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Abstract

Advancing the economies in Asia towards meeting sustainable development goals (SDGs) needs an unprecedented investment in people, processes, and planet. The participation of the private sector is necessary to bridge the financing gap to attain this objective. Hence, the significant role played by the financial markets in sustainable development (SD). However, research indicates that the main source of finance for sustainable development in these economies are within the public sector, through both domestic and bilateral funds. Engaging the private sector can contribute significantly to attaining the 2030 agenda for SD. However, the financial markets in Asian economies are yet to realize this potential. In this context, the paper discusses the state of finance for SD in Asia and identifies innovative financial instruments for attracting private investments for SDs. Case studies are used to showcase the successful use of these instruments for SDs in Asia. The paper is addressed to national policymakers in Asian economies as we look at priority areas to enhance the utilization of these instruments. It provides opportunities for revisiting national approaches to sustainable finance in these economies.

Keywords: sustainable financing, green bond, green financing, social bond, sustainability bond

1. Introduction

The discussions on sustainable development have gained prominence after the 2030 Agenda for Sustainable Development (SD) in the United Nations General Assembly (UNGA) on September 25, 2015 (UN, 2015). The member countries agreed to work towards attaining 17 sustainable development goals (SDGs) and its associated 169 targets. The countries across the globe have begun the process of aligning economic growth with SDG targets. However, the progress on the country-specific SDG targets is quite disparate, as is evident from the wide-ranging SDG Index scores shown in Table I (Sachs, et al., 2020).

Table I: Average SDG Index (2020) across regions

From Table I we can conclude that the Asian economies have lagged behind other regions in attaining SDG targets. Over the past decades, many Asian economies have attained impressive economic growth (Radelet, et al., 1997; Lee & Hong, 2012). Table II shows the cumulative annual economic growth in major Asian economies since the 1980s. The economic activity helped improve the standard of living in these economies. However, SDGs look unyielding considering that 844 million people in Asia are still living close to the

poverty line with low access to food, healthcare, education, and sanitation (ADB, 2017). Further, economic growth has increased social inequality, land erosion, and environmental degradation in various Asian countries (Islam & Jolley, 1996; Brandon & Ramankutty, 1993). Environmental degradation has exposed the vulnerability of many Asian countries to the impacts of climate change.

Table II: CAGR of GDP in major Asian economies (>$100 million GDP in 2019) since the 1980s*

* Major economies are defined as having greater than $100 million GDP in 2019. Russia, Vietnam, and Kazakhstan were excluded due to the unavailability of the data for 1981.

On the positive side, countries across Asia have begun the process of aligning economic growth with SDG targets. For example, Bangladesh and Indonesia have taken a holistic approach by creating national action plans for the SDGs while India has matched national programs with SDGs and specified milestones in the context of the 2030 Agenda (ADB, 2017). Some of the lesser developed countries such as Timor-Leste are in the process of incorporating SDGs into the national planning process. The top 10 best performing Asian countries in attaining SDG targets are listed in Table III.

Table III: Top 10 Asian countries in SDG Index, 2020

The wide gap between the SDG performance of wealthier OECD and European countries and the rest of the world indicates the role of finance in achieving SDG targets. An accurate estimation of the capital required for financing SDGs is challenging as the SDGs being broad-based and interdependent (Rasul, 2016). According to the literature, the incremental spending to meet the 2030 Agenda varies from 4% to 11% of GDP at current exchange rates in middle-income developed and low-income underdeveloped countries, respectively (Schmidt-Traub, 2015; Gaspar, et al., 2019). The financing gap in developing countries could restrict their ability to meet the NDC targets (Ekholm, et al., 2013). According to the multilateral development banks, meeting the SDG targets in underdeveloped countries would require moving the discussions from "*billions* in ODA to *trillions* in investments of all kinds: public and private, national and global" (Development Committee, 2015).

Though the need for capital for meeting the SDG targets has been widely recognized by multilateral organizations, 'where will the funds come from?' remains the largest concern among the developing countries in Asia. According to ODI, the sources of finance for SD can be grouped into three clusters namely, public finance (concessions, bilateral subsidies, domestic taxes), sovereign borrowings through global capital markets, and private finance (Kharas, et al., 2014). The millennium development goals (MDGs) focused primarily on ODA, whereas considering the scale of SDGs there is a broad recognition that alternative sources of finance need to be harnessed. The financing strategy for SDGs in Asian

economies would depend on the stage of economic growth. Literature indicates that when countries emerge from very low-income levels, fiscal sources of revenue and borrowings fail to expand enough to support growth (Kharas, et al., 2014). Meanwhile, external assistance also drops significantly as Official Development Assistance (ODA) is typically linked to per capita income levels. The sharp growth in certain emerging economies in Asia has increased the foreign assets under management in the region. The fund flows to Asian economies can be attributed to (1) international investors in the form of FDIs and capital market investment, (2) remittances, and (3) philanthropic organizations (Development Committee, 2015). The potential of private fund flows in Asia is evident from Figure I which provides a comparison of official development funds (ODA and other official flows) and private fund flows (incl. remittances).

Figure I: Comparison of official development and private fund flows to Asia, 2009-18

Beyond external fund flows, domestic resources mobilization (DRM) can be important as the savings and tax revenues in Asian economies have grown in recent decades, though there are wide variations between countries. For most countries in Asia, DRM is the largest resource available to fund its national plans for sustainable development (Development Committee, 2015). These increasing pools of private capital can be effectively utilized through domestic financial markets to deliver the SDGs in the region. The drivers of private investors are distinctly different from the public sector motivations of social wellbeing. The basic premise of the literature covering private finance for SD is that private investors are guided by the risk-return dynamics (Kharas, et al., 2014). Hence, to tap into these diverse sources of capital, the domestic financial systems need to align with the needs of sustainable development. Innovative financial instruments that offer lucrative risk-return patterns along with SD need to be introduced to attract the growing class of impact investors (Trabacchi & Mazza, 2015).

2. Financing of SDGs in Asian countries – A review of current sources

The preferred source of capital for any activity can be based on two inter-related concepts in project finance – availability/accessibility to finance and cost of capital. The long-term capital required to transition entities to a sustainable development path can be raised through long-term debt or equity. While government borrowing depends on domestic inflation, lending rate, and GDP growth rate (Roubini & Sachs, 1989), corporate capital structure has long relied on shareholder value maximization. Different capital structure theories based on value maximization have been proposed over the years. The popular theories are the MM approach (Modigliani & Miller, 1958), agency cost theory (Jensen & Meckling, 1976), and the pecking order theory (Myers & Majluf, 1984). According to these theories, the cost of capital is the key determinant in deciding the debt-equity mix for entities.

Another factor determining the corporate debt issue is the size of the debt market in the issuer's country (Burger, et al., 2015). A shallow debt market will increase the risk of the investors which will inhibit the

demand for new debt issues. The factors impacting the development of the local currency debt market covered in literature are government policies & fiscal deficit (Burger & Warnock, 2006), macroeconomic stability (Guscina & Jeanne, 2006), and a strong rule of law ensuring creditor rights (La Porta, et al., 1997). Due to the higher risk characteristics of firms operating sustainable projects in Asian countries, debt is a preferred option to equity due to the lower cost, tax advantages, lower regulatory and reporting requirements, and guarantees provided by the government. Further, the repayment pattern of debt is in line with the future cash flow pattern of SD projects.

The financing for SD projects in Asian economies is dominated by high-cost bank loans, with the rest of the fund provided as grants from multilateral organizations (Shrimali, 2018; Kumar, et al., 2019). Government initiatives such as accelerated depreciation, viability gap funding, tax exemptions, and generation-based incentives help close gaps in financing. This is in stark contrast to developed economies where similar projects, particularly energy projects, are financed with a combination of debt and equity with the proportion of debt as high as 90% (IRENA, 2017). The excessive reliance on bank loans in the capital structure lead to higher financing costs for SD projects in Asia, compared to similar projects in developed economies. The cost of raising capital negatively impacts the return of any project under consideration, which is a key consideration for private investors (Eyraud, et al., 2013). E.g. the higher cost and inferior terms of debt in India push the cost of renewable energy projects by 24-32% higher than similar projects financed in the US and Europe (Polzin, 2017). Due to the high cost of bank loans and the non-availability of cheaper debt facilities, successful deployment of SDG projects in Asia would require higher government incentives which strap the already limited funds available for government functioning. Hence it is essential to explore alternative sources of finance to fund SDG projects in Asia.

Bridging the financing gap for SD projects in Asian countries would need significant funding from varied public and private sources (UNGA, 2014). Among alternative financing options available for SD projects in Asia, the private sector remains largely untapped.. Institutional investors primarily sovereign wealth funds (SWF), pension funds, insurance funds, and other long-term investors, who have approximately $84 trillion assets under management (AUM) in Organization for Economic Corporation and Development (OECD) countries alone, represent an extensive source of funding (Röttgers, et al., 2018). Such funds have a long-term investment outlook with clear ESG mandates. However, raising capital from private investors depends on various risk-return parameters such as country risk and the return of proposed investment (UNGA, 2014). To attract such private capital for financing SDG projects in Asian countries, it is pertinent to introduce innovative financing instruments that combine SDG impact along with financial returns. Hence, the role of the government in devising effective policies and introducing innovative financial instruments to attract capital through multiple channels is significant (Gambetta, et al., 2019).

3. Case Studies of Innovative Financial Instruments from Asian Countries

Asian economies with limited public sector resources would require increased private sector participation to bridge the financing gap for SDGs (Zapatrina, 2016). In recent years, a growing number of private investors have integrated social and environmental issues into their investment decisions. Capital markets

are a powerful source to cater to this interest in sustainable development among investors, provided the right incentives are provided for all market participants. A conceptual diagram of the market participants involved in ESG investments in a typical financial market is provided in Figure II. The figure shows how the financial instruments traded through various securities markets contribute to the achievement of SDGs through the re-allocation of capital flows towards sustainable projects. The issuers of these financial instruments are wide-ranging covering government agencies, multilateral institutions, non-profit organizations, financial institutions, and corporations. The top five underwriters for SDG Bonds in 2019 were HSBC, Bank of America/Merril Lynch, Credit Agricole, JP Morgan, and Citi Group (Environmental Finance, 2020)

Figure II: Conceptual diagram of the market participants involved in SDG investments

The evolution of financial instruments for SD can be traced back to the 1920s with the emergence of socially responsible investing (SRI). The social movements of the 1960s bolstered the demand for increased human rights and environmental considerations. The demand for equitable growth led to embedding corporate social responsibilities (CSR) within the corporate strategy. The introduction of the UN Principles of Responsible Investment (PRI) in 2006 renewed focus on the investors for ESG (economic, social, and governance) investment. Further, the framework for transitioning internal financial markets to channelize funds for SD was developed through Addis Ababa Action Agenda in 2015 (UNGA, 2015).

Fixed income securities are well-positioned to address the major concerns of raising capital for SDG projects. SDG projects are typically front-loaded and have high gestation and lock-in periods. The capital required for commencing the project could be raised through a bond issue and the presence of a secondary market removes lock-in concerns for the investors. With an estimated volume of over $100 trillion, the fixed income market plays a key role in involving the private investors in SD. The first bond issues targeting planet-related SDGs were issued in 2007, following which the financial markets across the globe have witnessed increased issuance of green, social, and sustainability bonds.

Among financial instruments contributing to SDGs green bonds, social bonds, and sustainability bonds have been popular in recent years. These bonds have a positive impact on SDG targets and align with the principles formulated by the International Capital Market Association (ICMA). These principles contain guidelines for four components namely (1) use of proceeds, (2) process for project evaluation and selection, (3) management of proceeds, and (4) reporting. The ICMA principles govern the issuance of Green Bonds, Social Bonds, and Sustainability Bonds. For the rest of the article, we will call the above three bonds together ‘SDG Bonds’. The credit rating of SDG bonds will be similar to the ordinary bonds of the issuer. SDG Bonds differ from ordinary bonds in that the proceeds are directed to projects solving social and environmental issues, thereby contributing to the realization of the SDGs. With the formulation of principles governing the green bonds in 2014 and social and sustainability bonds in 2017, the interest in these bonds has increased to form a market of ~USD 200 billion.

SDG Bond issuance has grown significantly in recent years. Green bonds dominate the SDG bond market as is evident from Figure III. According to the information available from bonddata.org, 37.5% of the SDG bonds issued in 2019 have explicitly aligned with specific SDGs in the framework document. Table IV and Table V show the combined value of SDG bonds issued in 2019 by SDG and a representative list of people and planet-related projects financed by SDG bonds, respectively.

Figure 3: Annual issuance of SDG bonds worldwide; Source: Bloomberg

Table 5: A representative list of SDG-bond funded projects

From Tables IV and V we can conclude that SDG bonds have found larger acceptance for building clean energy, sustainable cities, and climate action projects. The front-loaded capital requirement and the high gestation period for such projects are often cited as reasons for preferring SDG bonds for financing (Hee & Yujia., 2016). Now, we delve deeper into SDG Bonds, citing case examples of their use for attaining SDG targets in Asian economies.

(i) Green bonds

Green bonds work identically to traditional bonds, except that the proceeds raised through a green bond issue are used exclusively for planet-related projects such as harnessing renewable energy or improving energy efficiency. The first green bond was issued by the European Investment Bank (EIB) in 2007. The green bonds have witnessed tremendous growth after their introduction in 2007 (Wood & Grace, 2011; Chiesa & Barua, 2019; Gianfrate & Peri, 2019), evident from Figure III. The structure of a green bond instrument is provided in Figure 4. To avoid 'green-washing', the purpose of raising capital needs to be reported by the issuer which would then be certified by a green bond certifier before issuing the bonds. While there are no globally accepted requirements of a green bond, Green Bond Principles (GBP) and Climate Bond Standards (CBS) act as voluntary guidelines for certifiers.

Post the green bond issue, it is the responsibility of the issuer to ensure that the proceeds are used for the objectives outlined in the pre-issue documents. A third-party monitoring agency, typically, audits the utilization of proceeds for green projects. The issuer is expected to release regular post-issue reports regarding the status of the projects and the utilization of funds. Due to the high-cost involved in third-party certification and audits, green bonds typically have high issue sizes and targets to finance large infrastructure or energy projects.

Figure IV: Structure of a Green Bond Issue.

According to the data from Bloomberg, China is the largest issuer of green bonds globally with a total issue of over $110 billion since 2010. However, the green bond market in other Asian countries remains marginal. E.g India, the second-largest issuer in the region has raised less than $10 billion during the same period. Having said that, there are some interesting case examples of how green bonds have helped raise capital for climate change mitigation and climate adaptation purposes in Asia. One such example is cited below.

Case Study 1: Indonesia's sovereign green bond for climate change mitigation/adaptation

Indonesia is highly vulnerable to the adverse impacts of climate change such as a rise in sea level and temperature changes leading to natural disasters (Yusuf & Francisco, 2009). Considering the importance of climate action for the country, the Government of Indonesia (GoI) has committed to reducing greenhouse gas emissions by at least 29% below 'business-as-usual' projections by 2030 as part of the Paris Agreement. The government estimates that to meet the adaptation and mitigation needs, the country would need $81 billion during the period 2015-20. Accounting for the allocation of $55 billion during the period, the shortfall is ~$26 billion. The government of Indonesia recognizes the role of the state budget for GHG emissions reduction and introduced a Budget Tagging Mechanism to budget, monitor, and recommend climate financing options. The creation of green Sukuk is a result of this mechanism.

The Republic of Indonesia, through the Ministry of Finance, raised $1.25 billion through a sovereign green bond issue in 2018 (MoF - The Republic of Indonesia, 2018). It is the first sovereign green bond issue in Asia and the largest green Sukuk (Islamic Bond) to date. The bond issue maturing in 2023 and paying a coupon of 3.75% is earmarked for both climate change mitigation projects (renewable energy, enhancing energy efficiency, waste management, building green infrastructure and sustainable transport, and green tourism) and climate change adaptation projects (building resilience to climate change for highly vulnerable areas/sectors and disaster management). The external reviewers for the green bond issue were Cicero.

The bond garnered high interest from investors during the roadshows earlier in the year. Based on the size, the size of the issue was increased from $500 million to $1.25 billion. The green bond framework aligns with Indonesia's Paris Agreement commitment to reduce greenhouse gas emissions.

The governance and monitoring structure of Indonesia's green bond and green Sukuk is given below in Figure V.

Figure V: Governance, monitoring, and reporting structure of Indonesia's Green Sukuk Bond

Indonesia's green Sukuk was allocated to asset management companies (32%), banks (26%), pension funds (18%), and sovereign wealth funds (15%). The investors were also distributed across the globe covering investors based in the Islamic market (32%), Asia (25%), USA (18%), European Union (15%), and Indonesia (10%).

The projects which were allocated the proceeds include a 727 km double-track railway project from Jakarta to Surabaya (sustainable transport) and a solar power plant project at Tambolaka Airport, Sumba.

(ii) Social / Social Impact bonds

According to the International Capital Market Association (ICMA), social bonds "are any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance in part or full new and/or existing eligible Social Project" (ICMA, 2020). The social bonds could also have environmental benefits and the classification should be determined by the issuer based on the priority objective of raising capital.

The social bonds traded through the capital market have a structure similar to the green bonds, except for the use of proceeds. The social impact bonds (SIBs) though based on a similar concept is an instrument that governments can use to finance social projects. SIB, introduced in 2010, is a relatively new funding mechanism. The structure of a SIB is given below in Figure IV. The SIB commences with a government agency identifying a social issue it wants to find a solution to. The agency then contracts with a third-party intermediary to raise capital from investors. The funds raised are used to address the agency's targeted problem, typically through some service providers. The right to commission and set social objectives lies with the agency. The responsibility to structure and manage risk is with the financial intermediary. An independent validator is assigned to assess the service provider's progress based on which the government agency reimburse the investors based on their agreement. If the project meets its targets then investors will be reimbursed for their investment. If it is not they will lose money, depending on the agreement. To avoid a loss to investors, agreements sometimes provide guarantees to minimize risk.

Figure IV: Structure of a social impact bond

In addition to raising capital for social concern projects, the SIBs also have the potential to improve the effectiveness and efficiency of social programs. Hence, the purpose of the SIB is to generate cost-savings for the government through efficiently tackling social problems.

Case Study 2: Social bond for providing women empowerment in India

The National Rural Livelihoods Mission (NRLM) supported by the World Bank, is the largest initiative to improve rural lives in India. The NRLM has brought about 50 million rural women into self-help groups (SHGs) and co-operatives. Though microfinance organizations provide loans to these collectives/ SHGs, individual women entrepreneurs faced challenges in raising capital for their business. Such loans were viewed as risky by the financing institutions thereby demanding a higher interest rate, typically 20-24 percent.

In 2019, the World Bank, UN, and Small Industries Development Bank of India (SIDBI) launched a social impact bond to help rural women launch new businesses or scale-up existing enterprises. The project targeted women entrepreneurs in the poorest states of India involved in agriculture, food processing, services, and manufacturing. The structure allowed individual entrepreneurs to borrow 13 percent or less per annum. The enterprises are expected to facilitate job creation.

The bonds will be raised by SIDBI which will also act as the financial intermediary. The funds will be channelized to women entrepreneurs through participating financial institutions. The SIBs are unlisted bonds (traded over the counter and not through an exchange) with a fixed coupon rate of 3 percent and a 5-year maturity. The bond issue is backed by a corpus fund that monitors and tracks the program.

The SIB has garnered interest from corporations such as Tata Communications, Trent, and Voltas.

(iii) Sustainability bonds

Sustainability bonds are fixed income securities that intentionally mix green and social projects. i.e. these bonds form a bridge between green bonds and social bonds and are used to fund projects that have a positive impact on both the environment and society. The sustainability bonds have a structure similar to the green bond. The primary difference is that the proceeds of green bonds are used exclusively for planet-related SDGs while sustainability bonds use its proceeds for both planet-related and people-related SDGs.

Case Study 3: Sustainability bond for clean-energy production and SME support in the Republic of Korea

Korean East-West Power Co (EWP), the government-owned thermal power generation entity, produces and distributes electricity in South Korea. EWP owns and operates five power plants which together has a capacity of 11,186 MW, about 10% of total electricity generated in South Korea. More than 60% of the energy generated by EWP is through coal and renewable energy formed less than 1% of the total capacity. In line with the 'New and Renewable Energy 2030 Plan' of the Korean government, EWP plans to increase the contribution of renewable energy to its total energy production to 20% by 2030. To finance this transition, EWP issued sustainability bonds to raise $500 billion in 2018. The proceeds will be used to finance the expansion of its clean-energy projects and offer support to small and medium enterprises (SMEs) to create jobs for underprivileged communities. The eligible renewable energy projects include solar, wind, biomass, geothermal, and tidal.

The choice of sustainability bond is in line with the company's vision to be the most valuable power company in South Korea by 2030. It caters to the twin management goals of enhancing its competitiveness while integrating UN SDGs in its operations. The company's long-term projects include 9 out of the 17 UN SDG Goals. In addition to planet-related SDGs, the projects cover zero hunger, improving diversity, building safe communities, and generating opportunities for decent work.

The governance structure of the sustainability bond is as follows:

Figure VII: Governance, monitoring, and reporting structure of EWP's Sustainability bonds

The impact matrices for renewable projects include renewable energy production capacity in MW, annual GHG emissions avoided (expressed in tons of CO_2 equivalent), and annual production in MW. To measure the social impact, matrices such as the number of SMEs financed, the amount of research funding, the number of jobs created, and the number of beneficiaries from low-income communities.

The second opinion by Sustainanalytics provided assurance on EWP's sustainability bond framework and its alignment with ICMA's Green bond Principles and Sustainability Bond Guidelines.

4. Way Forward for Asian Economies – Recommendations to enhance the use of SDG Bonds

To be effective, the national level policies to encourage private investment for SD should either lower the perceived risk or increase the expected return. Government policies play a crucial role in developing a conducive environment through supportive infrastructure, institutions, governance structures, and competition policies. Private fund flows readily to markets with predictable and transparent policies, providing opportunities and incentives for investors.

i. *Business environment and macroeconomic framework*
A supportive business environment and a strong macroeconomic foundation are essential to attract private investors to domestic capital markets. The regulatory structure, though varying based on domestic fundamentals, can include 1) a clear tax regime, 2) open trade policies, 3) sustainable exchange rate policies, 4) predictable investment framework following rule of law, 5) regulatory framework supporting open competition/markets, and 6) support for research, innovation, and entrepreneurship. The local policies and regulatory framework should streamline economic growth through sustainable growth.

ii. *Risk-sharing to promote and catalyze private investment*
To catalyze private investment in Asia, it is crucial to address the risk concerns of private investors. Different structures are used for lowering the risk of projects involved in SD. For instance, the multilateral financial institutions such as IMF, WB, and ADB have engaged in public-private partnership (PPP) transactions with relevant guarantees to lower risk to investors. Similarly, blended finance, structured finance, and hedging options increase the attractiveness of bond issuance. Similarly, insurance instruments that correct market failures or reduce regulatory risks will improve the confidence of the investors.

iii. *Deepening capital markets to allow local currency finance*
For encouraging companies to raise capital through financial markets, it is essential to provide domestic currency financial markets to avoid the currency risk of foreign currency borrowings. Even the emerging economies in Asia, including India, lack well-functioning, liquid, and deep capital markets, particularly corporate bond markets. Some Asian countries have Social Security Exchanges (SSEs) or dedicated platforms for listing SDG bonds which facilitates the listing and trading of such instruments.

iv. *Pooling of risk*
Lending to projects by financial institutions through pooling provides credit enhancement and allows risk-sharing to be shared with official entities. Financial institutions can then implement innovative capital-enhancing debt-funding structures, such as securitization and portfolio risk-sharing. The

financial institutions can inturn provide dedicated credit lines to sustainable projects. Governments should also promote domestic insurance companies through regulatory policies and equity injections. E.g. India's largest public sector bank, State Bank of India (SBI) has raised $650 million through green bonds issues to finance the non-conventional energy sector.

v. *Addressing information asymmetries*

The regulatory agencies should introduce platforms to share information on profitable, sustainable practices. Reliable market data, benchmarks, and clear metrics are critical for enhancing investor confidence in Asian financial markets. Partnerships with knowledge institutions may help to balance this to some extent, as can methodological and technological innovations. The Philippines Statistics Authority, for example, has been working with local telecommunications companies to explore possibilities of collaboration. New initiatives and partnerships to support such efforts have also been launched, such as the Global Partnership for Sustainable Data.

5. Conclusion

Mobilizing funds for implementing the 2030 Agenda for SD is a major challenge for Asian economies. Though interest in sustainability is growing in these economies, SDGs remain underfunded. The financial markets are yet to transition to tap the growing interest in sustainable investing among global investors. To raise capital from private investors the Asian economies should focus on leveling the playing field, reduce distortions across uses, and unblock regulatory obstacles. It would also need designing policies and introducing blended financing instruments combining private and public funds in specific projects. Though the article has grouped Asian economies, the financing strategy for SDGs should be developed at the country-level considering the domestic financial markets, local developmental stage, fiscal capacity, and nationally determined contributions (NDCs). Further research can focus on developing country-specific strategies for utilizing innovative financial instruments.

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A review of innovative bond instruments for sustainable development in Asia - Tables

Table I: Average SDG Index (2020) across regions

Region	**SDG Index 2020**
OECD	78.31
Europe	71.99
Latin America	68.11
Middle East & Africa	66.72
East & South Asia	**66.64**
Oceania	60.83
Africa	54.62
Global Average	66.77

Source: SDG Report, 2020

Table II: CAGR of GDP in major Asian economies (>$100 million GDP in 2019) since the 1980s

Sl No	Country	GDP 1981 ($ billion)	GDP 2019 ($ billion)	CAGR (1981-2018)
1	China	195.87	14,342.90	11.96%
2	Japan	1,218.99	5,081.77	3.83%
3	India	193.49	2,875.14	7.36%
4	Korea	72.93	1,642.38	8.54%
5	Indonesia	85.52	1,119.19	7.00%
6	Turkey	71.04	754.41	6.41%
7	Thailand	34.85	543.65	7.50%
8	Philippines	35.65	376.80	6.40%
9	Singapore	14.18	372.06	8.98%
10	Hong Kong	31.06	366.03	6.71%
11	Malaysia	25.00	364.70	7.31%
12	Bangladesh	20.25	302.57	7.38%
13	Pakistan	28.10	278.22	6.22%

* Major economies are defined as having greater than $100 million GDP in 2019. Russia, Vietnam, and Kazakhstan were excluded due to the unavailability of the data for 1981.

Source: The World Bank Data, Sep 2020

Table III: Top 10 Asian countries in SDG Index, 2020

Country	SDG Index	Rank
Thailand	74.54	41
China	73.89	48
Vietnam	73.80	49
Malaysia	71.76	60
Bhutan	69.27	80
Brunei Darussalam	68.15	88
Maldives	67.59	91
Singapore	67.00	93
Sri Lanka	66.88	94
Nepal	65.93	96

Source: SDG Report 2020

Table IV: SDG Bond issuance in 2019 by SDG

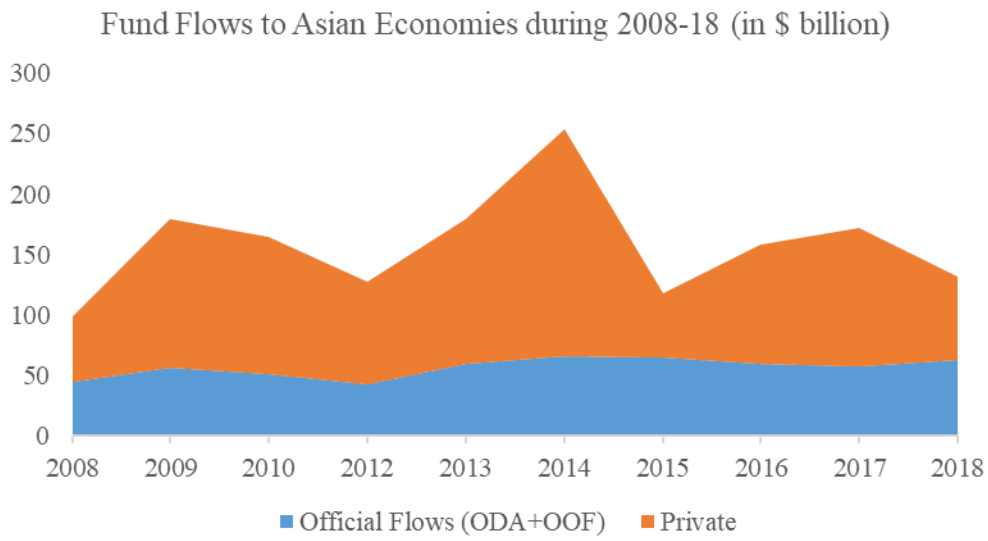
SDGs	% of issued amount aligned to SDG
SDG7: Affordable & Clean Energy	16.60%
SDG11: Sustainable Cities & Comm.	15.60%
SDG13: Climate Action	13.50%
SDG9: Industry, Innovation & Infra.	10.90%
SDG12: Responsible Cons. & Prod.	7.30%
SDG8: Decent work & Econ. Growth	5.60%
SDG6: Clean Water & Sanitation	5.20%
SDG15: Life on Land	5.10%
SDG3: Good Health & Wellbeing	4.40%
SDG14: Life Below Water	2.90%
SDG4: Quality Education	2.20%
SDG1: No Poverty	2.10%

Source: bonddata.org

Table V: A representative list of SDG-bond funded projects

		SDG1: No Poverty	SDG2: Zero Hunger	SDG3: Good Health & Wellbeing	SDG4: Quality Education	SDG5: Gender Equality	SDG6: Clean Water & Sanitation	SDG7: Affordable & Clean Energy	SDG8: Decent work & Econ. Growth	SDG9: Industry, Innovation & Infra.	SDG10: Reduced Inequalities	SDG11: Sustainable Cities & Comm.	SDG12: Responsible Cons. & Prod.	SDG13: Climate Action	SDG14: Life Below Water	SDG15: Life on Land	SDG16: Peace, Justice & Strong Insti.	SDG17: Partnerships for the Goals
Planet-based Projects	Renewable Energy		√	√				√	√			√	√	√				
	Efficient Energy							√	√	√								
	Pollution Control			√								√	√					
	Management of natural resources		√									√	√		√	√		
	Biodiversity		√				√					√	√		√			
	Clean transportation/infra.											√						
	Water management						√					√	√					
	Climate change adaptation	√	√											√				
	Circular economy enhancers								√	√		√	√					
People-based	Affordable infrastructure		√	√			√	√		√	√	√						
	Access to essential services	√	√	√	√	√			√									
	Affordable housing	√	√									√						
	Employment generation								√	√								
	Food security		√										√					
	Socioeconomic empowerment	√	√		√	√			√		√	√			√			

A review of innovative bond instruments for sustainable development in Asia - Figures



Note: ODA – Official Development Assistance, OOF – Other Official Flows
Figure I: Comparison of official development and private fund flows to Asia, 2009-18
Source: OECS Stats, September 2020

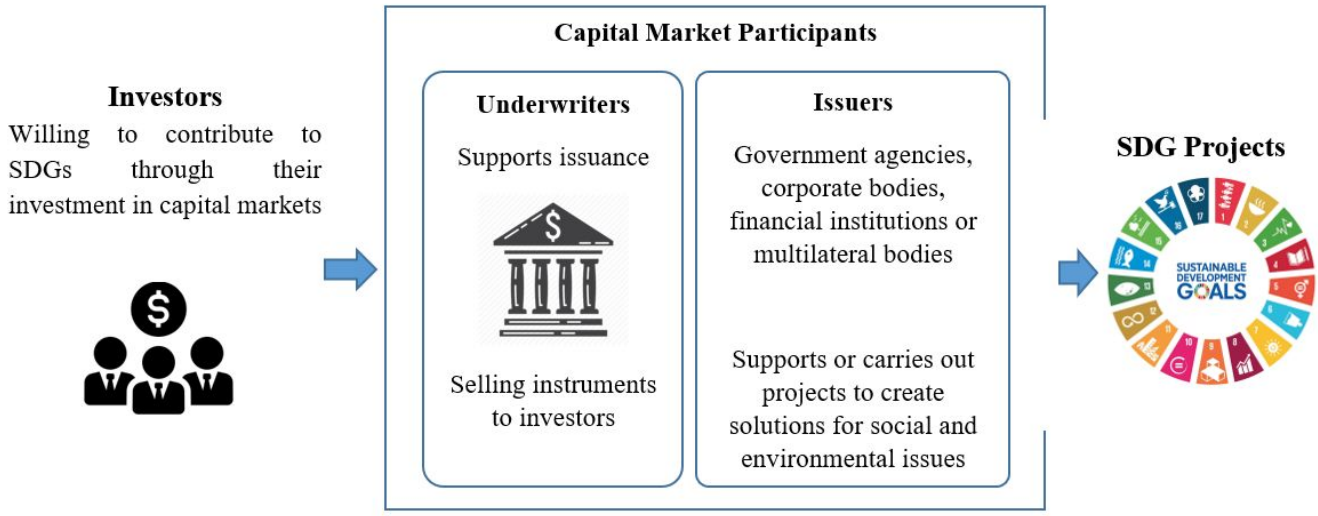


Figure II: Conceptual diagram of the market participants involved in SDG investments
Source: Authors

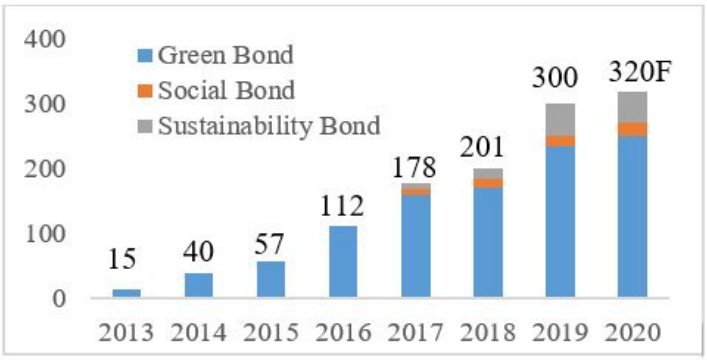


Figure III: Annual issuance of SDG bonds worldwide
Source: Bloomberg

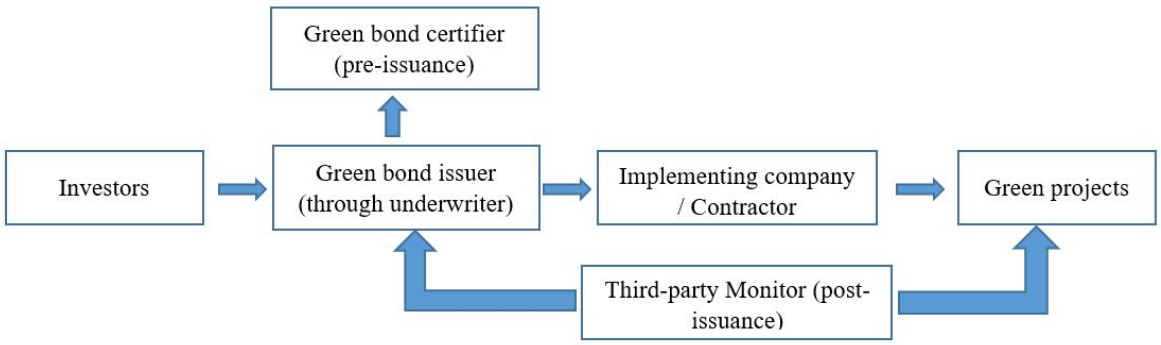


Figure IV: Structure of a Green Bond Issue.
Source: Authors

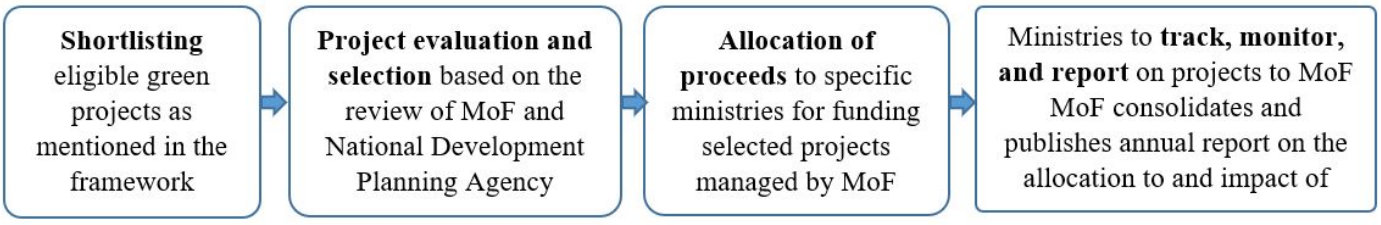


Figure V: Governance, monitoring, and reporting structure of Indonesia's Green Sukuk Bond
Source: Authors

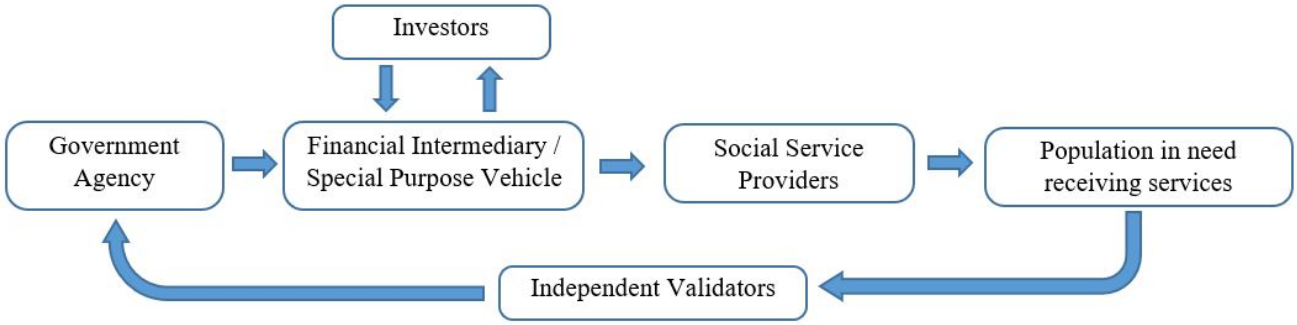


Figure IV: Structure of a social impact bond
Source: Authors

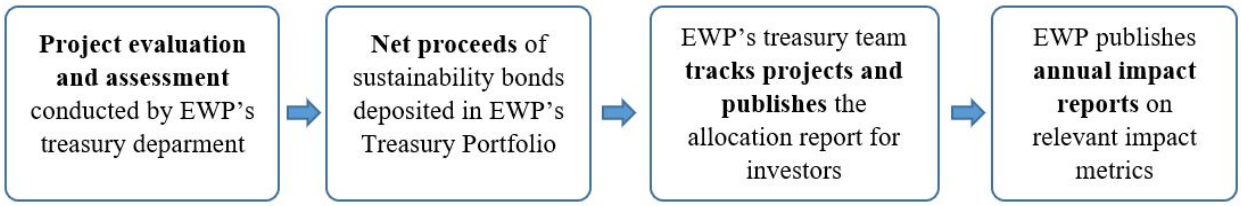


Figure VII: Governance, monitoring, and reporting structure of EWP's Sustainability bonds
Source: Authors