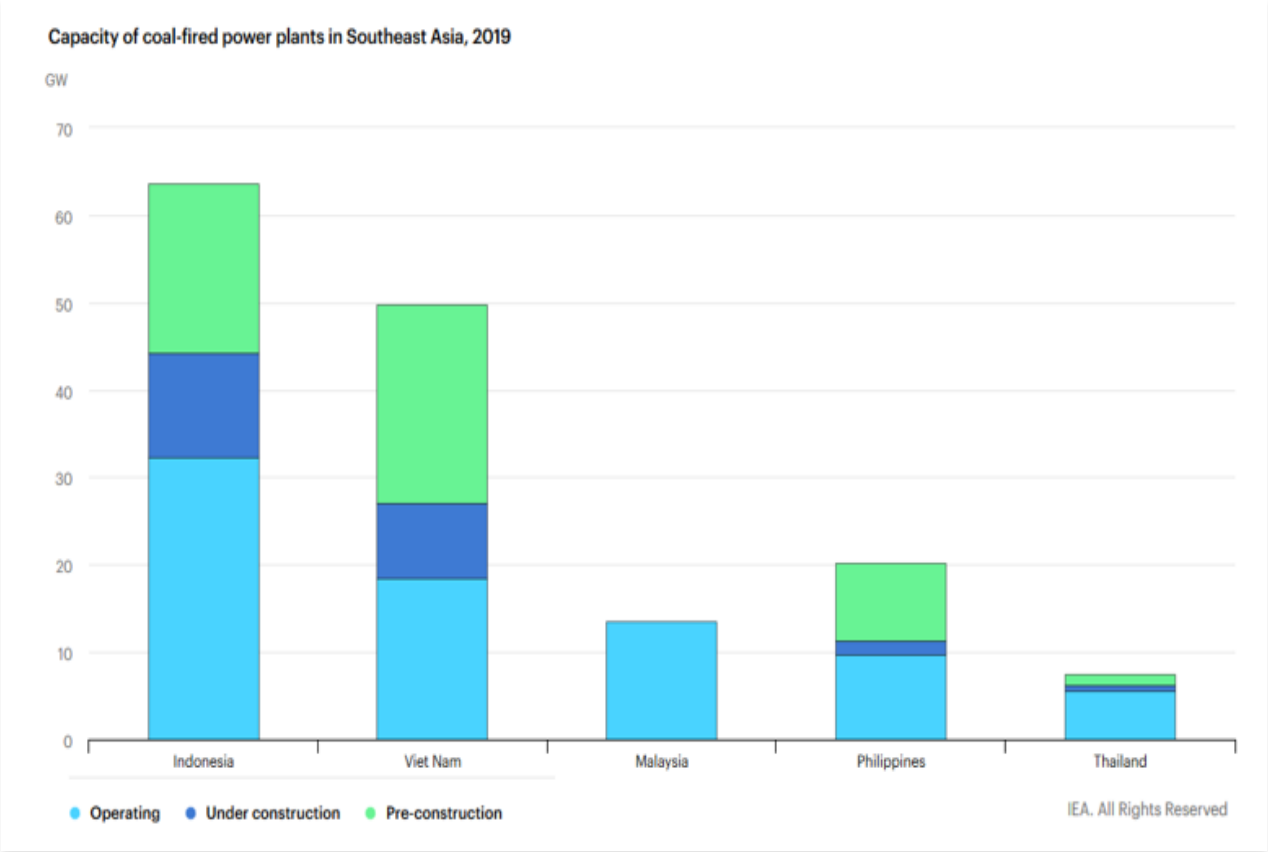


Source: Data by World Bank

Sustained strong economic development in Southeast Asia demands energy security. The region's four largest consumers of electricity are Indonesia (26%), Viet Nam (22%), Thailand (19%) and Malaysia (15%).[11] Coal power was adopted to meet growing demand for electricity, particularly in Indonesia, Vietnam, and the Philippines. But because coal power is carbon-intensive, these countries are at risk of being stuck with obsolete and uneconomic stranded assets that could also delay the achievement of their NDCs.[12]

[11] https://www.iea.org/reports/electricity-market-report-december-2020/2020-regional-focus-southeast-asia
[12] https://carbontracker.org/resources/terms-list/#stranded-assets

Chart 3. Capacity of coal-fired power plants in Southeast Asia, 2019



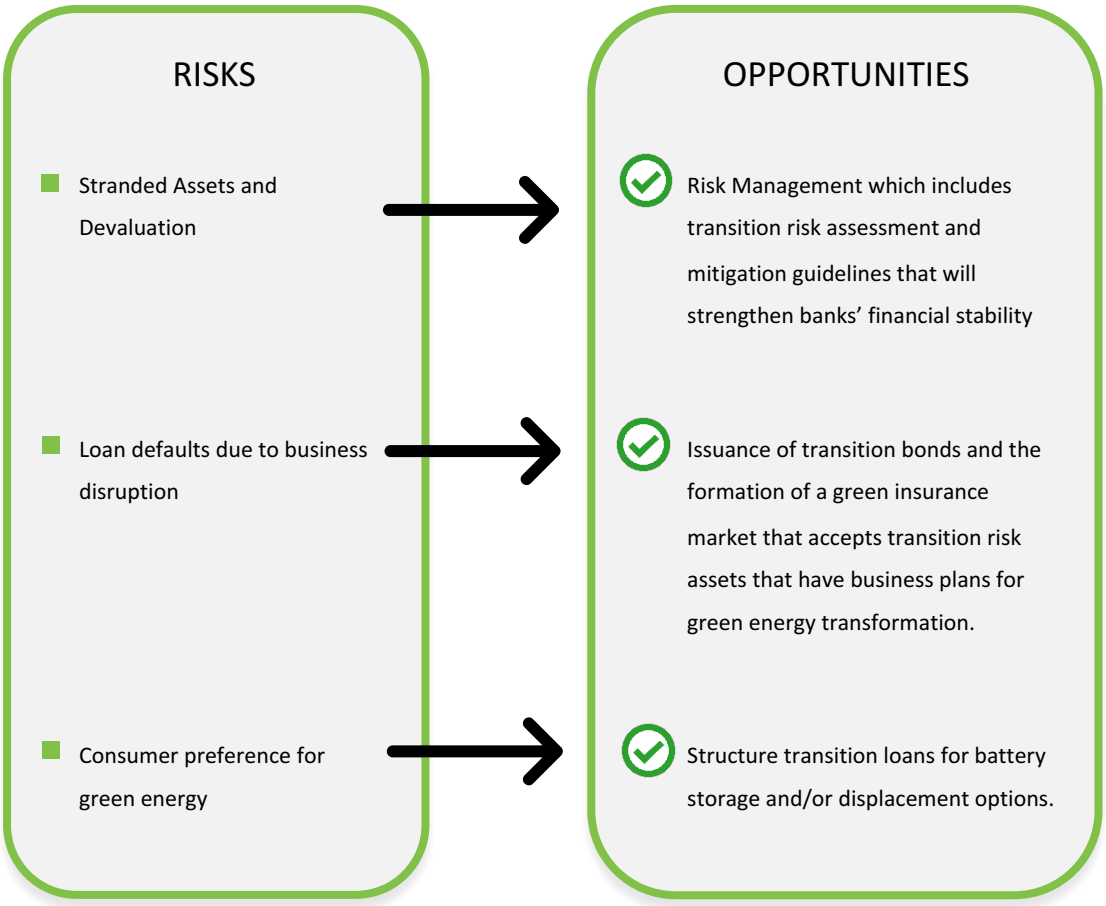
Source: IEA Electricity Market Report – December 2020

The graph shows Indonesia has the largest coal-fired power plant capacity in Southeast Asia, comprising 32 gigawatts (GW) operating, 12GW under construction and 19GW in pre-construction. This is followed by Vietnam with 18GW operating, 9GW under construction, and 23GW in pre-construction. The Philippines has 10GW in operation, 9GW at the pre-construction stage, and 2GW under construction, although it has imposed a moratorium on new coal projects. [13,14]

These coal-fired power plants are considered to be potential stranded assets that are exposed to transition risk which could affect the financial stability of the banks financing them. Therefore, banks should adopt transition risk management procedures to protect themselves and the financial value chain from economic losses and turn these risks into opportunities.

[13] Cusi declares moratorium on endorsements for greenfield coal power plants

[14] IEA (2020), *Electricity Market Report - December 2020*, IEA, Paris https://www.iea.org/reports/electricity-market-report-december-2020



To capitalize on opportunities available from risk, innovative financial structures that redirect capital flows via positive impact financing that generates economic value without harming the environment and the local community will be essential. Banks can achieve these goals by developing sustainable financial instruments that aim to reduce carbon output and help countries meet their NDCs.

Groundbreaking financial products needed to mobilize private sector capital

Innovative financial and leveraged instruments must be developed to accelerate financing for scaled green project bringing in private and public sector financial institutions together with development banks, multilateral development banks (MDB), export credit agencies (ECA) and commercial banks. Developed-country MDBs and ECAs should help private sector financial institutions in the Southeast Asia region to access concessional loans or official development aid (ODA) to promote more innovative structures for financial instruments.

THEMATIC BONDS

Thematic bonds are debt securities with environmental, social and governance components.[15] The type of thematic bond varies depends on the use of proceeds or intentional impact finance. Green Bond is focused on assets with positive and quantifiable environmental impacts. Blue Bond has also green finance eligibility but focused on marine conservation. Sustainability Bond is debt security with environmental and social impacts. Social Bond on other hand raises funds for new and refinancing projects with positive social outcomes. The transition bond is new class of debt security that finances brown energy's transformation to green and to catalyze decarbonization.

Example 1: Thematic bond issuance

1. BDO Unibank Inc. pioneered the issuance of USD150Mn Green Bond in December 2017, an innovative financial instrument in the banking sector of Philippines and East Asia Pacific, and a landmark transaction in the country. It was intended to drive the funding of eligible renewable energy projects, with The International Finance Corporation as anchor investor.

The BDO green bond issuance encouraged other financial institutions and corporations to follow with the own green bonds. These developments have motivated the financial sector market to increase its risk appetite and direct capital towards sustainable energy projects.

Creating a Vibrant Green Bond Market in the Philippines

2. The Bank of the Philippine Islands issued PHP3 billion in COVID Action Response Bonds (CARE bonds) the first Philippine peso-denominated debt security with proceeds aimed at micro, small and medium enterprises significantly affected by global pandemic.

BPI launches PH's first COVID response bonds

CROSS-BORDER LOANS

Cross-border loans can finance green projects outside the funder's borders for it to compete globally or regionally by expanding its businesses' geographic reach despite political and currency risks.

[15] *Green, Sustainability, and Social Bonds for COVID-19 Recovery: A Thematic Bonds Primer*

Example 2: A cross-border loan for a green energy project

Ayala Energy and Infrastructure Corp. (AC Energy) with foreign partner corporation Hongkong-based UPC Renewable Group has secured funding from US International Development Finance Corp for their 100MW solar project in India. The loan tenor is 20 years with 75:25 debt-to-equity ratio.

Ayala partner secures funding for India project

SYNDICATED LOAN FOR PUBLIC-PRIVATE PARTNERSHIPS (PPP)

This mechanism enables countries to mobilize capital from diverse sources to ensure their people have good quality and affordable public services by encouraging private sector participation in big-ticket infrastructure with high social impact.

Example 3: Syndicated loan for a PPP Project

Six Philippine banks, namely, BDO Unibank Inc., Bank of the Philippine Islands, Development Bank of the Philippines, Land Bank of the Philippines, Metropolitan Bank & Trust Company, and Philippine National Bank provided debt financing for the Mactan–Cebu airport, the country's second busiest. The project is designed to increase capacity and enhance operations to attract domestic industries and promote socio-economic advancement locally and regionally.

Source: https://ppp.gov.ph/in_the_news/6-banks-extend-p23-b-loan-to-mactan-airport-builder/

BLENDED FINANCE

Blended Finance is use of catalytic capital from philanthropic or public sources to increase private sector funding for high impact projects. Blended finance aims to de-risk loans for greenfield projects that will not proceed in the absence of concessional financing. It enhances asset credit value as it reduces uncertainty and costs in terms or risk-return expectations. The Organization for Economic Cooperation and Development defines blended finance as "the strategic use of development finance for the mobilization of additional finance towards sustainable development in developing countries".[16]

"Anchoring blended finance to a development rationale represents a promising way of contributing to building partner countries' economic, social and environmental resilience.

This is of utmost importance now, with most partner countries under pressure to adequately respond to and recover from the COVID19 crisis. Blended finance can contribute to strengthening local markets and diversifying sector-reliance which is crucial in helping countries to weather international economic crises. "

Example 4: Co-financing for projects in Indonesia and Cambodia

1. Project financing for the 220MW PT Supreme Energy Rantau Dedap (SERD) geothermal power plant in South Sumatra, Indonesia, has total co-financing of USD539 million. It was supported by Japan Bank for International Cooperation with a loan agreement for project finance amounting to around USD188 million.

The loan is co-financed by private-sector banks including Mizuho Bank, Ltd., Sumitomo Mitsui Banking Corporation, the Bank of Tokyo-Mitsubishi UFJ, Ltd., as well as by the Asian Development Bank (ADB). Nippon Export and Investment Insurance (NEXI) provides insurance for the portion co-financed by the private-sector banks.

[16] Blended finance guidance and principles

Source: https://www.adb.org/projects/50248-001/main

2. Cambodia's first large scale solar project with installed capacity of 10.5MW financed by Asian Development Bank (ADB) consisted of USD3.6million loan from ordinary capital resources, a B loan of USD3million and concessional financing of USD3.25million.

(https://www.adb.org/projects/50248-001/main)

EXPORT CREDIT AGENCIES (ECA)

These institutions provide services such as financial guarantees and export insurance to companies selling goods and services in other countries. The participation of ECAs in projects can help mobilize green finance funding for eligible ventures.

Example 5: Multinational export credit for hydro-electric power in Sumatra, Indonesia

1. The 41MW Hasang Hydroelectric Power Plant conduit type project led by LG International Corporation was financed for a total of USD211million which included the following creditors Korea Development Bank, USD148million and Korea Trade Insurance Corporation (K-Sure), USD141Mn.

(http://www.businesskorea.co.kr/news/articleView.html?idxno=16451)

Korea Trade Insurance Corporation (K-Sure) will provide a financing insurance worth US$141 million to Indonesia's Hasang Hydroelectric Power Plant project led by LG International.

2. HSBC was mandated as lead arranger, sole lender, agent, and security agent of USD69 million Sinosure (ECA)-supported facility for Longi Green Energy Technology Company, a leading Chinese solar photovoltaics corporation expanding in Malaysian state of Sarawak.

(https://www.asiamoney.com/article/27i6gralrq1bhg3whzzls/awards/new-silk-road-finance-awards/southeast-asia-best-bank-for-infrastructure-project-finance-in-the-region-2019)

THE WAY FORWARD

Government support is pivotal to crowd in private sector capital to scale up green finance opportunities in the Southeast Asia region and pave the way for a low-carbon economy. The following are actionable measures that cooperating policymakers, private and public sector financial institutions can implement.

Technical Assistance:

- Gap analysis of green finance supply and demand in the market. Private sector financial institutions in the Southeast Asia Region are eager to support renewable energy but lack bankable projects to finance
- Government coordination of multilateral development banks and climate finance providers to support technical assistance for green projects and capacity building in climate risk management.
- Expert technical advice on the environmental and social safeguards, gender policies and project management standards commercial banks must adopt in order to access climate and other concessional funds.

De-risking:

- Governments must support realistic de-risking mechanisms for private sector FIs because commercial banks, particularly in developing countries, rely heavily on the character profile of project sponsors and hard assets on top of project assets to determine viability.
- Governments, multilateral development banks MDBs and climate finance providers should help private sector financial institutions to access grants, concessional loans and overseas development assistance (ODA) to eventually blend public and private finance. This will spread private banks' risks and can support the heavy capital requirements in the pre-development stage of geothermal and hydro power plants and other green finance projects that require intensive research and development.
- Grants or official development assistance should finance the construction stage while private sector investors fund the operational stage.
- Bridge financing structures should be available for scaled up projects.

Incentives

- Provide monetary incentives such as reduction of capital reserves in central bank for banks that lend to green finance eligible business activities.
- Offer non-monetary benefits such technical assistance in evaluating greenfield projects and capacity building of private banks in institutionalizing ESG policies that are required to access multilateral funds such as Green Climate Fund.
- Introduce carbon incentives which include setting minimum GHG emission reduction (in tonnes) to be eligible. The objective is to outperform the benchmark in order to qualify for monetary/non-monetary incentives.

Compliance

- Oblige financial institutions to allocate a set percentage of their loan portfolios to green financing or face penalties.
- Impose a sustainable finance framework on risk management. If FIs fail to meet the sustainability standard they can be compelled to make additional capital provisions.

Multi-stakeholder approach

- Introduce a concerted sustainable finance roadmap among private sector financial institutions, the central bank and relevant government agencies that create policies to accelerate green finance and achieve NDCs target.
- Provide opportunities from public sector financial entities such as MDBs and ECAs to private sector financial institutions in Southeast Asia region to access the concessional loan or official development assistance for innovative financial product structures.
- Introduce an adjusted credit risk rating model for new SMEs that engage in green energy development to access finance from private sector financial institutions.
- Digital platform as data storage of green finance investments (operating and prospective) and GHG emission reduction impacts. This will enable the government to keep track of the country's growth in green finance and progress in GHG emission reduction target.
- Standardize green finance taxonomy and parameters that are verifiable and acceptable to global standards.

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