FINANCE FOR CLIMATE ACTION IN ASIA AND THE PACIFIC: A Regional Action Agenda to Access Debt Capital Markets

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UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

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UNITED NATIONS ESCAP
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EXECUTIVE SUMMARY

Developing countries in Asia and the Pacific are historically the least responsible for greenhouse gas emissions that result in climate change, but are most vulnerable to its environmental, economic and social impacts.

Priority responses to the challenge of global warming include strategies to reduce vulnerability; climate-proofing infrastructure to protect lives and assets; investing in adaptation strategies; strengthening resilience; and reducing emissions.

This will require significant investments by both public and private sectors. Global estimates of the cumulative investment needed to stay within a 2ºC temperature increase by 2030-35 range between $55 and $93 trillion. Developing Asia alone needs an estimated US$3.6 billion per annum up to 2030 to transition toward net zero emissions and increased resilience as required by the Paris Agreement. This economic transition also presents a unique opportunity for private finance. Estimates suggest that the Paris Agreement has opened up nearly $23 trillion in opportunities for climate-smart investments in emerging markets up to 2030.

But low-income countries have huge spending needs and scarce resources to undertake the investments necessary to cope with climate change and these requirements are likely to exceed the fiscal space available in most countries. Therefore, it is incumbent on the international community to provide and coordinate adequate financial support to these countries.

Enabling these countries to better access debt capital market instruments, in order to finance the transition to low greenhouse gas emissions and climate-resilient economic development, could be one of the most effective ways to finance climate action. This could provide the best opportunity for the region to deepen its financial system and reorient it towards new growth opportunities. Several countries in the Asia-Pacific region are already leading on the climate action agenda. Their efforts to implement the Paris Agreement must be supported by a financial system that promotes growth and sustainable development.

The region should now consider developing a clear Regional Action Agenda that unifies its climate ambitions with the need to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. To this end, UNESCAP is proposing to establish a programme on finance for climate action, in partnership with UNFCCC and others, to advance finance for climate action in the region and to support the definition and implementation of a Regional Action Agenda.

In particular, green bonds represent a promising new tool to increase the intermediation of global private capital towards climate-resilient investment opportunities in the region. This report identifies several imperatives to improve the contribution of the region's financial sector to sustainable and inclusive growth, and reinforce the funding capacity towards projects that support the shift to a low carbon and resilient economy.

First, it is important that the market structure of Least Developed Countries (LDCs), Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS) is improved in order to capture the benefits from the recent emergence of green bonds as a specific instrument of global finance. Without stronger foundations, the capital markets in the region risk losing out on the global reallocation of private funds toward climate-related investments. These foundations include the acceptance of the widely agreed Green Bond Principles in the region and in each target country, the enforcement of disclosure and the reduction of issuance costs by borrowers, as well as the emergence of standardized terms for financial instruments. Yet, the examples of China and India demonstrate that such instruments can easily be used to attract significant fund flows into the region.

Second, it will be important to facilitate the emergence of a pipeline of specific projects that can be financed through green finance instruments. In a world awash with capital, it is paradoxical that the complexity of finding investment opportunities remains a stumbling block. This lack of a viable pipeline can deter global investors from considering investment opportunities in the target countries. By facilitating the emergence of such a pipeline, the region will be better equipped with a credible investment proposition for global private capital flows.

Third, there is a need to supplement the emergence of green projects with a grant facility to make up for the capital markets' shortcomings in the target countries. Many private borrowers risk foregoing the opportunity of raising funds through international bonds or loans, while relying on comparatively scarcer bank loans, given the additional burden put on them by international guidelines. Through a targeted grant facility, the region can solve many of these shortcomings and support the emergence of a rich pipeline of new bond issues, while reinforcing the microstructure of its local capital markets, thus capitalizing on such development to create a positive feedback loop to support longer term economic and social growth.

Fourth, it is necessary to foster the acceptance of projects from the target countries by the global investment community, and in particular the global green funds. With adequate marketing directed at the global financial community, the region can increase its impact on the global financial community and reduce the intangible barriers that may remain in the minds of global investors by pooling resources and adopting a unified approach. Finally, the foundations can be laid for the emergence of new forms of financing to create increased funding capacity in the region, using some proven techniques, such as securitization.

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1. INTRODUCTION

A. The scourge of global warming for developing Asia

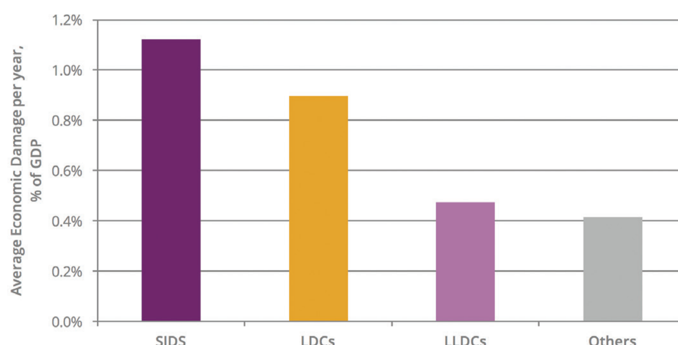
Economic development since the industrial revolution has resulted in the release of large amounts of carbon dioxide and other greenhouse gases into the atmosphere, mostly from the burning of fossil fuels, but also from industrialisationindustrialization, the reduction of forest areas and intensive agricultural practices. This has resulted in a rise of the average global temperature to such an extent that it now produces large, and potentially dangerous, shifts in climate and weather. Scientific research shows that weather-related disasters, such as floods, storms, tropical cyclones, droughts and extreme temperatures, are caused – to a degree – by global warming and that progressive warming increases their frequency and severity.[1,2]

The different manifestations of climate change and its physical impacts in the Asia-Pacific region include increasingly frequent, heavy rainfall that can result in mudslides, rail embankment failures, and road destruction, causing disruption in economic and logistical flows. Flooding and erosion put peoples' lives at risk and destroy infrastructure. Rising temperatures and more frequent temperature extremes damage crops, affect vegetation and make railways, roads, telecommunication and electricity networks more prone to damage. Rising sea levels have a dramatic impact on coastal areas and SIDS, as well as making typhoons, tsunamis and other natural catastrophic events more damaging for embankments and sea shores. Stronger winds cause the disruption of power transmission, communication towers and cables and transport networks. Air traffic in the region is disrupted at an increasing rate, with the higher frequency of strong wind events. Rainfall is expected to decrease, as global temperatures rise. Fresh water resources are expected to decline, while increasing sea levels threaten coastal areas. The survival of fish in oceans is compromised by acidification and coral bleaching. Fires will increasingly destroy forests due to shorter rainy seasons.

For the last several decades, the Asia-Pacific region has experienced the greatest human and economic impacts from disasters. In 2016, weather-related disasters killed some 4,466 people, affecting 33.7 million people and caused estimated damage of about $52 billion across the region. In terms of GDP, disaster impacts amounted to around a quarter of 1 per cent.[3] According to the 2016 Global Climate Risk Index, the ten countries most affected by climate risk from 1995 to 2014 (based on economic loss, number of deaths and frequency) included eight Asian developing economies.[4]

Although the poorest countries in the region are historically the least responsible for anthropogenic global warming, they are the most vulnerable to the impacts of weather-related disasters as they are in regions of the world most likely to be adversely affected, are least able to take protective measures to mitigate the impacts and have large vulnerable population groups living close to economic subsistence and in low-lying areas or along coasts. These vulnerable groups spend a larger share of their income on food and are therefore the most sensitive to unusual weather patterns, which result in higher prices for daily necessities. With lower food availability come malnutrition and lower life expectancy among poor populations. The economies will suffer from lower agricultural yields, extreme weather and a fall in tourism. For instance, Fiji lost as much as 25 per cent of its tourists, when a powerful cyclone hit the country in February 2016. Some countries may even

FIGURE 1. Average estimated damage in countries with special needs, 2000-2016 (percentage of GDP)



disappear altogether; a one-meter rise in sea levels would submerge the Maldives by 2085 without any new infrastructure protecting its coasts.

A recent study quantifies the macroeconomic consequences of global warming on countries with relatively high annual average temperatures, such as most low-income countries. It finds that for the median low-income developing countries, with an average temperature of 25ºC, e.g. Bangladesh, the effect of a 1ºC warming is to lower annual growth by 1.2 percentage points, mainly due to lower agricultural output, depressed labour productivity in sectors more exposed to weather, reduced capital accumulation, and poorer human health. This impact is estimated to last up to seven years.[5]

Priority responses to the challenge of global warming include development to reduce vulnerability, climate-proofing infrastructure to protect lives and assets, investing in adaptation strategies, such as diversification or technologies, strengthening resilience, including through social safety nets, and reducing emissions.

This will require significant investments by both public and private sectors. Global estimates of the cumulative investment needed to stay within 2 degrees Celsius of rising temperature increase by 2030-35 range between $55 and $93 trillion.[6,7] Developing Asia alone needs an estimated US$3.6bn billion p.a. up to 2030 to transition toward net zero emissions and increased resilience as foreseen by the Paris Agreement. This economic transition also presents a unique opportunity for private finance. Estimates suggest that the Paris Agreement has opened up nearly US$23 trillion in opportunities for climate-smart investments in emerging markets up to 2030.[8]

> **"Investments in sustainable development could cost as much as $2.5 trillion per year ... but this amount represents only 7.5 per cent of the $33 trillion held by affluent individuals in the region at the end of 2012. Governments now have to look beyond their own revenues and tap private sector involvement in the social and environmental sectors, by creating a better enabling environment and incentivizing appropriately to compensate for risks and returns." – Dr. Shamshad Akhtar, UN Under Secretary-General and UNESCAP Executive Secretary**

But low-income countries have huge spending needs and scarce resources to undertake the investments necessary to cope with climate change and these required amounts are likely to exceed the fiscal space available in most countries.[9] Therefore, it is incumbent on the international community to provide adequate financial support to these countries and ensure that they are able to access the large pools of international private capital available.

The Asia-Pacific region itself holds a large supply of private capital. The challenge is for such capital to find its way to support the region's low-carbon, climate-resilient agenda. Asian banks hold large deposits that can be transformed into loans that fund these projects. However, the Basel III banking regulations limit the ability of banks to put money to work in illiquid, unrated countries, penalizing such projects.

Another avenue is to seek foreign capital in the form of tradable securities, like bonds and structured securities. There is large untapped potential in this area. Such investments represent an attractive opportunity for global investors to diversify their exposures and make some additional return. However, they need to be convinced that it is possible to invest profitably in that field.

B. Scope of finance for climate action

Finance for climate action is essential to reach the long-run temperature goal of 'holding the increase in the global average temperature to well below 2°C above pre-industrial levels', and to increase 'the ability to adapt to the adverse impacts of climate change and foster climate resilience', both objectives of the global Paris Agreement. These goals mean that countries need to transition to a climate-neutral global economy during the second half of the 21st century, phasing out fossil-fuels.

There are many estimates for the cost of this transition to a pathway towards low greenhouse gas emissions and climate-resilient development. The Global Commission on the Economy and Climate provides an indication of the approximate investment required between 2016 and 2030 to achieve the low-carbon scenario.[10] The cumulative low-carbon investment needed for the period is estimated at US$90 trillion, of which at least 60% of the investment will be for the energy and transport sectors. For developing Asia-Pacific, the Asian Development Bank estimates that sustainable infrastructure investment will reach US$26 trillion for the same period, or US$1.7 trillion annually. Of this, the energy sector will need US$14.7

trillion, while US$8.4 trillion will go for transport.[11] Regarding only the costs of adaptation, United Nations Environment estimates that for developing countries, this will range between US$140 billion to US$300 billion annually by 2030, and between US$280 billion and US$500 billion by 2050, with the largest share going to Asia-Pacific.[12] The International Finance Corporation estimates that the NDC commitments of twenty-one selected emerging markets representing 48 per cent of global GHG will require investments of $23 trillion from 2016 to 2030.[13]

There is as yet no internationally-accepted methodology for measuring finance for climate action. Available data suggest that while finance for climate action is flowing, there is a large gap relative to the needs outlined above. Efforts are increasingly focusing on how to scale-up finance for climate action, including by tapping into debt and equity capital markets and increasing commercial bank lending to catalyse private sector finance for the transition to low-carbon, climate-resilient development.

However, FCA goes much beyond this narrow scope to cover the capital markets and commercial bank lending. If the amounts required to be consistent with a pathway towards low greenhouse gas emissions and climate-resilient (LCCR) development are to be raised, FCA must tap capital markets and commercial bank lendnglending to scale-up low-carbon or climate-resilient investments.

Box 1 – Public finance for climate action in Asia-Pacific

Based on available data, public finance for climate action in the Asia-Pacific region has been accelerating. Taking into account three main channels through which it flows, as part of bilateral and multilateral official development assistance, and through dedicated climate funds, it rose by 21 per cent over the period 2012-2015, to reach around US$19bn in 2015.[14] Of this amount, roughly 30 per cent was channelled as bilateral ODA, 64 per cent through multilateral ODA, and 6 per cent through dedicated climate funds.[15]

Climate-related bilateral ODA has risen 70 per cent over the period in the region. Multilateral development banks provided US$158bn of finance for climate action over the four year period 2011-2016, with the Asia-Pacific region accounting for roughly 40 per cent of this (US$41.8bn). Over this period, four-fifths of MDB lending targeted climate change mitigation. Dedicated climate funds and initiatives have approved a total of US$ 5.5 billion cumulatively for 616 projects and programmes in the region (2003-2017).[16]

Cumulatively from 2003 to 2017, 44 countries in Asia-Pacific together received almost 36 per cent of total examined public finance for climate action through dedicated climate funds. Of this funding, 48 per cent went to just 5 countries in the region, India, Indonesia, Turkey, and Vietnam, primarily for mitigation projects. Dedicated climate funds and initiatives have approved a total of US$5.5bn cumulatively for 616 projects and programmes in the region (2003-2017).[17]

Finance for climate action still remains tilted towards mitigation activities, and international assistance targeting global carbon emissions has been heavily concentrated in middle-income countries. The latest research shows that the share of finance flowing to adaptation and resilience has decreased slightly in 2015-16, relative to 2013-14 mainly due to a significant drop in funds flowing through national development banks. By contrast, the portion of funding to strengthen resilience flowing through multilateral banks increased by just under a third.[18] The challenge for international development cooperation is to redirect funds towards adaptation activities and strengthening resilience to ensure that the poorest and most vulnerable countries – and those least able to rely on private sector finance for climate action – are receiving adequate funds. The most vulnerable countries should be given special consideration when allocating the available finance for the reasons set out in this report. At the same time, valuable grant finance should be used increasingly to catalyse other sources of financing rather than as standalone project finance.

C. Objective of the report

Debt capital markets are a critical channel for countries to achieve their objectives under the Paris Agreement. In 2016, globally, US$ 7 trillion were raised through debt capital markets, of which only a negligible portion was 'green'.

Yet, most climate-vulnerable, Least-Developed Countries (LDCs), LandlLocked Developing Countries (LLDCs) or Small Island Developing States (SIDSs) in the region cannot independently raise finance through this channel due to their low credit quality and perceived risks, small size, underdeveloped local capital markets, gaps in capacity and knowledge to identify suitable project pipeline or to create suitable instruments. Instead, they rely mainly on local bank lending, fiscal policy instruments, development co-operation or climate grants to transition to LCCR development. This limits the potential size of their investments, in some cases displaces social spending, and uses up valuable grant resources in an inefficient way, i.e. without leveraging additional funding.

From the point of view of institutional investors, there are many barriers preventing them from considering the climate-vulnerable countries in the region as an investment destination. Politically, they often lack the proper structure to guarantee a stable and well-functioning government. Economically, they are subject to external shocks and their economies are often concentrated in a few economic sectors or they

Box 2 – Opportunities and challenges of tapping green debt capital markets

Tapping green debt capital markets can bring many opportunities.

- **The amount of capital flowing towards low greenhouse gas, climate-resilient objectives can be increased, contributing to achieving the objectives of the Paris Agreement**. By using the right incentives for international, as well as domestic investors, capital flows can be redirected towards specific objectives that serve the purpose of a low-carbon, climate resilient agenda.
- **The allocation of private sector funds towards investments with an objective of achieving low-carbon and climate-resilient goals can be increased**. While public funds are already benefiting from funding structures whose mandate specifically tackles climate issues, including bi- and multi-lateral ODA and dedicated climate funds, it is important to increase the allocation of funds from the private sector.
- **A more targeted approach towards development financing can be supported**. By identifying specific green projects through a proactive pipeline of infrastructure development actions, it will be possible to increase the interest of global investors in the region.
- **South-South learning and co-operation in the region can be fostered**. The climate-vulnerable LDCs, LLDCs and SIDS of Asia-Pacific are in the proximity of some large green bond issuers, such as China, Japan, India and South Korea. Their momentum in the field of green bond finance bodes well for the acceptance of green bonds as a credible alternative to previous forms of funding for infrastructure projects.
- **Innovative financial instruments to foster the development of LCCR initiatives can be designed, developed and applied**. The emergence of new tools, in particular around green bonds, represents a significant opportunity for smaller countries to find alternative, more efficient, ways of funding their development. However, due to their lack of market infrastructure, it will take some support before they can access these markets and instruments on their own. In the meantime, there are several actions that can be taken to support their efforts.
- **Regional approaches and regional solutions can be developed and decided locally**. By acting as a group, as opposed to on their own, the target countries can benefit from the cross-fertilization of ideas and experience across the region. As long as there is a solid exchange of information between the global and the local levels, the target countries will be able to increase their access to the financial markets.
- **The support of the broader investing community can be increased through greater transparency of investments.** A recurring theme from potential investors about green bonds is that they have genuine interest in identifying green infrastructure projects that are sufficiently robust to be considered as an investment. By working on the market structure, the corporate governance, the legal framework and the credit quality of the issuers, there is an increased chance that issuers will be finding avenues to raise funds globally.

Box 2 – continued

In the regional context, especially among the group of climate-vulnerable LDCs, LLDCs and SIDS, there are still many challenges to be overcome before progress can be made.

- **The region is very far from being a priority for international finance participants**. The development of capital markets in the region has been lagging behind that of other developing countries, such that today, many of the least-developed countries in Asia-Pacific do not participate in the international flow of capital through the global financial ecosystem. There are a few exceptions, like Fiji issuing a global bond, or some equity markets being started in several locations, but overall, it is fair to say that they are starting almost from scratch, with regard to being able to issue securities that finance local projects, let alone low-carbon, climate-resilient projects.
- **The region includes some of the least-developed, poorest and economically vulnerable countries**. One reason for the lack of interest by the international finance community is that the LDCs are among the poorest countries in the world. Their economic development is still lagging far behind others. In some of these countries, tourism or the exploitation of some natural resources have provided a path to develop their infrastructure. But overall, they do not match the attractiveness of high growth economies like China or India, which are following the path of Taiwan, Hong Kong, South Korea and Singapore in offering international investors a vast array of investment opportunities, including some well-developed capital markets that match international standards and can deliver attractive investment returns in the form of equity or fixed income securities.
- **There is a high disparity among capital markets across the region**. Capital markets in Asia-Pacific range from well-organised markets of Hong Kong, Tokyo, Sydney or Singapore, which are on a par with the deeper markets of the West, to initiatives such as the launching of a stock market in Afghanistan or Bangladesh. Between these two extremes stand two jJuggernauts: China and India, which are both developing their own capital markets locally and with direct links to the broader international markets. The challenge for the LDCs, LLDCs and SIDS is that these two countries are so large, that they are likely to attract the bulk of the funds that international investors will commit to the region. Given the high investment returns that they provide and the increasingly sophisticated legal infrastructure that they are putting in place, China and India are becoming a force that few international investors can ignore, while the LDCs, LLDCs and SIDS remain at risk of being left behind.
- **There is a lack of knowledge and practices within the region**. With the lack of a developed financial infrastructure comes a very low level of knowledge in the international practices that are necessary to participate in the global financial system. The region needs to train its executive and raise their awareness and understanding of financial practices, instruments and systems to be able to communicate better with the international institutions.

lack many of the primary natural resources that are necessary to support rapid economic growth. Their human capital is often unable to match international skill levels. They are not integrated within the international trade routes and value chains, making it harder for them to benefit from foreign trade. On the corporate governance front, they do not have the proper infrastructure in place to match the requirements of developed economies.

Yet, the speed of change is very high. Many international private investors are already jumping on the sustainable investment bandwagon to launch initiatives that have the stated objective of fighting climate change or acting responsibly. The funds allocated to these initiatives are increasing at a fast pace. Solutions are being implemented to design investment vehicles to fund climate-resilient projects using international private funds. Yet, establishing the required local institutions (political, economic, legal or financial) in these countries will take years before being able to match the level that is required. In the interim, solutions need to be found that can fast-track these countries to access financial hubs where they can issue green bonds and connect with international investors.

A regional effort is required to help these countries to benefit from the rising tide of green investments and to enable them to take advantage of the tremendous opportunities that the emergence of the green bond

markets offer, even in areas that are the least favoured by international investors because of their high-risk profile. If they work together, the least favored countries in the region can deploy solutions that, individually, they cannot achieve by themselves. If they work together, their individual risks can be mitigated and, by combining forces, they can reach the critical mass that will be significant enough to attract the attention of the broader financial community.

In Tthis report , we develops a catalogue of policy actions that can support access for these countries to the emerging green bond markets in the region. We It will present our a vision for a regional initiative that brings together state and non-state actors to accompany the climate-vulnerable LDCs, LLDCs and SIDS from the Asia-Pacific region from 'concept to market' to tap green debt capital markets.

Chapter 2 reviews the capital markets in Asia-Pacific, and developments in green bonds and catastrophe bonds, Cchapter 3 presents a Regional Action Agenda for measures to bring least-developed countries, land-locked developing countries, and small island developing states. Chapter 4 concludes.

2. CAPITAL MARKETS TO FINANCE CLIMATE ACTION IN ASIA-PACIFIC

A. Introduction and overview of capital markets

Capital markets represent a very important component of modern economies. As the place where providers of capital meet users of capital for investment purposes, they are central to the efficient allocation of funds throughout the economy. In a well-functioning market, such allocation ensures that funds flow to the projects with the highest return per unit of risk. It also allows for the transparent differentiation among borrowers.

Capital markets are the place of exchange where investors buy and sell equity and debt instruments, either for the first time (primary market) or for resale (secondary market). Many different types of investors meet and exchange capital, ranging from governments (for their funding) to private investors (pension funds, investment vehicles, hedge funds, banks, insurance companies, etc.). They are the primary vehicle for determining the price of money for many different types of investments, either short-term to medium-term to long-term.

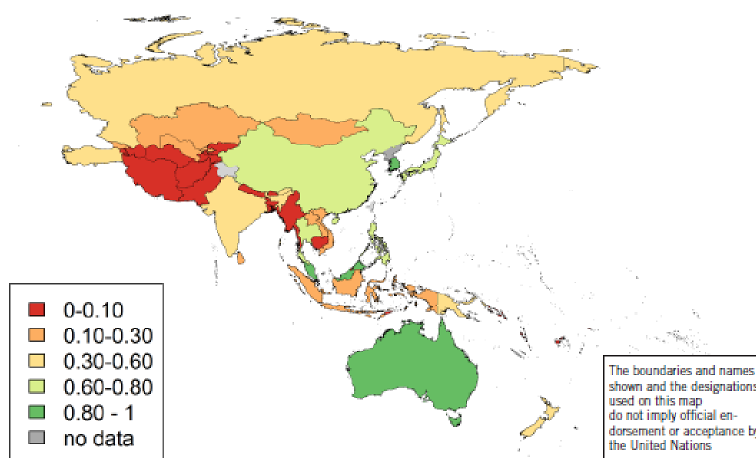
In the context of development finance, the capital markets must be enhanced through the inclusion of non-monetary objectives, in order to achieve social inclusion and poverty reduction, while achieving low-carbon, climate-resilient objectives. This is a relatively recent addition to the purpose of capital markets, with the inclusion of a broader range of (economic or social) stakeholders in the economy.

In capital markets, transaction costs are a primary concern for investors. In the exchange from suppliers of capital (savers) to buyers (investors), a transaction cost will be charged for recognizing the efforts involved in putting a transaction together. This cost may include a fee for the intermediaries involved in the transaction (banks, brokers, etc.) and for the ancillary work required to complete the transaction (credit rating, registration, listing). In low-carbon, climate-resilient projects, a third party will need to be mandated to perform a certification on the project, which will receive the proceeds. This will cause some additional costs.

Capital markets globally are not equally developed. While the international markets in the United States or, to a lesser extent, in Europe, have a significant portion of financing in the form of corporate bonds, most Asian economies are mostly reliant on lending by banks, with loans representing 80 per cent of total debt.[19] This makes the development of deep capital markets more difficult, as the flow of capital is mostly, at this stage, taking place on a bilateral basis, rather than on the organized markets. This reduces the chances of achieving the most efficient (and fair) pricing of risk.

Within Asia-Pacific itself, a large number of capital markets exist, ranging from the large and developed financial centres of Hong-Kong, Singapore, South Korea and Sydney, which all benefit from a direct link with the broader international capital markets in USD and EUR, down to the less developed countries of Afghanistan, Bangladesh, Bhutan, Cambodia, Fiji, Maldives, Myanmar, Nepal, Papua New Guinea, Samoa, Solomon Islands,

FIGURE 2. Financial Market Development Index (2014)



Source: Tapping Capital Markets and Institutional Investors for Infrastructure Development, UNESCAP.

Timor-Leste, Tonga, Tuvalu, Uzbekistan, Vanuatu, where capital markets are at best, in their infancy, or at worst, non-existent.

In between these two extremes exists a group of emerging capital markets, with active domestic markets, but which have to increase their integration within the international investment community. These markets include: India, China, Russian Federation, Thailand, Malaysia, Indonesia and Turkey. These markets typically are the ones that stand to benefit the most from the expansion of capital flows and the desire by international investors to diversify their exposures.

By contrast, the capital markets of the less developed countries are not benefiting from these trends, as they are left behind the development train of global finance.

Critically, Asia-Pacific needs to develop on a more harmonious basis to ensure that no countries are left behind. Commercial lending alone cannot meet the many challenges that climate change represents. It has become critical to tap into the savings of the developed world and find new instruments to raise funds in the global capital markets in order to respond the investment needs of the region.

There is a fundamental problem for climate-vulnerable LDCs, LLDCs and SIDS of the Asia Pacific region in the context of the global financial markets. Because their capital markets are not sufficiently developed, it is very difficult for these countries to be efficiently connected to the flow of capital in the region and, more broadly, on a global basis.

Among the structural policy recommendations promoted by UNESCAP[20], some essential long-term solutions exist:

1. develop domestic markets through deeper local capital flows from long-term savings to long-term investments;
2. facilitate foreign investment through capital account liberalisation and the development of hedging instruments;
3. promote financial integration, through the reduction of cross-border transaction costs, the harmonization of regulations, the increase in corporate governance and common standards, like IFRS accounting standards, and the linking of local central securities with international central securities centres, as small scale countries need to be able to tap into offshore markets; and
4. support domestic investors, given the high correlation of the size of the institutional investor base and the size of capital markets. Unfortunately for small scale economies, the presence of domestic institutional, if it exists at all, is likely to be insufficient.

B. Integrating climate change considerations

Faced with the pressing needs of climate change, it is irresponsible to count on solving these long-term structural issues quickly enough to trigger the kind of capital flows that the region needs to tackle the challenges posed by the changing environment. Of the four long-term solutions above, the most immediate one is certainly the promotion of foreign investment through liberalization, but this is a political agenda. Financial integration is also likely to be an easier path, but even the harmonization of domestic capital markets within the broader financial system is likely to take some time. Finally, the deepening of local capital flows and the emergence of domestic investors will take a long time to realize. It is therefore urgent to develop solutions that can be put in place in a much shorter timeframe.

In the particular case of finance for climate action, the target segments are multiple. In considering how to channel capital towards low-carbon, climate-resilient projects, several segments can be considered. To make the analysis more practical, it is useful to consider three main "target segments". The "public sector" would include governments, government-related agencies/ enterprises or multi-lateral development bodies. The "enterprises" segment would include all private firms directly involved in managing projects. "Institutional investors" would include all investment vehicles that can channel funds towards low-carbon, climate-resilient projects. The "banks" are all the entities that can lend to these projects.

Another issue at stake is the distinction between public financing versus private financing. The capital needed to fund LCCR projects may come for governments, government-related agencies or multi-lateral development bodies such as banks or funds. This would constitute "public" financing. It may also come from private firms, investment funds, pension funds, insurance companies, commercial or private banks, in which case it would be deemed as "private" financing.

Legal and regulatory frameworks exist from banks, capital markets and institutional investors. Capital markets are more or less organized and anyone involved in transactions taking place on these markets typically has to comply with a large body of regulations. These regulations have a positive effect in the development of capital flows in a market. They reassure investors that the exchange of funds for investment securities will be

conducted on a fair basis. It is essential for a market to have a transparent set of rules and regulations. Some specific regulation exists that control the way banks and institutional investors can channel funds towards specific projects.

Finally, there are some economies of scale that can be applied in finance for climate action, for example through the pooling and transfer of climate risks through portfolio trades, as well as insurance trades. Climate risks can be mitigated with insurance policies designed to pay out to the insurance buyer in the event of a loss. The risk of such loss happening is therefore transferred from its initial bearer (e.g. a firm engage in the production of agricultural products, which may suffer from an extreme drought damaging its crop) to the new party (e.g. an insurance company), which earns a premium in return for bearing that risk. In turn, the insurance company may be willing to reduce this exposure by selling it on to other types of buyers (e.g. reinsurance companies) or, through some specific investment vehicles, to institutional investors. In doing so, the insurance company may be looking to "pool" together a number of different risks, thus reducing the impact of a single event reducing dramatically the return expected by the end investor. This would be a separate field of study, as we are mostly interested in covering capital markets as a form of risk intermediation for finance for climate action.

C. A primer on green bonds

Definition

A "Green Bond" was originally a US tax-exempt, fixed-income security issued by federally qualified organizations or by municipalities to finance the development of projects linked with energy efficiency, water treatment, sustainable agriculture, pollution treatment, forestry, clean energy, sewage treatment, etc. This type of security is now extended to projects impacting the environment.

According to ICMA,[21] "Green Bonds" designate a "bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bonds Principles."

There are four types of Green Bonds:

- **Standard Green Use of Proceeds Bond**: standard recourse-to-the-issuer debt obligation
- **Green Revenue Bond**: non-recourse-to-the-issuer debt obligation
- **Green Project Bond**: project bond for a single or multiple green project(s)
- **Green Securitized Bond**: collateralized bond against one or more specific project(s), including ABS, MBS, covered bonds and other structures.

In response to some concerns about the misuse of such a label by issuers, a group of banks[22] released the "Green Bond Principles" in 2014 to monitor the process of issuance, the disclosure and reporting.

The "Climate Bonds Standard Board" has set some guiding principles and oversees the certification of the labelled green bond market. Within the universe of bonds that have some impact on climate ("climate-aligned bonds"), a "Green Bond Label" has been created to signal to investor those bonds that will "finance new or existing projects with environmental benefits".[23]

The Green Bond Principles, first issued in January 2014, are voluntary guidelines that recommend transparency and disclosure, promote integrity, aid investors and assist underwriters toward expected disclosure to facilitate transactions. They are monitored by the International Capital Market Association (ICMA), which invites bond issuers, bond investors and bond underwriters to apply for membership in these Green Bond Principles. To be admitted as a Member, an organization must apply in writing to the Secretariat of ICMA. An Executive Committee oversees them, with 24 organizations chosen among members and comprising an equal distribution between investors (8), issuers (8) and underwriters (8), with a 2-year mandate and a rotation by half every year.

There are four Green Bonds Principles:

- **Use of Proceeds**
  Proceeds must have clear environmental benefits assessed and, if possible, quantified by the issuer. If a refinancing occurs, the share of the refinancing in the total must be provided. The proceeds must be invested in areas such as climate change, natural resources depletion, loss of biodiversity, air, water or soil pollution. Some examples are available to issuers for guidance.[24] Some existing green bond issuers, non-profit and non-government organizations have issued their own standards of Use of Proceeds[25] (African Development Bank, BNG bank, European Bank for Reconstruction and Development, European Investment Bank, FMO, International Finance Corporation, KfW, Kommunalbanken Norway, Nederlandse Waterschapsbank N.V., Nordic investment Bank, and World Bank.).
- **Process for Project Evaluation and Selection**
  A new bond issue must clearly state its

objectives for tackling issues related to the environment and its sustainability, how eligible projects will be chosen and what are the exclusion criteria. The Principles recommend that the issuer's process be reviewed by an external party, which must have a 'recognized expertise in environmental sustainability'.

- **Management of Proceeds**
  The net proceeds must be allocated to a sub-account and dedicated to the issuer's investment operations in green projects. The issuer must inform investors of the types of temporary placements for unallocated proceeds. The hiring of an auditor is encouraged to verify the "internal tracking method and allocation of funds from the green bond proceeds".[26]

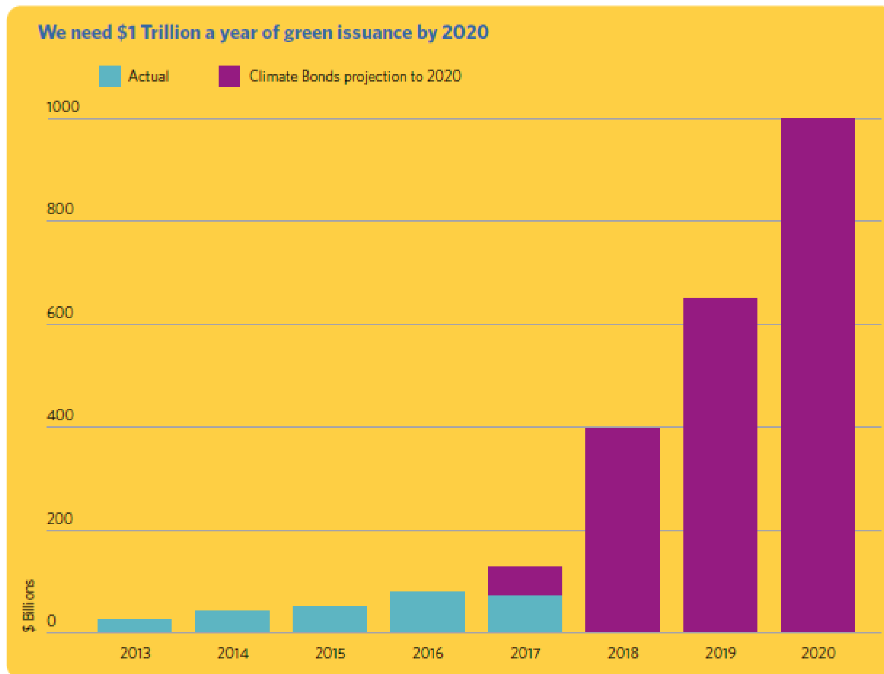
- **Reporting**
  A standard summary template must be made available to the market, available from ICMA. Issuers must maintain up-to-date information and review the use of proceeds annually, including the list of projects and their environmental impact. Some voluntary guidelines are available from ICMA for the reporting of projects related to energy efficiency, renewable energy, water and wastewater projects.[27]

One important note of caution, however, is that "Green Bonds should not be considered fungible with bonds that are not aligned with the four core components of the Green bonds Principles".[28] This means that the market is likely to see the continuation of project-specific bond issuance, as opposed to a broadening of this type of bonds to general corporate purposes.

Size of the markets

According to The Climate Bonds Initiative,[29] the size of the market for "climate-aligned bonds" was about $895 billion in face value of "climate-aligned bonds" in 2017 and grew by $100 billion relative to 2016, with 3,493 bonds already issued by 1,128 issuers. By comparison, the global bond market is estimated to represent $90 trillion. This makes the "climate-aligned bonds" represent only a tiny fraction of the addressable universe.

Looking more specifically at the issuers, the largest industry sectors are Transport (61 per cent of all bonds), followed by Energy (19 per cent) and multi-sector (13 per cent). Water makes only 3 per cent, Agriculture 1 per cent and Waste & Pollution Control 1 per cent. By credit quality, 89.5 per cent of the universe is rated investment grade (BBB or higher), with the largest ratings population AA (38 per cent), bonds with no ratings making 4 per cent of the population and AAA



bonds representing 13.5 per cent. There is also a wide range of currencies, in which green bonds are issued: 32 per cent are denominated in CNY (mostly onshore bonds), 26 per cent in USD and 20 per cent in EUR. A significant portion of bonds have been issued in domestic currencies, including RUB, INR, KRW, CHF, etc. In terms of size, the majority are between $10m and $100m in size.

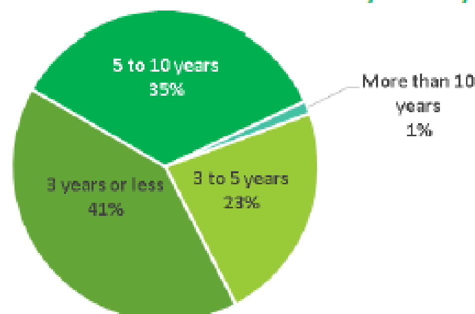
A narrower sub-section of the market is represented by "Green-labelled" bonds, which made about $221 billion of total outstanding in 2017. They are traditionally issued by large development banks, such as the World Bank, IFC and the EIB. Asia Pacific, excluding China, has seen the issuance of $48 billion of labelled green bonds, with South Korea issuing $19.6 billion (e.g., Korea Railroad, Korea Hydro & Nuclear), India $16.9 billion (Indian Railways, National Hydroelectric, Hero Wind Energy in 2015, Axis Bank in 2016, Yes Bank in 2016, Greenko) and Australia $2.5 billion (ANZ Bank in 2015, NAB in 2014 and Westpac in 2016). China has issued $246 billion, Russia $15.5 billion (half of which were issued by Russian Railways). Among the smaller countries in the region, Thailand issued $3.2 billion and Hong Kong $1.5 billion.

CBI predicts that, by 2018, labelled green bonds issued each year will represent $300 billion per annum.

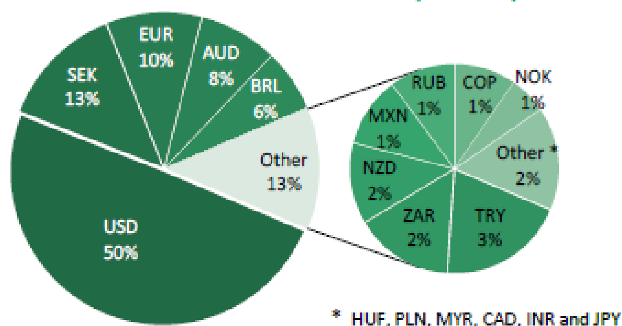
Examples of issuance: The World Bank

The World Bank is a major issuer of green bonds. Over $10.2 billion of Green Bonds have been issued through more than 135 transactions in 18 currencies, with a wide range of maturities, sizes and coupons.

World Bank Green Bond Issuance by Maturity



World Bank Green Bond Issuances by Currency



Source: World Bank Green Bond Impact Report 2016.

Examples of issuances

Largest issuers to date	Amount	Issuer type	Country
EIB	$22.6bn	Development Bank	Supranational
KfW	$12.8bn	Development Bank	Supranational
World Bank	$10.6bn	Development Bank	Supranational
SPD Bank	$7.6bn	Commercial Bank	China
Republic of France	$7.6bn	Sovereign	France
Iberdrola	$5.6bn	Corporate	Spain
TenneT Holdings	$5.5bn	Corporate	Netherlands
EDF	$5.3bn	Corporate	France
IFC	$5.3bn	Development Bank	Supranational
Engie	$5.1bn	Corporate	France

The special case of China

China is the largest country of issuance, with very large needs to fight pollution in the country. According to the People's Bank of China (PBOC), the Central Bank, the annual cost of pollution prevention and carbon emission reduction is about CNY 3tr ($436 billion).[30] In 2016, 29 Chinese issuers have issued 66 green bonds representing CNY201 billion (39 per cent of the total market). The regulations published by the PBOC in December 2015 and the directives for state-owned enterprises for selling green bonds released by the National Development and Reform Commission have been instrumental in pushing the initiative, with the Central Bank and six central authorities publishing some guidelines on Green Finance. They support firms to come to the capital markets, while imposing the disclosure of information on their climate impact.

Box 3 – The example of China

In China [31], the challenges of facing low-carbon, climate-resilient development are tremendous. The country is sandwiched between its willingness to grow its global infrastructure investment, in particular with the new Belt and Road Initiative that is equivalent to several times the Marshall plan in terms of sums being plowed into regional economies, and the need to decrease greenhouse emissions.

In a recent industry report,[32] a sector expert put the annual infrastructure investment at $42 trillion from 2014 to 2020. Public funds alone cannot suffice to meet this investment target, only 15 per cent of the capital required will be sourced from the public sector. Green bonds are an essential avenue to raise funds: they already represent 2 per cent of all bonds issued in China, against only 0.2 per cent globally. In 2016 already, China was the driving force behind the quick increase in green bonds outstanding globally, representing 39 per cent of the global issuance in 2016, following the release of the PBoC's Green definitions in December 2015, the release of Guidance on Green Bond Issuance by the NDRC in January 2016, the publication of a Green Bond Pilot Program by the Shanghai and the Shenzhen Stock Exchanges in March/April 2016, providing for green bonds to be able to be listed on stock exchanges in addition to the interbank bond market and the Guidelines for Establishing the Green Financial System jointly released by the PBoC, the Ministry of Finance, the NDRC, the Ministry of Environmental Protection, the China Banking Regulatory Protection, the China Banking Regulatory Commission, the China Securities Regulatory Commission and the China Insurance Regulatory Commission. In that last initiative, 35 measures for the development of the green financial system have been introduced. This was also made possible because the March 2016 13th Five Year Plan was approved by the National People's Congress, which pushed for a 'green, open and shared' development and advocated the development of green bonds to channel private funds towards green projects through the market.

The development of the Chinese green bond market is driven by a public agenda of fostering a low-carbon, climate resilient infrastructure investment-led growth. Commercial banks are the driving force behind the growth of the Chinese bond market, but corporates are playing a growing role, accounting for 16 per cent of total issuance in 2016, with 35 new Chinese issuers entering the market (Shanghai Pudong Development Bank and Industrial Bank in particular made up 43 per cent of the Chinese issuance).

The Chinese Green Bond market is dominated by investment-grade bonds, with AAA-rated issues making three quarters of the issuance in 2016 (using local rating agencies and international rating agencies for offshore bonds), with AA-rated bonds representing 11 per cent of issuance and A-rated bonds 12 per cent, the remaining 3 per cent being non-rated.

Typically, a majority of Chinese green bonds have a long maturity of 5-10 years, while the average is 4 years, less than the global average (6.8 years), but only 1 per cent have a tenor of more than 10 years.

Box 3 – continued

Some challenges remain with China's emerging Green Bond issuance:

a) the definition of green bonds locally does not necessarily match that of international standards: some projects categorized as "green" in China would not be seen as such by international investors, because less than 95 per cent of funds are allocated to green projects (the local regulation requires that at least 50 per cent of the bond proceeds go towards green projects, the rest being deployed for general working capital needs), some category of projects are not treated as "green" internationally, but they are acceptable in China ("clean" coal, electricity grid transmission, dual energy infrastructure, large hydropower electricity generation, retrofits to fossil fuel power stations).

In September 2017, ICBC issued a dual-currency (USD and EUR), three tranche green bond from its Luxembourg subsidiary. In so doing, it adopted the Green Bond Principles 2017 as its governing methodology for the purpose of this issuance. This is a positive development, as it is the first such Green Bond issue of its kind by the largest Chinese bank.

b) The structure of the bond market in China, with offshore bonds issued by Chinese issuers on international stock exchanges and onshore bonds issued in RMB in mainland China and only available to domestic investors and qualifying international investors, makes it more difficult for international investors to access such investments.

In China, the road towards the regulation of green bond is different from the one taken in the offshore markets. First, a green bond must be approved by the relevant regulatory authorities (PBoC, NDRC or CSRC). There can be some discrepancies in the categorization of green projects between these regulatory authorities: the PBoC focuses on project categories (6 categories, with more details on sub-sector levels), eligibility criteria, management of proceeds (PBoC is stricter than NDRC), information disclosure (quarterly for PBoC, with no specific rules for NDRC) and third party verification (issuers are encourage to issue an annual third party assessment report). NDRC is focusing on key green sectors (12 categories) and also provides some incentives for issuers (green bonds can be used as collateral for low-interest central bank loans).

A number of third party reviewers are already covering the Chinese Green Bond market, including EY and Deloitte. On the rating agency side, three rating tools currently exist for green bonds, separately from credit rating methodologies. This has introduced some additional challenges for the industry: the existing of different methodologies makes the comparison more difficult between bonds.
The market for green bonds in China is likely to continue to develop at a strong pace, driven by the environmental and economic challenges that the country currently faces.

Our take on the development of Green Bonds in China:

a) the development of green bonds has been made possible because of the strong commitment of policymakers in China;
b) a clear road for the approval of a green bond issuance is paramount to support the development of the market;
c) public policies can influence heavily the development of green bonds, like for instance, allowing banks to use green bonds as collateral in their repo transactions with the Central Bank;
d) the development of different (competing?) standards is detrimental to the harmonious development of a unified green bond market (NDRC vs PBoC). The harmonization between local and international guidelines should also be promoted, as well as the level of disclosure required from issuers, while allowing for flexibility and comparability;
e) rating agencies in particular must converge towards a unified methodology to allow green bonds to be comparable by investors; and
f) the inclusion of green bonds into China's bond indices is very important to support the expansion of the bond market.

Box 4 – The example of India

In At least $2.5 trillion is required (at 2014-15 prices) to meet India's Intended Nationally Determined Contribution (INDC) until 2030. The country is planning the building of 175 gigawatts of renewable energy capacity by 2020, at a cost of $200 billion. India's population will overtake that of China by 2050 and its major urban areas will be among the world's largest cities and megacities in the next 10 to 30 years.

Infrastructure financing in India requires a huge investment and the existing sources for project financing, public or from commercial banks, are insufficient to provide the funds necessary to support a climate-responsible framework. The constraints put on traditional sources of financing include sector exposure limits, capital ratio requirements and balance sheet capacity constraints. Alternate sources of financing include pension funds, sovereign wealth funds and insurance companies. The corporate bond markets are seen as the best way of providing an alternative route towards providing such financing sources.

The Indian municipal bond market will need to evolve to be able to tap the domestic and, more importantly, the international bond markets. In June 2017, for the first time of at least 14 years, the Pune Municipal Corporation has issued INR200 crore with a coupon of 7.59 per cent, as part of an INR22.6 billion borrowing plan that the municipality will need to borrow over the next five years. There was some strong demand for these bonds: the issuance was oversubscribed six times and investors as diverse as banks, insurance companies and pension funds participated in the issuance. The proceeds of the bonds will go towards the financing of a water metering project, with debt servicing being met from user charges and property taxes parked in an escrow account, thus ensuring the timely repayment of interest.

India is already among the top 10 green issuing countries with $6.1 billion issued so far, a third issued in 2017. It ranks 8th after the US, France, China, Germany, the Netherlands, Sweden and Australia. In May, the capital markets regulator in India, the Security and Exchange Board of India (SEBI) has release some guidelines. It is defining 'Green Debt Securities' as any debt security that target projects for renewable and sustainable energy (wind, solar, bioenergy, clean energy), clean transportation, sustainable water management, climate change adaptation, energy efficiency, sustainable waste management, sustainable land use and biodiversity conservation. Over the 2015-17 period, the issuance of green bonds has been concentrated mostly in renewable energy (68 per cent of issued amounts) and low carbon transportation (21 per cent).

The disclosures must be made by the issuer as per the SEBI's guidelines, including the option of a review by a third party reviewer/certifier. Any listed Green Debt Securities must disclose the utilization of the proceeds and the details of the unutilized proceeds at least half yearly and in its annual financial results, the list of projects or assets to which the Green Debt has been allocated, with a description of the project, as well as some qualitative performance indicators and quantitative performance measures of the environmental impact of the project or asset (including the underlying assumptions).

The Indian securities regulator explicitly cites the following benefits in issuing Green Bonds:

a) positive public relations: green bonds can support an issuer's reputation towards the development of a sustainable environment, as well as some positive publicity;
b) investor diversification: some specific global pool of capital is already earmarked for environmental, social and governance (ESG) purposes. Green bonds can tap into this capital, which a regular bond may not be able to do; and
c) Pricing advantage: green bonds may attract a wider investor base and achieve a better pricing than a regular bond.

Box 4 – continued

Some examples of green bonds issued by Indian issuers include:

a) Yes Bank: in February 2015, a INR10 billion 10-year bond was issued to fund some solar, wind and biomass projects. The issue was oversubscribed almost twice. Another issue was raised in August 2015 for INR315 crore, again for a 10-year issue, which was subscribed by the IFC.
b) Exim Bank of India: a $500 million 5-year green bond was issued in March 2015 to fund eligible green projects in Bangladesh and Sri Lanka. The issue was 3.2x oversubscribed.
c) CLP Wind Farms India: a INR6 billion bond due April 2018, 2019 and 2020 was issued with a 9.15 per cent coupon.
d) IDBI Bank: a $350m 5-year bond was priced at T+255bps. The issue was three times oversubscribed, with demand coming mostly from Asia (82 per cent) and from Europe (18 per cent).
e) Hero Future Energies: in February 2016, INR3 billion 10.75 per cent bonds due 2019 and 2022 for renewable energy projects.
f) PNB Housing Finance: in April 2016, INR5 billion 8.01 per cent bond for low carbon buildings.
g) Axis Bank: in June 2016, $500m 2.88 per cent 5-year bond for renewable energy, low carbon buildings and transportation projects.
h) ReNew Power: in August 2016, INR5 billion bonds for renewable energy projects.
i) NTPC: in August 2016, INR20 billion 7.38 per cent 5-year bond for renewable energy projects.
j) Greenko: $500m 4.88 per cent 7-year bonds for renewable energy projects.
k) Yes Bank: in December 2016, a INR3.3 billion 7.62 per cent 7-year bond for renewable energy projects.
l) ReNew Power: $475m 6 per cent 5-year bonds for renewable energy projects.
m) IREDA: INR7 billion 8.125 per cent and 8.05 per cent 10-year bonds for renewable energy projects.

In other parts of the world, other countries have used Green Bonds to fight climate change. For example, Colombia has seen the issuance of three Green Bonds. The latest one, issued in August 2017, is a COP200 billion (US$67 million) 5-year issue by Banco de Comercio Exterior de Colombia S.A., the first one to be available to local investors on the Colombian Stock Exchange, with the support of the Inter-American Development Bank (IDB) with help from SECO (Secretariat of State for Economic Affairs of Switzerland) and the Climate Bonds Initiative. The bonds were 2.5 times oversubscribed, with a demand of COP510 billion. The bonds are likely to be bought by insurance companies, businesses, pension funds, institutional investors, government entities and the public. Lead managers were Banco Davivienda SA, Banco de Comercio Exterior, Correval SA, Ultrabursatiles SA Comisionista de Bogota, Valores Bancolombia SA "Comisionista de Bolsa".

Lessons learned from green bond leaders in the region

In both India and China, the challenges for the financing of a low-carbon, climate-resilient infrastructure investment program are enormous and the public sources are insufficient, thus creating the need for some involvement from private sources.

In both countries, the issuance of green bonds has already started and is gathering pace. China leads by the amount of issuance, but India is likely to continue growing as well. This is positive for the region, as the momentum is gathering pace and global investors are taking notice.

Green bonds are issued using the same avenues as traditional bonds, only differing by the use of proceeds that is intended for the said bonds. This allows the issuance to benefit from the existing infrastructure in place, with the only difference the additional level of disclosure that is necessary to comply with the published guidelines.

For India and China, the release of specific guidelines by the domestic securities regulator is supporting the emergence of an organized market for green bonds and fostering an environment, in which green bonds can be seen as a viable source of raising funds for both state and private issuers.

In both countries, the focus is on disclosure and adherence to the published principles, as well as on the ongoing publication of qualitative and quantitative measures to ensure that the issuers are adhering to the principles established for green bonds.

In India and China, the first issuers to consider issuing green bonds are commercial banks and local

government entities (municipalities). But in both countries, it is expected that corporate issuers will also come to the market to issue green bonds.

Policy Action: it is crucial to ensure that low income countries are included in the development of finance for climate action, in particular green bonds, happening around them in the region. It is important to reinforce the knowledge sharing of these evolving trends among Asia Pacific countries, in the form of periodic forums, so that less developed countries can learn from larger countries, like China and India, what instruments are successful in increasing capacity for finance for climate action. The organization of such a forum will provide a positive reflection on the efforts made by larger countries in their initiatives to tackle climate change, foster cross-border initiatives and build a regional base of knowledge and "best practices" among issuers, public and private alike.

Timeframe: SHORT TERM
Stakeholders: UNESCAP, National Development Banks, regional banks

China and India must be associated with the public initiatives organized in Asia Pacific. First, they represent the larger issuers in the region. Second, they can lead the development of finance for climate action by example, showing smaller countries in the region the positive impact that such developments can have. It is essential to focus on bringing together the various initiatives taking shape in the region. Some specific marketing actions may be launched to promote such cooperation, like for example the release of newsletters, brochures or topical communication on the topic. The use of the Chinese language in public communication may be an easy way to ensure that Chinese policy makers also become aware of the initiatives being launched in the region.

The examples of China and India also show that, starting with public issuers, finance for climate action is quickly evolving towards private corporations. Action is needed to promote finance for climate action among private borrowers in the Asia Pacific region, so that finance for climate action does not remain in the public domain, but feeds through to the private side of the financial work. The promotion of such initiatives among private corporations is crucial. A good place to start such marketing initiatives would be among companies whose stock is listed on regional stock exchanges. By organizing such action as awareness events, expert forums and other public gathering, it is possible to increase the understanding of green finance among a larger population.

D. Process of issuing green bonds

The bond market (also called "debt market", "credit market" or "fixed income market") makes up a large part of the broader capital markets, made of two sub-parts: the primary bond market and the secondary bond market. In the primary bond market, borrowers raise debt from providers of capital through the issuance of tradeable securities with specific terms. It is done with the help of an investment bank, which provides the experience, expertise and access to lenders, while helping decide the appropriate terms and conditions, including pricing of such instrument. The money flows between investors and borrowing entities. Investors may want to hold such debt instrument until its final maturity or sell it in the market to other investors. In the secondary bond market, bonds that are already issued in the primary market can be exchanged between investors. The money flows between investors and does not go to issuing entities.

A typical bond is defined by its offering document, which specifies all the legal terms of the instrument. The most important parameters are the maturity (when the principal repayment is due), the currency of denomination, the interest rate paid by the borrower to the investor (often called the "coupon"), as well as the various options given to the borrower or the investor during the life of the bond (such as a repayment before its legal maturity due to some specific events).

A "green" bond is structured like an ordinary bond, with a legal final maturity, a coupon, a currency of denomination, as well as the clauses triggering a default and the various options available to the borrower or the lender, as the case may be, for early repayment. What sets a green bond apart is the use of the proceeds raised in the primary markets by the issuer from the investors. As such, it is not structurally different from an ordinary bond, but it is its purpose that defines it as a "green" bond. The Key point is that a "green" bond is acceptable to any traditional investor, since it is identical, in its form, to any other bond. This ensures its liquidity in the broader markets and it results from it that the demand should be the same as any other kind of bonds.

When an issuer wants to issue a bond and its investment bank has been contacted to structure it, they will jointly decide the parameters of such issuance. They will choose a currency, a legal final maturity, a target size for its notional (the amount of capital raised), as well as all the options that the issuer is happy offering to the investors, ranging from early repayment under certain circumstances to some debt covenants forcing the issuer to maintain certain credit ratios or other parameters during the life of the bond. The investment bank, in this process, will advise the issuer about the best possible deal that will serve its objectives, while satisfying the criteria of the investing community. At the same time, the issuer will usually purchase from a number of public rating agencies (usually one to three, among which Moody's, Standard & Poor's and Fitch are the most common) a credit rating, which will be made public to the investing community based on the financial performance, the credit worthiness and the amount of public disclosure of the issuer.

Once a deal has been decided by the issuer and the investment bank, and while a public credit rating is being decided by the rating agencies, a draft document stating the terms of the bond issue will be prepared by a legal team of lawyers specialized in this market segment. Such document will set all the parameters for investors to understand the risk and rewards that such a deal will offer them. Such document, called "the bond prospectus" (also called "the Red"), will be sent to potential investors for their consideration, following the public announcement that a primary issue is being launched in the capital markets. "Green" bonds will particularly put forward to investors the purpose that the bond issue is meant to serve and which climate-resilient project it is meant to finance. A certification is possible to be obtained on the bond by the investor, in order to reassure investors that the purpose of its bond issue is indeed related to climate-resilient projects.

Once all the investors have been contacted to gauge their interest, a process which is usually referred to as a "roadshow", the lead manager (an investment bank) will gather all purchasing interests from them and an initial price indication will be released to them. At that stage, the investment bank will be able to confirm that there is sufficient interest by the investment community to proceed with the bond issue. Such process is called the "book building".

A successful bond issue happens when the "book" size exceeds the size of the bonds on offer. If the demand for the bonds is well below the amount on offer, it is not unusual for the investment bank to recommend its client to cancel the bond offering and postpone it to a later date, when the market conditions will be more favorable. If the demand for the bonds is sufficient to proceed with the bond issue, the lead manager will fix a price that best serves investors' demand for the bonds. The bond is then issued and, upon its settlement, the funds flow from the lenders (the investors) to the borrower (the issuer), the investment bank receiving a compensation, which can either be fixed or depend on the performance of the bonds after issuance.

E. Key stakeholders

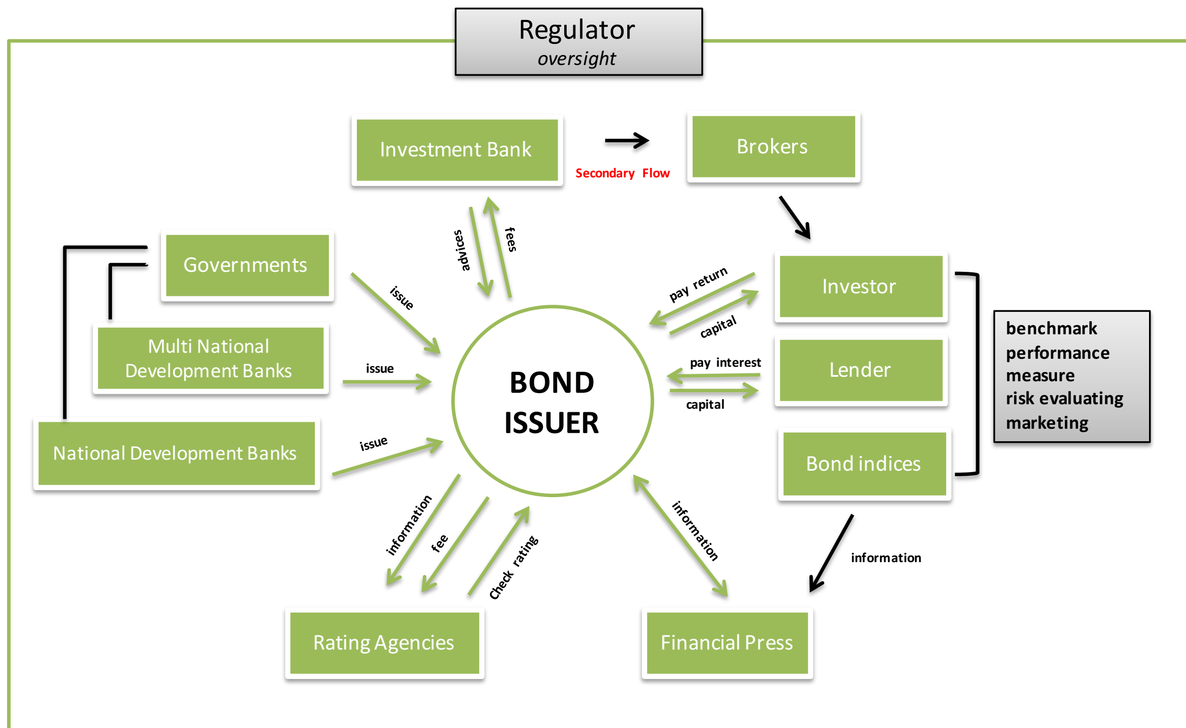
In considering green bonds for low income countries, the typical stakeholders of standard bonds are involved, plus some additional ones that can offer some de-risking options, which will enhance the attractiveness of the bonds.

The issuer

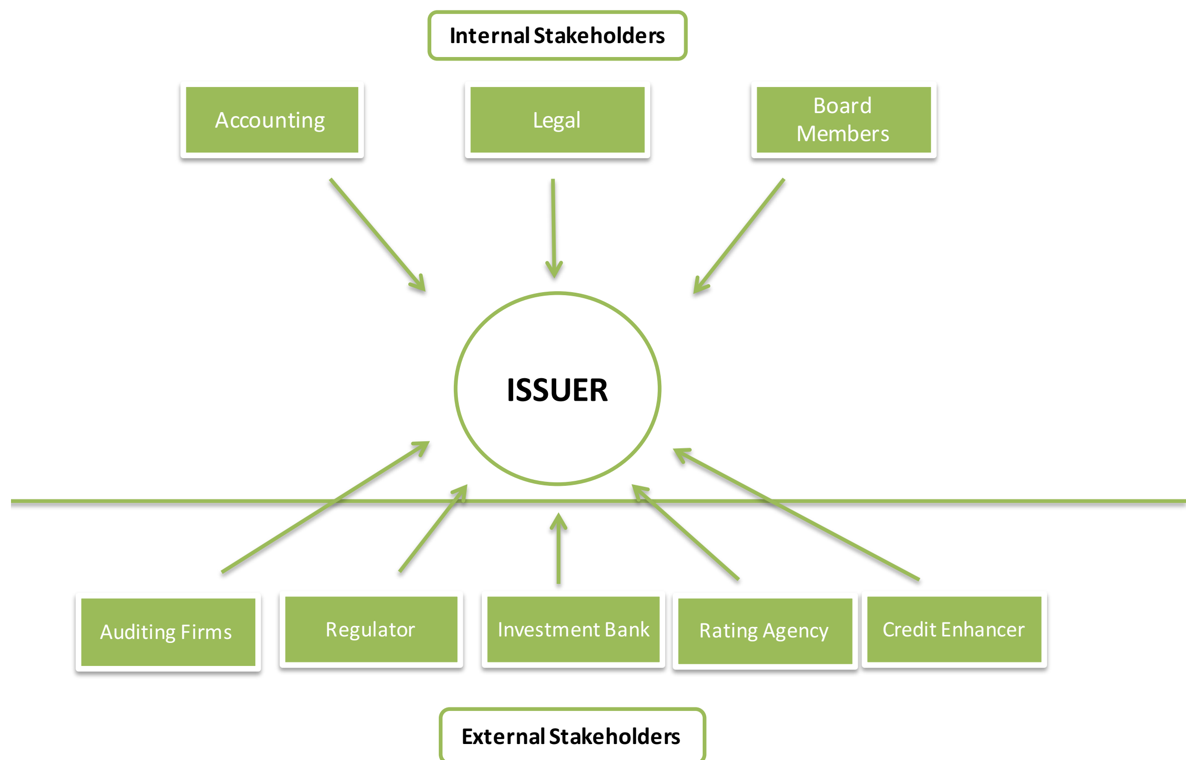
The entity raising some debt in the capital markets in the form of a bond is called the "issuer". Its main concern is to successfully raise sufficient funds from investors at the most economical interest rate possible. It is the entity that will receive the proceeds from the bond issue and will decide on how to allocate these funds to its various uses. In the case of green bonds, the issuer is responsible for choosing which project will be financed from the proceeds of the bonds. Given that a "green" bond is defined by the use of proceeds that the issuer makes, it is crucial that the issuer clearly communicates to the investors the intended use of the funds it raises.

The issuance of a bond is an important event in the life of a private or public sector entity. It is a time, when such entity meets the investment community and discloses a significant amount of information (through the prospectus and during the roadshow) to the investors. It is important that such process be managed successfully to its completion, as the reputation of the issuer among the investment community is at stake.

Investment banks typically earn large fees for successfully bringing an issuer to the market. They will compete among themselves according to their ability to access a large pool of investors and, in so doing, achieve a price that is the lowest for the issuer. It is not uncommon for multiple investment banks to team up together in a bond transaction, in order to achieve the broadest distribution possible for the issued securities.



PROCESS TO ISSUE A BOND



In some jurisdictions, the regulatory bodies supervising the capital markets will have a say on the issuing process. For instance, in China, some borrowers must seek an authorization from their regulator to issue bonds. This allows the authorities to control the emission of debt by corporations. "Green" bonds are likely to be received favorably by such regulators. In China, "green" bonds are actually subject to a fast-track approval procedure and can also achieve relatively lower financing costs.

Any type of entity may be able to issue bonds. Similarly, any type of firm or agency can issue "green" bonds. What matters is the identification of specific low-carbon, climate-resilient projects that will be financed with the proceeds of the bond issue. Firms from various industry sectors can issue bonds or "green" bonds. Even fossil fuel companies can be issuers of "green" bonds, if they specify a project that meets the criteria for green investing (if they develop some alternative fuel energy source, for example), as such instruments depend on their use of proceeds, not on the type of the issuer. Such companies are typically well-established players in the debt capital markets and offer scale. They can choose some specific green business units to issue project-specific bonds. Furthermore, green bonds can be issued not only to finance new projects, but also to refinance existing ones.

Credit Enhancer

If an issuer is lacking a domestic, or even an international credit rating, it is possible to use some credit enhancement techniques. For example, Zhejian Geely, a Chinese issuer with a low credit rating, received a standby letter of credit from the Bank of China London Branch for its May 2016 green bond, which received an enhanced rating of A1/A/A. Without such credit support, the issuer would probably not have been able to issue. Such support can come from government entities, quasi-government authorities, national or supranational banks (Asian Development Bank, etc.).

The market for credit enhancement has become more stringent, followed several successive financial, economic and geopolitical crises. Political risk insurance, trade credit insurance and financial guarantees have become dearer, but also the underwriting of such products has been much more conservative. However, it remains a critical tool to support the development of green finance in the target countries.

There are several multilateral development banks; including the Asian Development Bank (ADB), the International Finance Corporation (IFC), the Inter-American Development Bank (IADB), the African Development Bank, and the European Bank for Reconstruction and Development (EBRD). Each has its own regional mandate and can be called upon to play a role in green bond issuance.

Public rating of supranational banks and National Development Banks

	Standard & Poor's	Moody's
Asian Development Bank	AAA	Aaa
International Finance Corporation	AAA	Aaa
International Asian Development Bank	AAA	Aaa
European Bank for Reconstruction and Development	AAA	Aaa

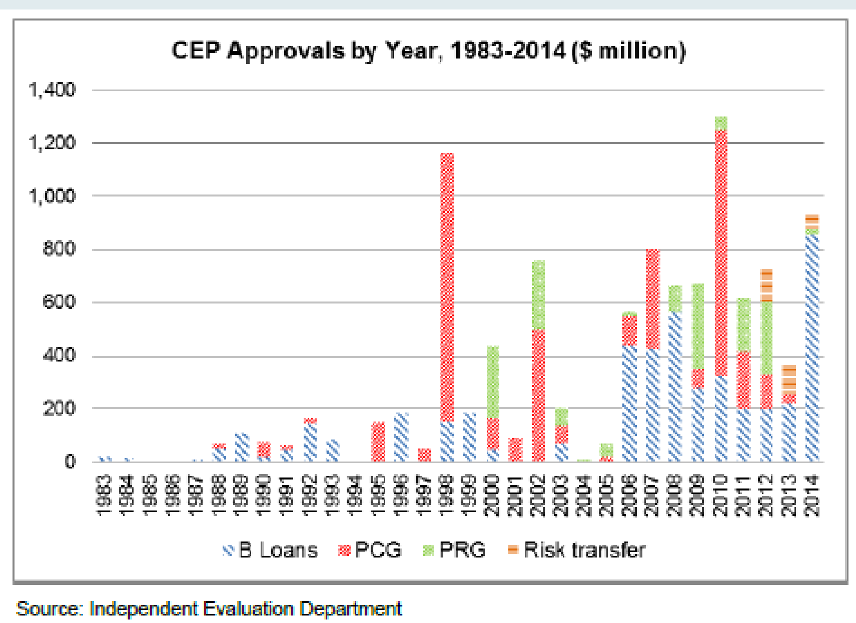
Box 5 – Example of the Asian Development Bank

ADB is a prime example of a supranational institution that can assist issuers from LDCs and SIDSs to raise funds through green bonds, thanks to its regional focus, its AAA credit rating and its willingness to support transactions with high perceived political or commercial risk.

Its credit enhancement products are highly valued by the market. Its charter also protects it against expropriation, currency inconvertibility, non-transfer, while its relationship with governments gives incentives not to act against trade and investment policies.[33]

In its Midterm Review of Strategy 2000, ADB's agenda has set the goal of extending the scope of its partnership with private sector institutions, leading to increased co-financing initiatives. The funds available for co-financing initiatives each year are due to expand by 35 per cent from their current level to as much as $20 billion. The Office for Co-financing Operations is said to be working on a risk transfer mechanism for sovereign projects that will increase the lending capacity of the ADB.

The growth of ADB's Credit Enhancement Products[34]



Source: Independent Evaluation Department

There are several techniques for providing a credit enhancement.

Complementary Financing Scheme: a form of loan syndication, the supranational entity acts as lender-of-record, but it is one or more banks that provide the financing. It is often referred as "B-Loans". Through syndication, multilateral development banks routinely transfer their loans or guarantees to international commercial banks and insurers, providing a channel for private sector funds to finance developing markets with weak capital markets and poor regulatory regimes. These loans do not provide lenders with a recourse to ADB for their servicing, but they do receive the same treatment as ADB's direct loans (or "A Loans"), with regard to currency conversion risk, the restrictions of interest payments and repatriation of principal, the exemption of withholding taxes, a lower risk of maturity extension in the event of a debt crisis, and the exemption from country provisioning requirements. The treatment of such loans under Basel III is an important consideration.

Box 5 – continued

Political Risk Guarantee: it covers debt servicing against specific risks related to the actions of a government, such as currency inconvertibility, non-transferability, expropriation, breach of contract, and sometimes, political violence.

Partial Credit Guarantee: it provides a comprehensive risk coverage for a specified portion of a debt obligation, typically in a trade finance transaction.
Guarantor-of-Record: the multinational development bank acts as the guarantor for the whole loan or guarantee, but transfers the exposure to one or more insurance companies at a price premium decided by each underwriter.

ADB's Credit Enhancement Products Approvals, 1983-2014

	Syndications				Guarantees			
Item	B-loans	Risk Transfer	Guarantee Cofinancing	Subtotal	PCG	PRG	Subtotal	TOTAL
Number of Transactions	68	3	2	**73**	30	16	**46**	**119**
SO anchored	13	0	0	**13**	15	4	**19**	**32**
NSO anchored*	55	7	2	**64**	15	12	**27**	**91**
-with counter-guarantee					0	2	**2**	**2**
-without counter-guarantee					15	10	**25**	**25**
Approved Amounts ($ million)	4,636	239	103	**5,034**	3,980	1,647	**5,627**	**10,662**
SO anchored	316	0	0	**316**	2,460	725	**3,185**	**3,501**
NSO anchored*	4,320	295	103	**4,718**	1,521	922	**2,443**	**7,161**
-with counter-guarantee					0	122	**122**	**122**
-without counter-guarantee					1,521	800	**2,321**	**2,321**

NSO = nonsovereign operations; PCG = partial credit guarantee; PRG = political risk guarantee; SO = sovereign operations.
Note: blank = not applicable; * includes 2 NSO-public
Source: Independent Evaluation Department.

	1987–1995	1996–1999	2000–2006	2007–2014	TOTAL period
Average Annual Approval Amount	**31.5**	**266.3**	**225.7**	**341.2**	**201.0**
Status as of 31 Dec. 2014					
Outstanding	15.8	0.0	93.6	83.5	52.3
partially cancelled	*0.0*	*0.0*	*1.3*	*17.9*	*5.4*
Expired/Matured	12.3	266.3	76.5	12.5	64.7
partially cancelled	*0.0*	*200.0*	*32.0*	*0.0*	*36.6*
Non-effective	0.0	0.0	0.0	22.9	6.5
Cancelled in full	0.0	0.0	55.7	222.4	77.5
Total net of cancellations*	**31.5**	**66.3**	**136.8**	**101.0**	**81.5**

Note: * Includes both, full and partial cancellations.
Source: Independent Evaluation Department

On the positive side, most guarantees are geared towards infrastructure financing, such as power generation, which ranks high in the development goals of smaller countries. One issue for LDCs, however, is that ADB's guarantees have traditionally been mostly issued for projects in larger countries, such as India, Pakistan, the Philippines and Thailand (which, together, represented more than half of lending commitments). Countries such as Azerbaijan, Uzbekistan and Vietnam had high cancellation levels. Less-developed countries accounted for very low levels of approved guarantee amounts.

Box 6 – Example of the International Finance Corporation

IFC is often involved in domestic and cross-border securitization.[35] It can provide a guarantee on specific transactions, at the mezzanine or senior level of risk, and it can be made in local or international currency. It can also be the guarantor to the investment vehicle, as well as the provider of a liquidity line to ramp up a portfolio of assets, as well as be involved in currency and interest rate swaps. Its participation provides an easy access to the financial markets, it can help reach out to a broader investment base, lower the cost of funding and support the risk transfer.

IFC typically uses a "Risk Sharing Facility" (RSF) to support a transaction involving a loss-sharing agreement, whereby it will reimburse the originator, typically a band or a corporation, in the case of a loss of principal on a portfolio of eligible assets (mortgages, consumer or student debt, energy efficiency loans, SME loans, receivables). This form of credit enhancement can be completed with a loan, if funding is also required. This type of agreement is usually required, when credit is restricted in undeveloped markets due to the lack of loss history or in volatile markets. It also allows banks or investors to invest in countries, sectors or issuers, for which they are constrained by internal credit limits or economic capital policies. Thanks to its AAA rating, IFC commands a low capital requirement from the lender's perspective.

Box 7 – Example of GuarantCo

GuarantCo, backed by the governments of Australia, the UK, Sweden, Switzerland and the Netherlands through the Private Infrastructure Development Group and FMO, covers the senior and subordinated debt (no equity) of any single transaction between $5 million and $50 million, up to a maximum of 50 per cent of the total debt of a project, with a maximum tenor of 15 years.

The guarantee can take the form of a partial credit and partial risk guarantee, a first loss guarantee, a tenor extension or a liquidity guarantee. It can also provide a joint guarantee or counter guarantees. The Least Developed Countries are all eligible to be covered by GuarantCo. Of the target countries, the countries that the GuarantCo do not cover are: Fiji, Maldives, or Tonga. By sector, GuarantCo can support projects in the following sectors: agricultural infrastructure, agriculture, energy, gas, telecoms, inputs to infrastructure, manufacturing, oil, power, transport, urban infrastructure, water and waste services.

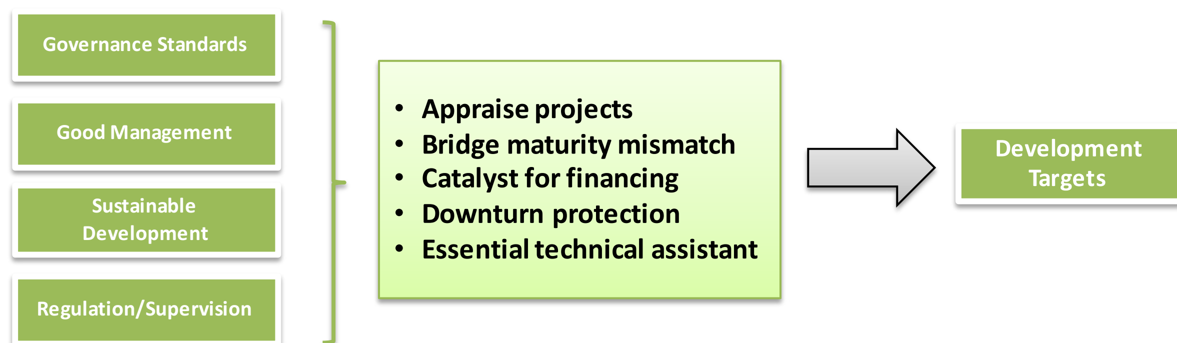
Policy Action: it is very important to make available information about all forms of credit enhancement to decision makers of the target countries, so that they are fully aware of the possibility of raising their credit profile. It would be highly beneficial, for instance, to create a web-based information portal for all stakeholders to find information about credit enhancement in a single location, including easy-to-use application tools, so that it is easy for them to apply for such credit enhancement.

Knowledge-sharing is another avenue for the promotion of credit enhancement tools for decision makers of the target countries. A regular training session about credit enhancement tools should be organized, for example as part of a broader agenda about green finance, so that all stakeholders of the target countries become aware of their existence, how they work and how they can be applied in the context of green bonds.

An action must be organized to review with ADB and IFC the ways to make their credit enhancement mechanisms more inclusive, in particular for the purpose of lowering the high cancellation level. Such action could take the form of mandating an expert to represent the target countries in order to negotiate with ADB and IFC how to find appropriate ways to make their tools more accessible to the target countries.

Timeframe: SHORT TERM
Stakeholders: ADB, IFC, National Development Banks, UNESCAP

National Development Banks
Typically defined as a "financial institution primarily concerned with offering long-term capital finance to projects generating positive externalities", national development banks have different shapes and owners, depending on the country. They typically serve several development objectives, including economic development, social objectives and regional integration. They practically ensure 1/ the evaluation of development projects with an economic and social impact, 2/ the issuance of long-term loans to complement private investors with a shorter term horizon, 3/ the provision of technical assistance in key sectors with a strong growth impact, 4/ the sourcing of global investors for large projects, and 5/ the role as a buffer during economic cycles, serving as a lender in economic busts.



Some national development banks also offer guarantees to foreign investors, in the form of foreign exchange guarantee mechanisms, extended maturities or cost reduction (partial credit guarantee, political risk guarantee, co-guarantee alongside private guaranty providers).

National Development Banks are essential partners in the fight against the effects of climate change, given their focus on long term funding and infrastructure financing. They are present, in each country, on the ground, where the projects are being initiated, and can act as a critical channel for the development of green finance. Their primary role is to promote the development of the domestic financial sector, by offering long-term loans and alternative financial products. Green bonds are clearly within their mandate. Their additional mandate includes the improvement of business conditions through the sourcing of private sources of capital in the domestic economy, in order to reduce the economic volatility in the country, in particular by direct support for SME.

NDBs can also be instrumental in pushing changes in the domestic capital markets, if any, in order to promote the development of standards that are supportive of the expansion of green finance among local players. One limitation in that regard may be the uneven governance standards of the NDBs themselves in the target countries. But as reforms are implemented in the target markets and the governance standards are reinforced, NDBs can promote such improved standards locally, thus paving the way for an easier access to green finance. NDBs must also develop and enhance their cooperation with regional and multilateral institutions to increase their ability to retain technical expertise and build on the accumulated knowledge.

NDBs are also the ideal conduit for pooling resources, both regionally and locally. The typical practice, called "bond banks", consist in pooling underlying loans into a size that makes it more marketable, thus reducing risks and offering economies of scale.

Finally, NDB are instrumental in reaching out to local actors "on the ground", in particular SMEs and rural projects. These economic actors are a very important driver of economic development, in particular in low income countries. It is through their involvement that green finance will be able to achieve an inclusive development and ensure a sustainable future. Sometimes, they will be able to flag cases, where the state intervention is necessary, while highlighting, in other cases, grass root level initiatives that require some broader recognition.

Policy action: in order to promote green bonds, it is critical to find local partners. National development banks play a critical role in channeling finance for climate action, especially on adaptation, to target investments in the countries of the region.

More awareness needs to be promoted within NDBs at the ground level, for example through the nomination in each NDB of a "Green Bond Ambassador". Such individual, who should be chosen at a level of seniority high enough to carry weight within the institution, would become the 'go-to' person for the promotion of green bonds, both from a top/down and a bottom/up perspective. He or she would be positioned in a role that allows a direct link with regional and multilateral organizations, so as to promote the integration and cooperation across various countries, as well as be able to call upon technical expertise within these organizations, when needed.

These ambassadors would be also in charge of pooling local needs, so as to reach a bond size that makes the overall need more marketable in the offshore markets. In doing so, they will be instrumental in combining enough green projects, so that a green bond can be issued by the NDB of the country itself, or by combining multiple NDBs through a regional MNB.

It is important that a clear strategy be communicated from top management down to the grass root level, in order to promote green bonds to all the SMEs and development actors, with whom the NDB is working on the ground. Equally important is the feedback mechanism, so that green projects initiated at the bottom of the pyramid can be promoted upwards to reach senior managers, who can then evaluate the pertinence of using green bonds to support their development.

Timeframe: MEDIUM TERM
Stakeholders: National Development Banks

The investor/lender

Buyers of bonds, and "green" bonds in particular, are typically institutional private or public investors. They include fixed income bond funds, pension funds, insurance companies, hedge funds, treasury operations of corporations, even Central Banks in some cases… These investors are looking to earn a fixed interest on a given notional for a specific amount of time. Their main risk is to lose their principal, should the issuer of the bonds default on its obligation to repay interest or principal in a timely fashion. They are guided in their choice by the public rating agencies, which issue "credit ratings", indicating the level of risk that the investor/lender is taking by lending funds to the bond issuer. This credit rating is periodically reviewed, using the updated financial results of the issuer as a guide for its creditworthiness.

While a bond typically pays a coupon each year to the investor, calculated on the size of the bond (the principal or notional), the fact that the investor may not always buy the bond at its face value (at "par") means that the investor must calculate the overall "yield" that it earns on its investment. This yield fluctuates in the market, according to various different parameters, some of which are independent from the issuer itself, during the life of the instrument. The investor can compare this yield to the yield that it would otherwise receive from an equivalent security issued by a "risk-free" issuer (typically, the government of the country, whose currency the bond is denominated in) and derive an excess premium, typically called the "spread".

The spread is the true measure of the credit risk taken on by the investor, as it measures the excess remuneration that the investor receives for carrying the risk that the issuer may not repay the borrowed amount at maturity and/or interest. The spread of various instruments can be compared to evaluate the different credit qualities of various issuers in the bond markets. An improvement in the credit quality of an issuer would typically result in the reduction in the spread that the investor earns for holding the bond. A deterioration in the credit quality of the issuer will cause the spread to increase (or "widen"), a direct consequence of a drop in the price of the bond in the market.

While the appetite for green bonds is real, as can be seen from the response given by investors to such issues, the crucial question is whether the price of a "green" bond materially differs from a standard bond. If investors are willing to earn less for a "green" bond, either because they need to buy it to comply with their investment policies, or because they perceive their investment as representing a more secure investment, then we would expect that a similar bond, but without the specific purpose of a low-carbon, climate-resilient project assigned to it, would carry a higher spread (a higher yield) than the "green" bond. This is something hard to predict, given that there is rarely an exact same bond that can be compare to, but it is possible to compare the spread of various bonds and get a sense of their relative value.

Various parameters can indeed affect the level of spreads that a bond pays an investor, in return for holding it in her portfolio. Among the parameters that are directly linked to the issuer, we note: the country of risk, the currency of denomination, the industry sector, the size of the issue, the maturity, the financial ratios of the consolidated business, the history of the firm as a borrower in the markets, etc. Some other parameters are not linked directly to the issuer. They include: the state of the economy, the relative value between capital markets in various geographical locations or different currencies, the business cycle, the pricing of the broader markets (stocks or bonds), the perceived attractiveness of the issuer within the investable universe, etc.

According to ADB, the perception of risks is more important than the income levels for private funds to finance infrastructure development, given "the long term vulnerability of infrastructure projects to major political and commercial risks". Lenders and investors are concerned with the risk of the project, currency conversion, transferability risk, expropriation, political risk, loan provisioning for specific developing countries, long-term lending versus the short-term nature of banks' deposit base, etc.

In addition to earning a fixed interest over a fixed term, the investors in green bonds are also looking to follow some of their guidelines for social investment.

Pricing may affect the appetite of investors for green bonds. They generally offer yields that are in line with other bonds with a comparable rating. Yet, the CBI reports that, while the yield of quasi-government green bonds is mostly in line with equivalent vanilla bonds, some EUR-denominated corporate bonds command a premium in the secondary market and their spread in primary markets tends to be tighter than other bonds. This means that investors get a lower return and issuers achieve a more attractive cost of debt. This could be explained by supply and demand.[36]

Yet, there are some questions about the relevance of Green Bond Principles for investors, who often buy

the bonds with little consideration for their proclaimed climate impact. According to Zhang Qing, Deputy Director of the bonds department of China Securities Regulatory Commission, "Many investors purchase green bonds while focusing on the general credibility of the bond issuers, while overlooking the environmental impact of the investment."[37] According to Sean Kidney of CBI, only 20 per cent of bonds issued in China and labelled as "Green Bonds" would meet the criteria set by the stricter international principles.[38] This is changing: ICBC, the largest bank in China, has just issued a dual-currency green bond in Luxembourg, which used the international Green Bond standards as a basis for its bond categorization. This is a welcome development and bodes well for the further growth of the market.

More recently, we have seen the emergence of dedicated funds that offer investors to access a diversified exposure to green bonds. Brown Advisory,[39] which manages $3.5 billion of assets under ESG and sustainable guidelines, is a participant in the green bond market. It has recently launched a Sustainable Bond Fund.

Finally, we must also mention the importance of a specific class of investors: family offices. The UBS Global Family Office 2016 survey has found[40] that 2/3rd of Asian families were looking to invest in socially and environmentally-friendly investments. 43 per cent of family offices in Singapore are said to already be investing that way. These investors are particularly attractive for the target countries. They invest with a long-term view and can support short-term volatility better than other market-driven participants. They are sensitive to responsible investing because of its social and environmental purpose, not just for a higher return. Asia is a big component of global wealth, so an Asian initiative would be particularly well received in this population.

Policy Action: it is very important to promote green bonds from the target countries with the various types of investors likely to invest in them. Some specific marketing actions must be taken to publicize the work done with the target countries on green bonds. This may include the participation of the target countries in various financial forums, not only about green finance, but also more globally about ESG investing. Particular attention should be made with regard to private banks and family offices, as they can be a significant portion of investors looking at green bonds from the target countries.

In order to reassure investors that the green bonds from target countries are a sound investment proposal, more research work would be needed on the investment performance of green investment in Asia Pacific, so as to promote the fact that these investments are at least on par with other forms of investment, from the point of view of their risk and return profile. Such a study could be published in various financial publications, including publications from the CFA Institute, Risk Magazine, the Asian Banker, etc.

In today's world of social media, it is also very important to communicate on various types of channels and advertise broadly the green bonds issued by issuers of the target countries. By raising the awareness of such issuance, more investors will become aware of their existence and start looking at them as a credible investment option. A regional organization like UNESCAP can assign some social media specialist to raise the awareness of Green Bonds from the target countries.

Timeframe: MEDIUM TERM
Stakeholders: UNESCAP, National Development Banks

The investment bank

An investment bank serves multiple purposes for its corporate clients. Bond underwriting and issuance is one of the various avenues available for firms to raise funds from the capital markets, alongside stock offering, among others. As the intermediary between issuers and investors, the investment bank is the go-to person for any bond issuer. It advises issuers on what types of security are in demand, how it should structure a new bond issue and what target price it can achieve in the prevailing market. Investment banks compete on the quality of their distribution, their league table ranking, the sophistication of their structuring teams, their innovation capabilities, their execution platforms and, most of all, their relationships with investors.

An investment bank will earn a profit in two ways from a bond issue. First, it earns a fee from the issuer, which depends on whether the deal is fully underwritten by the investment bank (it will purchase the whole bond issue from the issuer at closing and bear the risk of selling it on in the market) or done on a "best efforts" basis.

Investment banks are very important stakeholders in the process of promoting "green" bonds in the capital markets. They act as the primary advisor to their corporate clients. They also advise on the type of concessions that should be given by the issuer to the investors in order to make the bond issue successful. They are in contact with a large community of investors (of different types as well) and can therefore relay a significant amount of information to the issuer, including the important issue of price.

The brokers

After a bond has been issued and purchased by investors, it starts a life of its own, as it is sold and purchased by various types of investors in the secondary markets. The key intermediaries in that process are the "brokers", often a securities house or an investment bank, who serve as the transaction point for buyers and sellers. It is important for an issuer that its bonds continue to trade in the market, as a higher liquidity will ensure that it receives a good interest from investors the next time it comes to the market to issue some new securities.

Several actions can be done to promote the liquidity of bonds in the secondary markets. This is important to support the development of the market and ensure that further issues receive the interest of a wider range of investors, who may otherwise be cautious, should the bonds offer a limited secondary liquidity. This is particularly important for investment funds that offer periodic (often daily) liquidity to their investors: they need to be able to buy/sell these bonds in the secondary markets to scale up/down their mutual fund, according to subscriptions/redemptions.

Policy Action: investment banks are very sensitive to their competitive position. One easy way to promote green bonds among investment banks would be to publish a ranking by amounts issued, which is typically called a "league table". Such league table can then be used by investment banks to market themselves with would-be bond issuers. The publication of a yearly "league table" of arrangers of green bonds in the target countries, which would require the tracking of green bond issuance in the region, could be a very useful marketing tool for all the issuers of the region.

Another avenue for raising the awareness of green bonds among target countries is the organization of awards. The investment banking industry is very fond of such trophies, which go towards ranking arranging teams and awarding them a trophy. Such an initiative could be promoted, by associating itself with some already established awards. This would take the simple form of sponsoring an event.

Timeframe: MEDIUM TERM
Stakeholders: UNESCAP, National Development Banks

Policy action: the promotion of bonds in the secondary markets can be enhanced using the following:

- **Public ratings of issuers must be maintained and the rating agencies must be engaged, post the issuance, so that there is a continuation of disclosure in the long run**
- **Financial statements of the issuer must be issued on a regular basis and released to the investor base, so that they can continue to do their credit work on an ongoing basis**
- **Bond issues must be listed in financial hubs (Singapore, Hong Kong, Luxembourg, London, etc.) and the issuer must comply with the requirements of the listing exchanges, so as to reassure investors**
- **Brokers must be educated about the outstanding bonds so as to promote the bonds to global investors**
- **Some promotion must be made on an ongoing basis to ensure that the investor base remains aware of the outstanding bonds**

Timeframe: MEDIUM TERM
Stakeholders: National Development Banks, regional market regulators, Central Banks, UNESCAP

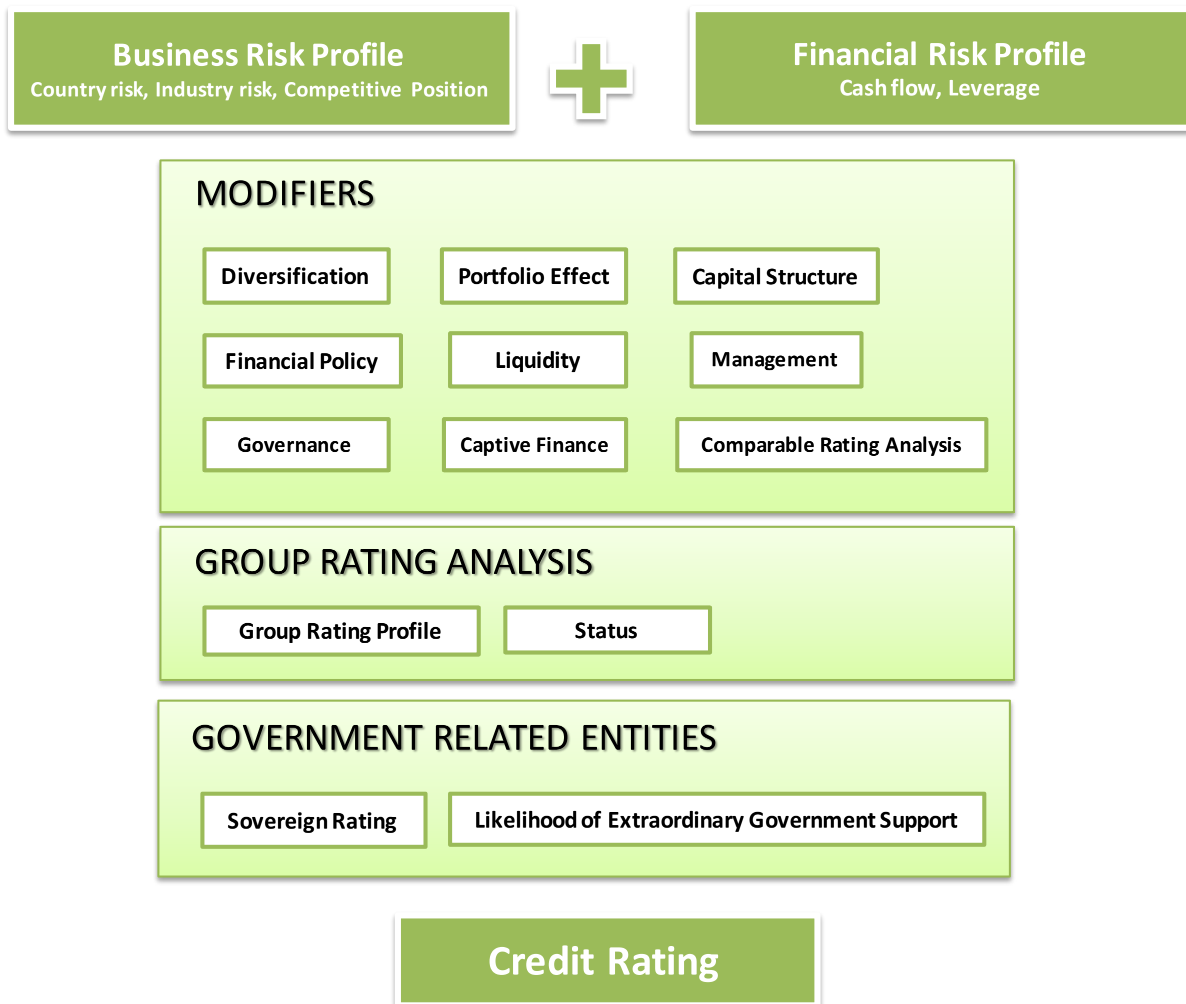
The rating agencies

The issuer pays the rating agencies a (recurrent) fee for the service of releasing a credit rating to the investment community, which will be used by investors to evaluate the risks associated with the credit quality of the issuer. The major rating agencies are Standard & Poor's, Moody's and Fitch. Locally, some domestic rating agencies also exist, but they usually do not carry the same weight with international investors as the three main ones.

The issuance of a credit rating includes a thorough review by the rating agencies of not only the financials of the issuer and its business profile, but also its organization and its corporate governance. It forces issuers to increase their transparency, as well as their disclosure standards. It is a positive force that shapes capital markets, establishing trust and discipline among issuers.

The positive effects of getting corporations to receive a corporate and a bond rating (the agencies typically release different ratings for each) are long-lasting. A bond issuer remains in contact with the rating agencies, which will publish an update if they see a change (for better or for worse) warranting a rating change, during the life of the bond transaction.

The rating agencies act according to well-defined, industry-specific guidelines and will take into account all the characteristics of the bond issue, when evaluating their public rating. When they issue a rating, they would also publish a comment stating the drivers of their decisions, as well as the parameters that could influence a change in their rating in the future. Their methodology typically includes some very specific criteria for the assignment of proceeds to specific projects, as is the case with "green" bonds. Unless a specific project is used as a security, we would not, however, expect that a "green" bond would necessarily receive a better rating than an otherwise identical bond, except for the use of proceeds. This is because the credit risk for the investor remains the same, whether the funds are allocated to one specific project or another (the issuing entity remains the borrower on record).



In low income countries, there are a number of potential bond issuers that could seek a credit rating by the international rating agencies.

Box 8 – The case of Fiji

The government has issued one sovereign bond in USD: the $200 million 6.625 per cent issue due 2020. It is rated Ba3 by Moody's and B+ by Standard & Poor's. Separately from the government, several companies are interesting to look at.

Fiji Electrical Authority (FEA): state-owned, FEA is generating power from hydro (53 per cent) and industrial diesel oil and heavy fuel oil (45 per cent), with only a very tiny portion (0.4 per cent) coming from wind. This is an ideal target for a possible green bond, which it may be able to issue on its own. It is directly impacted by climate change and natural disasters, like Cyclone Winston, a category 5 storm which hit the country in February 2016, as well as flash floods that hit twice in January and December of 2016. The projects that FEA is considering are various, but include a lot of infrastructure investments. Among these are several projects that can be treated as "green" projects.

Box 8 – continued

In its 2017 capex plan ($338 million over the next three years) disclosed in its Annual Report, it states: "FEA will be funding most of its 2017 capex from internal cash and borrowings from external financial institutions will only be considered for larger projects with long term benefits." ANZ and FNPF are already lenders to FEA with $319.5 million of debt as of 31st December 2016.

FEA Capital Structure

				FY 2016	Interest
86.7%	Senior secured team loans	ANZ	$	212,455	2.70 – 3.50%
		FNPF	$	64,654	3.25 – 3.85%
		Total	$	277,109	
1.6%	Unsecured team loan	Suva city council	$	5,100	3% over 86 years
11.7%	Domestic bonds		$	37,250	6.8% -> 7.2% p.a.
100.0%	Total interest bearing borrowing		$	319,459	

As a typical potential issuer of green bonds from one of our target countries, FEA's capital structure is heavily skewed towards senior secured term loans. The interest rate charge is low, thanks to the guarantee provided by the Government to the lenders. By comparison, domestic bonds carry a much higher rate of interest. But this is not necessarily negative for the ability of FEA to issue green bonds. By assigning a specific green project to a new bond issue, it would be able to considerably lower the interest rate charge on its bonds, possibly refinancing the 12 per cent of bonds that it has issued locally. With a low gearing (22 per cent in FY16, against a maximum industry benchmark of 45 per cent). The capex spent by FEA ($63 million in FY16) was financed by internal cash flows. This is a constraint for any company: with more funds available, more capex could be spent to improve the infrastructure of electricity generation and distribution, raise the share of clean energy and improve the sustainable development of Fiji.

Some barriers can easily be overcome. On disclosure, FEA already publishes audited annual financial statements according to International Financial Reporting Standards (IFRS). The numbers have been audited by the Auditor General. For the purpose of reaching out to international investors, FEA may need to mandate one of the large auditing firms (such as KPMG or EY) to sign off on its accounts. In so doing, it may need to allocate some management time to go through the auditing process.

A credit rating by one of the international rating agencies is currently not available for FEA. This would require some spending and management time, but it could be done relatively easily. Rating agencies have a methodology in place for rating such issuers.

Applying for the sign-off of a reputable international accounting firm and obtaining a public credit rating from a major rating agencies are necessary first steps for a firm like FEA to issue green bonds.

Some additional time may be needed to train top management in that process, but some institutions, like UNESCAP, may be able to help in that process.

There are some significant fees associated with the issuance of a bond. In the case of FEA, the economics may not be there. At a notional amount of $37 million, the domestic bond is too small to be financed in the international markets. Very few institutions are likely to be interested in spending the time and efforts in structuring a bond for that amount. Locally, the knowledge may lack to carry out such bond issuance in the international markets. The size of the ANZ loan, however, bodes well for a potential increase in the size of a bond transaction that would serve towards the repayment of the loan. Some consideration should be given to the pricing that a bond could achieve, relative to the interest charge currently applied by ANZ.

Box 8 – continued

Carpenter Fiji Group: privately-owned, "trusted household name in the Fiji Islands with over 148 years' experience in commerce and trading in the Pacific Islands. It is fully owned by MBf Carpenters Limited, a company incorporated in Australia, which fully owns the Carpenters PNG Group, owner of extensive agricultural holdings and other commercial businesses. The ultimate parent is MBf Holdings Berhad in Malaysia, a multinational corporation present in eight countries and nine industries (agribusiness, automotive, printing, education, banking, healthcare, property development, retail, logistics).

As a private group, this type of issuers presents several challenges for the issuance of a green bond. It does not publish annual financial numbers, it is not publicly audited and it does not have a credit rating. It is a long way from issuing a bond. We do not have enough information to evaluate the capital structure and opine on whether or not a green bond would make sense.

For such a company, the initial challenges could be overcome in various ways:

- The company could work towards a credit rating by starting to issue financial statements following IFRS standards (even if it does not make these financial statements public initially)
- The appointment of international auditors to review the financial statements would establish the credibility of the issuer
- A credit enhancement mechanism could be brought to make the company's project "investment material" for international investors.
- A specific project sponsored by the company, if "green", could be ring-fenced and become the target of dedicated funding through a green bond.

Foster's Group Pacific: owned by multinational group SABMiller, a UK-based holdings company with operations worldwide, including some in India (brewing), Africa and Australia (brewing). SABMiller is rated A3 by Moody's and A- by S&P.

The challenges of Foster's Group's Fiji operations, with respect to the issuance of a green bond, are several:

- The domestic operations are funded through a centralized Treasury function at the group level
- There is no publication of financial results at the local level
- There is no credit rating at the Foster's Group level, even if there is one at the holdings level (SABMiller)

This type of company is typical of the domestic operations of multinational groups, and there are thousands of them across the region. They are very important drivers of development at the local level: they bring expertise, funding and technology to the local context. They can be a strong stakeholder on the road to the establishment of green finance locally, leveraging their global status as a listed multinational with strong credit fundamentals, a global reputation with institutional investors and a solid financial standing.

Flour Mills of Fiji Limited: 45-year old, publicly-listed flour producer, now involved in milling of rice and peas, biscuit, snack, instant noodles and cardboard carton manufacturing. Three companies within the group publish annual reports: FMF Foods Limited, AtPack and Rice Company of Fiji Limited.

FMF Foods Limited is a limited liability company incorporated in Fiji and audited by PriceWaterhouseCoopers in Suva. Its board of directors include two independent directors. Its bankers are ANZ Group Limited. It reports its financial numbers according to IFRS.

Box 8 – continued

FMF Foods Limited – Capital Structure

		FY 2017	
Senior debt: bank overdrafts (ANZ)	$	15,000	
	$	6,750	
(Bank of Bauda)	$	21,750	40.7%
Senior borrowings	$	17,417	32.6%
Operating leases	$	14,289	26.7%
	$	53,456	100.0%

The interest cost on FMF's overdraft and borrowings is about 2.1 per cent in FY2016. This is rather low and may be a constraint in the ability of FMF to consider a green bond in international markets. Yet, its capital structure is heavily skewed towards bank overdrafts, secured borrowings and operating leases, with no bonds outstanding. It could increase its capital structure by considering issuing green bonds.

The Rice Company of Fiji Limited is also audited by an international auditor: BDO in Suva. It also reports its financial numbers according to IFRS. It does not have any debt outstanding.

The Atlantic & Pacific Packaging Company Limited is also audited by PricewaterhouseCoopers in Suva. It follows the Corporate Governance Code for the Capital Market established by the Reserve Bank of Fiji. It only has got bank overdrafts in the way of liabilities.

Publicly-listed RB Patel Group is one of the largest retail group in Fiji with 10 supermarkets in the country, as well as a diversified portfolio of commercial properties and wholesaling activities. Its annual financial numbers, established according to IFRS, are audited by BDO in Suva. Its capital structure is again fairly simple, skewed towards secured lending by one single banking (foreign) institution.

RB Patel Group

		FY 2017	
Senior debt: bank overdrafts	$	6,704,650	34.4%
Senior secured debt (ANZ Banking Group)	$	9,015,415	50.0%
(Fiji Television Limited)	$	750,000	
Unsecured senior debt Fijian Holdings Unit Trust	$	3,040,000	15.6%
	$	19,510,065	100.0%

Through the above examples, it is clear what green bonds can contribute towards the development of financing channels for public and private companies. From a current state of a high dependence on overdraft and secured lending, these companies need to further develop their capital structure towards bonds, in order to expand their borrowing capacity, optimize their cost of capital, reduce the amount of assets that they pledge to lenders and give the more financial flexibility. This is necessary to enhance the development of these countries and will help promote a faster development.

The positive element is that these companies have already climbed several steps towards the accession to global fixed income markets. Some of them are publicly-listed on the South Pacific Exchange and publish financial statements that are in line with what international investors expect. These numbers are audited by reputable accounting firms and their corporate governance is improving (with the appointment of independent directors), thanks to the reforms put in place by the Reserve Bank of Fiji. Some relatively small steps can help progress towards the issuance of green bonds. These include a strengthening of accounting disclosure (from annual to quarterly publication), the increase in knowledge sharing for executives to start considering bonds as part of their financial toolkit, as well as the hiring of international rating agencies to obtain a public credit rating.

Policy action: through the example of Fiji, it is quite apparent that green bonds can be promoted through various actions:

a. **The strengthening of financial disclosure through the promotion of IFRS as the basis for accounting disclosure**
b. **The hiring of international auditing firm for the signing off on financial statements to establish trust and confidence among investors**
c. **The hiring of international rating agencies to assign a credit rating on target companies or target projects**
d. **Increased knowledge sharing among the managers of large domestic companies, for example through a "Green Finance for Executives" program**
e. **The promotion of a more robust legal framework for the issuance of smaller sized green bonds through the regional financial hubs**
f. **The creation of a data warehouse on the credit performance of loans and bonds in the target countries, in order to facilitate securitized transactions (which require some date on the correlation of credit performance)**

Timeframe: MEDIUM TERM
Stakeholders: local regulators, regional regulators, Central Banks, National Development Banks

The regulator

The regulator typically has got the oversight over the capital markets of a country in a broader sense. It is responsible for ensuring the orderly function of the market and the adherence to rules and policies in place. The regulator is typically concerned with the levels of disclosure and it is called upon by investors on specific events during the life of the transaction (such as, for example, market manipulation or disruption).

A number of regulators in the Asia Pacific region have launched some reviews on green bonds. India's Security and Exchange Board (SEBI) has released some guidelines in May 2017, China's PBoC did so a year earlier, the ASEAN Capital Markets Forum is developing its own to apply to all its member countries, etc.

The financial press

The issuance of a new bond is a significant event in the life of an issuer. As such, it is likely to be announced through a press release by the issuer and its investment bankers. The financial press will relay that information to the broader investment community. It will seek to reach all investors in a timely fashion. In so doing, it is likely to put a particular spotlight on some unusual characteristics of a bond. A bond that is labelled as "green" is likely to be announced as such and, in the current market environment, this will lead to more comments in the financial press (as it is seen as an interesting field).

Policy Action: regulators in all target countries must be trained to include green finance principles in their regulatory oversight and market infrastructure regulation policies. They act as a major vector for the promotion of market standards, by imposing disclosure and governance principles on market participants. Their technical expertise must be developed. Through regional collaboration, their decision makers can be convinced of successful policies that are implemented in other jurisdictions. Some specific actions must be launched to support such cross-fertilization of ideas and experiences.

Timeframe: SHORT TERM
Stakeholders: local regulators, regional regulators, market associations, Central Banks, National Development Banks

Policy Action: it is very important that any progress on green bonds in the target countries is communicated as widely as possible to the broader financial press, so as to alert financial participants of the new forms of investments that become available. Investors are typically looking at Bloomberg, Thomson Reuters, the Financial Times, the Economist, the New York Times, as well as many other publications. Some more specific publications include the CFA magazine, Risk Magazine, Bloomberg Markets, etc. It would be important to ensure that new bond issues out of the target countries are properly reported to keep the wider investment audience aware of such progress.

More specifically, it is also crucial to build the knowledge of the wider world about the progress made by the target countries in the field of green bonds. When an initiative comes from the region about green bonds, such as a new regulation, a new report, a new credit enhancement tool, a new green initiative on the ground, all this must be reported in a systematic fashion to the financial press, so as to lay the ground for the recognition by the wider investment community that the target countries can be a destination for their investments.

Timeframe: SHORT TERM
Stakeholders: UNESCAP, National Development Banks, Central Banks

Other industry bodies

In order for fund managers to evaluate the performance of their funds, as well as choose a suitable investment universe to invest in, several indices have been created that aggregate together all the bonds issued in the market. Various types of indices exist and different investors may choose different types of bonds, depending on the investment policies that they want to pursue. In the case of "green" bonds, two indices stand out as offering a particular focus on that segment of the market:

- "Barclays MSCI Green Bond Index": this index was created in 2014 with a history starting on 1st January 2014. It is composed of 61 per cent of government-related issuers, 31.3 per cent of corporate issuers and 0.9 per cent of securitized transactions. It is a multi-currency benchmark including local currency debt markets.
- Securities must pay a fixed-rate coupon, and be rated investment grade (Baa3/BBB-/BBB-) using the middle rating of Moody's, S&P and Fitch (the lower rating applies, if only two ratings). If the bond does not have an explicit rating, the issuer rating may be used.
- The minimum size for the inclusion in the index is $300 million, or equivalent in other currencies. Since April 2017, asset-backed securities and commercial mortgage backed securities are also eligible for inclusion. There is no minimum time to maturity (unlike typical bond indices).
- A condition for inclusion is that the market of issue must be the global and regional markets. It is worth noting that loan participation notes and Malaysian government Sukuk securities can be included.
- Contingent capital securities, equity type features, inflation-linked, floating-rate, pass-through, fixed-rate perpetual, tax-exempt municipal and private placement securities are all excluded from the index. It is worth noting that illiquid securities will also be excluded, where reliable pricing is unavailable.
- The eligible environmental categories defined by MSCI ESG Research are: alternative energy, energy efficiency, pollution prevention and control, sustainable water, green building and climate adaptation. MSCI considers that bonds are eligible if at least 90 per cent of the projected use of proceeds falls within eligible use of proceeds categories.
- "ChinaBond China Climate-Aligned Bond Index": this index was established by the China Central Depository & Clearing Co. Ltd. (CCDC), China Energy Conservation and Environmental Protection Consulting Co. Ltd (CECEP) and the Climate Bond Initiative (CBI), to promote green investments in China and is broader than the labelled green bond market. It is composed of 210 bonds with a total outstanding of CNY1.3tn. Transport makes up 91 per cent of issuance.

The International Capital Market Association is another important industry body that acts for the promotion of the bond market and is responsible for designing some policies that will support the development of the market. It also plays a role in the expansion of the "green" bond market (through the Green Bond Principles).

Policy action: the inclusion of bonds in an index ensures that the bonds remain an investable option for global investors. To achieve this, some work needs to be carried out to ensure that issuers from the region adhere to the criteria set by benchmark decision makers, so as to ensure that their bonds are included in the broader indices. Some lobbying can be carried out to make sure that the indices receive the attention they deserve, as they are a primary conduit for making the bonds desirable among the global investing community. Some knowledge sharing actions could be organized to explain to local decision makers the organization of global fixed income markets, so that they understand the impact of their decisions at the local level.

Timeframe: MEDIUM TERM
Stakeholders: regulators, Central Banks, National Development Banks

Non-For-Profit organisations
Several initiatives exist to fight climate change as a philanthropic goal. Among these initiatives, The Lab is a recent initiative launched to source new financing mechanisms to fund green projects. Within this initiative, the India Innovation Lab for Green Finance has launched a new investment vehicle for clean energy in India, which includes Solar Investment Trusts (SEITs), using the mutual fund technology to help small-scale rooftop solar developers in India to lower their cost of financing, and Sustainable Energy Bonds (SEBs) for small-scale lending.

Policy action: the philanthropic initiatives already in place in other parts of the world can be leveraged to find alternative financing vehicles to fund the climate change adaptation and mitigation goals. In particular, The Lab could be engaged to establish an Innovation Lab for Asia Pacific in order to identify local financing vehicles that can be used to fund local projects.

Timeframe: MEDIUM TERM
Stakeholders: private banks, The Lab, ESCAP

Governments
Various public entities can influence the expansion of green bonds in the market. First, various public authorities routinely issue bonds in the market for various purposes. They can become issuers of green bonds and support the market expansion.

Governments can accompany the emergence of green bonds through tax incentives. In China, the People's Bank of China has proposed such incentives in March 2015. In India, the SEBI did the same for bonds whose proceeds go towards renewable-energy projects. Many Central Banks are also instrumental in establishing some rules that force the adoption of green bonds in their country.

Policy Action: promote the development of green bonds among Central Banks in the region, through knowledge-sharing and information gathering.

Timeframe: SHORT TERM
Stakeholders: regulators, Central Banks, UNESCAP

F. Key success factors for the short and medium term

It is imperative that public authorities in each target country become the driving force for the issuance of green bonds in the capital markets. Bonds issued by government and authorities are often the primary investment vehicle for funds and sets the tone for the rest of the market. In India, Yes Bank has put the figure of debt investment needed to meet the government's renewable energy goals at $70 billion. This will require some private funds. China's Central Bank sees a target of $300 billion per year of new issuance, 15 per cent of which only will come from public funds. The balance can be channeled through the bond markets from private issuers.

A recent SWOT analysis conducted on green bonds[41] helps to identify the key success factors for the short and medium term for different stakeholders and allows a number of policy actions to be drawn at each step of the process from concept to market for the diverse set of stakeholders.

Reinforce the positive success factors of green bonds

- Ability to highlight green attributes
  An issuer can communicate externally to its various stakeholders, whenever it issues a bond with a mandate to fight climate change, raising its profile within its network of clients, shareholders, employees, governments, etc., by labelling it as such and marketing it to investors under that categorization. This may be valuable to a number of companies, as responsible management has grown in popularity in the recent past. It can help them attract new investors, although this may come at a cost (a due diligence will be required to ensure that the projects indeed comply with such agenda).

Policy action: It is important to communicate the benefits of adopting green bonds as a financing tool, in particular among the key stakeholders in the target countries.

Timeframe: SHORT TERM
Stakeholders: National Development Banks, local banks, large companies in the target countries, other development agencies

- Flexibility of the instrument
  Several types of green bonds can be issued. It is possible to assign the use of proceeds to a specific or multiple low-carbon, climate-resilient projects, with or without recourse to the borrower, with the repayment dependent on the direct cash flows of the assets with a choice of maturity and contingent repayment options. This flexibility makes it attractive for both issuers and investors to choose the level of risk that both are willing to transact at. Some additional innovation can be introduced as well, such as convertibility features, contingent early repayment options, etc.

  Separately, a small to medium-sized low-carbon, climate-resilient project may find it attractive to issue a Green Bond to finance the project. It allows them to use the cash-flows of that project and get the recourse linked to the asset, not the issuer. Although this may result in a different credit rating for the issued bond, compared to the rating of the issuer, it allows to limit the impact of the borrowing on the balance sheet of the issuer.

Policy action: a short brief would be needed to answer all the technical questions on green bonds, so as to build confidence and knowledge among the key stakeholders.

Timeframe: SHORT TERM
Stakeholders: UNESCAP, National Development Banks, Central Banks

- New Low-cost financing channel
  Green bonds are cheaper than equity and, as they are considered senior in the capital structure of the issuer, they may be less costly than bank loans. For local markets that are not developed and lack the depth that would otherwise offer a cheap cost of capital, green bonds issued in global capital markets may be able to get a funding cost that is below that which is available in local markets, although there may be a currency mismatch in doing that.

Policy action: a regular review of pricing of green bonds, relative to other forms of financing, needs to be distributed widely to key stakeholders to establish confidence about the attractiveness of green bonds.

Timeframe: SHORT TERM
Stakeholders: Regulators, Central Banks, UNESCAP

- Aligned term structure
  Green bonds match relatively well the long-term financing needs of low-carbon, climate-resilient projects, where a bank loan may have too short a maturity to finance a long-term project. Bonds are usually issued to 5 to 30 years, which gives ample room to find an appropriate maturity that matches the return profile of a low-carbon, climate-resilient project. A study[42] has shown that 87 per cent of Green Bond issuances are issued for a maturity of 2 to 10 years.

Policy action: provide some technical knowledge on how to match a long-term financing need with a green bond to the various stakeholders in the target countries.

Timeframe: SHORT TERM
Stakeholders: Regulators, Central Banks, UNESCAP

- Increased efficiency in financial infrastructure
  It can be argued that green bonds achieve a better "transparency in the market, thereby minimizing information asymmetry in the industry", in that they "prevent moral hazards that might occur due to strong policy directives on renewable policy and favorable fiscal incentives, which may induce banks to take on riskier renewable energy projects in their portfolio with an overreliance on public policy support".

  Price discovery is also strengthened by the issuance of green bonds, which are likely to be traded more often than bank loans, thus offering a reference pricing point for the benefit of the financial community. The current state of an overreliance on bank loans for the financing of climate-resilient projects may create some weakness within the financial sector. For the Asia Pacific region, this is also an opportunity to expand the development of the financial markets.

Policy action: build a data warehouse, with the help of specialized data vendor, documenting the price performance of bonds and loans in the target countries, in order to increase the liquidity of these instruments in the capital markets.

Timeframe: SHORT TERM
Stakeholders: Regulators, Central Banks, National Development Banks

Finally, in the Asia Pacific region, there is a large amount of capital that is looking for investment opportunities. Because of the under-development of the domestic, and even regional, financial markets, this excess savings typically find their way to larger, more liquid financial markets, where they tend to earn a relatively low return. By keeping this capital in the Asia Pacific region, it is possible for such capital to find a higher rate of return in the region, or even domestically.

Keep awareness of the market developments in the broader markets

- Lack of robust definition of green bonds
  Whether a green bond is indeed serving the environment can be a subject of debate. Because green bonds are labelled according to their use of proceeds, even entities with a business that harms the environment can issue a green bond. There is a possibility that the wrong projects get funded by a green bond, thus damaging the credentials of this emerging market segment. This is changing, though, with the release of the Green Bond Principles and other initiatives, like the Climate Bond Standards and Certification Scheme issued by the Climate Bonds Initiative, as well as third-party certification, are being found to mitigate this risk. The public rating agencies have also released some criteria for the rating of green bonds.

  The Green Bond Principles are instrumental in offering a point of convergence for the emergence of a global standard in what constitutes a "green" bond. Even China, which had started developing its own guidelines, is now converging towards the global standard. Industrial and Commercial Bank of China, which has issued the first dual-currency green bond internationally in September 2017, has adopted the global standards, setting the stage for a wider adoption of these standards by Chinese issuers. This is indeed good news, as it will foster a common understanding of what constitutes a green bond globally.

Policy action: keep up to date, in the form of a regular publication or a web portal, on the changes in the definition of green bonds at the global level.

Timeframe: SHORT TERM
Stakeholders: Regulators, National Development Banks, UNESCAP

- Uncertainties of a self-regulated market
  The emergence of green bonds has initially been done within a framework of self-regulations. There is a trend to harmonize the market and strengthen it, which is to be encouraged. In the target countries, it is important that the various stakeholders implement the various guidelines released at the global level and keep abreast of the various changes in regulations globally.

- Nascent financial instrument
  Historically, financial markets have always been a place of rich innovation. Confronted with a problem to solve, financial innovators are quick to design a financial solution allowing the management of a financial risk. The same is happening with finance for climate action, and with green bonds in particular. Green

bonds are not yet set in stone, but already, some common standards are emerging. In a very short time frame, it has been possible to establish some global standards. "Green bonds" are only different from normal bonds in their use of proceeds. This is a good thing: it allows the whole fixed income community to adopt them as one of their own. There was no need to invent a new type of security that would have lacked the appeal to the broader investment community.

Policy action: create a network of finance experts across the region, leveraging the expertise already in place in the major financial hubs (Singapore, Hong Kong) and appoint a coordinator for this network, who will act as a knowledge broker to share the expertise among the key stakeholders of the target countries.

Timeframe: SHORT TERM
Stakeholders: Regional regulators, Central Banks, UNESCAP

- High transaction cost
  A bond issue is more costly than a project loan from a commercial bank. It requires some extensive legal work. It must get the rating from a rating agency. The investment banks charge some sizeable fees for it. The marketing of such security to institutional investors takes time and effort. It must be refinanced after a few years (sometimes before its final legal maturity if it is called), incurring again some sizeable costs. A green bond also requires some additional reporting and the certification by a third party (an auditor or a designed certification agency) that will charge some fee for its work. All this combines to make the issuance of a small size bond unviable. As a result, this means that a transaction will typically happen only for a minimum size, which may prove too high for a single project, or even a single country.

Policy action: create a mechanism to subsidize the issuance of green bonds by issuers from the target countries, in particular for credit ratings, legal documentation, marketing costs, roadshows, investor relation work, participation in investment conferences.

Timeframe: SHORT TERM
Stakeholders: Regional regulators, Central Banks, UNESCAP

- Lack of secondary market
  The attractiveness of a bond is that it can be freely bought and sold between investors (in what is called the "secondary" market), after being issued (in what is called the "primary" market). In some cases, there is limited liquidity available in the secondary markets for a green bond to be transacted freely between investors, even though this is the most desirable feature of a bond to begin with (let's say, relative to a commercial loan). This is a challenge. Some participants of the international investment community may decide not to participate in a bond offering, if they sense that the liquidity offered in the secondary markets (after the bond has been issued) is too scarce.

Policy action: promote the transparency of the market through data warehousing, technical knowledge sharing, marketing, etc. It is also important to engage with the key market participants, including the International Capital Market Association (headquartered in Zurich), banks and brokers, pension funds and insurance companies, so as to discuss with them ways to increase the liquidity in the secondary markets.

Timeframe: MEDIUM TERM
Stakeholders: Regional regulators, Central Banks, UNESCAP

Leverage existing structural shifts in the financial markets

- Strong investor interest (real/perceived)
  The interest from international investors in finance for climate action is real and it is rising. Many international players are using finance for climate action as a marketing tool to attract savers to put their capital to a responsible use.

Many private banks are already claiming that a rising share of high net worth individuals is becoming interested in investing their wealth responsibly in sustainable projects. Asset Managers see an opportunity to differentiate themselves, by offering new investment vehicles advocating a sustainable objective. This is good news for finance for climate action. A note of caution must be said here: some of this strong investor interest is more of a perceived interest, as the size of funds advocating a sustainable objective remains much smaller than traditional vehicles. Investors need to be convinced that such vehicles offer returns that are at least comparable, even if they do not completely match the return levels of traditional products, to other investment alternatives.

Policy action: some marketing actions must be organized to advertise to high net worth individuals, private banks and international investors the opportunities to invest in green bonds in Asia Pacific, and in particular in the target countries. This can be done by participating in conferences and forums, where these target investors are participating.

Timeframe: MEDIUM TERM
Stakeholders: Central Banks, l ocal banks, regulators

- Strong momentum for growth
  The growth momentum of finance for climate action is strong. The fact that China is a big participant in this market is a blessing: the growth numbers speak for themselves and a strong momentum has the propensity to attract disproportionately more interest in the future. There is an opportunity to use this momentum to raise awareness about the target countries as a place where green bonds originate.

Policy action: it is important that a regional organization such as UNESCAP engage on a regular basis with its Chinese and Indian counterparts in charge of finance for climate action in both countries and try to establish some partnerships with their initiatives. It is likely that these two countries will continue to attract most of the interest in the region and the target countries will benefit from being part of their efforts.

Timeframe: SHORT TERM
Stakeholders: UNESCAP, National Development Banks, Central Banks

- Presence of favorable governmental policies
  The emergence of finance for climate action on the global stage is supported by a very strong support from governments. Many of them have signed up to the global accords putting climate change at the core of the world's development. Fighting rising temperatures globally is an international problem. There are many political benefits to be gained for politicians and private decision makers in adopting policies that advocate the mitigation of climate change and the adaptation to its effects.

Policy action: target countries must participate in the gatherings of world decision makers on climate change, finance for climate action and capital markets reforms. By attending these events regularly, the target countries will benefit from a cross-fertilization of ideas and their voice will be heard in the concert of nations for the distribution of sustainable investment funds that global investors are looking to deploy globally.

In the target countries, it is important that some reforms be put in place to force local companies to strengthen their corporate governance, their accounting standards (IFRS should be the norm) and their financial disclosure. They should also be supported to obtain a public credit rating from the international rating agencies.

Timeframe: MEDIUM TERM
Stakeholders: Regulators, Central Banks

Build on current trends to further develop the potential for green bonds

- Unidentified investor base
  The investor base for green bond remains relatively undefined, although this is improving rapidly. A growing list of investment funds with a sustainable investment objective is a living proof that the investor base is rising. The challenge here is to see whether finance for climate action remains a separate investment silo within the global investment landscape, or if it becomes a mainstream component of the global investment world.

Policy action: A central directory of green bond investors should be built, so as to send them regular updates on the development of green bonds in the region. Their fund managers should be invited to attend conferences about green finance and a roadshow can be organized, when an issuer from the target countries is in the market for a new transaction.

Timeframe: SHORT TERM
Stakeholders: regional regulators, National Development Banks

- Lack of green bond-related expertise/ infrastructure
  The expertise in green bond remains uneven. The projects earmarked as acceptable for green bonds must be properly evaluated to confirm that they indeed have an effect to lower carbon emissions or provide solutions to mitigate the effects of climate change or adapt to its consequences. The expertise in issuing green bonds is also insufficient, in particular in the LDCs, LLDCs and SIDS of Asia Pacific.
  In its assessment of Fiji's first Green Bond (in local currency), Sustainalytics, the third party assessment firm that conducted the due diligence on the bond, mentioned: "The Republic of Fiji has indicated that its insufficient technical expertise, human resources and financial readiness represent the most material issues interfering with its efforts and commitments to mitigate the effects of normal weather events and adapt to climate-change weather events."

Policy action: There should be continuing efforts to promote the knowledge sharing about green bonds in Asia Pacific. This can be done by organising workshops or information session during gatherings of decision makers in the region.

Timeframe: SHORT TERM
Stakeholders: National Development Banks, regulators, UNESCAP

- Uncertainty in future the outlook
  Currently, the outlook looks promising for finance for climate action and the emergence of green finance as a credible alternative to funding the projects required to fight the effects of climate change. But nothing is set in stone. There are many pitfalls that must be avoided to make sure that finance for climate action remains part of the mainstream investment landscape.
  It is important that all the stakeholders act together to promote green bonds as part of the investment universe in the Asia Pacific region. The following actions can be done to support the growth of that asset class within the target countries.

For issuers:

- Reporting on the performance of underlying assets during the tenor of the bond
  A green bond will require issuers to specify the use of proceeds intended for the funds raised through the green bond that they have issued. This may oblige them to perform some additional (and sometimes costly) assessments of their operations and publish this data to their investors. For example, an issuer in the renewable energy sector was indicated to have to disclose the following indicators during the life of its transaction: name and location for the projects, type of renewable resources used and technology, volume of renewable energy provided, volume of carbon emissions avoided in the process, electricity production measured in equivalent of number of households served, name of the third-party entity having performed the environmental study.

Policy action: A regional organization, like UNESCAP, could promote some guidelines on how to report on the performance of green projects, which the green bonds are financing. By publishing a standard reporting grid for such projects, it will increase the disclosure standards and strengthen the standards of this emerging market.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

– Costs of auditing, second opinion certification, etc.
In the process of issuing a Green Bond, an issuer will need to mandate a third party (as well as an auditor) to verify that the issuance complies with the Green Bond Principles. Although this is not strictly a requirement, investors need to be reassured that the issuer is indeed in compliance. The Monetary Authority of Singapore (MAS) has launched[44] in January 2017 an Asian Bond Grant Scheme to cover issuers' (corporates and non-bank institutions, excluding banks) costs of second-party certification and auditing up to SGD100k, under certain conditions of issuance size (SGD200k), tenor (3 years minimum), rating (either S&P, Moody's or Fitch) and jurisdiction (ASEAN members, China, India, South Korea, Japan, Australia and New Zealand).

Policy action: The initiative taken by the Monetary Authority of Singapore to launch a grant scheme to support issuers of green bonds and help them in the costs associated with this issuance could be replicated.

Timeframe: SHORT TERM
Stakeholders: Regulators, Central Banks, National Development Banks, local banks, UNESCAP

For investors:
– Risk evaluation
For investors that invest in green bonds to satisfy their investment mandate, it is necessary to perform a risk evaluation that is specific to the criteria of a green bond, in addition to credit analysis work that any bond or loan investment typically requires. This due diligence would typically include the verification that the proceeds of the bond/loan issue comply with a low-carbon, climate-resilient framework. This evaluation needs to be performed during the whole life of the transaction.

Policy action: A regional organization like UNESCAP could organize a working group with some of the key market players to design the guidelines for the reporting standards that should be establish in the green bond markets for Asia Pacific. Such an approach could be instrumental in bringing issuers and investors closer together while also strengthening market standards.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

– Return on investment
Given the relatively recent emergence of green bonds as a specific form of investment, investors have little confidence, at this stage, that such bonds do offer some excess return, relative to traditional bonds. The so called "Gremium" remains so far unverified.

Policy action: some studies must be undertaken on the performance of green bonds to validate the case for green bond issuance. It is expected that green bonds will not be materially more expensive than standard bonds, given the high demand from ESG funds globally.

Timeframe: MEDIUM TERM
Stakeholders: Regulators, Central Banks, National Development Banks, local banks, UNESCAP

– Reputation risk
Investors need to demonstrate that their investment choices are consistent with achieving the best risk-adjusted returns for their clients. As such, they need to confirm that a green bond offers at least the same return and risk expectations, as a standard investment. It is not obvious, from historical experience, that firms advocating

a mandate to invest in green projects get a supplemental value.

Policy action: A study must be conducted to assess whether the returns on green bonds in the target countries perform at least as well, or even better, than other standard bonds.

Timeframe: MEDIUM TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

G. Performance and "Green Premium"

Any investment is evaluated according to its expected risk-adjusted return. Green bonds are no different. Some argue that a green bond would offer a better return, either because it is offered as a premium, or because its risk profile is better than a traditional bond. This has not yet been proven by actual facts. The fact that there is a large demand for green bonds from climate-conscious investment vehicles would typically force any premium to narrow towards regular bonds. Meanwhile, the risk profile of the investments, for which the bonds are the funding vehicle of choice, is usually no different than that of the issuer, which bears the ultimate responsibility of the borrowed funds and their value.

Geraint Thomas, Executive Director at MUFG: It is, for instance, difficult to prove tighter pricing in the primary markets for a green bond, compared to an equivalent conventional bond, but we do see stronger performance in the secondary markets.[45] "Crucially, although it hasn't necessarily been proven yet, we believe that these instruments will outperform conventional bonds in times of stress because investment in this space will prove to be stickier. Green portfolios have been established with long term horizons in mind, which suggests they are somewhat more insulated from the typical short-term liquidity and positioning-induced churn that you see on conventional instruments, especially in emerging markets."

We have taken a few examples in the capital markets to evaluate what pricing difference we could see. We do not find any conclusive pricing difference.

Advanced Semiconductor Engineering issued a $300m three-year green bond in July 2014 via a subsidiary, Anstock II Limited, at a rate of 125bps above US Treasuries. Although this bond was received by a large interest, in particular from Asian investors, the yield was similar to that of the company's bonds.[46]

Agricultural Bank of China has issued a $500m bond with a coupon of 2.75 per cent, maturing on 21st May 2020, for general corporate purposes, and another with also a coupon of 2.75 per cent, maturing on 20th October 2020, but this one labelled as a "green" bond and has been evaluated as such by 3rd party provider Deloitte & Touche LLP, according to Bloomberg. On 29th August 2017, the yields on the two bonds are 2.41 per cent and 2.49 per cent, respectively (a difference of 8bps). Their Asset-Swap Spread is 82bps and 86bps, respectively (a difference of 4bps). This yield and spread difference could be due to different liquidity conditions on the bonds, different pricing points, etc… If we look at other bonds of the same issuer, the difference between the two standard bonds $400m 1.875 per cent 05/16/2019 and $500m 2.375 per cent 12/07/19 yield 2.21 per cent and 2.38 per cent (a difference of 17bps), respectively, while their Asset-Swap Spreads are 70bps and 82bps, respectively (a difference of 12bps). This could indicate that the Green Bond offers a lower yield and a smaller spread, although this is assuming that pricing and liquidity are exactly the same for the two bonds.

Bank of China's $500m 2.375 per cent 03/21 for general corporate purposes has a yield of 2.54 per cent and an Asset-Swap spread of 87bps, while $1 billion 2.25 per cent 07/21, a Green Bond, has a yield of 2.60 per cent and an Asset-Swap spread of 90bps. The difference is rather small and could be due to the timing of the pricing point or liquidity conditions.

The India-based **Axis Bank** issued a Green Bond with a coupon of 2.875 per cent and a maturity of 06/01/21 (USD bond). This was certified as a Green Bond/Loan by KPMG LLP, according to Bloomberg. On 29th August 2017, its yield was 2.79 per cent and its Asset-Swap Spread 111bps. If we interpolate between the $750m AXSBIN 3.25 per cent 05/21/2020 (yield: 2.57 per cent; ASW: 98.4bps) and the $500m AXSGIN 3 per cent 08/08/2022 (yield: 3 per cent; ASW: 122.7bps), both denominated in USD, we find that the interpolated yield is 2.79 per cent and the interpolated Asset-Swap Spread is 111bps, exactly the yield and spread offered by the Green Bond. There seems to be no premium or concession for the Green Bond at all.

Hyundai Capital Services issued a Green Bond with a coupon of 2.87 per cent and a maturity of 03/16/21 offers a yield of 2.65 per cent and an Asset-Swap spread of 100bps ("The proceeds of the transaction will be used solely for the purpose of providing new car installment financing and automotive loans for Eligible Green Model vehicles manufactured by Hyundai Motor Company and Kia Motors Corporation"). As of 29th August 2017, the interpolated yield and Asset-Swap spread between the two adjacent, standard bonds $400m 2.625 per cent 09/29/20 and $600m 3 per cent 03/06/2022 are 2.68 per cent and 101.5bps. The difference is too small to conclude that there is a difference in yield or spread between the green bonds and the standard bonds.

H. Catastrophe bonds and other innovative instruments

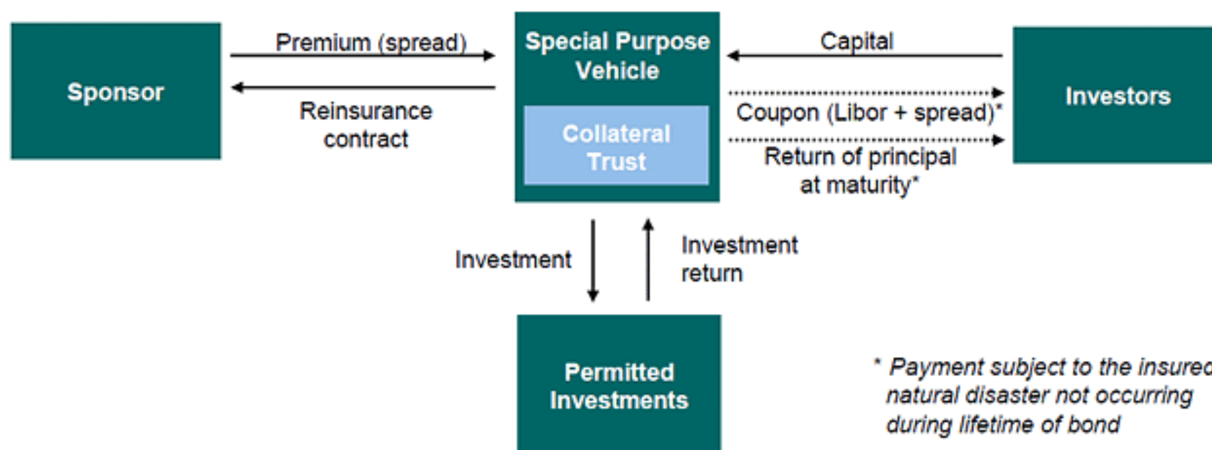
Definition of catastrophe bonds

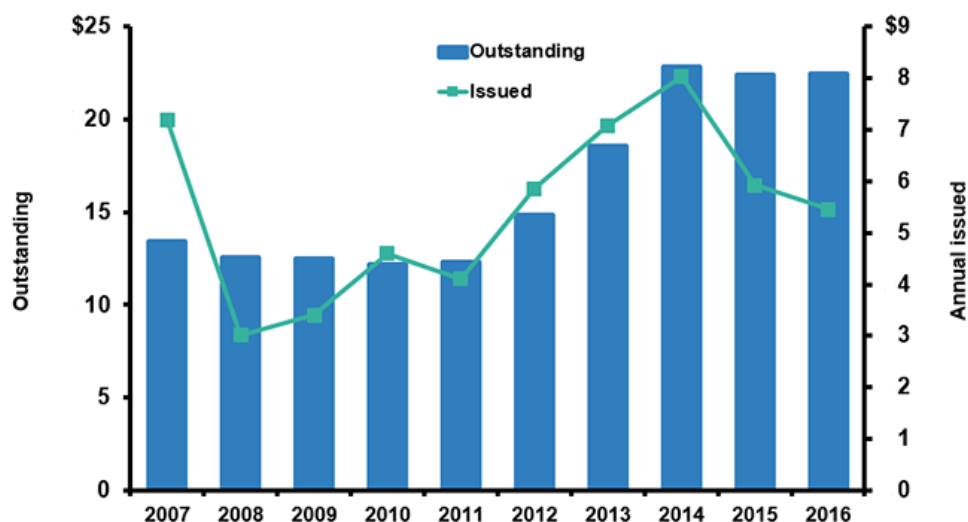
A "catastrophe" bond is a security transferring a set of specified risks from an issuer to a number of investors. It was initially created for insurance companies to transfer the risk of a major catastrophic event, when damages owed would exceed the sum of premiums and returns from investments. If there is no catastrophic event during the life of the security, a coupon is paid by the issuer to the investors. If an event does occur, then the principal would be forgone by investors and the issuer would use that principal to cover the losses caused by the catastrophe. Catastrophe bonds are usually purchased by investors looking for higher spreads over their funding rates, compared to standard corporate bonds. This include hedge funds, specialized funds, asset managers, life insurers, reinsurers, banks, pension funds, etc.

How does a catastrophe bond work?

A 'catastrophe' bond, sometimes called a 'cat' bond, is typically short in maturity (two to three years) and pays a high coupon (between 500bps and 1,500bps above reference interest rates). It carries a rating that can range from very high quality (A) to low quality (B). It is often issued as a floating-rate note, with the principal repayment dependent on some set trigger conditions.

In 2016 and 2015, $5.4 billion and $5.9 billion of catastrophe bonds were issued globally, following a record $8 billion in 2014.[47] There is about $22.5 billion of catastrophe bonds outstanding worldwide in 2016. This is relatively small, compared to the total side of the conventional bond market. The bonds issued in 2016 were all in developed markets: US, Japan, Europe, Canada, Australia.





Source: GC Securities, a division of MMC Securities Corp.

Some examples of catastrophe bonds

A number of catastrophe bonds have been issued in the market, in particular in the United States. We have listed hereafter a number of interesting transactions, which could serve as a model for a possible transaction involving the Asia-Pacific region.

Box 9 – Catastrophe Bond linked to Natural Hazard Risks in sixteen Caribbean Countries

The World Bank has issued in 2014 a Catastrophe Bond, which provides re-insurance to the Caribbean Catastrophe Risk Insurance Facility (CCRIF), a risk-pooling facility which provides short-term financial liquidity to 16 countries in the event of a natural disaster. The facility is backed by a multi-donor Trust Fund contributed by Canada, the European Union, the World Bank, the United Kingdom, France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as from membership fees from the participating countries. The bond was issued by the World Bank, which then entered into a catastrophe swap with the CCRIF. If the conditions for triggering the catastrophe bond are met, then the principal of the bond is reduced and the World Bank pays the CCRIF an equivalent amount.

Issuer	World Bank, through the International Bank for Reconstruction and Development, IBRD
Maturity	3 years to 7th June 2017
Issue date	June 2014
Size	$30 million
Risk	Earthquake and tropical cyclone risk in 16 Caribbean countries
Redemption	The nominal amount reduced by all principal reductions as a result of applicable Caribbean tropical cyclone or earthquake events (as defined in the terms of the notes)
Coupon	6 month LIBOR + 630bps, floor at 6.5 per cent, paid quarterly

Box 10 – Catastrophe Bond linked to natural hazard risks in Mexico

The World Bank has issued a Catastrophe Bond, which provides re-insurance to the Mexican Fund for Natural Disasters. Created in 2009, the MultiCat bond program was a ground-breaking initiative by Mexico to issue some sovereign catastrophic risk bonds.

Issuer	World Bank, through the International Bank for Reconstruction and Development, IBRD
Maturity	3 years
Issue date	August 2017
Size	$360 million
Risk	Earthquake, Atlantic tropical cyclones and Pacific tropical cyclone risk in Mexico
Redemption	The nominal amount reduced by all principal reductions as a result of applicable tropical cyclone or earthquake events (as defined in the terms of the notes)
Coupon	TBD

The benefits of catastrophe bonds

A tailor-made form of insurance

The terms of the bond can be made to match the risk profile of the issuer. Catastrophe bonds have threshold with specific levels that have to happen before triggering a payout. In the case of a natural disaster, only if the triggers are met will the investors start incurring losses.

Policy action: more research is needed to explain the technical aspects of a catastrophe bond.

Timeframe: SHORT TERM
Stakeholders: Regulators, Central Banks, National Development Banks, local banks, UNESCAP

A very specific purpose

A catastrophe bond will provide a relief on amounts borrowed in the case of a natural disaster (flood, hurricane, earthquake). As such, it can be very efficient for low income countries, which are sometimes located in geographic zones with a high natural disaster risk. Because a catastrophe bond's mechanics include the writing down of the amount borrowed in the case of a catastrophic event, its payout is immediate.

Policy action: further study is needed to find ways for low income countries to benefit from such instrument. For example, a list of possible types of catastrophes must be discussed with low income countries to find the most suited definitions, those encompassing the widest range of events.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

A very efficient form of relief

In the case of low income countries, a catastrophe bond can be very efficient in providing some relief, as it triggers the relief of debt upon the occurrence of a natural disaster. If, let's say, a country is hit by a hurricane, an earthquake or a drought, and suffers massive devastation (as is the case of many of our target countries), a catastrophe bond will be triggered and the country can benefit from the corresponding reduction in its national debt outstanding, allowing some new debt to be raised to cover the cost of assistance or reconstruction.

Policy action: the benefits of catastrophe bonds must be explained to the various stakeholders in the region.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

A customizable technology

It is possible to use the technology embedded in a catastrophe bond within other forms of debt, for example a loan, a standard bond or a securitized product. This would take the form of an additional covenant in the debt document, which would specify that the debt owed would be reduced in the case of a natural disaster occurring. This form of debt relief can be sponsored by a supranational agency, which would provide its guarantee to investors, for such event. The benefit of such technique is that it does not require an upfront outflow of capital from the entity providing the guarantee.

Policy action: some work must be done to find legal terms that investors would deem acceptable for the inclusion of such technology in standard lending contracts.

Timeframe: MEDIUM TERM
Stakeholders: Regulators, Central Banks, Multinational and National Development Banks, UNESCAP

The challenges of catastrophe bonds

A relatively scarce form of insurance

Even if catastrophe bonds have grown in size and are increasingly used by sophisticated investors in developed markets, the market size remains small and concentrated in developed markets (US, Europe, Japan). The demand for catastrophe bonds may also fall rapidly after a period of high losses, if, for example, a succession of hurricanes happens, causing the previously issued bonds to lose value.

Policy action: monitor the market for catastrophe bonds to evaluate whether an issue from low income countries could be a convincing investment proposal for international investors.

Timeframe: SHORT TERM
Stakeholders: regional regulators, Central Banks, Multinational Development Banks, UNESCAP

A sophisticated form of insurance

Catastrophe bonds are sophisticated forms of bonds and appeal to highly sophisticated investors. These investors will be very technical and issuing a catastrophe bond will require a team of highly trained experts capable of negotiating the terms of such bonds with these investors (hedge funds, pension funds, insurance companies, etc…).

Policy action: recruit a team of experts to design instruments that appeal to sophisticated investors.

Timeframe: MEDIUM TERM
Stakeholders: regional regulators, Central Banks, National Development Banks, local banks, UNESCAP

A complex form of insurance

Catastrophe bonds are complex forms of bonds and will need to be communicated to the various stakeholders among the target countries (governments, central banks, national development banks, regional multinational development banks).

Policy action: organize a training session on catastrophe bonds for the various stakeholders in the region.

Timeframe: MEDIUM TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

The definition of loss triggers can be difficult

Catastrophe bonds will start writing down the principal owed only if specific triggers are met. There is some legal risk in that process. In case of a natural disaster, investors may refuse to write down their investment if the data does not perfectly match the triggers set in the bond documentation.

Policy action: communicate to policy makers the importance of data collection in order to allow for the use of sophisticated financial instruments like catastrophe bonds.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, local banks, UNESCAP

The need for underlying data

The trigger of a catastrophe bond is based on very specific terms, which are data dependent. The challenge in low income countries is that there is likely to be very little data available on the catastrophic events. The data needed may include temperatures, sea levels, wind speed, wave height, humidity levels, etc...

Policy action: develop some data centers that collect data on climate change using internationally recognized practices to be used in the issuance of catastrophe bonds.

Timeframe: SHORT TERM
Stakeholders: local regulators, Central Banks, National Development Banks, l ocal banks, UNESCAP

I. Securitization

There are a number of additional instruments that can be used in the capital markets to transfer risk to investors, some of them in the form of a portfolio of unrelated risks, which together, offer an attractive and diversified pool of investment. These instruments use the techniques of securitization, which provides the repayment of borrowings from the cash flows of a pool of assets. The underlying risk being independent of the issuer (typically, this could be a supranational agency or an asset manager), it is more attractive to investors than a direct investment, which could be more difficult to justify on a stand-alone basis. Typically, such portfolio of risks is broken into various layers of risk (so-called "tranches"), each offering a different remuneration and risk profile. The most risky layer is called the "first-loss" piece. Above it stands the "mezzanine" tranche, which typically suffers a loss in principal, if the portfolio suffers more than reasonably expected. Above it are the "senior" and "super senior" tranches, whose loss of principal is considered extremely unlikely, thus attracting institutional investors that invest only in the safest assets. By performing this type of transaction based on a portfolio of various types of risk, it is possible to attract a broader pool of investors and achieve an attractive cost.

Securitization can be used as an avenue to create capacity in Asia Pacific for the target countries, by using a "portfolio effect". Securitization techniques have been used for decades to transfer smaller risk exposures to institutional investors in the form of a bond security.

In 2005 and 2006, Citigroup Capital Markets has sold into the market two EUR500 million EM structured debt obligations based on a portfolio of 20 per cent of sovereign credits and 80 per cent taken from its

Class	Amount	Ratings	Avg. Life	Reoffer	Coupon
Super Senior	EUR160m	Aaa/AAA	5 years	100.00	
A-1	EUR40m	Aaa/AAA	5 years	100.00	+ 32bps
A-2	EUR27.5m	Aaa/AAA	5 years	100.00	+ 40bps
B	EUR22.5.m	Aa1	5 years	100.00	+ 90bps
C	EUR10m	A2	5 years	100.00	+140bps
D	EUR5m	Baa3	5 years	100.00	+220bps
E	EUR8m	Ba2	5 years	100.00	+415bps
First-Loss	EUR27m	Unrated			

own portfolio of loans to borrowers, representing a total of 34 countries in the Emerging Markets. Each name represented an exposure of 1 per cent and there was a variety of exposures across the portfolio. The deal, named "Sphaera II", was sold to a large list of international investors in the form of various tranches.

Investors were interested in this transaction because it offered a diversified exposure to a large portfolio of Emerging Markets issuers, something that was not readily available in the market. For the bank, it was a way to get some loan mitigation into its banking book and some capital relief. Since then, several similar transactions have been executed to provide some balance sheet relief for the bank.

A similar type of transaction could be used in the Asia Pacific region to provide some funding for low-carbon, climate-resilient projects in the target countries. As such, securitization can offer some attractive alternatives to investors in the context of a portfolio of green projects across the region.

There is some demand from international investors for some securities that offer some diversification benefits. For example, Geraint Thomas, Managing Director at MUFG, was quoted as saying: "This is a really exciting area of development for this market. I believe smaller sized transactions that can be clubbed together in a way that can be sold to targeted green or sustainable investors as a benchmark sized bond – in other words, anything that enables sub-benchmark sized funding initiatives to be captured or encouraged in this market, or anything that enables smaller or medium-sized entities to seize upon funding opportunities in this space – needs to be encouraged. This is going to be the big next step in the market. Crucially, the securitization market will link the bank loan market with the bond market, which can only be a positive thing for finance for climate action going forward."[48]

Challenges:

- The underlying exposure includes some difficult countries that may not be part of the investable universe of most investors
- Each individual country may require only a relatively small loan ($50-100m?)
- A credit enhancement by a supranational agency (ADB, IFC?) may be required
- Investors will need a credit rating

3. A REGIONAL ACTION AGENDA TO SUPPORT "GO TO MARKET" FOR GREEN BOND ISSUANCE FOR CLIMATE-VULNERABLE LDCS, LLDCS AND SIDS IN ASIA-PACIFIC

The main needs associated with low-carbon, climate-resilient investments are constrained by the types of financing channels that these investments can go to. Too few financing options limit the ability for the Asia-Pacific region to meet its climate change mitigation targets.[49] Government finances in several target countries are stretched and domestic public organizations lack sufficient resources to implement climate change mitigation and adaptation projects. The following actions must be taken to support the emergence of a functioning Green Bond market that can support the development needs of the target countries.

With regard to green bonds, there is no need for the local capital markets to be developed for a country, or a project in that country, to be able to issue a bond. The fixed income markets are truly global and a listing can easily be done in one the major financial centers of the world, like Hong Kong, Singapore, or even London or Luxemburg, New York or Tokyo (depending on the currency of issuance). This is quite an advantage for green bonds in particular, as they can easily be issued in various places, while helping finance a local project in the Asia Pacific region.

This is good news for finance for climate action in the context of the least developed countries in Asia Pacific. It is possible to source funds in a financial center, like Singapore or Hong Kong, by registering a funding entity in that location.

Building on the point made above that regional integration can be a positive driver for the development of financial flows in small-scale countries, it is also possible to consider some other types of financial instruments that are based on the value of a portfolio of securities. The simplest one is **a bond mutual fund**, which aggregates the exposure of various corporate issuers (or projects) and is sold to investors willing to take a diversified exposure and earn a determined interest, while limiting their risks. Some more complex structures also exist, where the underlying exposure of such portfolio is decomposed into securitized tranches, which are then sold on to investors.

The technology exists to issue **portfolio transactions** that would interest a relatively large pool of institutional investors, banks and insurance companies, while enabling issuers from the Asia Pacific region to increase their borrowing capacity. In so doing, it is possible to aggregate various types of risks within a single transaction, such that larger, more reputable issuers (for example, China, India or Sri Lanka), are combined with less well-known ones (Fiji, Bangladesh, etc...), yet offering the latter ones some avenue to raise funds in the international markets, something that they would not have been able to do by themselves otherwise.

A. Improve market structure for green bonds in target countries

The objective is to lower the barriers to adopting a common framework for Asia Pacific, through a mixture of knowledge-sharing, market infrastructure building, common standards and disclosure requirements.

Break the challenges of underdeveloped capital markets in Asia Pacific

Domestic regulations: while local investors are able to easily do with the existing local conditions, be it from a regulatory, social or economic point of view, global investors may need a better understanding of the domestic context before accepting to invest in the target countries.

Policy action: launch a review of the various barriers currently existing in local capital markets that prevent the emergence of green bonds.

Timeframe: MEDIUM TERM
Stakeholders: UNESCAP, Financial Regulators, Central Banks, Ministry of Finance, International Market Capital Association

Adopt global Green Bond Principles standards at the regional level

Investors, companies and banks need clear definitions to be able to allocate financial resources to green initiatives. Various parties, which can play a leading role in the development of low-carbon, climate-resilient projects, may not be allocating resources to green projects, because they lack the appropriate knowledge, data or even measurement tools to support their agenda. By accepting the Green Bond Principles at the regional level, a strong signal can be sent to the broader investment community that there is a harmonized acceptance of global standards across the region.

Policy action: all the countries in the Asia Pacific could adopt the Green Bond Principles and a Green Bond Market Committee could be established at the regional level to oversee the development of the Green Bond Principles in the region.

Timeframe: SHORT TERM
Stakeholders: All public entities, municipalities, green banks, national development banks, financial regulators, Central Banks, Ministry of Finance

From regional to domestic standards: adopt the Green Bond Principles standards at the domestic level

In order to ensure that the regional standards are applied in each target country, it is critical that there is a relay from the regional to the domestic context. A Green Bond Ambassador must be appointed in each country to represent the Green Bond Principles at the local level.

Policy action: assign to a local representative the task of relaying the promotion of Green Bond Principles at the local level, taken from a senior level within government. Provide some funding for supporting the work of that individual in the country, for example by supporting travel costs to a central location and receive some training on green finance.

Timeframe: SHORT TERM
Stakeholders: UNESCAP, Ministry of Finance, Ministry of Environment, National Development Banks

Establish a Green Bond Market Committee at the local level

This committee, chaired by the Green Bond Ambassador, will report to the regional level the progress made on encouraging a clear reporting and the external evaluation of the adherence to the definitions and standards.

Policy action: set up a Green Bond Market Committee in each target country.

Timeframe: SHORT TERM
Stakeholders: national development banks, municipalities, green banks, Ministry of Finance, local offices of global accounting firms, local offices of foreign banks, domestic banks, regulator, market infrastructure personnel

Encourage adequate disclosure on the impact of investments

The lack of disclosure makes it difficult for investors to correctly assess the impact of their investments. Not only do green technologies need to communicate on their commercial viability, but governments must also show the way in addressing climate-related issues by disclosing their environmental footprint.

Policy action: encourage and support the Green Bond Market Committees in promoting a clear reporting and external valuation of adherence to the definitions and standards within the region.

Timeframe: SHORT TERM
Stakeholders: national development banks, municipalities, green banks, Ministry of Finance, local offices of global accounting firms, local offices of foreign banks, domestic banks, regulator, market infrastructure personnel

Reduce the cost of disclosure

The disclosure standards of listed entities in the region need to be developed and adopted as part of the standard disclosure of any company listed in the regional and domestic stock markets, pushing for environmental disclosure to fixed income as well.

Policy action: encourage Market Regulators to impose environmental disclosure as part of the standard corporate reporting in all target countries.

Timeframe: MEDIUM TERM
Stakeholders: Financial Regulators, national development banks, Ministry of Finance, local offices of global accounting firms, local offices of foreign banks, domestic banks, regulator, market infrastructure personnel

Provide adequate analytical capabilities

Many investors or lenders underestimate the risks of their 'brown' and overestimate the risks of their 'green' investments. This results in an imbalance between green and brown projects. More understanding of risk analysis is necessary to support the development by banks and institutional investors of low-carbon, climate-resilient projects, supported by hard data locally on the ground.

Policy action: develop some analytical tools for the evaluation of risks and returns of green bonds in the target countries.

Timeframe: MEDIUM TERM
Stakeholders: national development banks, Ministry of Finance, Central Banks, local offices of foreign banks, domestic banks, regulator, market infrastructure personnel

Tackle Foreign Exchange risk in funding from offshore markets

The domestic cost of financing is typically higher in local markets than in the global financial markets. Some foreign debt can be raised in the international markets, but it is usually priced in foreign currency (USD or EUR). Taking on such debt may create some exposure to foreign exchange risk. This risk is unlikely to be able to be hedged without losing the advantage of the lower cost available internationally. The local financial markets are expanding, however, which means that an increasing amount of domestic capital will be available to fund domestic projects. Yet, for the medium term, it is likely that such financing will be relatively limited.

Policy action: engage with National Development Banks for ways to mitigate the foreign exchange risks associated with the issuance of green bonds in offshore markets for the purpose of funding local projects.

Timeframe: MEDIUM TERM
Stakeholders: National Development Banks, Central Banks, Ministry of Finance, UNESCAP

Support a positive impact of environmental achievements[50]

Some firms may choose to raise some financing for some specific climate-resilient projects and advertise it as a way to enhance the firm's reputation. So far, the empirical evidence shows that such effect is relatively limited. Some target advertising or promotion action can enhance the positive impact of climate-resilient projects for private or public group.

Policy action: promote a positive feedback mechanism for issuers of green bonds in target countries, through positive press reports or using some sponsoring opportunity of an award in public gatherings.

Timeframe: SHORT TERM
Stakeholders: Ministry of Environment and Planning, UNESCAP, external Public Relations firm

Standardization of bond and loan contracts

In order to allow the emergence of a structured fixed income market throughout the region, it is necessary to promote the emergence of standardized loan and bond contracts for low-carbon assets in the target countries, based on the work already done at the global level. A working group should be established, composed a market practitioners and lawyers, to design such documentation and make it accessible to all regional players.

Policy action: fund a regional working group for the emergence of standardized bond and loan contracts that facilitate the emergence of a structured fixed income capital market.

Timeframe: MEDIUM TERM
Stakeholders: Financial Regulators, Central Banks, Ministry of Finance, International Market Capital Association, International Loan Markets Association

Encourage the adoption of standardized bond and loan contracts

The uptake of standardized bond and loan contracts must be supported by the encouragement of local regulators, market structure specialists, Central Banks, governments, national development banks, accounting firms, legal advisory firms, local branches of foreign banks and domestic banks, municipalities, etc., to adopt them as part of their suite of contracts for the issuance of bonds or loans in the region.

Policy action: make standards mandatory, mandate standardization of bond and loan documentation a priority within the development of regional capital markets and establish targets per country for lending volumes.

Timeframe: SHORT TERM
Stakeholders: Financial Regulators, Central Banks, Ministry of Finance, International Market Capital Association, International Loan Markets Association

B. Facilitate the emergence of a pipeline of projects that can be financed by green bonds

Develop a priority list of strategic green projects
It is necessary to develop across the region a list of priority projects to be launched among the target countries. If it does not exist already, a Regional Infrastructure Planning Agency for Asia Pacific or a National Infrastructure Planning Agency, must be created to track all key infrastructure development projects, including green projects.

Policy Action: create a repository of all infrastructure projects

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, Ministry of Environment, UNESCAP, national development banks

Ensure the financial viability of green projects
It is essential that investors are reassured that the projects that are launched with the proceeds of green bonds are financially viable. The revenues from these projects can be supported by some government guarantees, for example, or by some supranational development banks. For example, in the special case of public transport development (metro, rapid transit or rail), governments can design some land value mechanisms in the form of development fees, local taxes or joint development fees for any property development adjacent to new infrastructure, as they benefit from increased land values.

Policy action: develop a methodology for ensuring the financial validity of green projects in the target countries, calling on the expertise of experts where necessary.

Timeframe: SHORT TERM
Stakeholders: all public entities, Ministry of Finance, Ministry of Planning, Ministry of Environment, UNESCAP

Ensure the transparency of the project pipeline
By publicizing well in advance the launch of green projects, regional and local governments can provide some incentives to infrastructure planners, as well as private firms, for the development of the expertise and the interest in green projects.

Policy action: promote a transparent pipeline of green projects within the region and at the domestic level in all target countries.

Timeframe: SHORT TERM
Stakeholders: all public entities, Ministry of Planning, Ministry of Environment, UNESCAP

Establish a collaborative platform for government, investors and development banks
The collaboration between government bodies, national development banks and investors must be strengthened through a collaborative platform where they can better share information about the pipeline of green infrastructure projects, discuss any barriers to capital flows in the region, discuss market infrastructure limitations and find solution to regional problems.

Policy action: establish a collaborative platform for high-level meetings between governments, national development banks and international investors. Support frequent gatherings for this platform across the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, financial regulators

Encourage the strategic issuance from public entities
Public entities can have a strong signaling effect in the market by issuing green bonds, which can be used as benchmark transactions for subsequent issues by private actors within the region. In so doing, they can also provide some additional capacity to the local development projects.

Policy action: encourage various public entities to issue their own green bonds through technical assistance and capacity building.

Timeframe: MEDIUM TERM
Stakeholders: multilateral institutions, municipalities, cities, sub-national governments, Green Climate Fund, Ministry of Finance for Sovereign issuance, green banks

Support the emergence of a review mechanism in the region
Pre- and post-issuance reviews are necessary to ensure a strong adherence of the project to the Green Bond Principles. A number of ESG research providers offer such service. A second opinion is sometimes necessary, as well as a third party verification against standards. Auditing firms are most capable of ensuring this service, as well as third party certification firms.

Policy action: engage with auditing firms present in the target countries to find a way to harmonize this process locally. Sponsor such work to support the emergence of a better market structure.

Timeframe: MEDIUM TERM
Stakeholders: national development banks, auditing firms

Provide capacity building/technical assistance for sub-national level
It is essential that some technical expertise is made available to the local market to support the emergence of financially viable projects, which can be financed through green bonds. This can take the form of consultants mandated in the country to assist national development banks, municipalities, cities, banks, corporations, etc... and support them in designing projects that fit the global criteria for Green Bond issuance.

Policy action: make available technical expertise to respond to specific in-country requests for technical assistance (financial, legal, structural, corporate governance).

Timeframe: SHORT TERM
Stakeholders: multinational development banks, national development banks, Ministry of Finance, local politicians, banks, UNESCAP

Identify and promote the credit enhancement techniques to strengthen issuance
A credit enhancement is a method by which the bond investor is given some additional guarantees that the principal and interest payments will be met in a timely fashion. This can come in the form of collateral, insurance, letters of credit or through a guarantee provided by a third party. Credit enhancement reduces credit/default risk, increases the credit rating of the bonds and lowers their interest rate. As part of the knowledge sharing mission necessary to support the emergence of green bonds, a special attention must be paid to credit enhancement techniques. A common body of knowledge should be prepared and distributed among key stakeholders to increase the awareness of policy makers about the risk mitigation techniques available for potential bond issuers.

Policy action: create a central body of knowledge of credit enhancement techniques to support the emergence of green bonds on projects in the target countries.

Timeframe: SHORT TERM
Stakeholders: multinational development banks, national development banks, Ministry of Finance, accounting firms, legal advisors, corporate finance specialists, banks, UNESCAP

Identify and promote insurance tools to strengthen issuance
Similarly to credit enhancement, another risk mitigation technique is political risk insurance, which issuers may contract when issuing a bond, so as to reduce the risk of inconvertibility, expropriation, capital controls, etc. A body of knowledge must be prepared for key decision makers to become aware of such insurance tools in the context of debt issuance. Policy risks are a major worry for investors. Policy risk insurance can

mitigate the risk that public policies may change and thereby affect the viability of an investment.

Separately, in some cases, mono-line insurance guarantees the payment of interest and principal in the event of default.

Policy action: create a central body of knowledge of political risk and mono-line insurance techniques to support the emergence of green bonds on projects in the target countries.

Timeframe: SHORT TERM
Stakeholders: multinational development banks, national development banks, Ministry of Finance, accounting firms, legal advisors, corporate finance specialists, banks, UNESCAP

Build a data warehouse for green bonds and loan pricing data
In order to develop a regional market for green bonds and loans, it is necessary to develop a repository of bond and loan data (public or through private registration) for market participants to be able to follow the risk and return profile of issuers. This will support the emergence of alternative risk transfer tools (e.g. securitization) and will provide additional capacity to the market.

Policy action: create a central data warehouse for green bonds and loans pricing and reference on projects in the target countries.

Timeframe: SHORT TERM
Stakeholders: Financial Regulator, Central Bank, Ministry of Finance, UNESCAP

C. Support Green Bond Issuance through a Grant Facility

Provide an issuer-level guarantee for bringing a Green Bond to market
By offering a highly-rated entity (international or national development bank, sovereign, Green Climate Fund) to guarantee a new Green Bond issue, thus supporting the credit rating of the issuer, which may otherwise not be able to issue a bond on a stand-alone basis, it is possible to provide some strong support for the issuance of a Green Bond.

Policy action: provide high quality guarantee to a prospective issuer of the target countries.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, Green Climate Funds

Provide a project-level guarantee upon the issuance of a Green Bond
By offering a highly-rated entity (international or national development bank, sovereign, Green Climate Fund) to guarantee a green project, thus supporting the credit rating of the overall Green Bond issue, which may otherwise not be able to issue a bond on a stand-alone basis, it is possible to provide some strong support for the issuance of such a Green Bond.

Policy action: provide high quality guarantee to a prospective project of the target countries.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, Green Climate Funds

Provide a first-loss guarantee for the issuance of a securitized transaction backed by green bonds or loans
By offering a highly-rated entity (international or national development bank, sovereign, Green Climate Fund) to guarantee first-loss risk in a newly issued securitized transaction made of green bonds, thus supporting the overall credit rating of the transaction, which may otherwise not be able to issue a bond on a stand-alone basis, it is possible to provide some strong support for the inclusion of multiple small size deals in the securitized transaction.

Policy action: provide high quality first-loss guarantee to a prospective transaction, whose underlying portfolio is composed of small size projects originating from the target countries.

Timeframe: MEDIUM TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, Green Climate Funds

Sponsor credit ratings among issuers in the region via a grant facility

In the bond market, one important measure of risk is the public rating delivered by credit rating agencies. There are three main ones on the international stage: Standard & Poor's, Moody's and Fitch. Getting a credit rating is a relatively cumbersome and costly process, which includes getting audited IFRS accounting statements, establishing a strong corporate governance structure, allocating some management time dedicated to several iterations of high-level meetings with the rating analysts. Only the stronger companies can get such a rating, but it is important for that process to be organized in a systematic fashion. Getting potential corporate issuers to get a credit rating will facilitate the emergence of a Green Bond market. This will support the development of market infrastructure, as well as strengthen the emergence of the Green Bond market in the target countries

Policy action: create a grant facility to support the process of obtaining a credit rating

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance for Sovereign issuance, National Development Banks, Rating Agencies, Domestic banks, local branches of foreign entities, corporations, Accounting firms, Legal Advisors

Support issuance costs through a grant facility

By offering a grant to cover for the bond issuance costs (third party corporate finance advice, documentation, legal fees) of a new Green Bond issue, thus helping the issuer in its access to the market, which may otherwise be too costly on a stand-alone basis, it is possible to provide some strong support for the issuance of a Green Bond.

Policy action: provide some financial support to cover the legal costs borne by a prospective issuer of the target countries for issuing a Green Bond.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, Green Climate Funds

D. Develop the demand for green bonds from target countries

The investment demand for green bonds issued by public or private sector issuers from the target countries must be supported globally.

Incentives to reduce the cost of investing

Governments can enhance the attractiveness of green bonds for institutional investors by offering some tax incentives for buying these bonds. This can take the form of tax-exempt income received from green infrastructure, municipal or standard bonds (locally or in the regional financial hubs, where a lot of the capital is kept in custody), as well as a preferential treatment for withholding tax purposes.

Governments and regulators can act jointly to offer some preferential risk-weighting, as well as some exemption from loan-deposit ratios, for financial institutions buying green bonds or corporates, as part of their Treasury operations.

Policy action: offer some tax incentives for buyers of green bonds issued by issuers of the target countries.

Timeframe: MEDIUM TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAPs

Signaling effect of public issuance

A green bond issuance by a public entity (Sovereign issue or quasi-sovereign issue) can have a positive signaling impact on the market. It is also necessary to encourage Sovereign Wealth Funds, public pension funds and national development banks to go green.

Policy action: encourage public issuers to go green in order to signal a strong policy towards green bonds among investors and prospective issuers of the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Global investor targeting

The global international investors with local offices in the Asia Pacific region are likely to be the first to invest in green bonds, as they already know the local context. As such, a specific action must be launched to target these types of investors, for example by communicating to them specifically about the progress made in increasing the market infrastructure in the region.

Policy action: raise the awareness of global investors with a local presence in the region towards green bonds.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Market-led initiatives

The emergence of an equity market is often taking the lead over the fixed income markets in many target countries. There are multiple opportunities to promote the coexistence of fixed income markets alongside equity markets with international investors, through new regulation, market mechanisms and policy actions.

Policy action: encourage the publicity of green bonds among investors and prospective issuers of the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Workshops

Some specific actions must be taken to educate investors about the potential issuance in Asia Pacific, and in particular in LDCs and SDICs. There is a large amount of ignorance among international institutional investors about the practical reality of the target countries, and some educational opportunities must be organized at major relevant meetings in order to promote investment opportunities in the target countries.

Policy action: encourage workshops among investors and prospective issuers of the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Educational material

There is a large amount of untapped capital in the market, as not all investors in green bonds are institutional investors. The retail market for mutual funds is still relatively undeveloped in Asia Pacific. Yet, a concerted effort should take place to increase the awareness of the broader public for these types of securities (through mutual funds).

Policy action: create awareness among the wider investing public about green bonds in Asia Pacific.

Timeframe: SHORT TERM
Stakeholders: national development banks, pension funds, regulators, UNESCAP

Capacity building for investors

One major hurdle for investors to choose to invest in green bonds is the lack of investment opportunities from the region. It is critical that a pipeline of projects be created for investors, in order to create the critical mass that will justify them investing in expertise and due diligence capacity in the region.

Policy action: encourage the capacity building with prospective issuers of the region.

Timeframe: MEDIUM TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Fast tracking of bond documentation approval for green bonds

In order to encourage the issuance of green bonds, regulators can offer to expedite the approval of bond issuance for this type of securities, giving a strong incentive for issuers to choose this option.

Policy action: encourage the fast-tracking of bond prospectuses for prospective issuers of the region.

Timeframe: SHORT TERM
Stakeholders: regulators, Ministry of Finance

E. Encourage domestic, regional and international collaboration

A regional initiative must be initiated to foster a regional cooperation for the emergence of a structure green bond market.

Regional stakeholders must recognize market standards
It is important to encourage the mutual recognition of guidelines across the region, so as to present a unified market to investors. The cooperation between all stakeholders must be fostered to develop a common disclosure and stronger reporting standards for all green bonds. Some bridges must be laid with China, Japan, South Korea and India, the other bigger markets in the Asia Pacific, to engage a cooperative platform of mutual recognition and regional reinforcement.

Policy action: encourage the mutual recognition of Green Bond Principles across the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

Regional issuance to support future issuance
Issuers of green bonds must offer lessons from their green bond issuance, so as to cross-fertilize the regional initiatives and identify key bottlenecks. Some roundtables and workshops must be organized for prospective green bond issuers to benefit from this experience and learn from past achievements.

Policy action: encourage the sharing of experience among issuers and prospective issuers of the region.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

At the domestic level
A Green Bond Market Development Committee must be created in each target country with a high level champion taken from within the government ("Green Bond Ambassador"). This person will be responsible for the internal collaboration within the public entities (national development banks). He or she will support the standardization of guidelines and practices, push for bond and loan standardization, support the warehousing of projects for securitization purposes, build capacity, support credit enhancement techniques locally, while supporting the strategic issuance of key public issuers in the market.

Policy action: assign a Green Bond Champion from within the government to represent all the initiatives taken locally to support the emergence of a green bond market.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, UNESCAP

At the international level
A similar cooperation must be promoted with the international investment community. The collaboration must be promoted among similar public entities (governments, Central Banks, national development banks, private issuers, infrastructure groups, construction syndicates and banks. A centralized taskforce must be set up to represent the interest of the region in the broader initiatives taking place on the international scene. Some focused working groups must be set up to discuss common issues, find solutions to market infrastructure shortfalls, etc.

Policy action: launch a taskforce to represent the LDCs and SDICs at the international level.

Timeframe: SHORT TERM
Stakeholders: Ministry of Finance, multinational development banks, national development banks, pension funds, regulators, market infrastructure bodies, UNESCAP

F. Proposal for hypothetical transaction

Each (or at least 10) of the target countries (Afghanistan, Bangladesh, Bhutan, Cambodia, Fiji, Maldives, Myanmar, Nepal, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Uzbekistan, Vanuatu) will borrow an amount of [$50-100] million equivalent in a country to be specified at a later stage [USD, EUR, CNY] for a period of [5 years] with the proceeds from the issuance going towards projects that will be certified to be low-carbon, climate-resilient. The overall number of projects will be a minimum of [100 projects] across the region.

The portfolio of [$500 million to $1 billion] will be securitized in various tranches. An agency [ADB, IFC?] will provide a first-loss guarantee up to [5-10 per cent] on the portfolio.

Benefits:

- Investors get an exposure that is highly diversified, with a regional focus
- If successful, this structure can be replicated for other projects/regions
- The technology is readily available and rating agencies are used to rating this kind of transactions
- Investors will be attracted by this new type of Green transactions
- The credit enhancement (first-loss piece) will reassure investors
- Option to include some existing loans extended in the region by banks

Challenges:

- Ensure proper allocation of proceeds towards Green projects
- Get agreement from ADB, IFC for first-loss credit enhancement
- Get rating, given the high risk countries of exposure
- Ensure success of the transaction for future deals
- Get each target country to provide 5-10 green projects with an investable amount of $5-10 million each, for a total of 100 projects

On a hypothetical portfolio:

Loss from	To	Notional ($1 billion)	Rating	Pricing
0 per cent	[7 per cent]	$70m	Not Rated	
[7 per cent]	[12 per cent]	$50m	[Ba2/B?]	High coupon
[12 per cent]	[20 per cent]	$80m	[Ba1/B?]	High coupon
[20 per cent]	[30 per cent]	$100m	[Baa2/BBB?]	Medium coupon
[30 per cent]	[60 per cent]	$300m	[Aa/AA?]	Low coupon
[60 per cent]	[100 per cent]	$400m	[Aaa/AAA?]	Very low coupon
[0-100 per cent]	[100 per cent]	$1,000m		

Policy action: find some fund management partner firms interested in applying securitization techniques to green finance in Asia Pacific.

Timeframe: MEDIUM TERM
Stakeholders: regional fund managers, domestic pension funds, Green Climate Fund, international development banks, national development banks

4. CONCLUSION

The economic transition toward net zero emissions, as envisaged by the Paris Agreement, represents a unique opportunity for private finance in developing countries in Asia and the Pacific. The challenge of global warming not only requires significant investments by both public and private sectors to adapt the local infrastructure, transportation and energy resources to its effects, but low-income countries also have the combined difficulty of needing very high investments and having relatively little resources to undertake them, shifting therefore the burden on the international community to provide and coordinate adequate financial support to these countries. But like any crisis, this represents a unique opportunity for the region to deepen its capital markets, while promoting climate-resilient growth and sustainable development.

This report started by presenting the imperatives to improve the contribution of the region's financial sector towards a climate-resilient development path. Specifically, the capital markets of low-income countries, because of a heavy reliance on bank lending and public financial support, are often not sufficiently developed to attract the kind of capital flows that are needed to respond to the enormous challenges that they are facing on climate change. But there is also a risk that the efforts put into adapting the global financial system to the climate challenges in the developed world may not benefit developing countries as much, due to their insufficient capital market development, making it difficult for private investment to invest in them. The neighbouring, and much larger countries of China, India, Japan and South Korea are already very active in capturing financial flows going into green finance, crowding out the investment flows that could also benefit developing Asia.

There is a pressing need for the low income countries to develop their ability to develop the microstructure of their capital markets to receive the full benefits of the reconfiguration of the global financial system. This Report therefore proposes a clear Regional Action Agenda, with detailed policy actions to be implemented in the short and medium term in order to support the emergence of Green Bonds for climate-vulnerable countries in Asia Pacific. The identification of strategic green projects, as well as a transparent pipeline of financially viable green projects, must be developed. It is also imperative that the target countries are promoted among the global financial community as a destination for investment to international investors that have a specific mandate to invest in climate mitigation and adaptation projects, in order to understand their own investment constraints and find solutions to the perceived risk areas.

Such actions include, among others:

- Raising the awareness of low income countries about green finance
- Identifying relays at the grassroots level to increase this awareness locally
- Increasing the impact of credit enhancement techniques for the region
- Supporting issuers financially to reduce issuance and "go-to-market" costs
- Increasing the financial disclosure of potential issuers, with the association of rating agencies and globally recognized accounting firms
- Supporting regulators through knowledge and cross-fertilization of best practices in their development actions for local capital market infrastructure
- Promoting the target countries as a credible investment alternative for private funds globally
- Developing the secondary market activity of Green Bonds and the participation of global investment banks in their issuance
- Promoting the inclusion of regionally issued Green Bonds in global indices
- Developing a regional collaboration with governments, Central Banks and National Development Banks

This report argues for the creation of a specific Grant Facility to provide several levels of financial support for issuers in the region, in order to remedy the shortcomings of underdeveloped capital markets. The support could include specific guarantees at the issuer and project level, credit ratings and issuance costs. In so doing, this financial support must be coupled with a targeted action plan to develop the demand for green bonds issued for projects located in the target countries. Regionally, all stakeholders must be brought together at the domestic, regional and international level to foster a strong collaboration among all stakeholders, with the aim to share the experience in each country, increase the technical skills of local and regional stakeholders and explore the mutual benefits of such developments.

As this action plan is put into practice, it will become increasingly possible to start developing new financial tools and multiply the lending capacity of global financial institutions towards climate-resilient investment opportunities in the region, through securitization techniques applied to the regional context. This will help reconcile the lack of public

funds and the large size of investment needs, and facilitate the ability of private capital to bridge the gap left open by undeveloped capital markets. Only then can the region truly appropriately address the huge challenges that it faces in tackling the effects of climate change, which is disproportionately affecting its people and its territories.

The Regional Action Agenda presented in this Report is a positive and collaborative response to the very real challenges faced by the region in the context of the mitigation and adaptation to climate change. The underlying trends, driven by the reconfiguration of the global financial system, are real and strong and they will ultimately contribute to a more inclusive, climate-resilient and growth-oriented development. With the initiation of some concrete actions involving all stakeholders in the region, it will become possible to expand the funding capacity of sustainable finance and to extract benefits for all countries in the long term. The region stands to benefit greatly from these actions, and it should be ready to embrace them fully.

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APPENDIX – COUNTRY PROFILES

COUNTRY PROFILE: AFGHANISTAN

Member of the Green Bond Principles (as of August 2017): NO

Afghanistan is very vulnerable to climate change[51]: droughts, floods, landslide and avalanches are recurrent risks. While its own emissions are very low (it ranks 104 out of 186 countries on greenhouse gas emissions[52]), it is the agriculture sector that contributes the most. Women are particularly affected, as in the local culture, it is women's responsibility to collect the household water and find wood for heating and cooking. The country is lacking a national strategy on climate change. Some non-profit organizations are present in the country and work on renewable energy projects or to help communities reduce their exposure to natural disasters and poverty. The country has seen a rise in temperature, a fall in rainfall during the spring season, droughts and an extreme drought every 30 to 40 years.

Afghanistan's capital markets are not developed at all. At best, we can say that they are in their early stages of development. The Kabul Stock exchange was founded in 2009, but remains under developed. On the debt capital markets side, the Islamic Republic of Afghanistan has borrowed XDR111 million due September 2020 and XDR19 million due November 2024 from the IMF to reduce poverty and growth. There are no bond markets available.

Economic attractiveness: Low to medium. With $1-3 trillion of iron ore reserves, Afghanistan could initiate some development projects that are backed by the future exploration of such reserves.
Risk perception: High. Investors are unlikely to see Afghanistan as an acceptable investment opportunity, given the security and economic risks of the country.

Political risk: High. Climate change is not a consideration of the Government of Islamic Republic of Afghanistan. There are no national programs in place. Disaster prevention is not part of the national policy. Poverty reduction is currently taking priority, given that it is one of the least developed countries in the world. The Afghan government has set the need for investment to address climate change at $1 billion annually.[53]

Options to enhance demand: Medium. Afghanistan can develop an economic development strategy with the commitment to limit greenhouse gas emission. It is committed to do so against a financial support of $17.4 billion.[54] This would include:

- The development of its energy sector through clean energy
- The transfer of technology from neighboring Central Asian countries
- Focus on solar, wind and biogas energy production to provide renewable energy sources to 25 per cent of the rural population (against a current level of 15 per cent)
- Reverse the trend in deforestation while regenerating 40 per cent of the degraded forests and rangelands
- The development of the mining sector with minimal energy consumption and greenhouse gas emissions
- The adaptation to climate change, watershed management and the development of irrigated agriculture

Ease of access to funding: Low. There is a lack of knowledge about the various funds available to support these initiatives.

Comment: we believe that the security situation in Afghanistan makes it too risky for investors to accept to lend directly in the form of Green Bonds, without some solid guarantee from a supranational entity guaranteeing the repayment of principal. The country does not have a public rating.

COUNTRY PROFILE: BANGLADESH

Member of the Green Bond Principles (as of August 2017): NO

The capital markets in Bangladesh are in their early growth phase. The Dhaka Stock Exchange, as of June 2017, has got 563 listed securities. Its market capitalization has averaged BDT3.64 trillion in the first six months of 2017, with a daily average turnover volume of BDT277 million.[55]

In February 2017, Bangladesh has approved to start a Sovereign Wealth Fund with $2 billion of initial paid-up capital and $5 billion of authorized capital, with the aim to grow it to $10 billion in 5 years, to be spent on infrastructure projects.

In 2009 already, Bangladesh had begun a program of concessional credit for the refinancing of solar energy, biogas and waste treatment projects. $25 million was made available for commercial banks to disburse loans to key green sectors. In February 2015, the Bangladesh Bank has announced a refinancing line for up to $200 million allocated to green initatives including water and energy use efficiency in the textile industry. The Infrastructure Development Company Limited (IDCOL) also plays a role to provide concessional financing to microfinance institutions and enable households to purchase solar home energy systems, domestic biogas, solar irrigation systems and solar mini-grids. A system of green quotas is also being introduced by the Bangladesh Bank with a requirement to allocated 5 per cent of the loan portfolio of commercial banks to green finance. The People's Republic of Bangladesh has borrowed from the International Development Association a number of USD-denominated bilateral loans, like the $360 million due June 2054 to fund a regional waterway transport project, the $350 million bilateral due November 2048 for the Siddhirganj peaking power project to include a reliable power supply, or the three-tranche $244.85 million loan due October 2033 to introduce economic and social policy reforms.

Bangladesh has been a strong driver of finance for rural development, through Grameen Bank and BRAC, as well as many NGOs offering finance to local communities. A local rural development NOG, SOJAG, some farm-level biogas development projects have been developed.

Economic attractiveness: Low to medium. Bangladesh benefits from a competitive clothing sector, thanks to its attractive labor costs, but any changes in the textile sector, or in the competitive position of the country relative to other low-cost countries, would have some profound impact on its economy. Its products benefit from a preferential access to the European market and its production capacity remains high in the textile sector. Its young population, with almost half of its population under the age of 15, supports a high growth rate, but the capital income per individual remains very low, while the economy is benefiting from substantial inflow of remittances from overseas workers. Some international aid provides some support for the budget of the government and it has a moderate level of national debt.

Risk perception: High. The country is exposed to natural disasters, which impact its agriculture and infrastructure. In particular, cyclones and floods can have a severe impact on the country and its economy.

Political risk: High. There are some recurrent political and social tensions. There has been some violence at times of elections, as the tension runs high between the ruling party and the opposition. In 2016, the capital was hit by a terrorist attack, which was claimed by the Islamic State

Options to enhance demand: Low. Possible, as part of a portfolio.

Ease of access to funding: Low. Limited.

Comment: given the active borrowing in the loan markets, we believe that Bangladesh could be a future candidate to issue a Green Bond or a Cat Bond.

COUNTRY PROFILE: BHUTAN

The Himalayas are a key region within Asia-Pacific, as they provide water for more than 20 per cent of the global population living South- and South-East Asia. According to some environmental studies,[56] temperatures are rising faster there than in other, lower altitude regions. This affects primarily agriculture and hydropower generation, a key source of revenues for the country.

Member of the Green Bond Principles (as of August 2017): NO

The capital markets in Bhutan are at a very early stage of development.

Some commercial papers have been issued with a maturity of 30 days to 120 days. Secondary market transactions can take place on a "Delivery Versus Payment (DVP)" basis. Buyers and Sellers must sign a deal confirmation note and submit it to the Central Depository for the ownership transfer. Settlement takes place on a T+1 basis.

Separately, 19 bonds are traded on the Exchange, with a maturity of 7 or 10 years. The shortest maturity bond matures on 22nd August 2018 (DPNB Bond-I G010) and longest available bond on 27th February 2025. A loan of $24 million has been signed in March 2017 with the World Bank to tackle fiscal sustainability and investment climate issues, with a grace period of 5 years.

Three corporate issuers have also raised some funds through the loan market: unrated Dungsam Cement Corp Ltd (INR2 billion due March 2019 and BTN 2.1 billion December 2022), Tangsibji Hydro Energy Ltd (INR3.53 billion due December 2029) and ($100 million) Druk Green Power Corp Ltd, rated locally at BBB+.

Economic attractiveness: Medium to High. With a high growth rate, Bhutan is seeing the positive combination of accelerating growth on higher investment into hydropower to export electricity to nearby countries, low inflation and increasing foreign exchange reserves. The Asian Development Bank Outlook forecasts GDP growth to reach 8.2 per cent in 2017 and 9.9 per cent in 2018, following 6.1 per cent in 2015 and 6.4 per cent in 2016. Bhutan's Eleventh Five Year Plan 2013-18, together with ADB's objectives, recommends green energy, transport connectivity, social sector development, natural resources, urban infrastructure and rural development for the development of low-carbon, climate-resilient policies.

Risk perception: High. Bhutan has a high exposure to climatic change, due to the importance of agriculture, forestry, tourism and hydro-power generation in its economy. Its biodiversity is threatened by natural hazards, which range from forest fires, droughts to glacier lake outburst floods.

Political risk: Low. A constitutional monarchy since 2008, the country is managed by a council of ministers and the legislative power is in the hands of a Parliament with a multi-party representation. A relatively new democracy, in which each family unit, rather than individual, holds one vote, Bhutan elects its National Assembly through universal suffrage. Five political parties are officially registered, while several other are still in exile.

Options to enhance demand: Medium. Following the 2009 earthquake in Eastern Bhutan, ADB, Japan Fund for Poverty Reduction and the government have worked together to rebuild the country. Such international aid allows setting a framework in place and reducing local risks for private investors.

Ease of access to funding: Low. Bhutan is a small country with little track record in participating in the global capital markets. Its exposure to climate change is high and it is not publicly rated by the rating agencies.

Comment: we believe that the economic situation in Bhutan makes it too risky for investors to accept lending in the form of Green Bonds, without some solid guarantee from a supranational entity guaranteeing the repayment of principal. There could be some project-specific bonds to be raised on Dungsam Cement, Tagsibji Hydro Energy or Druk Green Power Corp.

COUNTRY PROFILE: CAMBODIA

Member of the Green Bond Principles (as of August 2017): NO

The Kingdom of Cambodia is the recipient of several bilateral term loans maturing in December 2049, as well as two sovereign loans in USD: a $209.5 million bilateral loan from the Asian Development Bank to reduce poverty and promote inclusive growth and a $54.44 million loan from the Asian Development Bank to rebuild roads, bridges and irrigation systems damaged in the 2011 floods (the government of Australia granted $5.25 million to co-finance the project).

Also, there have been a number of borrowers, including:

- $35 million unsecured loan from Cathay United Bank for the Bank for Investment and Development of Cambodia Plc,
- a $50 million unsecured term loan from ANZ for Viettel Cambodia Pte Ltd, signed in April 2016 and maturing in April 2018, to finance some electronic equipment and other capex
- a $55 million term loan due July 2020 for PRASAC Microfinance Institution from Deutsche Investitions Und Entwicklung, E Sun Commercial Bank/Singapore, Finnish Fund for Industrial Cooperation and Oesterreichische Entwicklungsbank AG
- a $35 million loan due May 2020 for J&L Property Development Co Ltd for Bank of Taiwan, Bank of Panhsin, Land Bank of Taiwan, Sunny Bank, Taiwan Business Bank and Taiwan Coopoerative Bank
- a $35 million loan due December 2019 for Bank for Investment and Development of Cambodia
- a $170 million loan due November 2017 for CamGSM Co Ltd from Bank of China, China Development Bank and China Merchants Bank
- a JPY7.176 billion loan for Sihanoukville Port from the Japan International Cooperation Agency
- a $80 million loan due September 2019 for Khmer Brewery Ltd from ANZ Banking Corp, Cambodian Commercial Bank Ltd, Cathay United Bank Co Ltd, CIMB Bank Bhd, Hwatai Bank
- a $45 million loan due September 2019 for TaiEasy International Co Ltd/Cambodia from First Commercial Bank and Mega International Commercial Bank.

There are a number of projects that could be suited for inclusion in a Green Bond portfolio. Cambodia is also well supported by international lenders.

Economic attractiveness: Medium to High. Cambodia is a member of the ASEAN and is benefiting from a strong demand domestically, low inflation, rising personal income and strong credit growth. The need for imports for capital goods is closely linked to the high level of international aid and remittances from overseas. The country will remain highly dependent on foreign aid.

Risk perception: High. The country has been seen as having a high political risk for a number of years and, as such, some international investors are still restricted to invest.

Political risk: High. The latest election, which saw the Cambodian People's Party of Hun Sen win by a reduced margin, was contested by the Cambodian National Rescue Party. Social tensions run high and there have been a number of protests, which the government has controlled through severe repression. The next elections will take place in June 2018, which will likely lead to high tensions.

Options to enhance demand: Low. A reduction of social and political tensions is necessary for private investors to see Cambodia favorably. Only when political stability will be assured and the growth of the economy continues will they consider putting some capital to work in the country.

Ease of access to funding: Medium. The international donors are the biggest providers of foreign capital to the country, which still relies on high levels of capital needed to purchased capital goods and imported oil to fund the development of the country.

Comment: Cambodia has demonstrated its ability to raise some loans from institutional/supranational lenders, but its political situation is a clear deterrent for private lenders. It is also the recipient of international aid from various countries.

COUNTRY PROFILE: FIJI

Member of the Green Bond Principles (as of August 2017): NO

With the launch in 2010 of an electronic trading platform, the South Pacific Stock Exchange (SPSE), initially established in 1979 and owned by eight shareholders, is the only licensed exchange in the Fiji Islands, where listed company shares, government bonds, statutory authority bonds, government treasury bills, statutory promissory notes, Reserve Bank of Fiji notes and tradable term deposits are traded on a daily basis.

The first international bond issued by Fiji dates back to September 2006, when the country printed a $150 million 5-year bond with a coupon of 6.875 per cent at a price of 99.48 (a spread of 225bps over US Treasuries). Its ticker is: FIJI. In 2011, the government of Fiji subsequently issued $250 million bond due 2016 at par, with a 9 per cent coupon. It was then able to improve its borrowing cost when it issued a 5-year bond denominated in USD at a price of 98.957 in September 2015 with a 6.625 per cent coupon, a $200 million face value and a B1 foreign currency senior unsecured rating by Moody's and a B+ rating by Standard & Poor's. In May 2016, Moody's has placed the rating of Fiji on Positive Outlook, from Stable, based on higher economic growth, macro-economic stability over the medium-term, lower political risk, policy reforms and better funding conditions. According to Bloomberg, the pricing was able to improve at the issuance from an initial price talk of 6.875 per cent, with asset managers buying 46 per cent of the issue, pension funds 45 per cent, private banks 6 per cent and banks 3 per cent. By region, institutions from Asia Pacific took 55 per cent of the issue, Europe 18 per cent and Offshore U.S. 27 per cent. Since issuance, the bond price has gyrated between a yield of 7.4 per cent and 6.0 per cent (where it currently trades, as of August 2017).

Following the bond issue, Minister of Finance Aiyaz Sayed-Khaiyum commented that there may be some further opportunities to consolidate some SOE debt, with Fiji Electricity cited as having about $320 million of guaranteed debt (Bloomberg). With a current yield of 6 per cent, the Sovereign government bond issue provides a strong benchmark to price a subsequent bond. A rating upgrade by Moody's would provide the perfect backdrop to launch an environmentally friendly bond issue and set a precedent among our universe.

In February 2016, Fiji was hit by cyclone Winston, a category 5 storm with winds averaging 200-220km/h and waves of 12 meter high. This was the strongest storm to ever hit Fiji and caused some extensive damage. This cyclone turned out to be not only the most intense on record, but also the costliest. 44 people lost their lives and 40,000 homes were damaged. The total damage from the storm amounted to $1.4 billion.

In October 2017, Fiji announced that it would issue FJD100 million of bonds with a maturity of 4 years and 12 years, in order to support its goal to increase clean energy. The issue has been issued a certification report by an independent assessment company to reassure investors about the well-founded purpose of the bonds.

Economic attractiveness: Low to medium. Cyclone Winston in February 2016 had a profound impact on the economy, with damage to the economy estimated by ADB at 28 per cent of GDP, mostly in forestry and agriculture. The reconstruction efforts will accelerate in 2017 and 2018 and will focus on develop roads and other infrastructure. ADB expects GDP to grow by 3.5 per cent in 2017 and 4 per cent in 2018.

Risk perception: Medium to Low. International institutional investors have demonstrated a willingness to lend to Fiji through a number of international debt issues.

Political risk: Medium. Even though Fiji has a multiparty, parliamentary democracy, it has a history of coups (1987, 2000, 2006). Its political landscape is highly polarized, split between indigenous Fijians, who control most of the land under a collective ownership of the traditional clans, and Indo-Fijians, mostly sugarcane farmers, who must lease land from ethnic Fijian owners.

Options to enhance demand: High. Fiji would benefit from the issuance of a catastrophe bond or some other form of instrument supporting the low-carbon, climate-resilient agenda. The recent Winston cyclone remains fresh in the memories of the international community and the rebuilding efforts are under way. They represent a golden opportunity to fund some climate-resilient infrastructure that supports the adaptation of the country to a low-carbon environment.

Ease of access to funding: Medium to High. There have been several bond issues in the capital markets already and there is a potential for more such issuance.

Comment: Fiji has just issued a Green Bond and could be a candidate for more such issuance, or even a Cat Bond. International fixed income investors are familiar with the issuer, which has been in the market for the past 11 years and is on a positive rating trend with at least one public rating agency. The Winston cyclone, which was one of the strongest to hit on record, may remind investors that this region is prone to devastating natural disasters, making a cat bond something difficult to sell.

COUNTRY PROFILE: MALDIVES

Member of the Green Bond Principles (as of August 2017): NO

A private sector Stock Exchange exists in Male, established in April 2002, but it is very small with only 4 companies listed.

In June 2017, the Ministry of Finance of the Republic of Maldives issued a $200 million, USD-denominated, 5-year bullet eurobond at par with a coupon of 7 per cent. Its ticker is: MVMOFB and its ISIN: XS1617562290. It carries a rating of B2 by Moody's and B+ by Fitch. Interestingly, its lead manager was BOCOM International Securities Ltd, a Chinese bank.

Apart from the Sovereign, two additional issuers have raised some funds in bonds or loans in USD: a $32 million term loan for State Trading Organization from the Bank of Maldives PLC and the Export Import Bank of Thailand to finance the construction of the Radisson Blu hotel in Maldives, and $205 million in three tranches for Salt Bidco.

Economic attractiveness: Low to medium. Tourism is a major contributor to the economy of the Maldives and it has remained weak for the last three years. GDP growth has increased to 3.4 per cent in 2016, up from 2.8 per cent in 2015. ADB projects growth to increase to 3.8 per cent in 2017 and 4.1 per cent in 2018. The promotion of the islands to Chinese tourists is seen as a way to boost the tourism market. Maldives' Tourism Minister has indicated that the Maldives was looking to attract at least 1 million of Chinese visitors per year over the coming five years. This is a real opportunity to promote new infrastructure and tourism projects for the country, but it can also have a damaging impact to the fragile ecosystem of the land.

Risk perception: High. Investors will see the high dependency on tourism as an issue, as the country is exposed to anything affecting the influx of tourism (natural disasters, political changes, etc...).

Political risk: High. Without any political party commanding an outright majority, the country remains subject to some episodes of instability.

Options to enhance demand: Low to Medium. Given the importance of tourism, which typically can attract some high level of investment from international hospitality groups, the participation of supranational bodies to support a low-carbon, climate-resilient economic agenda is likely to be seen as a positive driver for new investments.

Ease of access to funding: Medium. The issuance of a new bond issue paves the way for the broader acceptance by international institutional investors of the country as a destination for investments.

Comment: the bond issue by the Republic of Maldives is too recent to provide a strong benchmark for international investors, yet it is an excellent first step to establish the credentials of the borrower among the global fixed income community. We consider that it is too early to envisage a stand-alone issue as a Green Bond or a Cat Bond.

COUNTRY PROFILE: MYANMAR

Member of the Green Bond Principles (as of August 2017): NO

The bond market in Myanmar is composed of only domestic issues in the local currency, with 15 different bullet issues maturing between 11/2017 and 11/2022.

Until only recently, Myanmar has been under US sanctions (for nearly 20 years), up until October 2016, when President Obama issued an executive order to terminate them. Yet, the European Union continues to have an embargo against Myanmar. The 'restrictive measures' include the prohibition of financial assistance used for providing arms and goods that might be used for internal repression. In April 2017, these sanctions have been renewed for another year to April 2018.

Economic attractiveness: Medium. Since 2011, Myanmar has engaged in a program of economic reforms that have put FX liberalization, foreign investment, taxation, anti-corruption and trade development at the heart of the government's policies. The increase in foreign investments has been substantial. The most important product remains rice. There is significant problem of a lack of infrastructure, with outdated railways and unpaved roads. The rice trade, energy and heavy industries are controlled by the military government. The low labor costs make the country attractive for manufacturing, in particular for the garment trade. It is also an attractive producer of precious stones.

The exploration and production of oil and gas, as well as the domestic gas transmission, is controlled by a national company, Myanmar Oil and Gas Entreprise (MOGE). Seadrill, of Norway, is involved in offshore drilling. Exports mostly go through Thailand. The largest investing countries in Myanmar are China, Thailand and Japan.

Risk perception: High. The country must deal with the security issues of the drug trade, as well as the continuing war of the government with some ethnic groups. It is still seen as a major hub for the production of drugs, being the second largest supplier of opium (after Afghanistan).

Political risk: High. The first openly contested general elections were held in 2015 and gave an absolute majority to the National League for Democracy of Aung San Suu Kyi. A successful transition from the military rule is key to Myanmar's future.

Options to enhance demand: Medium. As a member of ASEAN, Myanmar can get some support from regional institutions, as well as from multinational development banks.

Ease of access to funding: Low. There are still many restrictions for Western foreign lenders to commit funds to Myanmar.

Comment: given the existing sanctions, we believe that Myanmar is currently unable to successfully carry out a bond issue on its own.

COUNTRY PROFILE: NEPAL

Member of the Green Bond Principles (as of August 2017): NO

The country is currently not rated by the rating agencies.

There is currently no domestic or international bond issue by the Federal Democratic Republic of Nepal. Some loans made by the World Bank in 2017 are outstanding, including a $130 million 38-year loan with a 6-year grace period to finance the construction and operation of solar parks with an outstanding capacity of 25 megawatts, as well as a $20 million bilateral loan by the International Development Association with a 5-year grace period to fund a hydropower development project.

Economic attractiveness: Low. Nepal is highly dependent on its agriculture, which provides for a third of GDP. With only 20 per cent of its land cultivable, 41 per cent made of forest and the rest made of mountains, its geography is a major constraint. This is worsened by the impact from monsoon rain, which may cause some economic volatility. Overseas remittances represent almost a third of GDP. Nepal also receives a large amount of foreign aid from several countries (UK, USA, Japan, Germany, Scandinavia).

Risk perception: High. The country depends on foreign aid for half of its national budget. Although it has made some progress towards economic liberalization, including a convertible currency and the privatization of state owned enterprises, much remains to be developed.

Political risk: High. The country has transitioned from a monarchy to being run by the Communist Party. This has caused a lot of uncertainty on the direction of the political agenda.

Options to enhance demand: Low. The country is highly dependent on foreign aid.

Ease of access to funding: Low. The political instability of the country makes it difficult to reassure lenders that the country is a safe investment destination.

Comment: we believe that Nepal would struggle to successfully carry out a bond issue by itself. Yet, the World Bank loans may be included in a securitized transaction, if, after review, they do indeed qualify as Green Bonds under the Green Bond Principles.

COUNTRY PROFILE: PAPUA NEW GUINEA

Member of the Green Bond Principles (as of August 2017): NO

The bond market in Papua NewGuinea is composed of only domestic issues in the local currency, with several different bullet issues maturing between 09/2017 and 05/2031. There are no foreign currency bonds outstanding.

Following the successful issuance by Sri Lanka to raise $1 billion through a syndicated loan in July 2016, Papua New Guinea borrowed $310 million through a loan denominated in USD. It has been arranged in November 2016 by Credit Suisse (Singapore) Ltd., ICBC Singapore and Investors Associates Inc.. According to Bloomberg, Credit Suisse has committed $200 million, ICBC $100 million, BRED Bank $10 million, while Societe Generale and ANZ are also lenders under the facility. As far as we know (we have not reviewed the loan document), this loan is designed to fund general sovereign financing needs and are not tied to a particular project. Commenting on the loan to Papua New Guinea, Saurabh Banglani, Credit Suisse's Director for loan syndications in Singapore commented that regional and international banks were showing more interest in sovereign loans to promote infrastructure development, according to a Bloomberg story.

The Chairman and Governor of Bank of Papua New Guinea, Mr. Loi Martin Bakani CMG, has been cited by Bloomberg as saying that a $500 million 5-year USD-denominated bond issue is planned during the second half of 2017.

Separately, **PNG Power Ltd.**, has borrowed through $57.3 million through a bilateral loan denominated in USD from the Asian Development Bank and PGK418 million from ANZ, Bank South Pacific Ltd and Westpac Banking for working capital purposes. Also, **Kumul Consolidated Holdings** has borrowed JPY8.261 trillion in January 2010 from the Japan International Cooperation Agency. **Papua New Guinea Liquefied Natural Gas** has borrowed $1.95 billion in a term senior secured loan due December 2024 from a syndicate of lenders, including ANZ, BoTM UFJ, BNP Paribas, Calyon, China Development Bank, CBA, CIC, DNB, Intesa Sanpaolo, Mizuho Bank Canada, NAB, Natixis, Societe General Asia, Standard Chartered Bank, Sumitomo Mitsui Banking Corp, Unicredit Banca SpA and Westpac Banking Corp.

Economic attractiveness: Medium. The country holds a lot of attractive mining resources (gold, oil, copper), accounting for three quarters of the country's exports. A large number of multinational oil companies are interested in investing in the country for the development of oil and gas. The country also holds some significant forests, although deforestation for the cultivation of oil palm is a major problem. The country is mostly rural and it holds a very large diversity of indigenous populations. Among the other major exported products are coffee, cocoa and coconut.

Risk perception: Medium. Investors could be receptive to a bond from Papua New Guinea, given the interest for its natural resources from various interests. The fact that some foreign lenders are already involved with some of the country's natural resources projects is a good omen.

Political risk: High. The country is subject to a lack of governance standards, some health problems (HIV/AIDS) and a limited capacity in delivering basic services.

Options to enhance demand: Low. The interest of some "brown-energy" multinational groups could be tested by seeking the support of these same groups to sponsor some green projects that can be included in a regional funding initiative for green investments. Papua New Guinea is already a beneficiary of a program with the European Union for Climate Change and Sustainable Energy. The European Union has also funded some programs at the University of Papua New Guinea.

The country belongs to the WTO, the World Bank, the ASEAN Regional Forum, the Pacific Islands Forum and it will host APEC 2018, as well as a leaders' summit.

Ease of access to funding: Medium. There are already some outstanding loans funded by a syndicate of international lenders. Such transaction can be a good support for a subsequent international bond, but it would need to get some credit enhancement to be able to be well received by the investing community.

Comment: we believe that Papua New Guinea would struggle to successfully carry out a bond issue by itself. Yet, the Credit Suisse/ICBC/Investor Associates loans may be a good precursor to a loan to be included into a securitized transaction with some parameters aligned with the Green Bond Principles.

COUNTRY PROFILE: SAMOA

Member of the Green Bond Principles (as of August 2017): NO

A locally self-governing, unincorporated territory of the United States with a constitution last revised in 1967, American Samoa is in a position similar to that of Puerto Rico, which in effect declared a form of bankruptcy this year with $74 billion in debt and $49 billion of unfunded pension obligations and is now fighting bondholders in court. This sets a bad precedent for lenders to greet a new borrowing from Samoa with cold feet.

A number of obligations are currently outstanding. An $18.6 million Department of Interior Loan carries a 5.4 per cent coupon and has a maturity of April 2027. Its interest payment is backed by the payments due to the Territory under an agreement with certain tobacco companies. In 2015 and 2016, the Territory issued $44.195 million of Series 2015A at a coupon of 6.36 per cent, $23 million of Series 2015B at a coupon of 10 per cent and $11.72 million of Series 2015C bonds at a coupon of 7.5 per cent. Some of these funds were used to fund some projects relating to public safety, transportation, startup capital for a bank, as well as general government purposes.

Economic attractiveness: Low. The economy depends on agriculture, overseas remittances and foreign aid. The most important foreign trading partner of Samoa is New Zealand, which purchases half of the country's exports (coconuts and fish), while selling more than a third of the country's imports (food, beverages, machines, fuels).

Risk perception: High. Investors will be unwilling to commit investments due to the lack of economic diversification, a high risk of natural disasters (cyclones), as well as the low level of exports.

Political risk: Low to Medium. The local situation is one guided by tradition and local ownership.

Options to enhance demand: Low. There are few options available for the country to increase its attractiveness, apart from the help it can seek with the multinational development banks and its foreign donors.

Ease of access to funding: Medium. There are some loans already outstanding, which is a positive start for the country. However, after the problems face by Puerto Rico, there might be a higher reluctance by foreign lenders to provide funds towards the country.

Comment: we believe that Samoa would struggle to successfully carry out a bond issue by itself, given the bad precedent set by Puerto Rico. Yet, the outstanding bonds may be a good inclusion to a securitized transaction with some parameters aligned with the Green Bond Principles.

COUNTRY PROFILE: SOLOMON ISLANDS

Member of the Green Bond Principles (as of August 2017): NO

A $15 million term unsecured loan was signed in January 2017 with a 20-year maturity with the Abu Dhabi Fund for Development and the International Renewable Energy Agency as lenders. The use of proceeds includes some project finance and the loan was designated as a Green Bond/Loan.

Economic attractiveness: Low. The economy is dependent on timber, palm oil and gold. Tourism is an important service industry, but the lack of infrastructure limits its expansion.

Risk perception: High. Some ethnic violence has hit the country and caused the sharp fall in exports of timber, palm oil and gold. Investors will continue to see the country as a risky market to invest in.

Political risk: High. The government is often the result of unstable parliamentary coalitions and the political parties are seen by international investors as weak. There are many votes of no confidence and frequent changes of ministers. This instability makes it unattractive for investors.

Options to enhance demand: Low. The country is highly dependent on foreign aid from Australia, New Zealand, the European Union, Japan, as well as Taiwan. It is a member of the IMF, the Commonwealth, as well as the European Union/Africa, Caribbean and Pacific Countries (ACP).

Ease of access to funding: Low. The loan from Abu Dhabi was small and it remains uncertain whether it can be replicated with other countries.

Comment: the Solomon Islands demonstrated the ability of raising some green bond/loans from institutional/supranational lenders in 2017. This is a strong testament to the prospects of such form of capital funding for Least Developed Nations.

COUNTRY PROFILE: TIMOR-LESTE

Member of the Green Bond Principles (as of August 2017): NO

A $40 million bilateral term unsecured loan was signed with the Asian Development Bank in May 2012 with a maturity in December 2049. The proceeds were used to fund some projects to rehabilitate some roads and for other general sovereign financing needs.

Economic attractiveness: Low to medium. The economy is dependent on exports of coffee, marble petroleum and sandalwood. Half of the population lives in extreme poverty. The IMF has labelled the country "the most oil-dependent economy in the world", with the Petroleum Fund providing all the government budget. The second largest export is coffee, with Starbucks a major buyer. Agriculture is the largest sector of the economy, employing 80 per cent of the active population.

Risk perception: High. The recent existence of the country, its high dependence on a few sectors and its small size make it a significant risk area for investors. The country is poor in property rights, contract enforcements and insolvency, according to the World Bank. This can be balanced by the presence of significant reserves of oil and natural gas.

Political risk: High. Independent since 2002, the country has been occupied by Indonesia for decades, a period that has seen a lot of violence between the separatist groups (Fretilin) and the Indonesian military. In 2011, the government applied to become a member of ASEAN, supported by Indonesia and the Philippines. Timor-Leste is a young democracy, with a multi-party system, the executive power being exercised by a President, Head of State, and a government. Presidential elections are held every five years. The constitution is similar to that of Portugal.

Options to enhance demand: Low. The small size of the economy and its lack of history makes it difficult to support projects funded by international investors.
Ease of access to funding: Medium. Given the violent history of Indonesian occupation, there is today a strong support from international institutions for the development of Timor-Leste, with its application to ASEAN supported by both Indonesia and the Philippines. As a member of ASEAN, Timor-Leste would benefit from the regional integration efforts.

Comment: similar to the Solomon Islands, Timor-Leste demonstrated the ability of raising some loans from institutional/supranational lenders in 2012. This is also a strong testament to the prospects of such form of capital funding for Least Developed Nations.

COUNTRY PROFILE: TONGA

Member of the Green Bond Principles (as of August 2017): NO

The Kingdom of Tonga has borrowed $2 million in the form of a bilateral loan from the International Development Association in May 2016 to fund Tonga's "first inclusive growth development policy operation", with a grace period of 10 years. It also raised TOP3.6 million through 5-year local bonds, which have since matured (in August 2014).

Economic attractiveness: Low to medium. The economy is highly dependent on overseas remittances from its population leaving in Australia, New Zealand and the US (half of its population). The royal family and the nobles own a big size of the monetary sector, while small businesses (retail) is increasingly dominated by Chinese immigrants. Trade is also dominated by the large trading companies of the South Pacific. The agricultural sector is important (subsistence agriculture).

The economic growth is expected to be strong (3-4 per cent, according to IMF), with a high level of foreign reserves and a strong inflow of overseas remittances.

Risk perception: Medium to High. Investors are concerned by the small size of the economy and its heavy dependence on overseas remittances. Inflation is also running high, while public debt is expected to represent half of GDP.

Political risk: Medium. The country's first democratic elections were held in 2010.

Options to enhance demand: Moderate. The government is promoting solar energy as a way to reduce the dependence on fossil-fuel electricity generation. An Energy Road Map has been drafted to reduce diesel importation by 50 per cent through wind and solar energy.

Ease of access to funding: Low. Tonga is looking to join the Asian Infrastructure Investment Bank in June 2017. It is a member of the WTO since 2007.

Comment: we believe that Tonga would struggle to successfully carry out a bond issue by itself, given the tiny amounts raised so far and the lack of history. Some specific projects could be included in a securitization, but it remains subject to identifying the proper projects that meet the requirements of the Green Bond Principles.

COUNTRY PROFILE: TUVALU

Member of the Green Bond Principles (as of August 2017): NO

The tiny size of Tuvalu makes it relatively irrelevant for our study, although it is the recipient of funds from the UK, Australia, New Zealand, Japan, South Korea and the European Union, in addition to the US as part of the South Pacific Tuna Treaty.

Economic attractiveness: Low. Revenues come from fishing, agriculture and direct grants from international donors, making it unattractive from the point of view of building large-scale projects. Nearly a half of GDP is coming from fishing licenses granted to Taiwan, Japan, South Korea, New Zealand and the United States.

Risk perception: Medium to High. Investors will be concerned by the small size of the economy and its lack of diversification.

Political risk: Low. With a little more than 10,000 inhabitants, the political risk is not a real issue.

Options to enhance demand: Low. Tuvalu is a member of the International Monetary Fund (IMF).

Ease of access to funding: Low. It would be difficult for Tuvalu to access some private offshore funding for climate change projects.

Comment: we believe that Tuvalu would not be able to issue any loan or bonds by itself. Some specific projects could be included in a securitization, but it remains subject to identifying the proper projects that meet the requirements of the Green Bond Principles. Separately, a cat bond could be something worth exploring further.

COUNTRY PROFILE: UZBEKISTAN

Member of the Green Bond Principles (as of August 2017): NO

The Republic of Uzbekistan has currently 25 loans outstanding, with the two largest being a $195 million bilateral loan due August 2039 with the World Bank signed in March 2015 to finance the Pap-Angren railway project, as well as a $150 million bilateral loan due March 2039, also with the World Bank, to finance a horticulture development project. Another $260.79 million bilateral loan due June 2039 has been signed to finance the South Karakalpakstan water resources management improvement project, with a 5-year grace period. Another $300 million loan was signed with the Asian Development Bank in October 2014 with a maturity of October 2034 to finance the Takhiatash Thermal power plant.

A $700 million Kexim-sponsored loan for Uz-Kor Gas Chemical LLC due December 2028 to finance the development of the Surgil gas field and the construction of a chemical plant, a $300 million loan from the Asian Development Bank for Uzbekenergo SJSC to install advanced electricity metering to promote energy efficiency.

Economic attractiveness: Medium to High. Although it is lower than previous years, GDP growth is still expected to be a respectable 7 per cent in 2017 (2016: 7.8 per cent &V 2015: 8 per cent), driven by industry, manufacturing, construction and services. The new plan for the country's development is based on the expansion of transportation, communications, energy, water resources, water supply, as well as the access to financial services. The national economy is support by the significant natural resources it holds, in particular gold (the world's 7th largest gold producer), natural gas, oil, copper, lead, zinc, tungsten and uranium.

The development of a stronger private sector will also be supported by the comprehensive government program to develop the modernization of the industrial sector, a new infrastructure, a stronger corporate governance, the expansion of the private sector, the protection of private ownership, better education and healthcare, and a better energy efficiency.

Five projects have been earmarked in the Energy sector: a Power Generation Efficiency Improvement Project (2017), a Second Solar Power Project (2018), a Second Northwest Region Power Transmission Line Project (2018), a Sustainable Hydropower Project (2019) and a Second Power Generation Efficiency Project (2019).

In the Transport sector, five projects include: the Pap-Namangan Railway Electrification Project (2017), the Third Central Asia Regional Economic Corridor (CAREC) Road Investment Program (2017), the Railway Efficiency Improvement Project (2018) and the Third CAREC Corridor Road Investment Program (2019).

In the Water supply and sanitation sectors, three projects exist: the Western Uzbekistan Water Supply System Development Project (2017), the Second Solid Waste Management Project (2018), and the Tashkent Region Sanitation System Development Project (2019).

Risk perception: Medium to High. The national currency is not fully convertible (currency exchange controls have only been lifted in September 2017) and the government policies are generally interventionist (economic control), having a negative effect on the economy. Some import restrictions can sometimes be decided, as well as the temporary closure of borders with neighboring countries (Kazakhstan, Kyrgyzstan, Tajikistan), having a negative impact on trade flows.

Political risk: High. Uzbekistan's government is seen by the Western world as authoritarian, with President Karimov ruling the country for the last 25 years.

Options to enhance demand: High. Uzbekistan is a Group B developing member country of the Asian Development Bank. It has got access to the Asian Development Fund (ADF) and ordinary capital resources (OCR). The country has got some sizeable deposits of copper and other strategic minerals, including gold (with the largest open-pit gold mine in the world), as well as some gas and oil resources.

The government has started to talk to rating agencies in order to receive a sovereign credit rating that would allow it, banks and other national companies to issue debt in the financial markets.

Uzbekistan is a member of EU INOGATE energy program, seeking to achieve some energy investments, as well as a member of the IMF, the World Bank, the Asian Development Bank, the EBRD and an observer of the WTO.

Ease of access to funding: Medium. ADB estimates[57] that Uzbekistan has got $2 billion of resources available for sovereign operations. Some co-financing and funding from other sources are also likely to be available. A technical assistance grant of up to $15 million is also available for private sector investments in energy, chemicals, pharmaceuticals and agribusiness.

Comment: Uzbekistan has no history in the international bond markets, but the fact that it has signed several loans with the World Bank and the Asian Development Bank to fund some specific projects that, at first glance, seem to fit the criteria of the Green Bond Principles, bodes well for the possibility of raising some funds through a Green Bond or a Cat Bond. It already has got a number of specific projects that can be used to launch a Green Bond.

COUNTRY PROFILE: VANUATU

Member of the Green Bond Principles (as of August 2017): NO

Vanuatu is a small Republic in the Pacific, located in a region that is prone to earthquakes and tsunamis. It is the recipient of aid from Australia and New Zealand.

Economic attractiveness: Low to medium. With 80 per cent of its economy composed of agricultural activities (mostly subsistence farming), in particular for copra, kava, timber, beef and cocoa, they represent only 20 per cent of GDP. Imports exceed exports by a factor of 4, while the revenues from tourism help keep the current account afloat.

Risk perception: Medium. Set up as a tax haven and international financial center in 1971, it is home to about 2000 financial institutions offering a wide range of services from banking to investments and insurance. A number of OECD-sponsored reforms have resulted in tighter regulations to counter money laundering. The economy is exposed to fluctuations in world commodity prices. Given its remote location, it faces heavy transport costs and is often hit by cyclones.

Political risk: Medium. With a history of coalition governments with unregular support from Parliament, Vanuatu has seen a number of changes during recent years. It is a republic with a non-executive presidency, elected by Parliament and the Presidents of the regional councils for a 5-year term.

Options to enhance demand: Low. There are little resources available that could serve as a guarantee for a possible Green Bond. A catastrophe bond may be useful to provide some support in the event that a cyclone strikes the country, although it may be difficult to get investors to participate in such a security offering, given the high risks of such natural event happening.

Ease of access to funding: Low. Given the fragile economy heavily reliant on agriculture products, we expect Vanuatu to have some difficulties to participate on its own in a Green Bond, without the help of a multinational development bank or another sponsor.

Comment: similar to Tuvalu, we believe that Vanuatu would not be able to issue any loan or bonds by itself. Some specific projects could be included in a securitization, but it remains subject to identifying the proper projects that meet the requirements of the Green Bond Principles. Separately, a Cat Bond could be something worth exploring further.

We note that, separately, countries that are members of UNESCAP but neither in LDC or SIDS include: Armenia, Australia, Azerbaijan, Brunei, China, France, Georgia, Hong Kong, India, Japan, Kazakhstan, Korea, Kyrgyzstan, Lao, Malaysia, Mongolia, New Zealand, Pakistan, Philippines, Russia, Singapore, Sri Lanka, Tajikistan, Thailand, Turkey, Turkmenistan, UK, US, Vietnam. These countries have debt capital markets of varying sizes and depth, ranging from large, liquid (Australia, China, France, Hong Kong, Japan, Korea, New Zealand, Russia, Singapore, UK, US) to medium-sized, relatively liquid (Malaysia, India, Philippines, Thailand), small, illiquid (Kazakhstan, Mongolia, Turkey) and very small, totally illiquid/nonexistent (Armenia, Azerbaijan, Brunei, Georgia, Lao, Tajikistan, Turkmenistan, Pakistan, Vietnam).

About ESCAP

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is the regional development arm of the United Nations for the Asia-Pacific region. Made up of 53 Member States and 9 Associate Members, with a geographical scope that stretches from Turkey in the west to the Pacific island nation of Kiribati in the east, and from the Russian Federation in the north to New Zealand in the south, the region is home to 4.1 billion people, or two thirds of the world's population. This makes ESCAP the most comprehensive of the United Nations five regional commissions, and the largest United Nations body serving the Asia-Pacific region with over 600 staff.

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