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Innovative Financing Mechanisms for Green Investments in South-East Asia

Investments for Small- and Medium-sized Enterprises

## **Innovative Finance**

A Cooperation between  
German Sparkassenstiftung for International Cooperation (DSIK) and  
World Wide Fund for Nature (WWF) and  
Myanmar Food Processors and Exporters Association (MFPEA)



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## **Acknowledgements**

The present paper is the result of a collaboration between German Sparkassenstiftung for International Cooperation (DSIK), the Myanmar Food Processors and Exporters Association (MFPEA) and the World Wide Fund for Nature (WWF) in the framework of the Tha Bar Wa project in Myanmar. While the Tha Bar Wa project focuses on catalysing sustainable water and energy management in the food and beverage industries in the Ayeyarwady River Basin, this paper takes a broader view: In the following, we seek to explore the scope for disseminating the local insights gained in Myanmar to neighbouring regions by promoting green finance solutions across South-East Asia. The insights presented below are to be understood as general guidance for Myanmar and, at the same time, solutions which are adoptable for other South-East Asian countries. However, the implications of COVID-19 and the political situation in Myanmar have not been taken into account – it currently appears that in Myanmar, many of the approaches described here either cannot be applied or must be discontinued.

Even though green investments have recently been largely put on hold in Myanmar, and the resumption of such investments will depend heavily both on the speed of economic recovery and on the willingness of the government to implement ecological, developmental and innovative financing mechanisms for green investments, the topic is an important one in light of climate change as a global megatrend. We have therefore emphasised the opportunities for implementing the various innovative green finance measures described in this paper throughout South-East Asia, and the limitations involved in each case.

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## List of abbreviations

ADB	Asian Development Bank
CAPEX	capital expenditures
DEVEX	development expenditures
EE	energy efficiency
ESG	environmental, social and governance
GET	green environmental technology
GIZ	German Agency for International Cooperation [ <i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> ]
GHG	greenhouse gas
LSE	London Stock Exchange
MPEVCA	Myanmar Private Equity & Venture Capital Association
PFA	pooled financing agency
PV	photovoltaics
RE	renewable energy
SMEs	small and medium-sized enterprises
SPAC	special purpose acquisition company
SPFM	subnational pooled financing mechanism
TBW	Tha Bar Wa project
USAID	U.S. Agency for International Development
VC	venture capital



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## Introduction

Asia currently accounts for almost 50% of global greenhouse gas (GHG) emissions and is expected to play an essential role in tackling climate change. The majority of Asian countries have already initiated programmes to implement carbon emission mitigation in accordance with the Paris Climate Agreement, but in developing Asia in particular, such initiatives still lag behind. The transition to clean energy will be an important part of reducing emissions, and here additional financial investments and the mobilisation of private finance will play a crucial role. New financing instruments and innovative financing mechanisms for green investments offer significant opportunities to drive the energy transition, and local energy providers, project developers, financing institutions and the population should be incentivised to contribute to the overall objective. For purposes of this paper, innovative (green) financing mechanisms are any investments or products that can boost climate change adaptation and/or mitigation and that serve to reduce or prevent GHG emissions.

## The Green Finance Ecosystem

The landscape for green finance has evolved over recent years, and as renewable energy/energy efficiency projects become widespread, new sources of funds and new financing instruments are bringing new opportunities for investment in clean energy technologies such as solar PV, wind and biomass. Green financing initiatives aim to increase the level of financial flows from banks, microcredit institutions, insurance companies and investment firms – whether in the public, private or non-profit sector – to sustainable development priorities. With respect to developing Asia, the five approaches of harnessing the public balance sheet, directing finance through policy, transforming culture, upgrading governance, and enhancing market practice remain core for aligning the financial system towards sustainable development.

At the same time, small and medium-sized enterprises which seek to leverage green investments need to understand the advantages and disadvantages of the growing range of both traditional and innovative green financing options available. To explain these options and their respective



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positioning within the ecosystem, and to identify selected relevant players, the overview must be split into two distinct investment categories. This is also depicted in Figure 1<sup>1</sup>:

**CAPEX investments for the construction of assets** (e.g. a wind farm or solar pv plant). CAPEX refers to the funding of tangible assets to set up projects using existing technologies, e.g. a 15 MW offshore wind farm in the South-East Asian Sea. In this example, the CAPEX investment is mainly for the procurement of hardware components such as wind energy turbines, but also for the wind farm foundation technology.

Further development costs for the analysis, exploitation and structuring of such installations fall under the more intangible DEVEX investments:

**DEVEX investments for the development of new technologies** largely consist of the aforementioned intangible asset investments required to finance the development and installation of hardware such as a wind energy plant and its foundation. DEVEX can also refer, however, to investments in technological improvements and upgrades of existing power plants or other alternative assets.

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<sup>1</sup>Derived from <https://www.adlittle.com/en/insights/viewpoints/green-financing-corporate-breakthroughs>

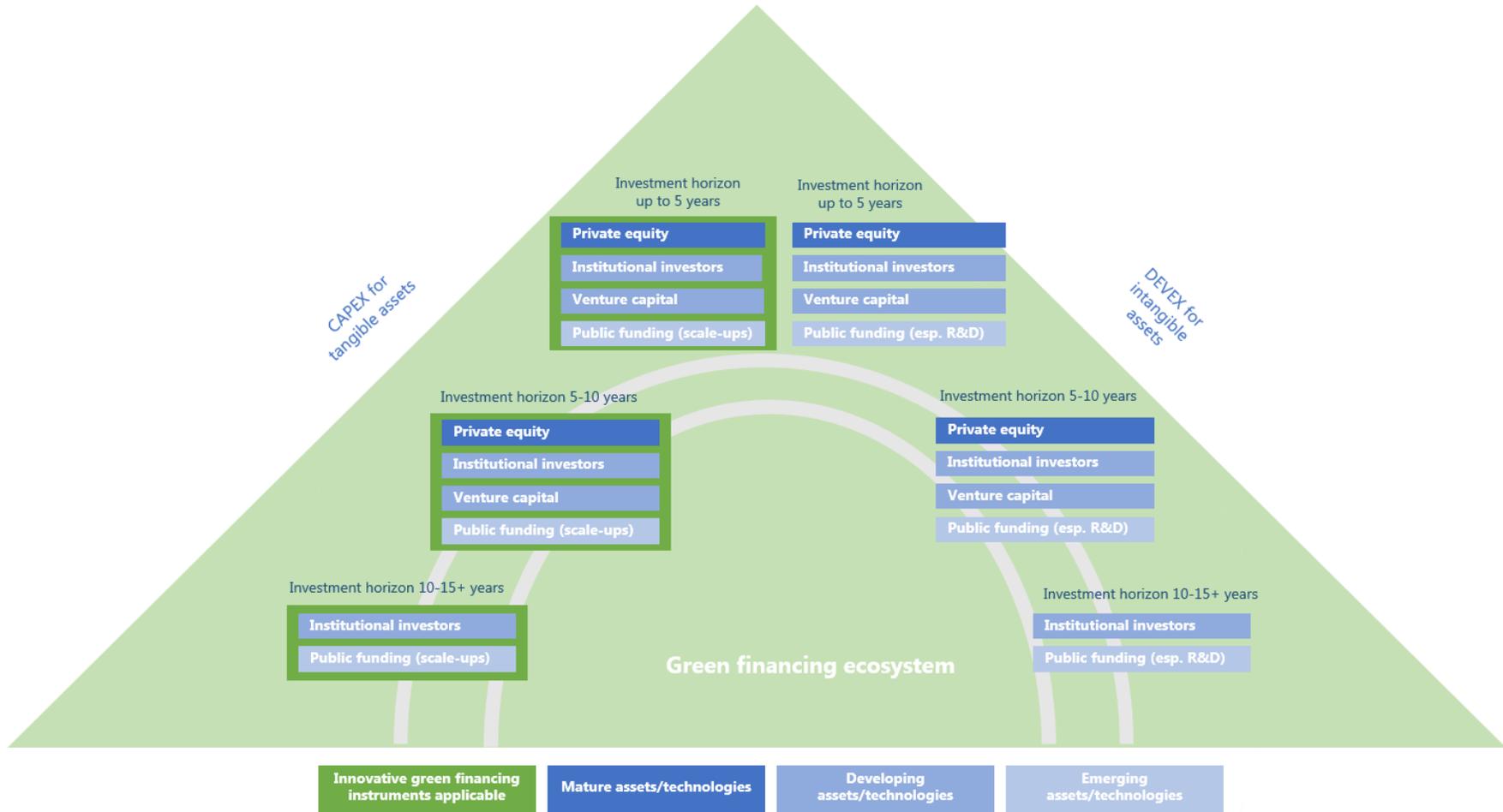


Figure 1 – Green financing ecosystem for companies



Relevant financing instruments need to be put in place for both CAPEX and DEVEX investments. Selected financing instruments and the respective market participants/investors are presented below<sup>2</sup>:

**Green loans/bonds** – Usually structured as long-term fixed-income financial instruments, green loans/bonds make a positive contribution towards environmental and/or climate impacts.

- Largely aimed at mature investors
- Regularly used to finance climate change projects of significant scale
- Usually, higher levels of project scrutiny and monitoring are required
- Green loans/bonds have experienced strong growth over the past few years as measured by public listing activities (i.e. USD 18 billion listed in 2020 on the London Stock Exchange (LSE)).

**Blue loans/bonds** – This relatively new form of sustainable bond focuses on activities within the blue economy and aims at achieving healthy oceans as well as better stewardship of oceans and related business segments.

- Largely aimed at mature and specialised investors due to its niche focus
- Usually issued by governments, banks or corporations
- As one example, the Asian Development Bank supports a model in which blue bonds are used to fund selected ocean projects.

**ESG-linked finance** – Along with the two aforementioned product categories, ESG-linked financing instruments have also experienced growing demand in recent years. However, here the funding is linked not to a specific purpose, but rather to clearly defined KPIs.

- No project specifics required; rather, tailored to defined sustainability KPIs
- Incentives are provided in the form of favourable or reduced interest rates, as well as enhancements to other terms and conditions, to support sustainable investments.

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<sup>2</sup> <https://www.adlittle.com/en/insights/viewpoints/green-financing-corporate-breakthroughs>



**Capital recycling** – A growing trend in infrastructure use cases which allows for the sale or lease of an entire asset, or stake in an asset once it reaches a steady state.

- Funding is recycled for alternative sustainable investments/new projects
- The reallocation may allow a transfer of assets from the public to the private sector
- Re-investments typically follow the approach of funding adjacent green projects or even completely new (innovative) investments
- The concept of capital recycling is already familiar from real estate portfolio management, where proceeds from the sale of selected properties in a portfolio are reinvested in new real estate assets. The basic idea of public infrastructure portfolios is the same: Sell or lease existing public assets to a private buyer and reinvest the proceeds from the sale in a new (green) asset class.

**Farm-down** – A typical farm-down process, also known as asset rotation, allows for the progressive sale of equity stakes to other investors.

- Stakes are typically sold to other long-term investors
- Reduces the investment burden on project developers and enables them to deliver stable returns to the investor base
- This fade-out process entails a transfer of control similar to that under a capital recycling approach.

**Asset platforms/yield companies** – An asset platform or yield company is typically a joint venture formed by several investors to own green operating assets.

- Risk and return sharing via a joint stake in a listed or non-listed company
- The investments produce stable and predictable cash flows
- Typical investors are relatively passive investment vehicles or infrastructure funds.

**Special purpose acquisition companies (SPACs)** – Starting as an empty-shelf company, a SPAC is formed and funded via a public listing and with the purpose of acquiring a target company which it then takes public.

- A relatively new financing instrument which significantly shortens the time to IPO



- In 2020, more than 50% of U.S. IPOs involved a SPAC
- Often applied to listings of start-ups (unicorns)
- The clean energy industry is also seeing strong demand for SPAC funding
- Recent transactions include the business partnership between Sunlight Financials (a financing provider for homeowners to finance residential solar PV systems) and Spartan Acquisition Corp. II (Apollo Global Management).

**Technology financing options** – In addition to the aforementioned instruments, there is also a vast range of technology financing options for DEVEX financing.

- A wide range of additional potential financing sources is available, but they depend on technology readiness levels and development status
- Depending on the time horizon and the maturity stage, the potential partners are governments or public funds, government-backed venture funds, venture capital firms, industrial partners or institutional investors.

Of the broad range of financing instruments listed above, not all are relevant in the context of developing Asia. Thus, the following sections will focus on those aspects relevant to supporting a sustainable transformation in developing South-East Asia.

## Chapter 1 – Subsidised Lending Programmes (Public Investment/Subsidies for Private Entities)

### General

Fiscal incentives and public financing in the form of subsidised lending programmes can be structured such that either interest or the asset to be financed is subsidised or technical assistance is provided. Such subsidies usually come from governmental organisations (typically in the form of tax incentives or similar financial grants, but also in the form of operational expertise to ensure development). In addition to domestic governmental organisations, other international and globally active organisations can offer subsidies and incentives as well.

Generally, government and local authorities or international organisations can use the following instruments to promote green investments (the list is not exhaustive):

- a) Tax reduction for green investments, for example for assets, projects and green technology service suppliers (e.g. India grants income tax exemptions for solar PV project developers on all earnings from projects in their first 10 years of operation<sup>3</sup>).
- b) Matching and complementing funds for green investments (grants/incentives), which are frequently utilised to stimulate investments in green technologies (e.g. Serbia is introducing subsidies for the replacement of uninsulated doors and windows and the installation of solar panels on homes<sup>4</sup>).
- c) Green tax holidays, i.e. no taxes on the income generated by green projects for a defined period of time (e.g. to incentivise private investments in sustainable projects, the Royal Government of Cambodia introduced a tax holiday on green investments: projects that can demonstrate that they have zero negative environmental and social impacts are exempt from all taxes on profits<sup>5</sup>).

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<sup>3</sup> <https://www.energetica-india.net/articles/top-5-incentives-in-india-to-foster-rooftop-solar>

<sup>4</sup> <https://balkangreenenergynews.com/serbia-to-roll-out-subsidies-for-citizens-for-energy-efficiency-this-year/>

<sup>5</sup> <https://www.inno4sd.net/tax-breaks-for-green-investments-in-cambodia-456>



- d) Reduced corporate income tax rates for green investments at a corporate level (see related examples above).
- e) Accelerated or flexible depreciation methods, i.e. allowing businesses to write off or depreciate investments/assets more rapidly, thus reducing their taxable income (e.g. many countries, including India, offer accelerated depreciation for solar energy installations, which allows such projects to claim 40% of costs in the first year<sup>6</sup>).
- f) Exemptions from indirect taxes (e.g. import tariffs on hardware components or other input factors).

### Impacts and Relevance for Developing Asia

Blended and subsidised lending programmes are promising solutions to meet the increasing need for green investment and largely apply to relatively new and emerging technologies or markets. Despite both the need and the opportunity, barriers remain for the main investor groups due to significant geopolitical differences across South-East Asia and a potential lack of scalability. Furthermore, the regions still lack the relevant experience and capacities in green lending, and a lack of regulatory or disclosure requirements creates additional barriers. However, South-East Asia already does have a lengthy track record of subsidised green investments supported by public and philanthropic institutions. As a starting point, investors need to acknowledge the highly contextual nature of the investments, and prior to developing a new initiative, a suitable analysis needs to be undertaken. For example, an instrument that has been effective in one region could potentially also be applied in a new context in a neighbouring country.

Subsidised lending programmes can potentially have the following impacts:

- By providing access to (subsidised) financial resources, they finance green investment projects that contribute to the reduction and mitigation of GHG emissions
- Private companies and SMEs gain access to capacity-building programmes in the field of renewable energy and can potentially receive expert assistance
- Investments create new needs and thus new jobs (maintenance technicians required for regular monitoring and maintenance work at a renewable energy plant, for example)

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<sup>6</sup> <https://www.energetica-india.net/articles/top-5-incentives-in-india-to-foster-rooftop-solar>



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- Subsidies create comfort for project owners to conduct and pursue such investments even though the technology is still at an emerging stage (risk consideration).

Decarbonisation is high on the agenda of policymakers in South-East Asia, and the key success factors here are:

- Raising awareness of environmental and climate risks among regulators and market participants in the financial sector
- Developing capacities in the financial industry for environmental risk analysis and management through knowledge sharing and capacity building
- Structuring capacities in the financial industry to convey and develop sustainable financing practices across geographies even in very rural situations
- Enhancing transparency through ESG disclosure requirements
- Providing incentives to financial institutions to finance green projects
- Enabling long-term local currency refinancing sources for banks, which in turn allows an extension of the loan terms.

Indonesia, Mongolia and Vietnam have largely developed green finance frameworks, while other countries, including Laos, Nepal, Pakistan, the Philippines and Thailand are currently in the process of doing so. The challenges involved in achieving a green transformation to a low-carbon economy are considerable; aligning the financial sector with sustainable development will be a key factor if Asian economies are to succeed.

## Case Study

The Prime Minister of Malaysia announced on 25 October 2013, for the 2014 budget, a Green Technology Tax Incentive for the purchase and use of green technology. The Malaysian government provides an investment tax allowance (ITA) for the purchase of green technology equipment/assets and an income tax exemption (ITE) for green technology service providers. This multi-year budget was extended in 2020. The objectives of the tax incentives are to encourage investments in green technology on a project basis, either for business purposes or



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for own consumption, to motivate companies to acquire green technology assets, and to increase the number of green technology service providers.

The Green Technology Tax Incentive<sup>7</sup> applies to the following four categories of activities:

Green Investment Tax Allowance (GITA) Assets	Applicable for companies that acquire qualifying green technology assets for own consumption and are listed in the MyHIJAU Directory, verifying that they are compliant with global environmental standards
Green Investment Tax Allowance (GITA) Project	Applicable for companies that undertake qualifying green technology projects for business or own consumption
Green Income Tax Exemption (GITE) Services	Applicable for qualifying green technology service provider companies that are listed in the MyHIJAU Directory
Green Income Tax Exemption (GITE) Leasing	Applicable for qualifying green technology service provider companies that are listed in the RPVI Directory

Note: The Green Investment Tax Allowance (GITA) applies to 100% of the qualifying capital expenditure for approved green technology assets. The allowance can be offset against 70% of statutory income in the year of assessment, and the unutilised allowances can be carried forward until they are fully absorbed.

<sup>7</sup> GREEN TECHNOLOGY TAX INCENTIVE GUIDELINES, Green Investment Tax Allowance (GITA) and Green Income Tax Exemption (GITE), Malaysian Green Technology and Climate Change Centre



## Chapter 2 – Green Bonds

### General

Public financial instruments with the ability to mobilise institutional and private capital towards low-carbon, climate-resilient investments are another key to success. One of the most dynamic instruments in the area of sustainable finance is green bonds, which are fixed income instruments whose proceeds are used by the issuer for environmental projects. Over the past decade, investor demand for these instruments has been growing in response to shifts in policy and capital allocation due to growing concerns about climate change and sustainability. In Europe, the Nordic countries have pioneered the use and application of green bonds to mobilise capital for investments in sustainable infrastructure and related sectors. Beginning in the 1970s, Sweden, Norway, Denmark and Finland have demonstrated leadership in environmental policy, regulation and behavioural changes consistent with a sustainable economy. In Asia, the issuance of green bonds reached a new record high in 2020, at USD 12.1 billion.<sup>8</sup>

Generally, the following bond structures/instruments are used to promote green investments:

a) Corporate sustainability bonds

Since the first green bond was issued in 2007, green bonds have allowed issuers to fund environmentally friendly and climate-responsible projects. In emerging markets, sustainability bonds are growing significantly, with a cumulative issuance of USD 7.7 billion between 2016 and 2019. Nevertheless, within this overall fast-paced growth of the emerging sustainability bond market, distribution and application across regions remains uneven, and financial institution bond issues clearly dominate, with the real industry lagging behind.<sup>9</sup>

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<sup>8</sup> <https://www.financeasia.com/article/south-east-asia-sees-record-green-issuance/469389>

<sup>9</sup> [https://www.ifc.org/wps/wcm/connect/d30eb015-28ce-42e3-a32b12baff21573d/REGIO+TAF+EM+Bond+Report\\_final.pdf?MOD=AJPERES&CVID=npD6dg6](https://www.ifc.org/wps/wcm/connect/d30eb015-28ce-42e3-a32b12baff21573d/REGIO+TAF+EM+Bond+Report_final.pdf?MOD=AJPERES&CVID=npD6dg6)



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The Tropical Landscapes Finance Facility (TLFF) is South-East Asia's first corporate sustainability bond. It is a multi-tranche, long-dated sustainability bond arranged by BNP Paribas (BNP) and issued by TLFF I Pte. Ltd. for RLU, a joint venture of Indonesia's Barito Pacific Group and France's Michelin Group. ADM Capital acts as the facility and ESG manager for TLFF I. USAID has provided a credit guarantee for parts of the transaction, which is rated "AAA" by Moody's. Vigeo Eiris, the ESG consulting firm, has confirmed that the bonds are "Sustainability Notes" making a positive contribution to sustainable development and are in line with the Sustainability Bond Guidelines (SBG). On 26 February 2018, the TLFF announced its inaugural transaction, a landmark USD 95 million loan to help finance a sustainable natural rubber plantation in two heavily degraded landscapes. The project has clearly defined social and environmental objectives and safeguards.<sup>10</sup> Of the total concession size of 88,000 ha, 70,000 ha are located in Indonesia's Jambi province and 18,000 ha in the East Kalimantan province. An estimated 34,000 ha will be planted with rubber, while the remainder will be used for conservation, restoration and community programs.



Figure 2 – Inaugural transaction of the Tropical Landscape Finance Facility (TLFF)

Even though green and especially sustainability bond issuances have increased over the recent past, challenges remain due to the fact that a majority of emerging countries in Asia largely rely on governmental and financial institutions to support their green bond markets, while the real (non-financial) sector lacks experience in this area. Given the level of sophistication required to issue such bonds, technical and commercial assistance could support the development of the

<sup>10</sup> <https://www.tlffindonesia.org/project-pt-royal-lestari-utama-2020/>





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real-sector bond market significantly, address operational challenges and contribute to a greener and more sustainable future.

b) Transition bonds

Transition bonds are a sub-category of green bonds and a relatively new asset class which is aimed at providing funding to assist high-carbon industries with decarbonisation. Recent examples include a bond issuance of EUR 500 million by NatWest Bank, which worked as a bookrunner for the gas firm Cadent to support the upgrading of Cadent's networks for the use of hydrogen and other green gases.<sup>11</sup>

While the uptake of transition bonds has taken somewhat longer than expected, this instrument is expected to play a more prominent role in the near future. For example, in 2021, the Asian Development Bank (ADB) announced that it would no longer fund coal mining or oil and natural gas production and exploration. This announcement is encouraging for the future of transition bonds in emerging markets and signals strong support for investments in cleaner solutions.<sup>12</sup> Nevertheless, some market participants are concerned about how much impact transition bonds will have. One common criticism points to their at times ambitious requirements, as well as the lack of clear international standards, which could potentially lead to "transition washing".

c) Subnational pooled financing mechanisms (SPFMs)

Another key financial innovation at the institutional level for green finance is the use of a structure known as subnational pooled financing mechanisms (SPFMs) to raise sustainability-oriented capital from financial markets. SPFMs are a cost-effective form of private capital and public sector financing as a means of funding infrastructure and public services in developing and developed countries. The mechanism allows local and governmental entities to access credit markets where they would not otherwise be able to. An SPFM aggregates the financial needs of its members into a pooled financing agency (PFA), which then issues debt and distributes the

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<sup>11</sup> <https://www.businessgreen.com/news/4028428/net-zero-finance-financial-innovation-bridge-green-investment-chasm>

<sup>12</sup> <https://oxfordbusinessgroup.com/news/transition-bonds-new-tool-fund-shift-towards-climate-sustainability>





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proceeds from the bond offering to its members. Linking a variety of small projects to private capital ensures diversification, which helps to mitigate repayment risks and the general risk of default. As the International Institute for Sustainable Development (IISD) (2018) explains, most SPFMs require the set-up of special purpose vehicles (SPV) that have transparent governance structures and processes. These SPVs, whose structure depends on national laws, are responsible for contracting debt and making debt service payments on this debt. They are usually owned by governments, though owners can also include the private sector, development partners, NGOs etc.

The benefits of SPFMs are that they make it possible to obtain finance for local infrastructure projects or public services, reduce the financial burden for governments, act as “market makers” to stimulate the development of the domestic capital market, catalyse the adoption of strict market standards and create a “hard credit culture” which facilitates overall development effectiveness.

Nevertheless, SPFMs also entail challenges in that they require a high level of political support, call for stakeholder alignment and buy-in from private capital, have high upfront structuring costs, and require professional management. Key prerequisites such as effective political leadership, competent management, and sufficient long-term committed funds must therefore be in place.

Given the need to develop a close collaboration between local governments and the capital market, the SPFM development process might require significant investments and time in developing countries. The process requires behavioural changes in local, regional, and national governments as well as in the domestic capital markets. Specific tasks include extensive stakeholder consultation and education, a detailed technical assessment, including training and project planning, the structuring of creditworthy financial entities, and roadshows to help build investor trust and demand. National governments should proactively explore how to best adapt SPFMs to meet the needs of their countries and drive this mechanism to become a mainstream



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financial instrument for developing subnational green and infrastructure-related impact projects that can mobilise private funds.<sup>13</sup>

In addition to the abovementioned structures, the following incentives can support the bond issuances and increase comfort for investors or project owners:

- a) Tax credit bonds: Bond investors receive tax credits instead of interest payments, so issuers do not have to pay interest on their green bond issuances. An example in the area of clean energy is the U.S. federal government's Clean Renewable Energy Bonds (CREBs) and Qualified Energy Conservation Bonds (QECBs) program. Under this program, taxable bonds are issued by municipalities for the purposes of clean energy and energy conservation, with 70% of the coupon from the municipality provided to the bondholders in the form of a tax credit or subsidy from the U.S. federal government.
- b) Direct subsidy bonds: Bond issuers receive cash rebates from the government to subsidise their net interest payments. This structure is also used under the U.S. federal government program described above.
- c) Tax-exempt bonds: Bond investors are not required to pay income tax on interest from the green bonds they hold, allowing issuers to apply lower interest rates. This type of tax incentive is typically applied to municipal bonds in the U.S. market. With regard to green bonds, a noteworthy example is tax-exempt bond issuance for the financing of wind energy projects in Brazil.<sup>14</sup>

## Impacts and Relevance for Developing Asia

Green bonds and related forms of capital market financing are an additional set of promising solutions that could address the increasing need for green investment in developing Asia. Reuters reported that as of mid-2021, the issuance of bonds tied to environmental, social, and governmental (ESG) themes grew to USD 69 billion, with half of 2021 still to come, thus outpacing the U.S. for the first time in two years. 70% of this volume was attributable to green bonds and 20% to sustainability-linked bonds. China accounted for 51.3% of these issues, while

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<sup>13</sup> [https://www.urbanet.info/wp-content/uploads/2016/08/FMDV\\_Policy-Paper\\_-SPFM-ENG.pdf](https://www.urbanet.info/wp-content/uploads/2016/08/FMDV_Policy-Paper_-SPFM-ENG.pdf)

<sup>14</sup> <https://www.climatebonds.net/policy/policy-areas/tax-incentives>



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South Korea accounted for 21.2%. In addition, demand for green deposits, loans and capital market products is at record levels.

One of the success factors for the issuance of green bonds in Asia is national, regional, and global green bond policies governing private green bond issuance. An ADB study of some 58 economies over a period of 10 years (January 2010-May 2020) showed that national policies with regard to green bond grants and tax incentives, in particular, have a positive impact on bond issuance. Government support is thus highly important as a means of reducing costs and risks, especially for first-time issuers of green bonds. The ADB study also shows that regional cooperation and standardisation in the EU has proven to have a positive impact. However, the ASEAN Green Bond Standards did not show the same effectiveness in promoting private green bonds.<sup>15</sup>

## Case Study

In 2016, AP Renewables Inc., a subsidiary of a large energy developer in the Philippines, issued the first local-currency multi-tranche bond in the Asia-Pacific region, backed by the Asian Development Bank. The company issued a bond for geothermal power plants with a combined capacity of 390 MW. The volume of the issuance was USD 225 million. Further issuances followed, with IFC often serving as the anchor investor. Despite this impressive start and growing momentum, an ongoing challenge for South-East Asia's green bonds is the fact that foreign investors are "unfamiliar" with banks in the region, no matter how good the issuers' credit risk ratings are. Thus, Asia's green bond market still lacks liquidity, and investor diversification is limited, while at the same time there are few to no regular large-scale bankable projects. Establishing relations between Asian green bond issuers and global investors is thus crucial. Key challenges remain with regard to the opening of green finance markets in Vietnam, Myanmar, Brunei, Laos and Cambodia, but growing stakeholder involvement to scale up

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<sup>15</sup> ADB Working Paper Series POLICY SUPPORT IN PROMOTING GREEN BONDS IN ASIA, Dina Azhgaliyeva and Zhanna Kapsalyamova, No. 1275, July 2021, Asian Development Bank Institute





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awareness and financing, and increasing new regulatory standards for bond issuances, represent opportunities.<sup>16</sup>

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<sup>16</sup><https://static1.squarespace.com/static/5b346e8296e76f6b5b74bfe4/t/5e26a0a29b35240322b620e7/1579589795538/ASEAN+Green+bonds+Case+Study+-+GTB.pdf>





## Chapter 3 – Venture Capital and Angel Investors

### General

The amount of capital in sustainable investment funds has grown in recent years as investors' awareness of ESG increases. This phenomenon has been observable not only in the U.S. and Europe, but on a global scale as well. Compared to other forms of financing, venture capital (VC) is particularly well-suited to sustainable investments. VC is highly compatible with green projects due to a typically long lock-in period, the ability to provide technical expertise, managerial skills or a broad network of start-ups as needed, and assistance in being disruptive. Furthermore, VC structures come with a high degree of investor protection. These factors are urgently needed with regard to sustainable investments and their uncertainties and make it possible to guard against information asymmetries. This form of equity financing is extremely useful at the early development stages of companies, projects and products which are not yet market-ready and allows allocation of funds to innovative pilot-scale green projects. An example in Myanmar is the Myanmar Private Equity & Venture Capital Association (MPEVCA), which aims to provide a forum where the importance of venture capital and private equity is discussed with the objective of benefiting all industries across the domestic market.<sup>17</sup>

A further example of the use of venture capital is the investment of the global venture capital firm 500 Startups in Myanmar in early 2016, with a seed round in the Yangon-based company Bindez, an information search engine and discovery platform. Venture capital's highly active market players are well-positioned to drive private capital investments which are dedicated to making an impact. Venture capital firms tend to have a purpose-driven and results-driven orientation and a vision for achieving disruption and change. These key attributes can make a significant contribution to delivering green projects and creating change.

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<sup>17</sup> <https://mpevca.org>



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Figure 3 – Overview: Seed vs. private equity financing

Broadening the venture capital landscape still further, seed-stage supporters and angel investors can also play a role in innovative green finance. Green angel investors are investors that provide private capital for early-stage start-up companies/projects that promote protection and decarbonisation of the planet. One such green angel investor is Green Angel Syndicate. According to its founder, who invites members to buy equity in start-up and early-stage companies, the Green Angel Syndicate aims at granular-level innovation that deals with the details of what is produced as a means of avoiding and reducing emissions. Investment applications for funding are normally assessed internally, and, if they are approved, the applicants can then pitch their proposals to the Syndicate's wider membership. If sufficient support is offered (usually around GBP 100,000), the investment can go ahead, and a suitable individual from the Syndicate's membership team is placed on the company's board. The fund has already invested more than GBP 10 million in 25 start-ups or early-stage companies across 10 different economic sectors and attracted over 250 angels. Their achievements include the saving of over 20,000 tonnes of CO<sub>2</sub> as of December 2020.<sup>18</sup>

<sup>18</sup> <https://greenangelsyndicate.com/about/filter:board>





## Impacts and Relevance for Developing Asia

Venture capital, angel investments and related forms of seed financing can offer further funding support for green investments in developing Asia. Due to the relatively high financial risk consideration, the disruptive nature of these approaches and the relatively unbureaucratic funding process, these equity instruments offer scope for widespread application. However, as one caveat, it should be noted that they are not usually applied to simple infrastructure investments with low scalability potential, but rather to projects which are disruptive by nature and offer the potential for ground-breaking change.

South-East Asia has become one of the fastest-growing markets over the last decade, attracting many talented entrepreneurs to start new businesses in the region, but studies also indicate that social enterprises and women-centred businesses experience greater challenges to growth due to insufficient access to the relevant financial and technical support. Here angel investors can play a critical role in expanding the pipeline of investible businesses by providing early-stage ventures with capital, expertise and networks to unlock business opportunities and facilitate growth. In conjunction with the steady rise in the number of angel investors, the practice has steadily become more structured, and recent developments show positive signs of the important catalytic role angel investors play in the early-stage investment landscape.<sup>19</sup>

## Case Study

Classified as an emerging angel investing market, Myanmar lags somewhat behind its more developed neighbours, but is pulling ahead of Brunei and Laos. Most existing investments are foreign-led, and Myanmar's investment scene is characterised by a high degree of informality and flexible financing terms. Social leverage drives initial investments through personal connections such as family and friends. A small but focused group of early-stage funders include Phandeeyar, BOD Tech, Delta Capital Myanmar and Seed Myanmar, Myanmar Women's Entrepreneurship Association (MWEA) and Myanmar Young Entrepreneurs Association (MYEA).<sup>20</sup>

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<sup>19</sup> <https://www.spf.org/en/global-data/user47/AINvTHREE.pdf>

<sup>20</sup> <https://www.spf.org/en/global-data/user47/AINvTHREE.pdf>



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Since Myanmar is facing a number of environmental and developmental challenges, widespread degradation of natural resources, and increasing air and water pollution in urban areas, the country is among the most vulnerable to climate change worldwide. Promoting green investments is an opportunity for Myanmar to unlock environmentally and economically sustainable trends. The country faces a major gap in infrastructure provision, with only 40% of roads paved and only 50% of the population having access to electricity from the national grid. These gaps represent opportunities to invest in greener infrastructure alternatives.<sup>21</sup>

One of the most representative examples is Delta Capital Myanmar, a professional investment firm which is investing in leading Myanmar businesses and entrepreneurs to support them in becoming national champions. International environmental, social and governance best practices are embedded in the DNA of the investment firm itself and in the operations and decision-making processes of its portfolio companies. One of its most recent cases, for example, is Commercial Plastics Co. (CPC) Ltd., a company that will soon be Myanmar's first full-circle bottle-to-bottle PET plastic recycler. CPC, which produces food-grade recycled products, was incorporated in 2016 and is located in Yangon. The company focusses on the recycling of post-consumer PET collected from all over Myanmar and converts the input to transparent PET flakes for further use. In 2020, Delta Capital Myanmar invested USD 12.6 million in CPC to enable the company to expand its product range and increase its recycling capacities by installing state-of-the-art equipment. With its high operating standards, the company will be capable of producing food-grade recycled PET that is U.S. Food and Drug Administration-compliant and EU Food Safety Authority-compliant. In addition to financial support in the form of fresh capital, Delta Capital Myanmar provided detailed industry knowledge and a strong network to scale CPC's operations.<sup>22</sup>

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<sup>21</sup> <https://www.oecd-ilibrary.org/sites/705bce8e-en/index.html?itemId=/content/component/705bce8e-en>

<sup>22</sup> <https://mpevca.org/delta-capital-myanmar-and-daiwa-invest-usd12-6-million-into-a-plastic-bottles-recycler-commercial-plastics-company/>





## Chapter 4 – Green Finance Crowdfunding

### General

Crowdfunding is the practice of funding a project or venture by raising money from many people, each of whom contributes a relatively small individual amount. The project promotion and funding collection process is usually conducted via one of a variety of online platforms, e.g. iPivot (formerly CrowdPlus.asia).

Green finance crowdfunding is useful for companies and individuals involved in products, services and projects that promote climate mitigation and the circular economy. These investment themes offer the crowdfund investors (numerous private individuals, associations and companies providing funding directly) green investment opportunities which are likely to generate green returns, but also accomplish a mission and support an environmental impact. Usually, such investments bear a relatively high financial risk due to the application of crowdfunding at very early pre-seed/seed stages, but the diverse mix of investors and the relatively small amount invested by any one individual or organisation in the crowd prevent severe financial risk in the event of default of an investment project in which the crowd has invested. Nevertheless, investors must take the risky nature of very early-stage start-up companies or projects into account, as well as the typically long investment term and the lack of fungibility of the investment.

To date, most crowdfunding platforms have been set up in the U.S. and Europe, with minimum investments in the range of EUR 25 to EUR 1,000 per investment. However, South-East Asia is increasingly becoming a part of this steadily growing trend and is predicted to grow at twice the rate of the rest of the world. Until recently, financing was provided exclusively through formal banking and financial institutions, but fintech innovations are making it possible to find and provide capital in much more accessible and unbureaucratic ways. Besides offering an easier way to access funding, crowdfunding also allows entrepreneurs to test the market for their concepts. If there is a strong response to the investment project, the crowdfunding can get the project rolling; alternatively, if the project finds little resonance, it gives the company a chance to modify



its concept. Crowdfunding platforms ultimately rely on existing institutions to fund projects, i.e. the funds are disbursed by a financial institution.

When it comes to crowdfunding platforms, the type required depends on the project planned. Small-scale, charity fundraising or individual projects commonly use donation-style platforms such as GoFundMe or Kitabisa (Indonesia's answer to GoFundMe), while bigger projects or start-up companies turn to peer-to-business lending platforms. The choice of platform also depends on the nature of the project. Green finance investments are usually found on specialised platforms. For example, GoSun (<https://gosun.co/>), a U.S. distributor of clean energy hardware, funds its developments through crowdfunding on <https://www.startengine.com/gosun>. Their products range from outdoor cooking equipment to reusable utensils to water purification systems, one of their latest projects. The latter project dramatically exceeded its funding target, raising over USD 386,000, or around 25 times of its goal of USD 14,992.

### Indicative Overview of Alternative Crowd Funding Platforms with a green focus

**Kiva** is a U.S.-based non-profit crowdfunding platform with the stated vision of a financially inclusive world where all people hold the power to improve their lives. As on platforms such as Kickstarter, Indiegogo or GoFundMe, loans are funded in increments of USD 25 or more, with no fees or interest rates applied to the funding. Kiva was launched against the background of 1.7 billion people worldwide who are unbanked and aims to provide financial access to underserved communities. In the meantime, the platform has 4.1 million borrowers, operations in 77 countries, two million lenders, and USD 1.6 billion funded to date, with a repayment rate of 96.4%.<sup>23</sup> Recent examples such as the funding of two Myanmar-based micro-grid projects highlight the platform's core focus (see case study below).

**Lumo** is a French crowdfunding platform originally launched by independent entrepreneurs and now owned by a major French bank, Société Générale. Its focus is small-scale amounts to fund sustainable energy projects. Investors receive a return in the form of interest derived from the green energy that the projects generate and sell.

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<sup>23</sup> <https://www.kiva.org/about>



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**Fundeen** is a specialised renewable energy platform based in Madrid, Spain. Fundeen, a self-described fintech, allows investors to choose renewable energy projects with a minimum investment amount of EUR 500. Founded by two entrepreneurs in 2017, the platform is supported by the European Commission and Spain's Ministry of Industry, Trade and Tourism.

**Abundance** offers renewable energy crowdfunding opportunities with GBP 117 million invested through 48 projects and GBP 36.6 million paid in returns<sup>24</sup>. The projects are larger in scale than those financed on some of the other platforms, ranging from constructing tidal turbines to supporting farmers with clean renewable energy.

**iPivot** (formerly CrowdPlus.asia) is the Asian equivalent of the European and U.S.-based crowdfunding platforms and uses the Malaysian crowdfunding hub for projects across ASEAN. iPivot collaborates with various governmental agencies in the region and taps into various early-stage incubators and networks to build an ecosystem for entrepreneurs, focusing on green entrepreneurs in particular.

### Impacts and Relevance for Developing Asia

Crowdfunding offers additional opportunities and funding mechanisms to provide financial support for green investments in developing Asia. For businesses seeking to promote green projects and products, green crowdfunding can be a welcome additional source of finance where traditional banks and investment funds may be unwilling or unable to fund the risks of an early start-up or venture with a semi-proven or unproven business model, product or technology. Crowdfunding allows for an experimental approach, and once the product or project has been successfully produced and delivered, then it can either be directly delivered to the crowd investors, the sales proceeds can be used to repay the funding and interest to the lenders, or it allows for value improvement of the equity share in the company and potential dividends for the crowd. Examples such as Kiva, in combination with local field agents such as Nexus for Development in Myanmar, have demonstrated both the application of crowdfunding to green projects and its potential impact.

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<sup>24</sup> <https://www.abundanceinvestment.com/>





## Case Study

A success story in Myanmar is the generation of USD 50,000 in funding in June 2021 for the construction of two rural micro-grid projects delivered by Techno Hill. Nexus for Development, a Kiva field partner, raised the funds for Techno Hill, a pioneering woman-founded solar micro-grid developer in Myanmar, through the crowdfunding platform. The 60 kW systems will provide clean energy for 2,250 people while saving over 200 tons of CO<sub>2</sub> per year. The project attracted 1,227 Kiva lenders.

Techno Hill aims to leverage this ground-breaking use case to deliver further sustainable energy projects across the region. In Tanintharyi state in Southern Myanmar, over 80,000 households distributed across more than 800 remote islands still lack access to electricity from the national grid, relying instead on polluting diesel generators, and there is an urgent need for renewable energy resources. Techno Hill also provides electricity free of charge for streetlights, schools and hospitals in the villages that it serves.<sup>25</sup>



Figure 4 – Techno Hill's micro-grid project

<sup>25</sup> <https://nexusfordevelopment.org/blog/USD-50000-funding-for-techno-hill-to-complete-2-micro-grid-projects-in-myanmar/>



## Section 5 – Outlook for Enabler Solutions

Beyond the abovementioned financing alternatives for sustainable green investments, a range of other enablers can play a crucial role in supporting energy transition, reducing CO2 emissions and driving climate mitigation. Enabler solutions can be provided by other financial institutions such as insurance companies or can even include technology-based blockchain solutions for the optimisation and accessibility of financing across the globe.

### Green Insurance

Insurance companies are important both in their function of enabling the mutualisation of risk and in their role as institutional investors. By reducing uncertainty and the impact of significant losses, the insurance sector can encourage new investments and innovation, incentivise risk reduction, and enable economic recovery after disasters. Green insurance is one of a range of products that together can be seen as a climate adaptation toolbox. Green insurance coverage serves to reduce the risk of borrowers who are exposed to growing climate impacts such as drought, flooding and pests, but also enables the scaling up of green investments through loans issued directly to green projects with longer-term investment needs. In recent years, the focus has increasingly been on inclusive insurance or micro-insurance, which is geared towards offering access to insurance to low-income people through public, private or mutual-cooperative mechanisms. There are approximately half a billion micro-insurance customers worldwide, 85% of whom are in Asia, 10% in Latin America and 5% in Africa. There has been significant experimentation with insurance focusing on environmental risks. In Ghana, for example, the German technical development cooperation agency GIZ is supporting a project to develop, and create a market for, insurance products for adaptation to climate change (IPACC). The project focuses on crop insurance, with the aim of developing commercial insurance solutions to protect farmers, agricultural processors, rural and financial institutions, input dealers and others in the event of crop failure due to extreme weather events. CARD MBA in the Philippines is another example; it has created non-life micro-insurance products that specifically address climate risks and natural hazards by insuring residential property, SMEs and crops against flood, typhoon, fire and earthquakes. Following typhoon Haiyan in 2013 (known in the Philippines as typhoon Yolanda), micro-insurance was effective in providing relief to over 120,000 affected families. On



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the other hand, insurance companies are constantly on the lookout for attractive investment opportunities and seek to expand their risk profile in order to generate sufficient returns. Along with the evolution of the Asian green finance sector, insurance investments would enable a contribution to ESG-related investments and diversify the companies' investment spectrum towards a slightly riskier but still attractive profile. With regulation (by central banks, government authorities etc.) increasingly taking environmental risks into account, the associated risks may even decline.

### **Impacts and Relevance for Developing Asia**

Insurance companies play a crucial role as enablers of green finance, and their dual role of hedging risk and providing private long-term financing is essential. In the rise of green investment in Asia, recent examples among insurance companies include a project by Swiss RE to provide an index-based rice insurance product in Vietnam that uses radar-based remote sensing technology to gather yield data. It is the first time that Swiss RE has integrated an index-based rice insurance product adopted in a public scheme in the ASEAN region, and the company has stated that the insurability of climate risks is highly dependent on preventive measures and other actions such as socioeconomic policies, zoning laws and geographic planning. Despite all these efforts, the share of uninsured households in Asia remains high. For instance, according to World Bank FINDEX data, only 5.7% of people working in agriculture in South-East Asia are insured against climate-related risks. There is thus a clear need for innovative insurance products such as index-based insurance products for farmers or flood risk insurance policies. The expansion of such products, and the widespread use of insurance coverage for the underlying business models, would strongly support green finance activities and allow much stronger risk mitigation for green financing providers, which would in turn lead to greater green investment in the region.

A further recent use case is a project carried out at Hasang Hydroelectric Power in Indonesia to install 13 MW generators providing hydroelectricity. The USD 211 million project included a limited recourse loan commitment via commercial financing as well as additional overseas





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financing by the Korea Trade Insurance Group (K-Sure). Additional insurance coverage provided through guarantees also made the financing more bankable. Another use case is a project in the Philippines: Here, Munich RE and JLT Asia launched the One Storm Philippines insurance plan that covers the cost of preparing for an extreme weather event, providing incentives for both the project owner and the financing partners.

Globally, over 100 insurance companies and stakeholder organisations are signatories to the UN's Principles for Sustainable Insurance, representing 20% of the global premium volume and USD 14 trillion in assets under management. Many global insurance companies offer many types of green insurance, and the volume of natural catastrophe insured losses during 2016, for example, was USD 50 billion. In Asia, only eight insurance companies are signatories to the UN's principles, and the market is largely shaped by global insurance providers with products such as index-based insurance plans, though governmental subsidy schemes also play a role.<sup>26</sup> Thus, the development potential is significant, and further steps are needed to boost green finance activities.

## Green Finance Blockchain

Lastly, an increasingly interesting enabler of green finance is blockchain technology. The Bank for International Settlements (BIS) innovation hub is reporting positive cases for the use of distributed ledger technology in streamlining green bond issuance processes, while at the same time making it easier to track projects' positive environmental impact. Blockchain could also unlock new sources of financing and mobilise towards new platforms for easier funding access or matching of supply and demand, similarly to crowdfunding platforms. The clear objectives here are to lower the cost of capital, improve liquidity and transparency, and most importantly, to expand access to finance in as yet underserved areas.

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<sup>26</sup> [https://www.dbs.com/iwov-resources/images/sustainability/img/Green\\_Finance\\_Opportunities\\_in\\_ASEAN.pdf](https://www.dbs.com/iwov-resources/images/sustainability/img/Green_Finance_Opportunities_in_ASEAN.pdf)





Blockchain and related technologies also have important early use cases in the energy sector, including peer-to-peer energy trading, climate finance and carbon credit trading. In the energy sector, blockchain's potential implications include disintermediation of utility business models of centralised generation and grid distribution, with significant scope for distributed energy systems and decentralised grids. Blockchain is expected to allow much more direct relationships between energy producers and consumers and to strengthen the market participation opportunities for small energy providers and prosumers. In a decentralised energy system, blockchain could allow energy supply contracts to be entered into directly between energy producers and energy consumers and then executed automatically. A decentralised energy transaction and supply system would emerge, with blockchain-based smart contract applications empowering consumers to manage their own electricity supply contracts and consumption data.

The application of blockchain technology to energy, payments and financing for transmission and distribution is part of a broader digital convergence of energy, infrastructure, services and finance. In Europe, already over 40 energy-trading firms have joined forces under the project name Enerchain, a blockchain project to conduct peer-to-peer trading in the wholesale energy market.

The role of blockchain in the context of green finance and sustainable infrastructure may go far beyond enabling efficient data collection, monitoring, reporting and steering services. The technology has the potential to address the key challenges and opportunities entailed in supporting mitigation- and adaptation-related activities, especially in the energy, transport and agriculture industries. However, in general, the market lacks knowledge regarding blockchain's principles and drawbacks, and applying new technologies in untested markets poses risks which need to be weighed against the benefits. Thus, increasing knowledge and providing training to relevant decision-makers will be essential for fulfilling the technology's potential, and the relevant legislation should be coordinated internationally due to its cross-border application. As a final point, it should be noted that public debate is extremely critical of the high levels of energy involved in certain blockchain processes (e.g. bitcoin mining).



## Impacts and Relevance for Developing Asia / Case Study

Blockchain is not yet widely in use in developing countries, and best practices and concrete examples are thus still lacking. This may be due, among other things, to connectivity issues or internet outages as constraining factors. Nevertheless, first cautious steps are being taken in the direction of blockchain. Liquid Token, a U.S.-based unique asset tokenisation technology platform for impactful venture investments, offers an innovative financing approach to protect the oceans, restore the natural environment, and empower communities by using blockchain technology. In the platform operators' view, long-term green investments are often very illiquid and difficult to exit if the need arises, which can create a disincentive for investment in long-term green projects. However, the Liquid Token technology allows the attribution of many types of capital and enables optimised pricing and exit options.

Denmark-based HiveOnline, a platform that matches small businesses in developing countries with green investors, provides a blockchain-based financing solution. The solution increases investor confidence by producing an immutable audit trail. Administrative overhead costs are reduced to minimal levels via smart contracts, and the digital assets offered feature clear milestones and evidence structures that ensure agreement and accountability between delivery partners and comply with green bond standards. One HiveOnline use case is to provide unbanked communities with access to financial services via blockchain accounting for digital savings groups. Savings group structures such as village savings and loan associations (VSLAs) and other rural financing communities build trust and help women, in particular, to build financial resilience. HiveOnline's blockchain-based community allows one device per group and one account for each member, with an identity and a digital history to help them grow their businesses.

Ultimately, blockchain technology will be a key enabler and create new opportunities for countries that aim to reach the next stage of development in terms of financial, economic and technological performance in combination with green finance. Recognising this potential will create opportunities for approaches that provide significant long-term advantages in strengthening green finance, and the funding of low-carbon, climate-resilient investments will promote the achievement of sustainable development goals.



## Conclusion

In light of the global task of tackling greenhouse gas emissions, developing Asia, with currently the world's fastest-growing rate of greenhouse gas emissions – primarily due to power generation – plays a crucial role. Reducing these emissions is paramount to ensuring a sustainable future. This paper has presented additional types of financial incentives, financing opportunities and means of mobilising private finance, but what next? The local challenges of environmental degradation, demographic change, uneven social development, and disparities in economic development and technology adaptation remain high on the agenda. However, the rising domestic demand in South-East Asian countries has made the region a key focus for new investments by multinationals, and conditions for sustainable financing initiatives are better than ever. Funding flows to environmental and social investments in South-East Asia are rising steadily and show highly encouraging trends. Additionally, green taxonomies keep evolving and play an instrumental role in helping investors better identify sustainable opportunities, while alternative forms of green financing are evolving as well and will be appropriately positioned.

Subsidised lending programmes, green bonds, venture capital or alternative equity investments, crowdfunding and other enabler solutions provide a range of viable financing instruments, but they will need to be considered on a project-by-project basis and in line with governmental objectives to achieve the best possible outcomes.

Current circumstances (especially the COVID-19 pandemic) have heightened the focus on sustainable investing and underscore the urgent need to promote environmental and social projects. Green investments have made an irreversible leap into mainstream financing and will help companies and private households in South-East Asia to unlock new opportunities to contribute to a better future. The region's green finance market will continue to grow and expand in the coming years. Helping its sustainable finance ecosystem to flourish requires not only clarity, regulatory support, and government legislation, but also convergence and collaboration among investors, local businesses, and other industry stakeholders. If the countries in the region manage to tackle the underlying challenges, they will maintain this positive momentum over the long term and emerge in a strong position in the future.