

A report by



In partnership with



COLLABORATIVE INITIATIVE FOR GREEN FINANCE IN SINGAPORE

Singapore as a Green Finance Hub for ASEAN and Asia

November 2017



ABOUT THIS REPORT

This Report aims to mainstream and socialise the idea and opportunities associated with Green Finance, as well as to explore how Singapore as a financial hub can offer Green Finance as additional expertise to better serve the needs of the ASEAN and Asia region. Besides the members of the financial community, the Report hopes to reach out to those in the public and corporate sectors to start thinking about the possibilities and opportunities associated with Green Finance. The financial system is complex and involves many actors, and the Government and Singapore's corporations are key stakeholders that the Collaborative Initiative for Green Finance in Singapore hopes to engage with and push to action.

For the purpose of the Collaborative Initiative, the Report's focus is on the Environmental aspect of the Environmental, Social and Governance (ESG) criteria. The Report covers some aspects of the Social criteria, but only in parts where the environment affects social issues.

This Report is organised into three parts:

- **PART 1: CONTEXT AND FACTORS FOR CHANGE** – Highlights Singapore's reputation and strengths as a financial hub, and sketches the global landscape for Green Finance by identifying emerging global trends and early leaders. It also scopes out the Green Finance opportunities in ASEAN and Asia.
- **PART 2: WHERE ARE WE NOW?** – Examines how progressive Singapore has been on Green Finance. It identifies government policy and actions, as well as current efforts and initiatives by corporations and the financial sector to push towards Green Finance.
- **PART 3: NEXT STEPS FOR GREEN FINANCE** – Provides recommendations on how Singapore can overcome challenges to create a Green Finance hub for ASEAN and Asia.

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The Collaborative Initiative involved 65 financial institutions across the banking and insurance sectors, and institutional investors. A series of meetings, comprising closed-door interviews, roundtable discussion sessions and working group meetings, were conducted with financial sector leaders in Singapore, members of the research community and civil society, as well as foreign and local experts.

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The Singapore Institute of International Affairs (SIIA)

The SIIA is an independent think tank dedicated to the research analysis and discussion of regional and international issues, and plays a key role in Track II diplomacy, supplementing official dialogue between governments. Founded in 1961 and registered as a membership-based society, the institute is Singapore's oldest think tank that aims to help Singapore become a more cosmopolitan and global society through public education and outreach on international affairs.

The SIIA's work on sustainability and the environment focuses on haze caused by fires in Indonesia and on the sustainability of the plantation sector, both key issues for Singapore. The SIIA also works on climate change issues facing ASEAN and Asia. Beginning May 2014, it has annually hosted the Singapore Dialogue on Sustainable World Resources (SDSWR), a multi-stakeholder platform that promotes the exchange of best practices between stakeholders of all levels to address sustainability issues in ASEAN's resource sector.

The SIIA is also a founding member of the ASEAN Institutes of Strategic and International Studies (ASEAN-ISIS), a regional alliance of think tanks. Since 2013, the SIIA has ranked highly as one of the top think tanks in Southeast Asia and the Pacific, in the Global Go-To Think Tank Index done by the University of Pennsylvania. In the index, SIIA has consistently ranked among the top 100 think tanks in the world.

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The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to improve the financial system's effectiveness in mobilising capital towards a green and inclusive economy - in other words, sustainable development. Established in January 2014, it published the first edition of *The Financial System We Need* in October 2015, with the second edition launched in October 2016. The Inquiry has worked in 20 countries and produced a wide array of briefings and reports on sustainable finance.

More information on the Inquiry is at: www.unep.org/inquiry and www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach, mahenau.gha@un.org.

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COLLABORATIVE INITIATIVE FOR GREEN FINANCE IN SINGAPORE

STEERING COMMITTEE

The Collaborative Initiative is guided by a Steering Committee, which provides advice and recommendations to the process whenever necessary. Members of the Steering Committee represent the private sector and non-government organisations.

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Pursuing economic growth in tandem with environmental protection has been a major part of Singapore's development for many decades. The reality of limited resources has produced an ethos that values what the country has and developing that to its fullest potential. Singapore is now a major hub for the region, providing sources of capital and serving as a node in global financial networks. In the environmental sphere, the country has a strong record for being green and expertise is being developed in key sectors, such as water management, and in developing smart and liveable cities.

Today, the world is moving ahead with commitments to address global concerns of climate change through the 2015 Paris Agreement, and Singapore has made significant commitments to play our part. In so doing, we join other leading economies in the world and across Asia that are responding to climate change as a strategic concern and taking steps to shift towards greener and more sustainable economic paths.

One of the key directions forward will be for Green Finance. Through a range of financial services and products, including debt, equity and insurance, Green Finance promotes the efficient flow of capital towards activities and projects that are more sustainable and responsive to climate concerns. At present, financing is mainly deployed towards improving efficiencies and increasing renewable energy. In the future, Green Finance will increasingly impact a wider range of economic activities, and offer a greater variety of financial instruments.

Major economies not only in the West but also in Asia have started to move and take leadership on this issue. Governments are joined by many leaders in the corporate and finance sectors, and the community. Many more seek to manage risk and benefit from new opportunities through Green Finance.

We are pleased to present this Report titled *Collaborative Initiative for Green Finance in Singapore: Singapore as a Green Finance Hub for ASEAN and Asia*. This Report draws on the work of the Collaborative Initiative for Green Finance in Singapore, which was launched in July 2017 with the aims of establishing the baseline for the country's current level of understanding of Green Finance, outlining the opportunities and possibilities, and developing a shared vision to better mainstream Green Finance in Singapore.

In chairing the Collaborative Initiative and preparing this Report, we have drawn on the support and insights of many institutions and individuals who have participated in the discussions and meetings, and gratefully acknowledge their contributions. We hope this Report appropriately analyses and shares the issues concerning Green Finance with those in government, corporations and financial institutions as well as other stakeholders.

Looking ahead, we hope this report and the Collaborative Initiative can help to generate a growing interest, knowledge and momentum for Green Finance across relevant government ministries and agencies, as well as engage with corporations and financial institutions, for the betterment of our country. We also hope that there will be further consideration to consolidate the hub position of Singapore and to evaluate the opportunities that arise in Green Finance by engaging ASEAN and Asian stakeholders more on this issue.

Singapore is not presently at the forefront of the movement towards Green Finance, and can and should consider taking steps forward. This is not only for the better protection of the environment but to enhance the country's relevance and strengths as a financial hub, and gain from the opportunities that Green Finance offers.

ASSOCIATE PROFESSOR SIMON TAY AND MS. YEO LIAN SIM
CO-CHAIRS OF THE COLLABORATIVE INITIATIVE FOR GREEN FINANCE IN SINGAPORE

Singapore's role as a global financial centre is underpinned by trust, capabilities and innovation. Its long-term success requires enablers to underpin cost-effective products and services that deliver profitable financing opportunities supportive of inclusive, sustainable growth and development.

Green Finance places emphasis on lending, investing and insurance that stewards natural capital, and low carbon and climate-resilient infrastructure, businesses and economies. In recent years, Green Finance has risen in importance and scale, responding to current trends of environmental deterioration, climate change, and associated policy and market responses.

Around the world, action on Green Finance has been driven by collaborative action by private and public actors. From Argentina to China, and from France to Kenya, Green Finance has been advanced through coalitions and cooperation among financial market actors, policy makers, central bank and financial regulators, and standard setters.

Singapore's growing focus on Green Finance is to be commended and could be of global importance. Notably, it can serve the country and the broader region as their economies seek finance for the coming transition towards sustainable development. This Report offers the results of a stocktaking of progress, and then goes further in raising awareness, interest and a growing ambition for innovations that deliver market rewards and public goods.

UN Environment has been proud to partner with the Singapore Institute of International Affairs, and to support private actors and the leadership of the Monetary Authority of Singapore, in offering the lessons from international experience based on its extensive networks, and country and international practice. We look forward to accompanying Singapore on its continued journey in placing Green Finance at the heart of the development of its financial centre.

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EXECUTIVE SUMMARY

Context and Factors for Change

Over the last 40 years, Singapore has developed as a leading financial centre, to offer a broad range of financial services that connects and serves regional and global markets. *(Part 1, Section 1)* In this role, the country has taken a forward-looking stance in relation to key trends that impact finance, such as anti-money laundering efforts and fintech innovations. Another emerging trend gathering pace among leading economies and financial centres is in Green Finance. *(Part 1, Section 2)*

Today, the concern over the environment and sustainability has been galvanised by a global consensus on two broader issues – concerns over climate change, and the need for sustainable development and growth. *(Part 1, Section 2)* Countries across the world adopted 17 Sustainable Development Goals or SDGs in September 2015, including supporting Clean Water and Sanitation (SDG 6), Affordable and Clean Energy (SDG 7) and Climate Action (SDG 13).¹ On climate change, 195 countries signed the landmark 2015 Paris Agreement, the first-ever universal and legally binding global climate deal that agrees to a long-term goal of ensuring the rise in global average temperatures is less than 2°C above pre-industrial levels.²

These goals are increasingly driving changes in national strategies, laws and regulations that will, in turn, impact markets, the private sector and citizens. The financial community is not exempt and needs to respond to such changes. The Paris Agreement recognises the key role that finance can play and calls for financial flows to be consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.³

Many European countries are now leading proponents for Green Finance. But the trend is not only seen in the West. Major Asian economies – China, Japan, India and Indonesia – are making clear and early shifts in support of Green Finance. China championed Green Finance during its chair of the G20 Hangzhou Summit in 2016, and has become a global leader in clean energy as well as the world's leading issuer of green bonds. Japan, India and Indonesia have also taken significant steps forward.

The interest in Green Finance builds on global concerns over environmental issues that have developed from the 1990s. Taken broadly, Green Finance is a range of financial services and products, including debt, equity and insurance, that promotes the efficient flow of capital towards activities and projects that are more sustainable and responsive to addressing environmental and climate concerns. *(Part 1, Section 2)* Considerations about Environmental, Social and Governance (ESG) factors have come to be increasingly adopted and implemented by corporations, financial institutions and governments. Green Finance involves tools to help organisations better analyse their portfolio exposure to environmental risk, especially towards pollutive industries. This improves the transparency, stability and resilience of corporations and financial systems.

Opportunities arise in Green Finance too. Moving ahead, new and scalable investment solutions will be required to finance the transition to a low carbon economy. Green Finance opens up new capital streams in the form of green bonds *(Box 1)* and investment funds, among others, and can serve to close the large infrastructure funding gaps in the region.

Green Finance also creates and reshapes opportunities – not only for environmental sustainability and other impacts and benefits, but also for the region's growth and development prospects. *(Part 1, Section 4.1.)* One major opportunity and need in the region arises from infrastructure. Some estimate that ASEAN needs as much as US\$26 trillion to help close its infrastructure gaps.⁴ Green Finance has the potential to help projects that might otherwise be dismissed due to high financial or ESG risk become more financially feasible and viable

1 "Sustainable Development Goals: 17 goals to transform our world", United Nations, Available: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/#prettyPhoto>

2 (n.d.) "Paris Agreement", European Commission, Available: https://ec.europa.eu/clima/policies/international/negotiations/paris_en

3 (2015) "Paris Agreement", United Nations, Available: http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

4 (2017) "Asia infrastructure needs exceed \$1.7 trillion per year, double previous estimates", 28 February 2017, Asian Development Bank, Available: <https://www.adb.org/news/asia-infrastructure-needs-exceed-17-trillion-year-double-previous-estimates>

for investment. New and innovative approaches to help widen participation in Asia's economic growth can also result. *(Part 1, Section 4.2.)*

Singapore is well-placed to contribute to ASEAN and Asia's rise, through Green Finance. *(Part 1, Section 4.3.)* Singapore is a major investor across the region with a strong record in domestic environmental management. Building on its long-time practice of sustainable land-use planning and development, Singapore wants to move further to develop "Smart" and sustainable cities. As ASEAN and Asia seek to develop sustainably, there are opportunities for Singapore to provide services and investments for urbanisation, as well as the financing that will accompany such development.

Where Are We Now? Government, Corporations, Financial Institutions and Instruments

At present, Singapore is not at the forefront of the move towards Green Finance. However, the foundations for such steps have already been laid. The Singapore Government has signalled the intention to shift national attitudes, perspectives and business behaviour towards combating climate change, and to strategically shift the economy towards sustainable development. *(Part 2, Section 1)*

These include commitments under the Paris Agreement to reduce Singapore's emissions intensity by 36 per cent below 2005 levels by 2030 and stabilise its emissions with the aim of peaking around 2030.⁵ The government is also repricing resources with a carbon tax on large direct emitters of greenhouse gases from 2019, and with increased tariffs on water and electricity. A succession of public consultations has laid out strategies for a green and sustainable economy that is centred on innovation and eco-smart living spaces, and the government's inaugural Public Sector Sustainability Plan 2017-2020 signals its intention to take the lead in going green.

Some corporations and financial institutions have begun to respond. Visible steps and targeted efforts made by the Singapore Government concerning environmental protection and the transboundary haze have sped up ESG integration among banks. *(Box 3)* Industry associations have the potential to move the needle significantly on ESG reporting as well. Following the release of the Association of Banks in Singapore (ABS) Guidelines on Responsible Financing in 2015, banks have started to integrate ESG criteria in their lending and risk assessments, and develop in-house capacity through specialised training. *(Part 2, Section 3.1.)*

More Singaporean corporations are starting to profile themselves through a sustainability lens with the introduction of the Singapore Exchange (SGX) rule making it mandatory for all listed companies to report according to its Sustainability Reporting Guidelines on a "comply or explain" basis. *(Part 2, Section 2)* From January 2018, all Singapore-listed companies will produce annual sustainability reports and this step will increase the availability of relevant and reliable ESG information. Such information can provide inputs about corporate policies, targets and performance to support the growing interest in green products, such as green bonds *(Part 2, Section 3.4.)* and green equities. *(Part 2, Section 3.5.)* Products such as Exchange Traded Funds (ETFs) allow more investors, including both institutional and retail investors, easy access to green- or ESG-conscious investments.

Many continue to hold a "wait-and-see" attitude about Green Finance and its instruments. Others are sceptical about "green washing", questioning whether claims of sustainability can be verified. While some steps are seen in Singapore, a strong and established Green Finance market does not exist for corporates or financial institutions at present.

5 National Climate Change Secretariat (2016) "Singapore's climate action plan: Take action today, for a carbon-efficient Singapore", NCCS, Available: www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf

Singapore has a strong foundation to move forward with Green Finance, especially given its strengths as a financial hub, strong record on governance and environmental protection, as well as connections to the region. To emerge as a Green Finance hub, however, will require vision, concerted efforts and concrete steps. Much more can be done.

Considering the Next Steps for Green Finance

When we look at economies that are moving ahead with Green Finance, there are key factors that enable and drive that change. *(Part 1, Section 2)* First, governments take leadership to set direction and signal clear policy, commitment and resolve to shift the economy towards a sustainable path. Second, conscious efforts must be made to build and share knowledge and capacity among key stakeholders with outreach and engagement of the financial sector, corporates, investors and the public to embrace sustainability and innovate to create new opportunities. Third, there is effort to nudge key players to help jump-start a Green Finance market, through market development efforts with supportive legal and regulatory frameworks, as well as incentives. Fourth, as the market progresses, it will be important to balance between setting standards and encouraging innovation. Over time, efforts must move towards defining green in relation to different industry activities and financial products. More importantly, international standards and practices should be adapted according to local needs and practices. Lastly, efforts must be made to better recognise the Green Finance opportunities in the region, and pave the way for corporations and financial institutions to gain from those opportunities.

The following summarises the recommendations set out in the report to move ahead and develop Singapore as a Green Finance hub for the region. The full list of recommendations is available in Part 3 of the report.

1. Government to Set Direction

The Singapore Government should consolidate commitments on climate change with its aspirations for a green economy and grow Green Finance in tandem. *(Part 3, Section 1)* The Government can map the way and provide coordinated oversight through a focal point or government agency. Efforts should be made to encourage the finance and corporate sectors to rethink the potential business and investment opportunities associated with sustainability. This is not only for sectors that are clearly related to sustainability (e.g. renewable energy and water) but in key areas for the region, such as transport, telecommunications, industry, agriculture and food production, and forestry and land management.

Moving forward, there is also a need to recognise the diversity of actors, with differing will and capacity. Some are still at preliminary and exploratory stages on Green Finance, while others are early adopters and leading edge institutions. *(Figure 4)* This is the case not only with banks but other stakeholders in the financial community, including institutional investors and insurers. The Government should encourage the corporate and financial sectors by recognising the efforts made by early adopters and leading edge institutions, as well as to use the green economy to attract global and regional green business to set up in Singapore. Green Finance should also be used to engage and empower Singaporean SMEs and innovators.

The Government needs to incentivise the market to develop green bonds and other instruments for Green Finance. *(Part 1, Section 3)* It should also consider Green Financing as an option to raise funds, especially for sustainable infrastructure projects or other green national projects. This can powerfully nudge the Green Finance market forward.

2. Building and Sharing Knowledge and Capacity

It is critical that the financial sector develop not only awareness about the concept of Green Finance but the knowledge and capacity to move forward in practical and tangible ways. Early adopters and leading-edge institutions in Green Finance need to be brought together with other stakeholders in the financial sector through networks, forming platforms for information sharing and the exchange of best practices with global leaders and experts in Green Finance. *(Part 3, Section 2)* This can take the form of a Green Finance Advisory Panel, with thought leaders and experts based in Singapore and from around the world.

Other initiatives to promote knowledge building, sharing and dissemination of green growth opportunities can be through green investment conferences and seminars. Promoting professional training and employment opportunities in green industries and courses on sustainability customised for the financial sector should be encouraged, with incentives provided for corporations and financial institutions to tap on relevant advisory services for green economy and Green Finance.

3. Jump-starting Green Finance Markets and Investment

The Green Finance market in Singapore requires a jump-start. Public and private stakeholders have a key role to play in providing the market with leadership and a catalyst to follow suit. *(Part 3, Section 3)* Government actions and spending – both directly and through its agencies and statutory boards – should be aligned with Green Finance. In parallel, large, influential or government-linked institutional investors should be encouraged to increase their portfolio of green investments, as well as to improve transparency about their use of ESG in investment decisions. The setting up of “green pockets” by key institutional investors should be made with market-rate returns objectives, and can help shift significant equity allocations to green funds, companies and low-carbon indexes.

Encouraging financial institutions to disclose their green portfolio characteristics helps to improve the understanding of the financial sector’s green progress in Singapore. The development of green benchmarks also motivates financial institutions to offer more green products in the long run.

For banks, there is room to expand lending to better support the green economy. Banks can be incentivised to make special allocations of capital where a certain percentage of lending is earmarked for green businesses or projects.

The insurance sector should also be nudged to innovate in response to climate and environment risks. Mandating the purchase of insurance for key industries with high environmental risks can be considered to facilitate compensation of damage from environmental pollution. A pooling scheme can also be considered to encourage the uptake and underwriting of green risks.

Investor interest should be developed as well. This includes training within financial institutions to improve the “sales channels” of green investment products targeted at corporate and retail customers, particularly high-net-worth clients. For a longer-term effect, efforts should be made to seed awareness of Green Finance among consumers, especially millennials, through roadshows and social media platforms.

4. Defining the Value of Green

Defining the value of green is critical to advancing a green economy and Green Finance. *(Part 3, Section 4)* Such information is important so that corporations and financial institutions start to recognise the value of green and measure its impact on business and investment. Being able to distinguish the value of green and measure that data over time also enables financial market participants to become more discerning in the selection of avenues and candidates for financing.

Coming to a consensus of what is green or not is especially challenging in the early stages, given diverse attitudes and actors. Ways must be pursued to embrace diversity in applications and products, encourage innovation in understanding and articulating the case for how individual projects are green, as well as to develop norms and practices that evolve into established standards. More importantly, Singaporean corporations and financial institutions need to draw on internationally recognised principles already established for green bonds, climate bonds, bank lending, investment and insurance. This is important to ensure that Singapore's application of Green Finance is aligned with the demands and needs of the international market.

Singapore's financial sector should press ahead to work with corporations to establish norms of good practices aligned with global principles. Establishing a "band of green", which marks minimum global standards of green while allowing room for improvement to accommodate the current capabilities of the financial sector, can be a first step. The Singapore Government can also work with the financial sector and other relevant industries to set standards and give guidance through targeted green national projects or Green Finance incentives similar to that of the Monetary Authority of Singapore's Green Bond Grant scheme.

Helping to define green and its value, especially at international fora, draws and links to Singapore's commitment and credible record in governance and standard setting.

Conclusion

Singapore is a leading financial centre, offering financial services that connect to and serve regional and global markets. The country has taken a forward-looking stance in relation to many key trends.

The world, including Asia, is moving forward with Green Finance. This is not only because of a recognition of our common responsibilities to address climate change and sustainability concerns. There is also a preference and shift towards new and innovative forms of development that are sustainable and offer many economic and business opportunities.

For Singapore, the influence of these factors is increasingly felt. Our national commitments under the Paris Agreement on climate change are leading us to shift to a green economy. We are also beginning to recognise the many regional opportunities that arise from that shift. *(Part 3, Section 5)*

Singapore is well poised to develop itself as a Green Finance hub, given both its strengths as a financial centre as well as its strong record in environmental protection and governance. These strengths need to be focused and coordinated to move forward. Developing a broad vision, knowledge, capacity, markets and key stakeholders on Green Finance needs to be made in combination with the efforts by government, corporations and the financial sector to develop Singapore into a Green Finance hub of global standing.

“Today, we are confronted with something much more serious. Then, we are only worried about costs. Now, we are concerned about the consequences of CO2 emissions and climate change. We can try and be the greenest city in the world and not going to make any difference in the outcome... the point is if we don't do this, we'll lose our status as a clean, green city and we'll lose our business and we'll lose our extra premium for being an unusual city.”

– Mr. Lee Kuan Yew, Minister Mentor, Dialogue at the Singapore Energy Conference at Raffles City Convention Centre in Singapore, 4 November 2008⁶

⁶ Transcript of Minister Mentor Lee Kuan Yew's dialogue at the Singapore Energy Conference in Singapore, 4 November 2008. Available: <https://www.nccs.gov.sg/news/transcript-minister-mentor-lee-kuan-yews-dialogue-singapore-energy-conference-raffles-city>

PART I: CONTEXT AND FACTORS FOR CHANGE

1. Singapore as a Financial Hub: Reputation and Strengths

Over the last 40 years, Singapore has developed as a leading financial centre, serving not only its domestic economy, but also contributing to the global market. Singapore's financial centre offers a broad range of financial services, including banking, insurance, investment banking, treasury services and an open capital market. Its foreign exchange (FX) and derivatives markets contribute towards Singapore's growth as a major global trading and treasury hub.

The country has a high rated (Aaa) and stable credit profile, and fiscal strengths boosted by the high per-capita income of residents and citizens, a diverse and competitive economy, and robust institutions.⁷ This is augmented by strong government support, a pro-business environment, effective regulation, excellent infrastructure and access to financial expertise through a broad community of skilled and cosmopolitan finance professionals. The banking sector is broadly represented by 444 banks from all major regions, including Chinese banks heavily involved in financing projects under the Belt and Road Initiative.⁸ Singapore also hosts 815 institutional investment funds and 361 re/insurers.⁹

With one of the most developed and open capital markets in Asia, Singapore's bond market attracts a diverse range of issuers, with over US\$221 billion in total local currency bonds outstanding, and an additional US\$53 billion of bonds outstanding.¹⁰ Bond issuance by financial institutions has grown. Latest statistics from the Monetary Authority of Singapore (MAS) show that financial institutions make up 30 per cent of issuance volumes, up from 19 per cent in 2014.¹¹ Other categories of issuers include non-property corporates, property corporates, government agencies and statutory boards, special purpose vehicles, and supranational identities.¹²

Singapore's location in ASEAN and Asia allows the financial sector to service the needs of the region where growth has outperformed global norms and considerable economic opportunities abound. For example, Singapore serves as the Asia hub for the World Bank, and its member firm, the International Finance Corporation plans to open a full fledged Asia treasury hub to help firms raise funding in local currencies for regional projects out of Singapore.¹³ The Asian Development Bank (ADB) is also partnering International Enterprise (IE) Singapore¹⁴ to establish the Asian Infrastructure Centre of Excellence in Singapore, which works with governments to select infrastructure projects, get them to a bankable stage and match private investors with these projects.¹⁵

Singapore also pursues forward-looking and progressive policies across a wide range of issues that concerns the financial community. Being a part of global trends and contributing to financial sector development helps

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- 7 Moody's Investors Service (2017) "Moody's: Singapore shows diverse and competitive economy, strong fiscal metrics", Moody's Investors Service, 17 August 2017, Available: www.moody.com/research/Moodys-Singapore-shows-diverse-and-competitive-economy-strong-fiscal-metrics--PR_371390
- 8 Monetary Authority of Singapore, Available: <https://eservices.mas.gov.sg/efd>
- 9 Monetary Authority of Singapore, Available: <https://eservices.mas.gov.sg/efd>
- 10 ADB (2016) "ASEAN+3 bond market guide 2016: Singapore", Asian Development Bank, October 2016, Available: <https://www.adb.org/sites/default/files/publication/204336/asean3-bond-market-guide-sin.pdf>
- 11 Monetary Authority of Singapore (2016) "Singapore corporate debt market development 2016: Singapore – Global City, World of Opportunities", MAS, Available: <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Surveys/Debts/Singapore%20Corporate%20Debt%20Market%20Report%202016.pdf>
- 12 Monetary Authority of Singapore (2016) Singapore corporate debt market development 2016: Singapore – Global City, World of Opportunities, MAS, Available: <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Surveys/Debts/Singapore%20Corporate%20Debt%20Market%20Report%202016.pdf>
- 13 Lee, Marissa (2015) "IFC setting up Asia treasury hub in Singapore", 28 October 2015, The Straits Times, Available: <http://www.straitstimes.com/singapore/ifc-setting-up-asia-treasury-hub-in-singapore>
- 14 IE Singapore and SPRING Singapore will merge in 2018 to form Enterprise Singapore, a new agency that will help Singapore companies develop capabilities, innovate and take advantage of international opportunities.
- 15 "Towards a new infrastructure asset class by 2020" – Speech by Mr Lim Hng Kiang, Minister for Trade and Industry, at the World Bank-Singapore Infrastructure Finance Summit, 3 June 2014, Available: <http://www.mas.gov.sg/news-and-publications/speeches-and-monetary-policy-statements/speeches/2014/min-lim-speech-at-world-bank-singapore-infrastructure-finance-summit.aspx>

Singapore to maintain its strengths and relevance as a financial hub. In October 2017, MAS released a Financial Services Industry Transformation Map (ITM), which aims to develop Singapore as a hub and Asian centre for capital raising and enterprise financing, Asian fixed income, wealth management, Asian insurance and risk transfer, and full service Asian infrastructure financing.¹⁶

This Report believes that Singapore is well poised to take a forward-looking approach on Green Finance to channel financing towards a green economy and to strengthen its role as a financial hub. Major economies and other financial hubs are moving in this direction, and the trend is accelerating. Integrating green elements into finance and investments helps to improve transparency and push up standards of corporate governance – both of which contribute towards strengthening the market’s robustness and resilience to external shocks. Green Finance also has the potential to open up new avenues of investment opportunities, as well as support innovation and new growth models.

Integrating green elements can help increase transparency and push higher standards of governance and therefore has the potential to deepen the market’s robustness and resilience to external shocks.

2. Emerging Trends and Early Leaders

Taken broadly, Green Finance is described as a range of financial services and products, including debt, equity and insurance, which is designed to promote the flow of capital towards green economic activities and projects. These initiatives take the form of climate change adaptation, as well as improving efficiencies in natural capital preservation and limiting resource mobilisation towards pollutive industries.¹⁷ Green Finance can also serve as a tool to help financial institutions improve analyses of their portfolio exposure to environmental risks, which enables better-informed and more sustainable financial and investment decision-making. The purpose of environmental risk disclosures, combined with social and governance, aims to improve the stability and resilience of economies and financial systems by encouraging financial institutions and corporations to become more transparent about their business and investment activities.

The interest in Green Finance increased in tandem with global concerns over environmental issues, which emerged in the 1970s and gained momentum in the 1990s. Corporations and the financial community began to respond to different concerns, such as the protection of forests and marine resources, giving particular attention to business in the resource and other sectors. As businesses started to go green, so did the financial sector, which moved in tandem to support the needs of the private sector.

As a result, corporations, financial institutions and governments have increasingly adopted and implemented initiatives associated with ESG factors. Attitudes towards ESG considerations, which started as “something good to have”, have shifted and are now an integral part of a company’s analysis of risk and opportunities, with increasing transparency and links to corporate governance. The ESG perspective has widened to include many more sectors and corporations, and encompasses a broader range of issues (e.g. to ensure efforts against child labour).

By 2005, taking ESG considerations into account was highlighted as not only good for the environment but for financial investment.¹⁸ It was also seen as having a direct impact on the overall business performance of a company, and an important criteria to develop a proper analysis of investment value and material in assessing long-term financial performance. These observations were published in a United Nations Environment Programme (UNEP) Finance Initiative report titled A Legal Framework for the Integration of Environmental,

16 MAS (2017) “Financial services industry transformation map”, 30 October 2017.

17 ADB (2017) “Catalyzing Green Finance: A concept for leveraging blended finance for green development”, Available: <https://www.adb.org/sites/default/files/publication/357156/catalyzing-green-finance.pdf>

18 (2005) “A legal framework for the integration of environmental, social and governance issues into institutional investment”, UNEP Finance Initiative, October 2005, Available: http://www.unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf

Social and Governance Issues into Institutional Investment. Since then, an increasing number of studies have shown that ESG disclosure helps investors identify and de-risk investments for guaranteed long-term gains, and should therefore be a critical tool in financial evaluation.

Today, the concern over the environment and sustainability has been galvanised by a global consensus on two broader issues – concerns over climate change, and the need for sustainable development and growth.

Countries across the world adopted 17 Sustainable Development Goals (SDGs) in September 2015. The set of goals, among others, include supporting Clean Water and Sanitation (SDG 6), Affordable and Clean Energy (SDG 7), and Climate Action (SDG 13).¹⁹ These goals, undertaken by governments, are increasingly being met and drive a broad range of changes in national strategies, laws and regulations that will in turn, impact markets, the private sector and citizens. Climate change concerns are now viewed not only in terms of environmental harms but also with an awareness about the potentially enormous economic and financial losses that can arise. The financial community clearly needs to respond to such changes.

A combination of global community concerns as well as those of local and national stakeholders is driving for greater sustainability, thus making demands on the financial system. Green Finance is increasingly becoming a focus for governments across the world, not as something “nice to have” but as an essential strategy.

On climate change, 195 countries signed the landmark 2015 Paris Agreement. This first-ever universal and legally binding global climate deal sets a long-term goal of ensuring the rise in global average temperatures is less than 2°C above pre-industrial levels.²⁰ The Paris Agreement recognises the key role that finance can play and calls for financial flows to be consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.²¹ Following from this, international frameworks, such as the Task Force on Climate-related Financial Disclosures (TCFD), encourage more transparency on climate disclosures by the private sector. The TCFD recommends companies use climate scenario analysis in their disclosure of climate-related risks and opportunities to help investors make better informed investment decisions. Improved transparency on risk disclosures also helps banks, insurers and underwriters to better evaluate their risk exposures to potentially high-risk corporations over time.²²

The threat and associated costs of climate change have altered conventional risks and returns for financiers. More now understand the economic and financial risks that arise from climate change and the need to manage the “time horizon risk” – the uncertainty of when the impacts of climate change will take place. According to a 2015 study published by Ernst & Young, Tomorrow’s Investment Rules 2.0, 62.4 per cent of survey respondents, mainly investors, were concerned about “stranded assets”²³ – when assets are no longer able to deliver financial returns as a result of changes in the market and regulatory environment associated with the transition to a low-carbon economy.²⁴ A case in point is when fossil fuel reserves held by oil and coal companies become non-performing assets prematurely as a result of governments tightening regulations on carbon dioxide emissions.²⁵ Around 36 percent of investors surveyed also admitted to reducing holdings of a company’s shares for fear of potential stranded assets.²⁶ Among institutional investors, slightly over 26 per cent reported their intention to monitor this risk closely in the future.²⁷

19 “Sustainable Development Goals: 17 goals to transform our world”, United Nations, Available: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/#prettyPhoto>

20 (n.d.) “Paris Agreement”, European Commission, Available: https://ec.europa.eu/clima/policies/international/negotiations/paris_en

21 (2015) “Paris Agreement”, United Nations, Available: http://unfccc.int/files/essential_background/convention/application/pdf/english_pari_agreement.pdf

22 Task Force on Climate-related Financial Disclosures, Available: <https://www.fsb-tcf.org/about/#>

23 EY (2015) “Tomorrow’s investment rules 2.0: Emerging risk and stranded assets have investors looking for more from nonfinancial reporting”, EY, Available: [http://www.ey.com/Publication/vwLUAssets/investor_survey/\\$FILE/CCaSS_Institutional_InvestorSurvey2015.pdf](http://www.ey.com/Publication/vwLUAssets/investor_survey/$FILE/CCaSS_Institutional_InvestorSurvey2015.pdf)

24 “Stranded Assets”, Carbon Tracker Initiative, Available: <http://www.carbontracker.org/resources/>

25 EY (2015) “Tomorrow’s investment rules 2.0: Emerging risk and stranded assets have investors looking for more from nonfinancial reporting”, EY, Available: [http://www.ey.com/Publication/vwLUAssets/investor_survey/\\$FILE/CCaSS_Institutional_InvestorSurvey2015.pdf](http://www.ey.com/Publication/vwLUAssets/investor_survey/$FILE/CCaSS_Institutional_InvestorSurvey2015.pdf)

26 ibid

27 ibid

A growing number of corporations see value in being green and have taken the lead in de-risking their business and disclosing their environmental risk assessments and responses.

Beyond risk and responsibilities, opportunities arise in Green Finance too. A growing number of corporations see value in being green and have taken the lead in de-risking their business and disclosing their environmental risk assessments and responses. There is synergy for this effort, as more of the world's key investors increasingly demand for greater corporate transparency to improve the quality of their investment assessments.

Other opportunities have also emerged from the range of new and scalable investment solutions that will be required to finance the transition to a low-carbon economy. Green Finance opens up new capital streams in the form of green bonds (*Box 1*) and investment funds, among others, and can serve to close the large infrastructure funding gaps in the region.

The development of local green bond markets has been most prominent across national action plans, with the public sector playing a key role in market creation and providing guidelines and regulatory frameworks. In addition, there have been industry-led initiatives in countries such as the United States, where corporations volunteer to disclose and report on their carbon footprint as part of good corporate governance.

These emerging changes in the corporate and financial sectors have begun to drive broader responses in the market and among key financial institutions. Stock exchanges are also pitching in, with more mandating disclosures among their listed companies. The Sustainable Stock Exchanges (SSE) initiative was established as a peer-to-peer learning platform to explore how exchanges – together with investors, regulators and companies – can improve corporate ESG disclosure and performance, and promote sustainable investment.²⁸ As of 2016, the SSE has 62 Partner Exchanges from 57 countries, representing about 70 per cent of global market capitalisation.²⁹

Global concerns about the environment, sustainability and, especially, climate change have been among the reasons driving these changes. However, these are not the only factors. In addition to the “top-down” approach by the global community, there are “bottom-up” demands. For corporations, there are green demands from their clients, customers, shareholders and other stakeholders. If these are not satisfied, the reputation and brands of these corporations can be at stake or, when crisis hits, severely compromised.

For many governments too, the demands that are driving change not only come from the global level but from their own citizens. In the past, there was less public awareness about environmental concerns and perhaps even a tacit acceptance that environmental standards might have to be compromised for growth. Now, however, awareness and acceptance has changed. In many more instances, there is public outcry and community pushback against polluted air and water, or any projects that cause unfair displacement of peoples and the destruction of natural habitats. In response, governments are necessarily relooking their national growth strategies and setting frameworks to ensure environmental protection, as well as to move towards more sustainable, equitable and inclusive development. This has also made governments more aware of the need for financial policies to help drive green investments and steer the economy toward sustainability. One key example is China, which established a Green Finance Task Force that, among other issues, looked at lifting restrictive policies hindering the potential for Green Finance to grow in the country.³⁰

28 (n.d.) “About the Sustainable Stock Exchanges (SSE) initiative”, Sustainable Stock Exchanges Initiative, Available: <http://www.sseinitiative.org/about/>

29 (2016) “Results and Impact Report”, Sustainable Stock Exchanges Initiative, Available: http://www.sseinitiative.org/wp-content/uploads/2012/03/2016-Impact-Report_v4.pdf

30 PBOC, UNEP Inquiry (2015) “Establishing China’s green financial system: Final report of the Green Finance Task Force”, April 2015, Available: <https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf>

Box 1: Green Bonds Globally and in Asia

The global green bond market has grown rapidly in the past few years, opening up access to deep pools of capital held by institutional investors.³¹ According to the Climate Bonds Initiative (CBI), an investor-focused non-profit organisation that promotes large-scale investment in the low-carbon economy, US\$81 billion of green bonds were issued in 2016, with US\$130 billion expected to be issued in 2017.³²

According to the Green Bond Principles (GBP), green bonds are defined as any bond instrument where proceeds are to be exclusively applied to finance or re-finance in part or in full new and/or existing eligible green projects.³³ Green bonds are similar to traditional bonds in risk profile, structure and maturity but have more stringent disclosure requirements on the use and expected impact of proceeds within a certain period.

The global green bond market has been largely driven by supranational development organisations, such as the World Bank and the International Finance Corporation, which continue to be the most active issuers. However, green bonds are increasingly being issued by government agencies and corporations to finance low-carbon assets in the transport and energy sectors, as well as the agriculture and forestry sectors. This has helped to boost the overall mass of green bond issuance and access to a diversified investor pool.³⁴

Global demand for green bonds has also boomed, with increasing numbers of investors demanding greater transparency and information on the impact of their investments. This is not only among specialist ESG and responsible investors. Large influential investors, like BlackRock, have snapped up green bonds and sped up the mainstreaming of such bonds.³⁵

Asian green bond activity looks set to increase. The issuance of global green bonds is expected to increase by 30 per cent to US\$123 billion in 2017, with a further upward trajectory expected.³⁶ China, which has become the world's leading issuer of green bonds, is responsible for the surge in green bond activity, with US\$36 billion worth of green bonds issued in 2016 – nearly 40 per cent of the US\$81 billion of green bonds issued globally in the same year.³⁷

Riding on the wave of interest in green bonds, the ASEAN Capital Markets Forum collaborated with the International Capital Market Association to introduce the ASEAN Green Bond Standards.³⁸ This initiative aims to ready ASEAN capital markets to tap on the potential of Green Finance to support sustainable regional growth and meet investor interest for green investments.

31 Caldecott, Ben (2011) "What exactly are green bonds?", The Guardian, 11 January 2011, Available: <https://www.theguardian.com/environment/cif-green/2011/jan/11/what-are-green-bonds>

32 Climate bonds initiative, Available: <https://www.climatebonds.net/>

33 International Capital Market Association (2017) "The Green Bond Principles 2017", ICMA, 2 June 2017, Available: <https://www.icmagroup.org/assets/documents/Regulatory/GreenBonds/GreenBondsBrochure-JUNE2017.pdf>

34 Morgan Stanley (2016) "New bonds make it easy to be green", Morgan Stanley Wealth Management, 11 March 2016, Available: <https://www.morganstanley.com/articles/new-green-bonds>

35 Investor appetite, Climate Bonds Initiative, Available: <https://www.climatebonds.net/market/investor-appetite>.

36 Upadhyay, Anindya (2017) "India's blue sky pledge gives power to country's green bonds", Bloomberg Markets, 19 July 2017, Available: <https://www.bloomberg.com/news/articles/2017-07-18/india-s-blue-sky-pledge-gives-power-to-country-s-green-bonds>

37 Hornby, Lucy (2017) "China leads world on green bonds but the benefits are hazy", Financial Times, 4 May 2017, Available: <https://www.ft.com/content/84ac893a-028e-11e7-aa5b-6bb07f5c8e12>

38 (2017) "Common standards introduced for green bonds in Asean", The Star, 13 March 2017, Available: <http://www.thestar.com.my/business/business-news/2017/03/13/common-standards-introduced-for-green-bonds-in-asean/>

A combination of global community concerns as well as those of local and national stakeholders is driving demand for greater sustainability, thus putting pressure on the financial system to change and evolve in tandem. Green Finance is increasingly becoming a focus for governments across the world, not as something “nice to have” but as an essential strategy.

The move to Green Finance is not only happening in the West. Major Asian economies – China, Japan, India and Indonesia -- are also making a clear and early shift towards Green Finance.

It is against this background that various countries have moved forward on Green Finance. A range of national plans to enhance financial systems and mobilise private capital for green investments has emerged. Major economies are adopting strategic roadmaps and national action plans that provide strategic policy signals and frameworks on Green Finance.³⁹

Many European countries are now leading proponents for finance as a tool to tackle climate change. In December 2016, the European Commission launched the High-Level Expert Group on Sustainable Finance to provide recommendations for a comprehensive EU strategy on sustainable finance. France, perhaps at the forefront, became the first country to introduce mandatory climate-related reporting for institutional investors.⁴⁰ While European governments and financial institutions are moving ahead, it is important to note that their Green Finance initiatives and activities are not confined to their home markets. Building from that base, European institutions are increasing their volume of Green Finance activities across Asia.

The move to Green Finance is not only happening in the West. Major Asian economies – China, Japan, India and Indonesia – are also making clear and early shifts towards Green Finance. These early leaders in Asia are noted below, with brief details of their most noteworthy initiatives.

On the international stage, **China** championed Green Finance during its chair of the G20 Hangzhou Summit in 2016. It has become a global leader in clean energy as well as the world’s leading issuer of green bonds, with US\$36 billion of green bonds issued in 2016 – nearly 40 per cent of the global market.⁴¹

“Guided by the vision of innovative, coordinated, green, open and shared development, we will adapt to the new normal, stay ahead of the curve and make coordinated efforts to maintain steady growth, accelerate reform, adjust economic structure, improve people’s living standards and fend off risks.”

– Chinese President Xi Jinping’s keynote speech at the World Economic Forum in Davos, Switzerland, 17 January 2017

At the national level, it has made Green Finance a priority, and its leaders have emphasised the promotion of Green Finance as part of its 13th Five-Year Plan (2016-2020).⁴² This follows China’s emphasis on the need to shift to a new development strategy that supports green, inclusive and innovative growth. During the 19th National Congress of the Chinese Communist Party, Chinese President Xi Jinping stressed that the country must seek a model of sustainable development marked by higher production, better living standards and healthy ecosystems.⁴³

39 UN Environment Inquiry (2017) “Green Finance Progress Report”, July 2017, United Nations Environment Programme, 2017, Available: http://unepinquiry.org/wp-content/uploads/2017/07/Green_Finance_Progress_Report_2017.pdf

40 Introduced in August 2015, France’s Article 173 concerns “energy transition for green growth”. It mandates that investors should disclose how they incorporate ESG factors and integrate climate change considerations into their investment policies. The law carries wide implications as it affects how investors view their current portfolio and, in turn, influences future investment choices.

41 Hornby, Lucy (2017) “China leads world on green bonds but the benefits are hazy”, Financial Times, 4 May 2017, Available: <https://www.ft.com/content/84ac893a-028e-11e7-aa5b-6bb07f5c8e12>

42 (2015) “Highlights of proposals for China’s 13th Five-Year Plan”, Xinhuanet, 4 November 2015, Available: http://news.xinhuanet.com/english/photo/2015-11/04/c_134783513.htm

43 Chong, Koh Ping (2017) “19th Party Congress: Xi Jinping affirms China’s commitment on green development”, The Straits Times, 18 October 2017, Available: <http://www.straitstimes.com/asia/east-asia/19th-party-congress-xi-jinping-says-china-must-cooperate-with-other-nations-on>

Mobilising investments through the establishment of a Green Finance system is needed to better manage the country's heavy and widespread pollution.⁴⁴ To develop a Green Finance system, spur green investments and curb the financing of polluting industries, the Chinese government, in particular the People's Bank of China, established the Green Finance Task Force in 2015.⁴⁵ The following year, China's State Council approved the *Guidelines for Establishing the Green Financial System* to incentivise and promote green loans, bonds, funds, insurance and mandatory environmental information disclosures, among others. Other initiatives have been taken up across various government bodies and with the support of the People's Bank of China (PBOC).

The Green Finance effort in China is strengthening. The China Banking Regulatory Commission issued its Green Credit Guidelines to encourage green credit growth.⁴⁶ The China Securities Regulatory Commission also published a new set of guidelines on the issuance of green bonds by stock exchange-listed companies.⁴⁷ In 2017, pilot zones to promote green finance were launched for five provinces – Guangdong, Guizhou, Jiangxi, Zhejiang and Xinjiang.

Hong Kong is also pushing ahead to develop green financial products and expertise, given its many links to China.⁴⁸ In her 2017 Policy Address, Chief Executive Carrie Lam announced the Hong Kong government's intention to take the lead in arranging the issuance of a green bond in the next financial year.⁴⁹ She also said that Hong Kong would promote the establishment of green bond certification schemes that meet international standards by local entities.⁵⁰ The Hong Kong Financial Services Development Council released a series of recommendations in May 2016, aiming to better position itself in the evolving global Green Finance landscape.⁵¹ The Financial Secretary's Budget Speech 2016-2017 also made reference to Green Finance, emphasising the government's plan to strengthen efforts to publicise its competitive capital markets and highlight its edge in developing green financial products.⁵² Already, a number of sustainability experts of global banks are based in the Hong Kong office, and advise on ESG matters for the Asia and ASEAN region.

Japan, Asia's other major economy, is also in a good position on Green Finance. With a more developed corporate sector and mature market, the country is positioning itself to become Asia's leader in ESG-focused investment. Japan's Ministry of Environment released green bond guidelines in March 2017, and the Metropolitan Government of Tokyo announced its plans in November 2016 to issue green bonds.

Japan's Government Pension Investment Fund (GPIF), one of the world's largest and most influential pension funds with US\$1.3 trillion under management, announced in July 2017 that it would increase its allocation of environmentally and socially responsible investments from 3 to 10 per cent.⁵³ The GPIF's allocation target, worth US\$29 billion, is expected to boost ESG-related investments both in the region and globally, and help

44 China will require an estimated annual investment of at least 2 trillion yuan (US\$320 billion) to achieve its national environmental goals during the 13th Five-Year Plan period. These goals are in environment protection, energy efficiency, clean energy and transportation. See: PBOC, UNEP Inquiry (2015) "Establishing China's green financial system: Final report of the Green Finance Task Force", April 2015, Available: <https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf>

45 PBOC, UNEP Inquiry (2015) "Establishing China's green financial system: Final report of the Green Finance Task Force", April 2015, Available: <https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf>

46 (n.d.) "Green Credit Guidelines", China Banking Regulatory Commission, Available: www.cbrc.gov.cn/chinese/files/2012/E9F158AD3884481DBE005DFBF0D99C45.doc

47 Whiley, Andrew (2017) "China issues special green bonds guidelines for listed companies + New China Local Government green bond policy recommendations", Climate Bonds Initiative, 3 May 2017, Available: <https://www.climatebonds.net/2017/05/china-issues-special-green-bonds-guidelines-listed-companies-new-china-local-govt-green-bond>

48 Hong Kong Financial Services Development Council (2016) "Hong Kong as a regional green finance hub", FSDC Paper No. 23, May 2016.

49 Hong Kong Chief Executive Carrie Lam Cheng Yuet-ngor's 2017 Policy Address to the Legislative Council on 11 October 2017, Available: <https://www.policyaddress.gov.hk/2017/eng/speech.html>

50 *ibid.*

51 Hong Kong Financial Services Development Council (2016) "Hong Kong as a regional green finance hub", FSDC Paper No. 23, May 2016.

52 *ibid.*

53 Fujita, Junko (2017) "Japan's GPIF expects to raise ESG allocations to 10 percent: FTSE Russell CEO", Reuters, 14 July 2017, Available: www.reuters.com/article/us-japan-gpif-esg/japans-gpif-expects-to-raise-esg-allocations-to-10-percent-ftse-russell-ceo-idUSKBN19Z11Y?il=0

stimulate the supply of green investment products and opportunities.⁵⁴ The move may also set an example for other key pension funds.⁵⁵

Indonesia is also visibly moving forward. The Financial Services Authority (OJK) issued a Sustainable Finance Roadmap for the period of 2015 to 2019. There is also a long-term plan of implementation from 2015 to 2024 to increase demand and supply for sustainable financing, targeting specific priority sectors – industry, energy, agriculture, infrastructure and micro, small and medium enterprises.⁵⁶

The roadmap offers guidance and policy direction for Indonesia’s sustainable finance development and involves cooperation between OJK and the government, particularly the Environment and Forestry Ministry.⁵⁷ OJK’s Board of Commissioners has also agreed to issue regulations on sustainable finance in 2017 for banking, capital markets and non-bank financial institutions. Details are also specified under voluntary financing guidelines for renewable energy, energy efficiency, green buildings, organic farming and palm oil.⁵⁸

The country is moving ahead to develop its infrastructure, and the current government recognises the potential for Green Finance and green bonds to attract much-needed capital investments while ensuring that environmental harm from these projects is avoided or at least minimised. OJK launched a framework and introduced regulations for green bond issuance in Indonesia in 2017 – signalling its plans to establish a financial sector supportive of sustainable development.⁵⁹

The above examples are by no means exhaustive. Others in the region are completing their assessments and taking first steps. South Korea’s Financial Services Commission is developing a stewardship code for Green Finance, its Ministry of Finance and Strategy is developing guidelines for green bonds and the state-owned Korea Development Bank issued an inaugural green bond worth US\$300 million in June 2017.⁶⁰ Some developing countries in Asia, such as India⁶¹ and Vietnam⁶², are also moving ahead.

54 When Japan’s Prime Minister Shinzo Abe announced his government’s support for greater women empowerment and gender equality, the country’s Government Pension Investment Fund (GPIF), directed part of its trillion-dollar ESG-related investment budget into the MSCI Japan Empowering Women Index. The new index, specially created to satisfy GPIF’s investment demands, represents companies that maintain gender diversity.

55 Fujita, Junko (2017) “Japan’s GPIF expects to raise ESG allocations to 10 percent: FTSE Russell CEO”, Reuters, 14 July 2017, Available: www.reuters.com/article/us-japan-gpif-esg/japans-gpif-expects-to-raise-esg-allocations-to-10-percent-ftse-russell-ceo-idUSKBN19Z11Y?il=0

56 (2014) “Roadmap for Sustainable Finance in Indonesia (2015–2019), December 2014”, Otoritas Jasa Keuangan (OJK), Available: <http://www.ojk.go.id/Files/box/keuangan-berkelanjutan/roadmap-keuangan-berkelanjutan.pdf>

57 OJK (2015) “OJK: Sustainable finance roadmap, facilitating financial services institutions to innovate”, Otoritas Jasa Keuangan, 24 November 2015, Available: <http://www.ojk.go.id/en/berita-dan-kegiatan/publikasi/Pages/OJK-Sustainable-Finance-Roadmap,-Facilitating-Financial-Services-Institutions-to-Innovate.aspx>

58 UN Environment Inquiry (2017) “Green Finance Progress Report”, July 2017, United Nations Environment Programme, Available: http://unepinquiry.org/wp-content/uploads/2017/07/Green_Finance_Progress_Report_2017.pdf

59 Jong, Hans Nicholas (2017) “OJK to launch first green bond mechanism”, 23 February 2017, The Jakarta Post, Available: <http://www.thejakartapost.com/news/2017/02/23/ojk-to-launch-first-green-bond-mechanism.html>

60 UN Environment Inquiry (2017) “Green Finance Progress Report”, July 2017, United Nations Environment Programme, Available: http://unepinquiry.org/wp-content/uploads/2017/07/Green_Finance_Progress_Report_2017.pdf

61 The Reserve Bank of India is in the process of formulating a roadmap for green banking for the country. The government’s “blue sky pledge” has shored up investor interest in renewable energy. This has encouraged a number of Indian companies to issue green bonds. See: Upadhyay, Anindya (2017) “India’s blue sky pledge gives power to country’s green bonds”, Bloomberg Markets, 19 July 2017, Available: <https://www.bloomberg.com/news/articles/2017-07-18/india-s-blue-sky-pledge-gives-power-to-country-s-green-bonds>

62 The State Bank of Vietnam issued a directive in 2015 to promote green credit growth, as part of Vietnam’s National Action Plan on Green Growth (2014–2020). Vietnam also requires financial institutions to report on their environmental and social risk management in credit granting activities. See: State Bank of Vietnam (2015) “Directive on Promoting Green Credit Growth and Environmental and Social Risks Management in Credit Granting Activities”, 24 March 2015, Available: <http://www.ifc.org/wps/wcm/connect/8861c20047ede4e1bd50fd299ede9589/Directive+on+Green+Credit+and+E%26S+Risk+management.pdf?MOD=AJPERES>

What makes a Green Finance hub

In looking at the efforts made across the world, certain characteristics have been observed in the development of a Green Finance hub. *(Figure 1)*

The following are identified as core elements or other key efforts needed to build the foundations of a Green Finance hub: First, governments must signal clear policy, commitment and resolve to shift the economy towards a sustainable path. Governments must also lead by example. Government actions and spending – both directly and through its agencies and statutory boards – should be aligned with national green goals, support best practices, and “crowd in” private capital by increasing the demand for green products and services. The financial and corporate sector must also be engaged and encouraged to embrace sustainability, and to innovate to create new opportunities.

Second, in tandem with the shift to a green economy, a vision for Green Finance should be set. In the early stages, conscious efforts must be made to build knowledge and allow capacity for Green Finance to grow. Knowledge must be shared and capacity developed among key stakeholders, going beyond broad concepts to look at specialised needs in different sectors of the green economy and to find innovative financial solutions.

Outreach and engagement of the financial sector, corporates, investors and the public on the investment potential of Green Finance should be implemented. The corporate sector must be encouraged to embrace sustainability and innovate to create new opportunities. Efforts must also be made to leverage on the potential of Green Finance to better engage and empower SMEs.

Third, efforts to nudge key players to help jump-start a Green Finance market is needed. This will require market development efforts with supportive legal and regulatory frameworks as well as incentives, especially at the early stages. One example is to incentivise or require greater corporate transparency on ESG factors so that there is more demand and supply of potential green investments. Another is encouraging exemplary leadership in the financial community and among corporates to catalyse the market into action.

Key institutional investors should be encouraged to dialogue and work with corporates and financial institutions, so that there can be more synergies and compatibility between demand and supply in the market. Where there are government or quasi-governmental institutional investors, especially those that manage sovereign wealth funds, their investment decisions and the criteria they adopt can influence the market and encourage the development of investment products to support Green Finance. A strong core customer base, made up of investors, issuers and borrowers also needs to be developed and encouraged to participate in Green Finance. This is important for the growth of a vibrant and active green financial system in Singapore.

Fourth, as the market progresses, it will be important to balance between setting standards and encouraging innovation. In the early stages, new green initiatives and innovations must be encouraged, and international standards and practices adapted according to local needs and practices. At the same time, there must be appropriate standards to measure their environmental impact, as well as to reassure investors and market participants of its green value. Over time, efforts must move towards defining green in relation to different industry activities and financial products. Raising disclosure standards is critical from the perspective of corporate governance. The presence of such standards provide greater investor assurance on the potential of green investments, and allow financial institutions to conduct risk and investment assessments based on material disclosures and analysis.

Lastly, for a Green Finance hub to develop, there must be efforts to link to the global and regional markets. This is especially true for smaller economies that wish to be a hub but have no major hinterland. Efforts must be made to better recognise opportunities for the green economy and Green Finance in the region, and pave the way for corporations and financial institutions to gain from those opportunities.

Figure 1: Key Features of a Sustainable Financial Centre



Source: UNEP Inquiry⁶³

63 UNEP Inquiry (2017) "Financial centres for sustainability: Reviewing G7 financial centres in mobilizing green and sustainable finance", June 2017, Available: <https://www.unep.org/financial-centres-sustainability>

3. Shades of Green: Definitions and Emerging Industry Practices

There has been a proliferation of definitions, standards and interpretations about what defines Green Finance.

- The G20 Green Finance Study Group refers to Green Finance as the “financing of investments that provide environmental benefits in the broader context of environmentally sustainable development”.⁶⁴ This entails internalising environmental externalities and altering risk perceptions to spur investments that are environmentally friendly. Environmentally harmful investments must also be curtailed.
- The Organisation for Economic Co-operation and Development’s (OECD) Business and Industry Advisory Committee (BIAC) refers to Green Finance more broadly. It differentiates Green Finance as “financial initiatives and processes designed to promote environmentally sustainable investments across financial asset classes” and “specific products and services that seek to promote environmentally sustainable investments”.⁶⁵ Such investments may cover energy sources and low-carbon technologies among others.
- UNEP Inquiry defines the scope of Green Finance as broader than Climate Finance as it covers other environmental objectives and risks apart from climate change. A stronger emphasis is placed on “greening broad flows of private investment rather than mainly concerning public and public-leveraged financial flows”.⁶⁶
- There have also been efforts to make sense of what constitutes Sustainable Finance and how Green Finance fits. According to UNEP Inquiry, the broad concept of sustainable financing includes all aspects of sustainable development, namely environmental, social, economic and governance. Green Financing, therefore, should encompass efforts of climate change adaptation and mitigation towards a low-carbon future, and other environmental initiatives that contribute towards a sustainable future. (*Figure 2*)

While the list of definitions is not exhaustive, the aforementioned examples demonstrate the different nuances of Green Finance and its scope. Some definitions tend to focus on the purpose of financing while others stress the instruments and platforms. These differing interpretations that are emerging are neither abstract nor academic. They hold real implications for those providing and seeking Green Finance. For example, variations exist in the sectors or activities that some institutions allow, but others question as relevant (for example, whether to include clean coal). As a result, many financial institutions have re-orientated their work to their own ideas of what constitutes Green Finance and best practices to ensure that a certain level of green standards is met.

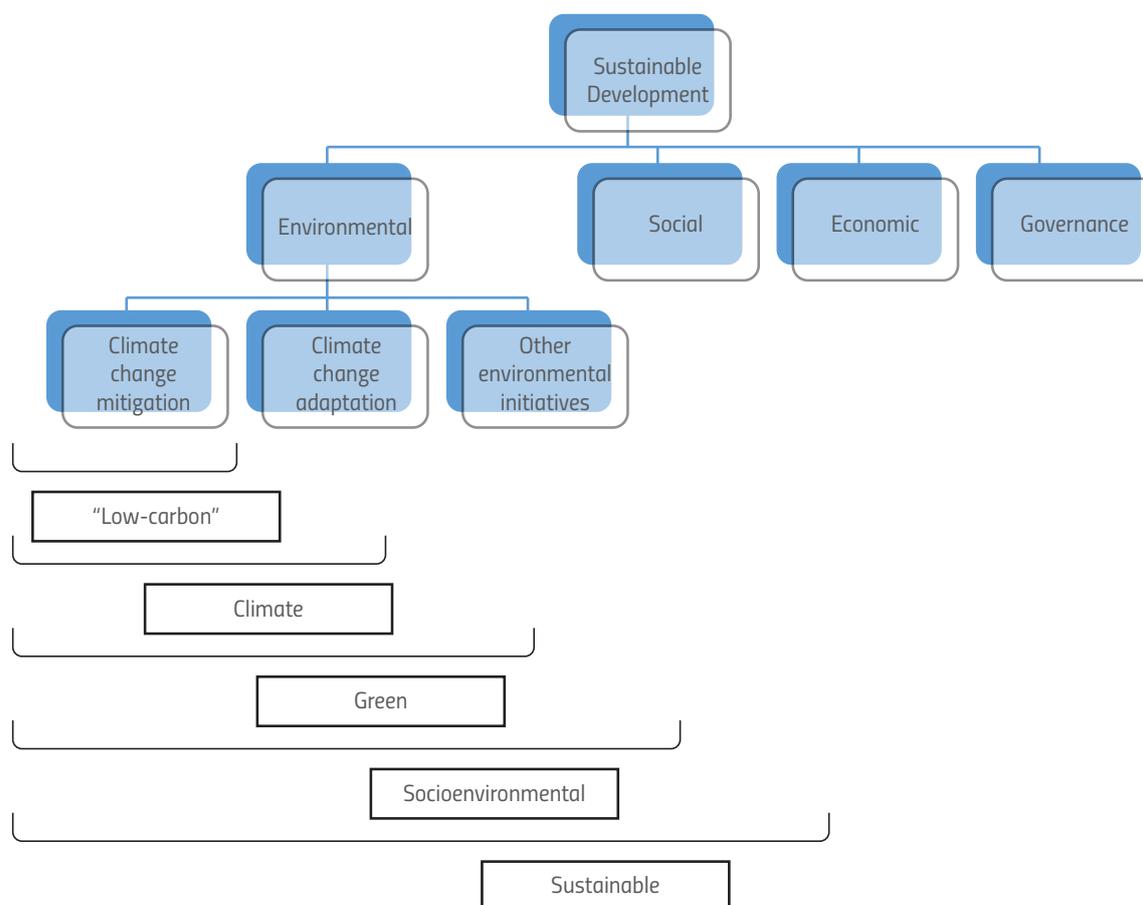
Differing ideas of what constitutes Green Finance and the value of the green label is inevitable, especially at an early stage. Corporates and financial institutions are differently placed on the issue and this can allow them to calibrate and adopt different shades of green according to their needs and capacities. In this sense, a more accommodating definition of green can, in fact, be positive as it will allow more institutions to explore the potential of Green Finance. This can be in the form of an acceptable range or “band of green” definition or standards for the financial sector. The “band of green” marks minimum global standards of green while allowing room for improvement to accommodate the current capabilities of the financial sector. Further along, as the Green Finance momentum grows and volumes increase, standards and definitions will arise more organically and authoritatively, especially in specific industry sectors.

64 (2016) “G20 Green finance synthesis report”, G20 Green Finance Study Group, 5 September 2016, Available: http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf

65 BIAC (2016) “Green Finance: Key business considerations for financing a sustainable and low-carbon economy”, BIAC Discussion Paper, June 2016, <http://biac.org/wp-content/uploads/2016/06/16-06-Final-BIAC-Paper-on-Green-Finance3.pdf>

66 UNEP Inquiry (2016) “Definitions and concepts: Background note”, Inquiry Working Paper 16/13, September 2016, Available: http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf

Figure 2: What Constitutes Green Financing



Source: UNEP Inquiry⁶⁷

Alongside definitions and standards, it is imperative and more critical that financial sector stakeholders and corporates start establishing the green value of projects and businesses. The “greenness” of the initiative should be quantified and measured at the start, as well as tracked and reviewed annually throughout its lifetime. Quantifying the value of green and analysing its impact on the environment and its returns will add weight to the green label. This differentiation will give green investments and corporations an edge. There is potential for a green valuation and monitoring system to open up financing avenues for projects as well as for green corporations.

Definitions and standards will help guide behaviours and practices on what is green or not. However, establishing the value of green will help move the needle, and take the financial sector and corporates further in their endorsement of the Green Finance initiative.

Against this background, we survey some of the emerging practices and working definitions among different segments of the financial industry.

67 UNEP Inquiry (2016) “Definitions and concepts: Background note”, Inquiry Working Paper 16/13, September 2016, Available: http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf

3.1. Banks

Banks play a key role as both an intermediary and accelerator for Green Finance. Corporate and investment banking or “wholesale banking” provides solutions to large corporations, institutions, governments and other public entities with complex financial needs. Acting as financial intermediaries, these banks underwrite debt issues, supply equity, manage funds and offer advice to corporate mergers and acquisitions.⁶⁸ While banks may play a secondary role to their clients, they wield significant influence over which businesses and projects receive capital, and under what terms and conditions. In so doing, banks can significantly influence the way corporations conduct their business.

Banks have responded to rising environmental concerns, especially global banks headquartered in Western markets. Their reference of voluntary frameworks, such as the Global Reporting Initiative,⁶⁹ Equator Principles⁷⁰ and the UNEP Financial Initiative guidelines,⁷¹ is growing.⁷²

As awareness and political will over climate change has grown, these same banks have become more aware of their role in promoting a more climate-resilient global economy. By lending money to polluting corporations or projects that damage the environment, they can be seen as indirect polluters and also risk large losses as climate or environmental mitigation policies come into play. The need to hedge against climate risks have seen global banks step up to reduce the allocation of capital towards environmentally unsustainable industries, and pay more attention to the sustainable impacts of their financing and investment activities.⁷³

The definition of sustainable banking has also continued to evolve, differing across communities, cultures and context. According to the Sustainable Banking Network, an informal knowledge grouping made up of banking regulators, associations and environmental regulators from emerging markets, sustainable banking is generally understood to include three optional components:

1. Environmental and social risk management in investment and lending processes;
2. Lending and investment to green industries/projects seeking positive environmental and social impact; and
3. How banks manage their own environmental and social footprints, such as greening their facilities and undertaking corporate social responsibility initiatives.⁷⁴

Increasingly, banks are acting in accordance with the growing recognition that environmental risks have an impact on credit risks. Polluting companies and industries are being subjected to greater scrutiny, higher interest rates and, in some cases, placed on an exclusion blacklist. When banks have acted in unison, the impact on industries has been significant. Because of growing public pressure, banks decided to cut funding for dirty industries. As a result, financing for extreme fossil fuels dropped by 20 per cent in 2016.⁷⁵

68 The North American Task Force of the United Nations Environment Programme Finance Initiative (2007) “Green financial products and services: Current trends and future opportunities in North America”, United Nations Environment Programme Finance Initiative, August 2007, Available: http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf

69 The Global Reporting Initiative is a global standard for sustainability reporting, and represents the world’s best practice for reporting on a range of economic, environmental and social impacts. See: Global Reporting Initiative, Available: <https://www.globalreporting.org>

70 The Equator Principles risk management framework is adopted by financial institutions to determine, assess and manage environmental and social risk in projects. See: Equator Principles, Available: <http://www.equator-principles.com/>

71 The UNEP FI is a global partnership between UNEP and the financial sector. Over 200 institutions, including banks, insurers and fund managers work with UNEP to understand the impacts of environmental and social considerations on financial performance.

72 Sustainable Banking Network and International Finance Corporation (2016) “Greening the banking system: Experiences from the sustainable banking network”, Input Paper for the G20 Green Finance Study Group, 4 September 2016, Available: http://unepinquiry.org/wp-content/uploads/2016/09/4_Greening_the_Banking_System.pdf

73 World Wildlife Fund (2015) “Sustainable Finance in Singapore, Indonesia and Malaysia: A review of financiers’ ESG practices, disclosure standards and regulations”, Sustainable Finance Report 2015, Available: http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_frc_forest_risk_commodities_report_2015_online.pdf

74 Sustainable Banking Network and IFC (2017) “Sustainable Banking Network (SBN) Briefing”, February 2017, Available: https://www.ifc.org/wps/wcm/connect/061695f3-43f1-4a71-8b25-02d3a8bd79ca/SBN_briefing+February+2017+%281%29.pdf?MOD=AJPERES

75 Rainforest Action Network (RAN) et al. (2017) “Banking on Climate Change: Fossil Fuel Finance Report Card 2017”, Available: http://priceofoil.org/content/uploads/2017/06/Banking_On_Climate_Change_2017.pdf

Some banks have launched green banking products and services aimed at encouraging the transition towards a low-carbon future not only for corporations but even for households. For example, in schemes for green home mortgages, retail banks offer lower interest rates to house buyers who choose more energy-efficient homes and appliances, or renewable energy power sources.⁷⁶ Green mortgage-backed securities – made up of packaged mortgages on buildings that meet specific energy-use and environmental benchmarks – are also being explored as new offerings.⁷⁷ Several corporate and investment banks have set up dedicated service divisions or teams for larger-scale renewable energy and energy-efficiency projects.

There are continuing questions of awareness and will among the majority of the banks. The challenge is for banks to package green products that are longer term and for the secondary market.

While these steps are positive, questions remain about the awareness and will among the majority of the banks. One challenge is the dichotomy between a bank's preference for short-term payback periods with the interest of maximising profit and the reality that sustainability objectives are often met by longer-term investments. The challenge is for banks to package green products that are longer term and for the secondary market.

While some have moved ahead, others do not perceive a need to do so, unless there are clear regulatory directions or strong societal pressures. This can be seen in a bank's decision of whether to integrate sustainability criteria as part of their credit risk assessments.⁷⁸ Often, banks express strong concerns that many of their clients are not ready to adjust to sustainability objectives and the increased transparency that will be required under Green Finance. Banks too may face questions of their internal processes and capacity. As such, banks may be conservative and prefer to remain with the status quo, opting out or else being cautiously slow, in any movement towards Green Finance.

There are signs that the industry is changing. Several leading corporate and investment banks recognise the need to hedge against climate risks; these have stepped up to lead by example and reduce their allocation of capital towards environmentally unsustainable industries. In addition, greater attention has been placed on the sustainable impacts of a bank's financing and investment activities.⁷⁹ Several banks have started working with customers to influence and incorporate sustainability objectives and requirements over time.

76 The North American Task Force of the United Nations Environment Programme Finance Initiative (2007) "Green financial products and services: Current trends and future opportunities in North America", United Nations Environment Programme Finance Initiative, August 2007, Available: http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf

77 *ibid.*

78 Jeucken, Marcel H.A. and Bouma, Jan Jaap (1999) "The changing environment of banks", GMI Theme Issue: Sustainable Banking: The Greening of Finance, Autumn 1999.

79 World Wildlife Fund (2015) "Sustainable Finance in Singapore, Indonesia and Malaysia: A review of financiers' ESG practices, disclosure standards and regulations", Sustainable Finance Report 2015, Available: http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_frc_forest_risk_commodities_report_2015_online.pdf

SPOTLIGHT ON:**Mitsubishi UFJ Financial Group: Supporting Future Industries and a Better Society**

Japan's largest financial group Mitsubishi UFJ Financial Group (MUFG) is a strong believer that an ESG-conscious corporate management is essential to continued operations and sustainable growth. This is especially so with issues such as climate change and an increasing awareness among corporations of the need to pay more attention to the impact of their business activities on the environment and society.

Built on 350 years of experience, and a global network spanning over 50 countries and regions, this global financial institution has made it a mission to work hand-in-hand with key stakeholders to ensure sustainable mutual development. It is also committed to serve businesses and society through long-term relationships built on trust of the customers and the community it serves.

Applying Sustainable Initiatives to Business

MUFG is committed to playing its part in practicing and promoting sustainable financing in Singapore and globally through its core financial businesses.

At the group level, MUFG affirms its focus on helping to resolve issues confronting its business activities with an eye to contribute to the realisation of the UN's Sustainable Development Goals (SDGs) and other sustainability targets. MUFG adheres to and is a signatory of the Equator Principles (EP), a set of risk management standards that it applies to ensure the projects they finance or advise appropriately manage the environmental and social risks.

With a proven track record in Green Financing, MUFG is well placed to assist green bond issuers in tapping the capital markets. In 2016, MUFG became the first in the world to issue a green bond in conformity with international TLAC1 regulations as part of initiatives to contribute to environmental and social sustainability through its capital markets activities. The use of proceeds from the issuance of green bonds will fund renewable energy and energy efficiency projects aimed at preserving the global environment.

In Singapore, MUFG actively supports the development of sustainable financing through its loans and project finance arrangements. This is aligned with the Responsible Financing Guidelines set by the Association of Banks in Singapore in 2015. As part of MUFG's decision-making process to finance a project, the Singapore team works closely with its Tokyo-based Social and Environmental Risk Assessment Office to identify and assess any environmental and social risks, and to put in place countermeasures to avoid, minimise or mitigate those risks. The bank also monitors a client's ongoing EP compliance to ensure that potential risks are controlled over the life of the loan.

Promoting Green Finance in Singapore

As a key financial hub, Singapore is well positioned to become a thought leader in responsible financing in the region. MUFG aims to work with like-minded industry peers, government bodies, and its own stakeholders by consulting and supporting the promotion and development of sustainable businesses, and to assist in fundraising for corporations pursuing the same interests in sustainability.

3.2. Institutional Investors

The interest of institutional investors in sustainability and environmental concerns has deepened in recent years. These institutions – including large asset management firms, pension funds, insurance companies and foundations – have become more conscious of the need to integrate green risks and ESG criteria into their investment analysis. They have also been looking at the investment potential of the green label and called for more supportive policy frameworks to promote green investments.

Differences in investment strategy that influence how investors integrate ESG into their portfolios have been observed. According to a 2015 World Wildlife Fund (WWF) Sustainable Finance report titled Sustainable Finance in Singapore, Indonesia and Malaysia, top-down investors, which factor in macroeconomic conditions in their analyses, are more likely to consider “thematic issues and concentrate on ESG factors that are relevant to groups of companies, rather than going into depth at one or two companies”. Bottom-up investors tend to seek out companies with good future prospects and, therefore, look more in-depth at company-level risks and opportunities such as ESG issues.⁸⁰

A variety of approaches to ESG investing have also emerged. A growing diversity of terms is used across the investment industry – such as “socially responsible investing”, “sustainable investing” and “impact investing”.⁸¹ Each serves similar sustainable investment goals. The differences in definition and practices show how Green Finance can potentially manifest in diverse forms, in line with the type of investors and their focus.

The world's most influential institutional investors are broadening their perspective to become more aware of the environmental and social impacts of their portfolios. A number now seek to achieve sustainability goals alongside financial gains.

One of the current challenges faced by the investment community is how they can help shape a low-carbon future. While retaining their emphasis on financial returns, the world’s most influential institutional investors are broadening their perspective to become more aware of the environmental and social impacts of their portfolios. A number now seek to achieve sustainability goals alongside financial gains.

Sustainable investments have grown. According to the Global Sustainable Investment Review, global sustainable investment stood at US\$22.89 trillion at the start of 2016, a 25 per cent increase from US\$18.28 trillion in 2014.⁸² Interest in sustainable investment is also growing in Asia ex Japan but at a slow pace. Sustainable investment assets in the region increased by 16 per cent between 2014 and 2016, compared to a 32 per cent increase from 2012 to 2014.⁸³

Global pension funds and insurers are setting an upward trend. Many of these have committed to greater transparency in the disclosure of the carbon footprints of their investments. One indication is that more than 120 investors from key economies all over the world have so far signed the Montreal Carbon Pledge. Launched in 2014, the Pledge represents over US\$10 trillion in assets under management and commits investors to measure and publicly disclose the carbon footprint of their investment portfolios on an annual basis.⁸⁴

80 World Wildlife Fund (2015) “Sustainable Finance in Singapore, Indonesia and Malaysia: A review of financiers’ ESG practices, disclosure standards and regulations”, Sustainable Finance Report 2015, Available: http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_frc_forest_risk_commodities_report_2015_online.pdf

81 Socially responsible investing usually entails a deliberate decision by the investor to avoid certain sectors or geographies, such as tobacco, firearms or coal mining. In contrast, sustainable investing involves actively identifying investments that aim to deliver market-rate financial returns while achieving a positive social and/ or environmental impact. Impact investing targets investments that deliver positive social and/ or environmental change.

82 Global Sustainable Investment Alliance (n.d.) “2016 Global Sustainable Investment Review”, Available: http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR_Review2016.F.pdf

83 *ibid.*

84 (n.d.) “Montreal Pledge”, Principles for Responsible Investment, Available: <http://montrealpledge.org/>

Another example, the UN-backed Principles for Responsible Investment (PRI), which is made up of over 1,855 investors who own or manage more than US\$70 trillion of assets, show a shift towards the incorporation of ESG factors in investment decision making through screening, integration, thematic investments and active ownership.⁸⁵ The PRI offers six aspirational principles for responsible investment to help investors enhance returns and better manage risks.⁸⁶

"We believe that an economically efficient, sustainable global financial system is a necessity for long-term value creation. Such a system will reward long-term responsible investment and benefit the environment and society as a whole."

– Principles for Responsible Investment's (PRI) mission

Governments and financial regulatory bodies have also stepped in to ensure that institutional investors toe the line and adhere to high investment standards. Japan has in place its own stewardship code that defines principles for institutional investors to carry out their fiduciary duty to invest responsibly and contribute to the growth of the economy.⁸⁷ It also encourages institutional investors to enhance medium to long-term investment returns for their clients and beneficiaries by fostering greater corporate value and sustainable growth.

A number of green investment products and services are available. An example is the creation of clean energy targeted funds, offering investments earmarked for corporations that meet pre-defined, energy-related criteria, among others.⁸⁸ Another instrument is catastrophe or "cat bond" funds, which allow investors to hedge against large-scale disasters or climate-related physical risks that are difficult to insure in the traditional insurance market.⁸⁹

Demand for greater transparency on the performance of green investments over a timeframe has also encouraged "second opinion" providers to develop reporting metrics that measure and track the effects of Green Financing. Moody's Investors Service, for example, last year launched its Green Bond Assessment (GBA), which assesses and provides a forward-looking opinion of an issuer's management, administration, allocation of proceeds and reporting on environmental projects financed with green bonds.⁹⁰

Momentum towards sustainability is noticeably growing in the global investment community. However, the demand for sustainability-linked investments remains concentrated among institutional investors, such as pension funds, insurance and asset management companies. Retail investors, on the other hand, have yet to show interest, whether they be private wealth clients or investors from the public.

85 PRI Association (2017) "Signatories more committed than ever to responsible investment", 20 March 2017, Available: <https://www.unpri.org/news/pri-report-on-progress-signatories-more-committed-than-ever-to-responsible-investment>

86 (n.d.) "About the PRI", Principles for Responsible Investment, Available: <https://www.unpri.org/about>

87 (2014) "Principles for Responsible Institutional Investors <Japan's Stewardship Code>", 26 February 2014, The Council of Experts Concerning the Japanese Version of the Stewardship Code, Available: <http://www.fsa.go.jp/en/refer/councils/stewardship/20140407/01.pdf>

88 The North American Task Force of the United Nations Environment Programme Finance Initiative (2007) "Green financial products and services: Current trends and future opportunities in North America", United Nations Environment Programme Finance Initiative, August 2007, Available: http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf

89 *ibid.*

90 Moody's Investors Service (2017) "Moody's: Incorporating ESG into credit analysis", August 2017.

SPOTLIGHT ON:

Amundi Asset Management: Channelling Capital towards the Green Economy

Europe's top and largest asset manager Amundi Asset Management sees climate change as one of the most important ESG factors to be considered as part of its investment solutions.

Headquartered in Paris, Amundi has been in Singapore since 1989. It provides retail, institutional and corporate clients with innovative investment strategies and solutions tailored to their needs, targeted outcomes and risk profiles.

Priding itself as a responsible investor, Amundi strives to use its expertise to help its clients invest sustainably through ESG, socially responsible investment (SRI) and impact investing solutions. It manages over 1.3 trillion euros of assets across six main investment hubs, including Europe, the Middle East, the Americas and the Asia-Pacific.

Amundi co-founded the Portfolio Decarbonization Coalition (PDC) with the UNEP Finance Initiative, Swedish Pension Fund AP4 and leading environmental data provider Carbon Disclosure Project. The multi-stakeholder initiative is aimed at driving greenhouse gas emission reductions by mobilising a critical mass of institutional investors committed to gradually decarbonising their portfolios. One year after its creation, the PDC hit the US\$600 billion mark of commitments by investors, far exceeding its initial commitment of US\$100 billion.

Helping Clients Invest Sustainably

Amundi offers portfolio decarbonisation services that are targeted at helping clients reduce their carbon risk and benefit from potentially higher returns in case of carbon risk repricing. It also aims to combine fixed-income risk and yield with green impact through green bond funds. Amundi, together with Electricité de France (EDF), has established a joint venture asset management company called Amundi Energy Transition (AET), which specialises in European renewable energy infrastructure investment opportunities.

Promoting Green Bond issuance in Singapore

Amundi has been actively engaging policy makers and long-term asset owners in Singapore and the region, to share insights and best-practices in Green Finance. The solutions rolled out are targeted at being supportive of green initiatives in Singapore and the region. For example, Amundi's emerging market green bond fund, launched in partnership with the International Finance Corporation, will be a catalyst for new green bond issuance in the emerging world. It also dovetails with MAS efforts to foster the issuance of green bonds in Singapore.

3.3. Insurance

Insurers and reinsurers are primarily exposed to three types of risks related to climate change. First, physical risks arise when climate- and weather-related events damage property or disrupt trade.⁹¹ Second, liability risks occur when those who have suffered loss or damages seek compensation from those they hold responsible, such as significant carbon emitters.⁹² Third, as economies make the transition to sustainability and a low-carbon future, changes in policy and technology could lead to a re-evaluation of the value of a large range of assets.⁹³ In addition to these direct impacts, there are also second-order events, such as the disruption of global supply chains, that could lead to further losses.⁹⁴

The global insurance sector increasingly recognises that its role as risk manager, risk carrier and investor is changing with sustainability and climate risks.⁹⁵ This has pushed a number of global insurance and reinsurance companies to adopt frameworks that better incorporate ESG risks and opportunities across their business, including exclusions for fossil fuels.⁹⁶

The global insurance sector increasingly recognises that its role as risk manager, risk carrier and investor is changing with sustainability and climate risks. While the large global insurers have taken steps forward on sustainability issues, the vast majority of firms in the industry continue to lag behind in addressing sustainability challenges.

With the growing shift to a low-carbon economy, investments in new technologies and projects are needed, and many of these have attracted interest from underwriters who are keen to tap into new business opportunities. The insurance community undertakes risk pricing, which has the potential to signal and influence the way capital is allocated towards supporting a more environmentally sustainable future.⁹⁷

Global insurers have begun to respond with policies and products that relate to general insurance. One emerging practice is to create differentiated insurance premiums on the basis of environmentally relevant characteristics.⁹⁸ Another is to create preferential insurance products that are specifically tailored for clean technologies and emissions-reducing activities.⁹⁹

Examples of green insurance products and services that have been offered include green building coverage and green auto insurance, both of which offer lower premiums or discounts on energy efficient homes and cars.¹⁰⁰ Green business insurance products also cover environmentally vulnerable SMEs or corporations that perceive climate change to be a threat to their business.

In addition to their role in underwriting risk, the insurance sector is an influential institutional investor. Globally, insurers have more than US\$31 trillion in assets under management.¹⁰¹ Like other institutional investors

91 Carney, Mark (2015) "Breaking the tragedy of the horizon - climate change and financial stability"; Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board, presented at the Lloyd's of London, UK, 29 September.

92 *ibid.*

93 *ibid.*

94 *ibid.*

95 Sustainable Insurance Forum and UN Environment Inquiry (2017) "Sustainable insurance: the emerging agenda for supervisors and regulators"; August 2017, Available: http://www.uneepfi.org/psi/wp-content/uploads/2017/08/Sustainable_Insurance_The_Emerging_Agenda.pdf

96 *ibid.*

97 *ibid.*

98 The North American Task Force of the United Nations Environment Programme Finance Initiative (2007) "Green financial products and services: Current trends and future opportunities in North America"; United Nations Environment Programme Finance Initiative, August 2007, Available: http://www.uneepfi.org/fileadmin/documents/greenprods_01.pdf

99 *ibid.*

100 *ibid.*

101 Sustainable Insurance Forum and UN Environment Inquiry (2017) "Sustainable insurance: the emerging agenda for supervisors and regulators"; August 2017, Available: http://www.uneepfi.org/psi/wp-content/uploads/2017/08/Sustainable_Insurance_The_Emerging_Agenda.pdf

(Part 1, Section 3.2.) many major insurance firms have committed themselves to increasing the number of sustainable and responsible investments, and seek to “decarbonise” their portfolio. An example is the decision by French insurer AXA’s asset management arm to cut around 500 million euros worth of coal investments. It also intends to divest from companies that generate more than half of their revenue from coal-related activities.¹⁰²

However, while the large global insurers have taken steps forward on sustainability issues, the majority of firms in the industry continue to lag behind in addressing sustainability challenges. These include many insurers focused on life and health insurance. Various obstacles – including capacity constraints and misaligned market incentives – have limited the progress of many insurers on Green Finance.¹⁰³

4. Scoping the Green Finance Opportunity in ASEAN and Asia

4.1. Asia’s Rise and the Coming Shift

Asia’s economic rise is a phenomenon that has become clear to everyone. The region’s growth has been a major source for global growth over the past two decades and has continued even after the global financial crisis. While not without some risks, projections see the region catching up and even overtaking Western economies in the near future. While the rise of the region as a whole is clear, less attention, however, has been given to ASEAN, the regional grouping of ten member states in Southeast Asia.

ASEAN is a market of some 630 million people and outperforms global rates of growth. Together with other emerging Asian economies China and India, the group is expected to grow at an average of 6.2 per cent per year from 2017 to 2021,¹⁰⁴ and some projections see it becoming the fourth largest economy in the world. This is supported not only by the different national-level ambitions of each member, but the overarching commitment of the group to create (1) a highly integrated and cohesive economy; (2) a competitive, innovative and dynamic ASEAN; (3) enhanced connectivity and sectoral cooperation; (4) a resilient, inclusive, people-oriented and people-centred ASEAN; and (5) a global ASEAN under the ASEAN Economic Community (AEC).¹⁰⁵ The AEC has brought such ambitions into focus and, while already inaugurated in 2015, the governments of ASEAN member states have pledged further improvements into 2025.

Growth, moreover, is not limited to ASEAN’s larger economies, such as Indonesia, nor to the megacities. Growth in smaller countries, such as Cambodia, indicate demand for broad-based development across the region. An expanding list of second-tier cities and outlying provinces has also seen evidence of strong and continuing growth. Trends towards greater urbanisation and changes in value and supply chains drive this growth further.

Yet while positive stories abound on the growth of ASEAN and Asian countries, there is a darker side to this growth and possible risks. One of these is the poor environmental record across the region.

The pollution that has accompanied growth can be observed in the quality of air. In China, heavy industries and coal burning resulted in air pollution so deadly that it led to premature deaths in Chinese cities.¹⁰⁶ In Southeast Asia, land and forest fires in Indonesia caused severe transboundary haze pollution that adversely affected the lives of locals living within close proximity to the fires as well as large urban populations in the region.

102 (2017) “AXA’s fund management arm to cut investment in coal companies”, Reuters, 25 April 2017, Available: <http://www.reuters.com/article/axa-coal/axas-fund-management-arm-to-cut-investment-in-coal-companies-idUSL8N1HX4ZZ>

103 Sustainable Insurance Forum and UN Environment Inquiry (2017) “Sustainable insurance: the emerging agenda for supervisors and regulators”, August 2017, Available: http://www.unepfi.org/psi/wp-content/uploads/2017/08/Sustainable_Insurance_The_Emerging_Agenda.pdf

104 OECD (2017) “Economic outlook for Southeast Asia, China and India 2017: Addressing energy challenges”, OECD Development Centre, Available: https://www.oecd.org/dev/asia-pacific/SAEO2017_PV.pdf

105 “ASEAN Economic Community”, Association of Southeast Asian Nations, Available: <http://asean.org/asean-economic-community/>

106 Wong, Edward (2016) “Coal burning causes the most air pollution deaths in China, study finds”, The New York Times, 17 August 2016, Available: <https://www.nytimes.com/2016/08/18/world/asia/china-coal-health-smog-pollution.html?module=ArrowsNav&contentCollection=Asia%20Pacific&action=keypress®ion=FixedLeft&pgtype=article>

The new consensus on climate change also shows up in ASEAN and Asia; much of their growth had relied on exploiting energy-inefficient and carbon-intensive resources. Yet ASEAN and Asia may well have turned a corner and are beginning a strategic reorientation towards quality sustainable growth. On climate change, attitudes in the region have shifted from naysaying to supporting the Paris Agreement.

ASEAN and Asian countries have become increasingly aware of their vulnerabilities to climate change and have increased their commitments to take on responsibilities to mitigate climate change.

ASEAN and Asian countries have become increasingly aware of their vulnerabilities to climate change and have increased their commitments to take on responsibilities to mitigate climate change. China, the world's largest emitter of carbon dioxide, has taken the lead and promised to "stand by its responsibilities on climate change".¹⁰⁷ The country has committed to reaching its peak carbon dioxide emissions by 2030 and to shrinking emissions thereafter.¹⁰⁸ In India, where climate change costs the government US\$10 billion every year, Prime Minister Narendra Modi has vowed that his country will go "above and beyond" the 2015 Paris Agreement and clean up its energy sector, which accounts for the two-thirds majority of the country's greenhouse gas emissions.¹⁰⁹ In Indonesia, the world's fifth largest emitter of greenhouse gases, President Joko Widodo has pledged to tackle the largest source of those emissions – converting Indonesian forests and carbon-rich peatlands into farm or plantation land, which often involves the use of fires for land clearing and results in haze. The resource-rich country has ratified the Paris Agreement and pledged to reduce its greenhouse gas emissions by 29 per cent by 2030, against a business-as-usual baseline scenario.¹¹⁰

These commitments are more than vague promises for the future. China has already begun to re-orientate its economic direction and made significant inroads since President Xi Jinping's commitment to support and follow through on the 2015 Paris Agreement, according to his opening speech at the World Economic Forum in Davos in January 2017. China's shift is not only about the environment but also identifies the economic sectors where such attention will be emphasised.

There is a visible focus on which sectors will support China's transition towards sustainability. Its solar power industry is now the largest in the world. Chinese companies are aggressively developing battery technology.¹¹¹

Other countries may be slower and less visible in moving their strategies for sustainable growth but ASEAN corporations and sectors are starting to respond. More progress will be made as national commitments undertaken by their respective governments towards climate change are implemented and strengthened. Awareness and expectations among domestic stakeholders, investors and shareholders will also drive change. For ASEAN, another driver of change will also come from trade and investment from key partners. The region, while integrating, remains a very open economy with large flows of both trade and investment between the West, Japan and China. As noted, all of these countries are shifting towards sustainability and Green Finance, and their influence – through trade and investment – will be a second driver for ASEAN to move towards sustainability.

Another opportunity and need for ASEAN arises from infrastructure. The Asian Development Bank (ADB) estimates that developing Asia will require as much as US\$26 trillion by 2030 to help close its infrastructure

107 Worland, Justin (2017) "It didn't take long for China to fill America's shoes on climate change", Time, 8 June 2017, Available: <http://time.com/4810846/china-energy-climate-change-paris-agreement/>

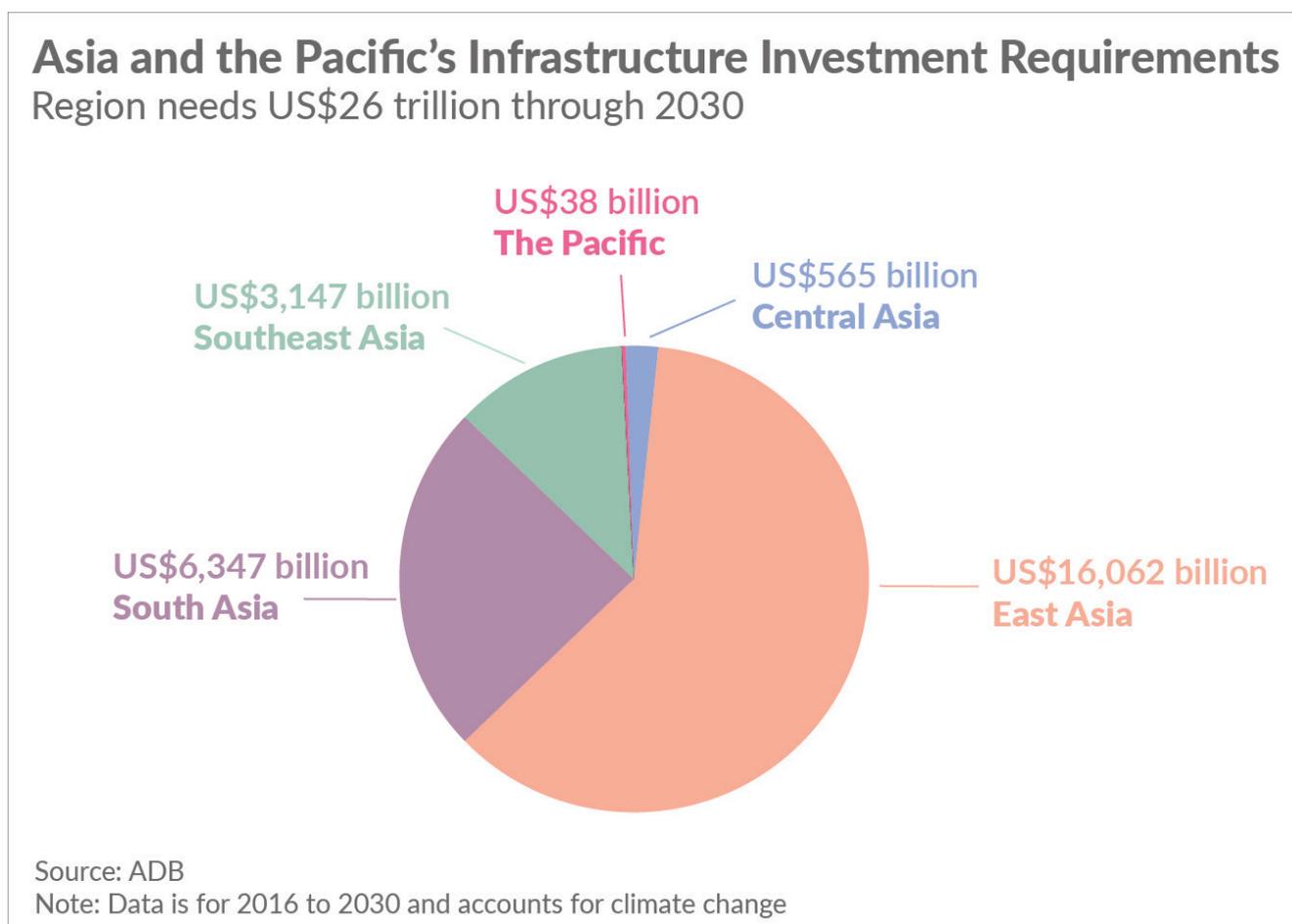
108 *ibid.*

109 Deb, Purnita (2017) "Climate challenge costs India \$10 billion every year", International Business Times, 18 August 2017, Available: <http://www.ibtimes.co.in/climate-challenge-costs-india-10-billion-every-year-738835>

110 Chrysolite, Hanny, et al. (2017) "Evaluating Indonesia's progress on its climate commitments", The Jakarta Globe, 5 October 2017, Available: <http://jakartaglobe.id/opinion/evaluating-indonesias-progress-on-its-climate-commitments/>

111 Corporations like the electric car maker, BYD, are at an early stage but have received not only kudos from leaders but investments and high valuations from the market.

Figure 3: Asia and the Pacific's Infrastructure Investment Requirements



gaps.¹¹² (Figure 3) This is not only for infrastructure to improve links between countries in the region; a considerable part of this is needed within each of the ASEAN member states.

Indonesia's infrastructure needs, for example, are estimated at US\$500 billion over the next five years.¹¹³ Public and private investments are needed for projects ranging from power plants and public housing, to sea ports and transport in the form of toll roads connecting the country's main islands. Financial support to fund urbanisation needs and the expected growth of cities is also required.

Other ASEAN member states are also hungry for investments in infrastructure and other sectors. A recent UNEP Inquiry-DBS study estimated that there are at least US\$3 trillion worth of Green Finance opportunities in the region. Infrastructure makes up the bulk of untapped investment potential, with US\$1.8 trillion worth of projects in sectors such as transport (rail), energy distribution, water, telecommunication, smart city development, climate mitigation and adaptation, and waste management and pollution.¹¹⁴ Other investment areas are in renewable energy (US\$0.4 trillion), food/agriculture and natural assets (US\$0.4 trillion), and energy efficiencies (US\$0.3 trillion).¹¹⁵

112 (2017) "Asia infrastructure needs exceed \$1.7 trillion per year, double previous estimates", Asian Development Bank, 28 February 2017, Available: <https://www.adb.org/news/asia-infrastructure-needs-exceed-17-trillion-year-double-previous-estimates>

113 Jim, Yong Kim (2017) "Indonesia's future depends on its investments now", The World Bank, 27 July 2017, Available: <http://www.worldbank.org/en/news/opinion/2017/07/27/indonesia-future-depends-on-its-investments-now>

114 DBS and UN Environment (2017) "Green Finance opportunities in ASEAN", forthcoming

115 DBS and UN Environment (2017) "Green Finance opportunities in ASEAN", forthcoming

Green Finance offers considerable opportunities, not only for environmental sustainability and other impacts and benefits, but also for the region's growth and development prospects. There is potential for Green Finance to help projects that might otherwise be dismissed due to their high-risk nature become more financially feasible and viable for investment. The opportunity for Green Finance in the region is therefore a strategic shift that encourages new and innovative approaches to help and participate in Asia's economic growth.

There is a real and pressing need for infrastructure in Asia. Green Finance offers considerable opportunities, not only for environmental sustainability and other impacts and benefits, but also for the region's growth and development prospects.

China's Belt and Road Initiative (BRI) is a prime example of an opportunity in the region that can be supported by Green Finance.¹¹⁶ This bold undertaking to build infrastructure from China to Europe includes commitments to help develop ASEAN's infrastructure needs. At present, the commitment is valued at some US\$77 billion, with further funding options to come. There is more under the China-led Asian Infrastructure Investment Bank (AIIB), which has pledged US\$100 billion. A further US\$50 billion is on tap through the Silk Road Infrastructure Fund. These are allied with but are additional to the BRI.

Other possible sources include multilateral development banks (MDBs), such as the World Bank and ADB, both of which have served the region for a long time. There are also visible signs that Japan, under Prime Minister Shinzo Abe, will seek to increase its official development assistance to ASEAN countries – with Myanmar and Indochina as initial beneficiaries. Japan has committed 2 trillion yen (US\$16.8 billion) of Official Development Assistance in support of ASEAN community building over a five-year period since 2013, with more than 850 billion yen already implemented.¹¹⁷ It also has US\$110 billion worth of funds earmarked for building high-quality and innovative infrastructure throughout Asia.

There is a real and pressing need for infrastructure in Asia, and the reality is starting to take shape. Since its founding in 2016, the AIIB has approved over US\$2 billion in projects.¹¹⁸ Large infrastructure projects, such as dams and power plants, in ASEAN countries such as Myanmar, Vietnam and Indonesia have benefitted, with more in the pipeline. Multibillion-dollar high-speed cross-border railways that will boost the region's connectivity, such as the Sino-Thai project and the KL-Singapore strategic project, are also in demand.

Meeting these infrastructure gaps in the region will require funding that goes beyond what governments can afford from their own budgets and reserves. Even with assistance from China, Japan and MDBs, there is a recognition that larger and more innovative capital raising efforts will be needed. To plug the needs of the region adequately, different Green Finance solutions should be developed to form a green ecosystem. This is aimed at increasing the involvement of private financiers to better supplement public finance, which already constitutes the bulk of the current levels of Green Finance.¹¹⁹ Capital markets and SMEs also need to play a more prominent role within the green ecosystem.

With this, ASEAN and Asia will not only rise economically but also increasingly shift towards sustainability. Opportunities for Green Finance will also increase accordingly.

116 The initiative was previously referred to as "One Belt, One Road" or "OBOR".

117 (2015) "Japan-ASEAN Ministerial Meeting", 5 August 2015, Available: http://www.mofa.go.jp/a_o/rp/page3e_000360.html

118 (2017) "AIIB announces new projects; total loans tops US\$2 billion", Asian Infrastructure Investment Bank, 28 March 2017, Available: https://www.aiib.org/en/news-events/news/2017/20170328_001.html

119 DBS and UN Environment (2017) "Green Finance opportunities in ASEAN", forthcoming

Green Finance is no longer just “nice to have”. It is necessary – politically and socially, as well as economically and financially. Environmental requirements, which are a key component of Green Finance, ensure that projects become less risky and more financially viable in the long term.

4.2. Not Just Nice, But Necessary: Green Finance Across ASEAN and Asia

As ASEAN and Asia move ahead with development, sustainability measures including Green Finance are no longer just “nice to have”. They are necessary – politically and socially, as well as economically and financially.

At the broader level, Green Finance has the potential to play a key role in helping national governments achieve their global commitments to climate change. Reducing a nation’s carbon footprint in the short term requires retrofitting physical infrastructure and changing industry practices to become more energy efficient. In the longer term, establishing a greener economy and society will be key so that sustainable practices become the norm rather than the exception. Both are expensive and will require significant investment in research and development, innovation, and the adoption of new technologies.

The onus, so far, has been on governments to apportion part of the public budget towards such national initiatives. This can be a drain on resources, diverting them away from other economic sector development and society needs. Environmental sustainability should not be the sole responsibility of the government. Private sector involvement and partnership is vital to ensure that such efforts are integrated into the real economy. Tapping on the potential of Green Finance opens up capital avenues from the private sector to better support public initiatives.

Green Finance makes positive contributions to infrastructure by ensuring that projects are environmentally and socially sustainable in the long term. Environmental requirements, which are a key component of Green Finance, ensure that major environment and environmentally-linked risk factors are dealt with at the early stages; projects thus become less risky and more financially viable in the long term.

The controversy over Myanmar’s US\$3.6 billion Chinese-financed Myitsone Dam is an example of how Green Finance could have helped to prevent the environmental and social backlash that forced the national government to shut it down in 2011.¹²⁰ This was after Chinese developers had already sunk in US\$800 million on feasibility and technical studies, and other supporting infrastructure.¹²¹ The dam was supposed to provide Myanmar with an alternative and renewable source of energy and earn the local government US\$18 billion over a 50-year concession period.¹²²

Using Green Finance, solutions could have addressed potential widespread environmental harm that the Myitsone Dam would have caused to the Irrawaddy River, including the impact on fish stocks downstream. Green Finance would also have required the consideration of environmental impacts on local communities nearby. Better-managed environmental risks cause less disruption and may even benefit local communities – lowering the probability of popular pushback. Governments are less likely to backtrack or pull out from previously agreed-on infrastructure projects that meet international expectations and local conditions and demands.

While Green Finance offers an opportunity for financial risk mitigation through the requirements of higher environmental standards and solutions, contractual terms are also contributing factors that influence whether a project is locally accepted and completed. Another point of contention leading to the shut-down of the Myitsone Dam construction was the unfavourable terms that would send 90 per cent of the electricity

¹²⁰ Ives, Mike (2017) “A Chinese-backed dam project leaves Myanmar in a bind”, The New York Times, 31 March 2017, Available: <https://www.nytimes.com/2017/03/31/world/asia/myanmar-china-myitsone-dam-project.html>

¹²¹ *ibid.*

¹²² *ibid.*

generated by the dam to China, instead of providing for Myanmar's power-deprived cities and villages. The stalled project remains an issue between the two governments, even after the change of leadership in Myanmar – from the military-backed Thein Sein government that first agreed to and later halted the project, to the elected civilian government of Aung San Suu Kyi's National League for Democracy.

Green Finance, as a financing solution, could help to encourage a higher take-up rate of Public-Private Partnerships (PPP) and speed up infrastructure development in the region. National governments need to create a suitable environment that supports Green Finance as an enabler to help bridge funding gaps in the region.

Green Finance and the use of ESG factors should not be confined only to limiting or ameliorating environmental harm. Conversely, there can be efforts to give incentives and priorities for Green Finance to support green infrastructure. The Asian Development Bank recently outlined a concept of a Green Finance Catalyzing Facility – a model aimed at leveraging on public funds and policies to blend financing from private sources including capital markets access, with the goal of increasing the number of potential large-scale green infrastructure projects and the volume of private investments into these projects.¹²³

In this regard, Green Finance, as a financing solution, could help to encourage a higher take-up rate of Public-Private Partnerships and speed up infrastructure development in the region. Due to its strict requirements, Green Finance helps investors and financiers manage perceived high risks often associated with large infrastructure projects. It can also be of specific assistance to projects that utilise green innovative technology or other design capabilities that are more expensive compared to the usual non-green options.

To maximise such incentives, national governments need to create a suitable environment that supports Green Finance as an enabler to help bridge funding gaps in the region. There are various steps that governments can take. Governments can identify key infrastructure projects that contribute towards the country's social and economic needs and, at the same time, encompass positive environmental design and "footprint". They should also set clear requirements and minimum thresholds during the project bidding process to ensure bids that are "value for money" and aligned with national goals are preferred over the usual practice of "lowest bidder wins".

Fulfilling ASEAN's infrastructure needs should not be at the expense of the environment nor the social welfare of local communities. Green Finance offers a balance to ensure that projects are not only economically viable and de-risked in the long term, but also remain well integrated and accepted among the local communities they are supposed to benefit.

4.3. Singapore's Potential Role in Greening Asia and ASEAN

Singapore has both contributed to and gained from the rise of ASEAN and Asia. As these countries head down a more sustainable, greener path, Singapore is again well placed.

Corporations from Singapore are now significant investors across key ASEAN economies. Singapore is among the top three investors in countries such as Indonesia, Malaysia, Vietnam and Myanmar, and among the largest investors in China and India. The country plans to regionalise further as part of its future economy by deepening and diversifying international connections as well as establishing partnerships for innovation and growth.¹²⁴

In addition to economic and financial strengths, Singapore has a strong record in environmental management and sustainability. (Box 2) Despite land constraints, Singapore is highly rated for its liveability. It is a city that has been well governed and administered as it has grown. There is a depth of Singaporean experience and

123 ADB (2017) "Catalyzing Green Finance: A concept for leveraging blended finance for green development", Available: <https://www.adb.org/sites/default/files/publication/357156/catalyzing-green-finance.pdf>

124 (2017) "Report of the committee on the future economy: pioneers of the next generation", February 2017, Available: https://www.gov.sg/~~/media/cfe/downloads/mtis_full%20report.pdf

expertise around urbanisation issues – construction, infrastructure, power, waste treatment, water, transport and logistics – both in the public service and among corporations. The Singapore Government has identified urban solutions as a field of expertise that the country should actively promote abroad.¹²⁵ This is allied with aspects of technology, innovation and governance, with the idea of promoting “Smart Cities” and “eco-friendly developments”. Singapore’s integrated planning and development control process is guided by the Ministry of National Development and Urban Redevelopment Authority’s Concept Plan, which was introduced in 1971 and is updated every ten years.¹²⁶ This plan contains projections of future land requirements for critical environmental infrastructure, such as waste treatment, and earmarks ecologically rich areas for protection.

Building on its long-time practice of sustainable land-use planning and development, Singapore wants to move further to develop smart and sustainable cities. One example is the eco-friendly development planned for the Mandai eco-tourism hub, driven by Mandai Park Holdings (MPH), a company held by Temasek Holdings, the government investment company.¹²⁷ This large-scale development, which costs about S\$1 billion for the first phase alone,¹²⁸ will bring in many other investors, such as the well-known and sustainability award-winning hotelier Banyan Tree Holdings.¹²⁹ The hub, which is expected to be completed by 2023, will showcase new urban planning solutions, and environmental and conservation technologies that are sustainable and green.

Everyone involved in the Mandai project, from project managers to workers, is required to undergo biodiversity awareness training to ensure the protection and safety of the wildlife.¹³⁰ It is hoped that positive case studies from Mandai can be applied to other upcoming Smart City developments in Singapore and exported to other cities in the region.

As ASEAN and Asia develop, there are opportunities for Singapore to provide services and investments for urban development and solutions as well as the financing that will accompany such developments. These need not be for Singaporean initiatives. Singapore can also partner other investors that are interested in ASEAN to co-invest and provide services as well as to help raise and invest capital.

Box 2: Singapore’s Sustainability Achievements

Singapore’s efforts are internationally recognised. It ranks 14th out of 180 countries in the 2016 Environmental Performance Index (EPI), making it the top-ranked country in Asia. Singapore was also top among 22 major cities in Asia in the 2014 Siemens Green City Index.

Singapore’s Carbon Intensity, or carbon dioxide (CO₂) emissions per dollar of economic output, is among the lowest in the world. It is ranked 123rd out of 142 countries, placing Singapore among the 20 best-performing countries.

Sources: Environmental Performance Index 2016 Report; Siemens Green City Index 2014; National Climate Change Secretariat

125 *ibid.*

126 Tan, Yong Soon, et al. (2016) “Reflection on Singapore’s environmental journey”, In Tan Yong Soon (ed), 50 years of Environment: Singapore’s journey towards environmental sustainability, Singapore: World Scientific Publishing Co.

127 Kotwani, Monica (2017) “New Mandai eco-tourism hub to feature global wildlife, create jobs”, Channel NewsAsia, 16 January 2017, Available: <http://www.channelnewsasia.com/news/singapore/new-mandai-eco-tourism-hub-to-feature-global-wildlife-create-job-7563720>

128 (2015) “STB to partner Temasek Holdings for Mandai nature project”, Eco-Business.com, 16 January 2015, Available: <http://www.eco-business.com/news/stb-partner-temasek-holdings-mandai-nature-project/>

129 Tan, Audrey (2017) “Banyan Tree to run resort at upcoming Mandai nature hub”, The Straits Times, 12 October 2017, Available: <http://www.straitstimes.com/singapore/environment/banyan-tree-to-run-resort-at-upcoming-mandai-nature-hub>

130 Tan, Audrey (2017) “Mandai makeover: Eco-bridge, biodiversity classes for contractors among measures to protect wildlife in area”, The Straits Times, 26 July 2017, Available: <http://www.straitstimes.com/singapore/environment/mandai-makeover-eco-bridge-biodiversity-classes-for-contractors-among-measures>

Singapore's well-established credentials should serve as a financial conduit for infrastructure projects – whether in tandem with China's BRI, Japan's efforts or other sources. The country is well placed to participate in the opportunities by being strong in Green Finance, not only as a preferred mode but also as a requirement.

Currently, some two-thirds of project financing for ASEAN are issued out of Singapore.¹³¹ As the pace and volume of infrastructure investment increases, Singapore's well-established credentials should serve as a financial conduit for these new projects – whether in tandem with China's BRI, Japan's efforts or the other sources mentioned. Much depends on Singapore's relationships with the countries, MDBs providing the funding, and with the countries where the investments will be made. But a lot also depends on Singapore's ability to demonstrate that it is able to add value to these projects because of its financial sector strengths.

There are prospects for Green Finance within these financing opportunities. In fact, Green Finance is an integral part of infrastructure financing. It ensures that such projects meet due environmental, social and climate-related criteria, which are key elements in the efforts to make such large and long-term investments less risky and, instead, more bankable and sustainable.

The MDBs also apply social and environmental criteria in their loan-making. The World Bank and International Finance Corporation are among the chief issuers of green bonds worldwide. The China-led AIIB has also said that it will observe international standards in this regard, and that its modus operandi is "lean, clean and green".¹³² China's approach to the BRI is less clear. However, given the PBOC's strategies and schemes, it is expected that China's approach to the projects will be "greened". A first step was taken in September 2017 with the launch of the *Environmental Risk Management Initiative for China's Overseas Investment*.¹³³ This is a voluntary effort to ensure that Chinese financial institutions and enterprises involved in foreign investment properly evaluate ESG factors in their overseas investments, including those under the BRI. Seven bodies, including the China Green Finance Committee and the Ministry of Environmental Protection's Foreign Economic Cooperation Office, are leading this initiative.

The region's needs for infrastructure along with China's BRI and AIIB offer considerable opportunities for Singapore to participate in and benefit from its strengths in urban development and finance. Given the growing commitments from China and ASEAN countries to be more sustainable, Singapore will be better placed to participate in financing opportunities by being strong in Green Finance, not only as a preferred mode but also as a requirement.

131 Crips, Tony (2017) "Infrastructure the key for S'pore in Asean's second 50 years", The Straits Times, 18 August 2017, Available: <http://www.straitstimes.com/opinion/infrastructure-the-key-for-spore-in-aseans-second-50-years>

132 (2015) "China-led AIIB will be lean, clean and green – official", Reuters, 12 April 2015, Available: <http://www.reuters.com/article/us-asia-aiib/china-led-aiib-will-be-lean-clean-and-green-official-idUSKBN0N302B20150412>

133 Zhang Chun and Yao Zhe (2017) "China on path to greener foreign investment", Responsible Business, 4 October 2017, Available: <http://www.responsiblebusiness.com/sdg-action/planet-news/china-path-greener-foreign-investment/>

“There will be economic opportunities for green growth as we address the impact of climate change. Singapore is investing significantly in research and development on clean energy and environmental technologies. These solutions can be exported to other cities and countries. This will create new jobs and business opportunities for Singapore and Singaporeans.”

– Mr. Teo Chee Hean, Deputy Prime Minister and Chairman of Singapore’s Inter-Ministerial Committee on Climate Change, National Climate Change Competition 2016 Prize Award Ceremony, 4 November 2016 ¹³⁴

¹³⁴ Speech by DPM Teo Chee Hean at the National Climate Change Competition 2016 Prize Award Ceremony, “Taking action to reduce carbon emissions, adapting to climate change and seizing green growth opportunities”, 4 November 2016, Available: <http://www.pmo.gov.sg/newsroom/dpm-teo-chee-hean-national-climate-change-competition-2016-prize-award-ceremony>

PART 2: WHERE ARE WE NOW?

1. Government Policy and Actions

At present, Singapore is not at the forefront of the push towards Green Finance, although there have been small but noteworthy government policy and actions.

The Monetary Authority of Singapore's (MAS) launch of a Green Bond Grant scheme in June 2017 was one of the most high-profile, top-down signals of Singapore's intentions to accelerate the uptake of Green Finance among the finance community and develop the country as a hub for green bond issuances.

Earlier this year, Mr. Lawrence Wong, Minister for National Development and Second Minister for Finance, called on the asset management industry to pay attention to sustainable investing as part of efforts to innovate and add value to investors. Singapore, he said, can leverage on the broad community of asset managers, institutional investors and banks already present here to develop a green bond market. He also assured the industry that the Government would do its part to ensure a conducive environment for the asset management industry to grow.¹³⁵

"The presence of a green bond market here will add to the breadth and depth of Singapore's debt market, providing buy-side participants with more investment opportunities, and supporting the growth of ancillary services as well."

– Mr. Lawrence Wong, Minister for National Development and Second Minister for Finance, Investment Management Association of Singapore's 20th Anniversary Conference, 23 March 2017

There is every reason to believe that Singapore can take significant steps forward on the issue. The foundations for such steps have already been laid. The country has its strengths as a financial hub and a strong record in environmental protection and sustainability, including strong commitments to address climate change. The Singapore Government has signalled its intention to shift national attitudes, perspectives and business behaviour towards combating climate change, and strategically shift the economy towards sustainable development.¹³⁶

Focus on energy efficiency, in particular solar power, has also intensified. As the 2018 ASEAN Chair, Singapore wants to deepen energy collaboration in clean energy, natural gas and liquefied natural gas, and the financing of energy investments.¹³⁷

Speaking at the 10th Singapore International Energy Week (SIEW) 2017, Mr. Teo Chee Hean, Deputy Prime Minister and Coordinating Minister for National Security, outlined three key government efforts to help Singapore's energy transition, which should also guide stakeholders. This will be through: (1) stepping up efforts to improve energy efficiency; (2) harnessing renewable energy in more innovative and efficient ways; and (3) investing in energy research, development and demonstration.¹³⁸ DPM Teo, who is chairman of Singapore's

¹³⁵ Keynote address by Mr. Lawrence Wong, Minister for National Development and Second Minister for Finance, at the Investment Management Association of Singapore's 20th Anniversary Conference on 23 March 2017, Available: <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2017/Keynote-Address-at-the-Investment-Management-Association-of-Singapore's-20th-Anniversary-Conference.aspx>

¹³⁶ The awareness to plan for a more sustainable future and mitigate the challenges of climate change had been articulated as early as 1997, when Singapore ratified the United Nations Framework Convention on Climate Change (UNFCCC).

¹³⁷ Singapore Energy lecture cum dialogue by Mr. Teo Chee Hean, Deputy Prime Minister and Coordinating Minister for National Security at the 10th Singapore International Energy Week 2017, Monday, 23 October 2017, Available: https://www.gov.sg/~sgpcmedia/media_releases/micad/speech/S-20171023-1/attachment/Media%20copy%20-%20231017_Speech%20by%20DPM%20Teo%20at%20SIEW%202017.pdf

¹³⁸ Singapore Energy lecture cum dialogue by Mr. Teo Chee Hean, Deputy Prime Minister and Coordinating Minister for National Security at the 10th Singapore International Energy Week 2017, Monday, 23 October 2017, Available: https://www.gov.sg/~sgpcmedia/media_releases/micad/speech/S-20171023-1/attachment/Media%20copy%20-%20231017_Speech%20by%20DPM%20Teo%20at%20SIEW%202017.pdf

Inter-Ministerial Committee on Climate Change, also said that the Government will set up a National Energy Transformation Office within the Energy Market Authority. This will improve synergies across government agencies to plan and coordinate energy research and development and the adoption of transformational energy solutions. Grants worth S\$24 million were announced to help Singapore better forecast its solar power needs, with the bulk going towards building a test bed to develop energy storage capabilities allowing consumers to sell solar energy back to the power grid.¹³⁹

Mr. Masagos Zulkifli, Minister for the Environment and Water Resources, also highlighted the need for Singapore to keep up with the “economies of the future”, which will “emphasise energy-efficient and low-carbon growth”.¹⁴⁰ The Government recognises that efforts must be multi-pronged, involving measures for environmental protection and fundamental shifts in economic and financial policies. This can be seen in the recent and potentially transformative step to introduce a carbon tax, announced by Mr. Heng Swee Keat, Minister for Finance, during the Singapore Budget 2017. The move, which takes effect from 2019, follows Singapore’s commitments to cut greenhouse gas emissions under the Paris Agreement and aims to help the country shift towards a more energy-efficient and carbon-light economy.

“There are different ways to reduce emissions... But the most economically efficient and fair way to reduce greenhouse gas emissions is to set a carbon tax, so that emitters will take the necessary actions.”

– Mr. Heng Swee Keat, Minister for Finance, Singapore Budget 2017

The following are notable Singapore government policies on climate change and broader issues on sustainability:

- **Singapore aims to reduce its emissions intensity by 36 per cent below 2005 levels by 2030 and stabilise its emissions with the aim of peaking around 2030.**¹⁴¹ Singapore reaffirmed its commitment to the 2015 Paris Agreement and its Paris pledge earlier this year in June¹⁴² – a reminder that the island state, while small in size and accounting for about 0.11 per cent of global emissions,¹⁴³ still has its part to play in international efforts to address climate change.
- **A carbon tax on large direct emitters of greenhouse gases from 2019.** Pricing carbon emissions sends an economy-wide signal to corporations on the value that Singapore places on greenhouse gases. It also encourages the energy market and sectors to be more energy efficient through the use of clean technology and market innovation.¹⁴⁴ A carbon tax also ensures that those who emit the most greenhouse gases will fairly bear the costs to the environment. Direct emitters of greenhouse gases, such as power plants, will need to change and adapt, as will larger energy consumers. Between 30 and 40 emitters currently operating in Singapore will be affected by the tax. Revenue from the carbon tax will help fund industrial initiatives to help companies reduce their emissions.¹⁴⁵

¹³⁹ Hong, Jose (2017) “\$24m boost for research on solar power”, The Straits Times, 24 October 2017, Available: <http://www.straitstimes.com/singapore/24m-boost-for-research-on-solar-power>

¹⁴⁰ Low, Annabeth (2017) “Upcoming carbon tax could well boost Singapore’s economic competitiveness: Masagos”, The Straits Times, 12 October 2017, Available: <http://www.straitstimes.com/business/economy/singapore-must-be-energy-efficient-and-low-carbon-to-stay-competitive-masagos>

¹⁴¹ National Climate Change Secretariat (2016) “Singapore’s climate action plan: Take action today, for a carbon-efficient Singapore”, NCCS, Available: www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf

¹⁴² (2017) “Singapore reaffirms commitment to Paris climate agreement after US pullout”, Channel NewsAsia, 2 June 2017, Available: <http://www.channelnewsasia.com/news/singapore/singapore-reaffirms-commitment-to-paris-climate-agreement-after-8905862>

¹⁴³ National Climate Change Secretariat (n.d.) “Singapore emissions profile”, Available: <https://www.nccs.gov.sg/climate-change-and-singapore/national-circumstances/singapores-emissions-profile>

¹⁴⁴ National Climate Change Secretariat (2017) “Carbon Pricing”, 20 February 2017, Available: <https://www.nccs.gov.sg/climate-change-and-singapore/domestic-actions/reducing-emissions/carbon-pricing>

¹⁴⁵ *ibid.*

- **An Inter-Ministerial Committee on Climate Change was set up in 2007 to ensure a whole-of-government coordination on Singapore's approach to climate change.**¹⁴⁶ The committee is chaired by Mr. Teo Chee Hean, Deputy Prime Minister and Coordinating Minister for National Security, underscoring the importance that Singapore places in tackling climate change due to its high risks to national security. A National Climate Change Secretariat was also established in July 2010 as a dedicated unit under the Prime Minister's Office, to ensure that Singapore's climate change policies and action plans are prioritised and strategically aligned across the Government ministries and its agencies.
- **Release of Singapore's Climate Action Plan: Take Action Today, for a Sustainable Future in 2016**, which includes two complementary publications on the country's climate change mitigation and adaptation plans. The first publication, *Take Action Today, for a Carbon-Efficient Singapore* outlines the national strategy and action plan for the country to become more carbon-efficient. Plans to improve energy efficiency across industries, buildings, and to invest in the research and development of cutting-edge low-carbon technologies are also presented.¹⁴⁷ This includes building green HDB estates and encouraging companies to excel in energy management through schemes and awards. The plan aims to deploy more efficient technologies, such as solar photovoltaic (PV) systems, and to increase the adoption of solar power in the electricity mix. The Singapore Government hopes to develop and up-scale low-carbon solutions for use in Singapore and export these to the region.¹⁴⁸ To support such efforts, government support for R&D has been earmarked.¹⁴⁹ The second publication, *A Climate-Resilient Singapore, for a Sustainable Future*, highlights the risks of climate change and its impact on Singapore, as well as the adaptation measures needed to protect the country's coastal areas, water supply, biodiversity, and buildings, among others.¹⁵⁰
- **Release of the Sustainable Singapore Blueprint in 2009 and an updated version in 2015.** The blueprints outline the country's national vision and plans for a more liveable and sustainable Singapore.
- **Launch of the inaugural Public Sector Sustainability Plan 2017-2020 in June**, which details the public sector's plans to take the lead in going green. As the nation's largest employer, the public sector aims to inspire all Singaporeans to work towards greater environmental sustainability. The plans include expanding the public sector's green procurement policy and building up capabilities in urban sustainability.¹⁵¹
- **Repricing water and energy resources in the form of water price hikes and electricity tariffs.** Water price hikes by 30 per cent in two phases over the next two years reflect the higher operational costs of desalination and NEWater production. A water conservation tax on potable water is also imposed to promote conservation.¹⁵² The rise in water prices mirrors the higher costs involved in producing and distributing water, as more desalination and NEWater plants and installation of deeper pipes are needed. Electricity tariffs are also reviewed on a quarterly basis and are dependent on the costs of natural gas.¹⁵³ While tariffs have come down since June 2017 due to the lower cost of natural gas for electricity generation, the longer-

146 The IMCC includes Ministerial and Permanent Secretaries representation across Ministries such as Environment and Water Resources, Finance, Foreign Affairs, National Development, Trade and Industry and Transport.

147 National Climate Change Secretariat (2016) "Climate action plan: Take action today, for a carbon-efficient Singapore", NCCS, Available: www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf

148 *ibid.*

149 Examples that are already in operation include the S\$470 million Environment and Water Technologies – Clean Water Strategic Research Programme (SRP) to support innovation in smart and energy-efficient water technologies, and a S\$365 million Clean Energy SRP, which established two energy research centres to support the growth of the clean energy industry in Singapore. See: National Climate Change Secretariat (2016) "Climate action plan: Take action today, for a carbon-efficient Singapore", NCCS, Available: www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf

150 National Climate Change Secretariat (2016) "Climate action plan: A climate-resilient Singapore for a sustainable future", NCCS, Available: https://www.nccs.gov.sg/sites/nccs/files/NCCS_Adaptation_FA_webview%2027-06-16.pdf

151 (2017) "Public sector sustainability plan (2017-2020)", Ministry of the Environment and Water Resources, June 2017, Available: http://www.mewr.gov.sg/ssb/files/PSSP_2017-2020.pdf

152 "Budget 2017: Moving forward together", Budget Speech by Minister for Finance Mr. Heng Swee Keat, 20 February 2017, Available: http://www.singaporebudget.gov.sg/data/budget_2017/download/FY2017_Budget_Statement.pdf

153 (2017) "Electricity tariffs to fall for next 3 months", 30 June 2017, Channel NewsAsia, Available: <http://www.channelnewsasia.com/news/singapore/electricity-tariffs-to-fall-for-next-3-months-8992176>

term direction on pricing puts the onus on households to improve energy and water conservation or else face increased costs for these resources.

Singapore's climate change efforts and plans to develop a green economy will create many opportunities. Efforts will require considerable investment, not only in research but even more to be allocated to the implementation of government commitments.¹⁵⁴ Singapore has also been encouraging corporates and the public sector to innovate and adopt new technologies in environmental sustainability. The country's efforts are further highlighted below.

The updated Sustainable Singapore Blueprint 2015 emphasises the need to build a leading green economy, with businesses encouraged to adopt greener practices. It also outlines Singapore's target to become a hub for the cutting-edge business of sustainable development with new job opportunities in this new sector.

One of Singapore's earliest roadmaps took the form of the first Sustainable Singapore Blueprint, released in 2009, in which the Inter-Ministerial Committee on Sustainable Development considered efforts to formulate a national strategy for Singapore's sustainable development.¹⁵⁵ The publication, titled *A Lively and Liveable Singapore: Strategies for Sustainable Growth*, proposed a "Singapore Way" of pursuing long-term economic growth and environmental sustainability, with the Government leading by example through its policies and actions. A four-pronged strategy was aimed at: (1) boosting Singapore's resource efficiency; (2) enhancing the urban environment; (3) building capabilities; and (4) fostering community action. Action plans included pricing water and energy appropriately to prevent wastage and promote conservation, building capabilities in renewable energy, in particular, investing in solar technology, and investing in the R&D and test-bedding of new technologies.

Follow-up efforts have provided scientific evidence of climate change impacts on Singapore's physical and urban environment, and encouraged further efforts to promote public awareness. An updated Sustainable Singapore Blueprint 2015 builds on this and sets out a plan of action that outlines the country's national vision and plans for a more liveable and sustainable Singapore.¹⁵⁶ It includes 2030 targets for Singapore to create, among other sustainability development initiatives, more green and blue spaces (park and water projects) identified island-wide, greener modes of transport, greener homes, and a greener economy.

The blueprint envisions eco-smart living spaces, embedded smart technologies, "car-lite" and eco-friendly features in towns and homes across Singapore. Plans to introduce new innovation districts, by tapping on local universities and industrial estates as living laboratories to encourage and test bed more green innovations, are also in the works. For example, the Government launched the SolarNova programme led by the Singapore Economic Development Board (EDB) and the Housing & Development Board (HDB) to build up and support the solar energy ecosystem, and encourage greater adoption of solar energy in Singapore.¹⁵⁷ Both the Public Utilities Board (PUB) and EDB are also test-bedding a floating solar PV system on water bodies, such as reservoirs, to increase Singapore's solar capacity.¹⁵⁸

Taken as a whole, the new blueprint emphasises the need to build a leading green economy, with businesses encouraged to adopt greener practices. It also outlines Singapore's target to become a hub for the cutting-edge business of sustainable development with new job opportunities in this new sector.¹⁵⁹

¹⁵⁴ For research alone, under the National Research Foundation's Research, Innovation, and Enterprise 2020 Plan, \$0.9 billion will be invested in the urban solutions and sustainability from 2016 to 2020 to tackle Singapore's energy, water, land, and liveability challenges.

¹⁵⁵ (2009) "A lively and liveable Singapore: Strategies for sustainable growth", Available: https://www.nccs.gov.sg/sites/nccs/files/Sustainable_Spore_Blueprint.pdf

¹⁵⁶ (2015) "Our home, our environment, our future, Sustainable Singapore Blueprint 2015", Ministry of the Environment and Water Resources and the Ministry of National Development, Available: www.mewr.gov.sg/ssb/files/ssb2015.pdf

¹⁵⁷ National Climate Change Secretariat (2016) "Climate action plan: Take action today, for a carbon-efficient Singapore", NCCS, Available: www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf

¹⁵⁸ *ibid.*

¹⁵⁹ (2015) "Our home, our environment, our future, Sustainable Singapore Blueprint 2015", Ministry of the Environment and Water Resources and the Ministry of National Development, Available: www.mewr.gov.sg/ssb/files/ssb2015.pdf

The Government's latest initiative sees the public service taking the lead to drive Singapore's strategies to become more carbon-efficient and act as a good steward of the country's resources through the launch of the inaugural *Public Sector Sustainability Plan 2017-2020* in June 2017. As the nation's largest employer, the Government aims to inspire all Singaporeans to work towards greater environmental sustainability. The plans include expanding the public sector's green procurement policy and building capabilities in urban sustainability.¹⁶⁰

Going forward, the public sector is expected to reduce electricity and water consumption by more than 15 per cent and 5 per cent, respectively, from its 2013 levels by 2020.¹⁶¹ Targets for waste reduction and solar adoption are part of the plan, while all new public-sector buildings will have to attain the Green Mark Platinum rating.

Despite these ambitious targets, not all corporations and even fewer financial institutions have begun to respond to the emerging government policies to respond to climate change. What has been more visible are efforts made by the Singapore Government concerning environmental protection and the transboundary haze – the recurring episodes of air pollution that impact the city. These efforts including, the Transboundary Haze Pollution Act (THPA) 2014, introduces potential civil and criminal penalties for individuals or corporations who cause the haze and extends to those who "condone" such actions. (Box 3)

"We expect companies to be transparent about your supply chains, particularly those in the oil, palm oil and the forestry sectors, and we hope that others in the private sector will likewise practice sustainable procurement and be prepared to subject themselves to the transparency that is needed."

– Dr Vivian Balakrishnan, Minister for Foreign Affairs, plenary address at the 4th Responsible Business Forum on Sustainable Development, 3 November 2015.

The imposition of liability is not only potentially for those who are producers in the resource sectors that are most often implicated in the haze – palm oil, and pulp and paper. The laws can possibly extend to those further up in the supply chain as well as to financial institutions that support any of the businesses implicated.

More than the laws per se, reputational risks are at stake. Prolonged periods of dense and health-threatening haze increased political and civic pressure on the corporations operating in the resource sector. In one instance, one company that was questioned in relation to fires and haze incidents in 2015 had the Green Label – a sustainability label – on its products withdrawn. This triggered one of the largest supermarket chains in Singapore to remove the company's products from its shelves, which impacted sales.¹⁶² It was in this context that banks in Singapore began to be more explicit in their move towards integrating minimum Environmental, Social and Governance (ESG) standards in their financing processes, under the 2015 Association of Banks in Singapore (ABS) Guidelines on Responsible Financing.

ESG integration among banks, combined with the Singapore Exchange (SGX) sustainability reporting rule have nudged corporate leaders to relook business practices in light of sustainability and improve standards of corporate governance. (Part 2, Section 2) The SGX rule makes it mandatory for all listed companies to report according to Sustainability Reporting Guidelines on a "comply or explain" basis,¹⁶³ and provides a legal and regulatory sustainability framework for corporates to follow.

160 (2017) "Public sector sustainability plan (2017-2020)"; Ministry of the Environment and Water Resources, June 2017, Available: http://www.mewr.gov.sg/ssb/files/PSSP_2017-2020.pdf

161 (2017) "Public sector sustainability plan (2017-2020)"; Ministry of the Environment and Water Resources, June 2017, Available: http://www.mewr.gov.sg/ssb/files/PSSP_2017-2020.pdf

162 (2015) "Haze fallout: NTUC FairPrice, Sheng Siong withdraw all APP paper products"; Channel NewsAsia, 7 October 2015, Available: <http://www.channelnewsasia.com/news/singapore/haze-fallout-ntuc-fairprice-sheng-siong-withdraw-all-app-paper-p-8230030>

163 (2010) "Singapore issues reporting guidelines"; Business and the Environment, Oct 2010.

On Green Finance instruments, the launch of the MAS' Green Bond Grant scheme has helped to kickstart the green bond market in Singapore. The scheme allows qualifying issuances to offset 100 per cent of expenses attributable to obtaining an external review for green bonds, up to a cap of S\$100,000 per issuance. The bonds can be denominated in any currency but must be issued and listed in Singapore, with a minimum size of S\$200 million and tenure of at least three years.¹⁶⁴

Given the capacities of Singapore as a financial hub and the strategic directions for a more sustainable and carbon-light economy set by government, there are many possibilities of what the Singapore Government can do. Much, however, depends on the readiness of the financial community and corporations. They should be prepared to not only accept and follow government regulations but, for Green Finance to progress strongly, should also seek out and respond innovatively to opportunities. In the next section, we consider the current baseline of different segments in the financial sector when it comes to sustainability and Green Finance.

¹⁶⁴ Monetary Authority of Singapore (2017) "Green bond grant scheme", MAS, 1 June 2017, Circular No. FDD Cir. 09/2017.

Box 3: Southeast Asia's Haze Crisis Issue

Southeast Asia has experienced transboundary haze pollution for nearly two decades, mainly due to forest and peat fires in Indonesia. The prolonged haze crisis, particularly in 2015, led to enormous social, economic and environmental costs for the region.

Identifying the causes of the haze and the actors involved is complex. The financial sector has come under increased scrutiny for its links to some of the companies responsible for plantation expansion and the use of fires to clear land. One study found at least US\$38 billion (S\$52 billion) worth of commercial loans and underwriting facilities were given to 50 companies between 2010 and 2015.¹⁶⁵ Companies come from industries such as palm oil, pulp and paper, rubber and timber and have been involved in rainforest destruction in Southeast Asia.¹⁶⁶ Financiers that lack stringent processes and criteria to assess potential borrowers and investees from the agriculture sector on their environmental and social performance face higher reputational risk as a result.

At the same time, the presence of stranded land – a type of stranded asset – is reshaping the financial valuation of some agricultural companies, with implications for the investors and bankers behind them. Regulations in Indonesia now greatly restrict the clearance of peatland,¹⁶⁷ on top of banning the clearance of forests and the issuance of new oil palm concessions.¹⁶⁸ Many major palm oil growing and trading companies have also committed to “No Peat, No Deforestation, No Exploitation” policies.¹⁶⁹

As a result of these laws and policies, three out of every ten hectares of land leased to oil palm concessions in Indonesia can no longer be developed and are considered stranded land.¹⁷⁰ Stranded land cannot generate any future value, decreasing overall yields and projected returns on investment.¹⁷¹ To minimise financial losses, financiers must conduct stringent due diligence and price stranded assets into financial valuations moving forward.

There are also legal risks. For instance, the Transboundary Haze Pollution Act (THPA) 2014 (No.24 of 2014), which came into effect on 25 September 2014, deems an entity liable when it conducts or condones an act – occurring within or outside Singapore – that causes or contributes to haze pollution in Singapore. While it is not clear what constitutes “condoning” under the THPA, this possibly extends to investors and banks that fail to screen and assess investees and borrowers based on environmental and social criteria.¹⁷²

It is crucial for banks and investors to adopt stringent environmental and social criteria and proactively engage with their clients to mitigate these different risks.

165 (2016) “Banks pump billions into deforestation-linked firms in South-east Asia: Study”, The Straits Times, 6 September 2016, Available: <http://www.straitstimes.com/asia/se-asia/banks-pump-billions-into-deforestation-linked-firms-in-south-east-asia-study>

166 *ibid.*

167 Peat soil is made up of partly decomposed plant material and becomes dry and flammable after water is drained. When peatland catches fire, it results in very thick smoke haze and significant carbon emissions. Peat fires are one of the major contributors to transboundary haze pollution. See more: <http://haze.asean.org/asean-peatland-management-strategy-apms-2/>

168 (2017) “Indonesian palm oil's stranded assets: 10 million football fields of undevelopable land”, Chain Reaction Research, 8 February 2017, Available: <https://chainreactionresearch.files.wordpress.com/2017/02/palm-oil-stranded-land-size-equals-ten-million-football-fields-crr-170407.pdf>

169 *ibid.*

170 *ibid.*

171 *ibid.*

172 Lee, Chen Chen & Lau, Xin Yi (2015) “Putting the brakes on haze financing”, TODAYOnline, 30 October 2015, Available: <http://www.todayonline.com/commentary/putting-brakes-haze-financing-0>

2. Corporations

Numerous corporations are well rated in governance indices and others are involved in sectors that may be considered more sensitive to climate concerns. However, the majority of Singaporean corporations have yet to profile themselves as sustainable businesses or make significant forays into Green Finance. This may be starting to change.

SGX took the first step in 2011, by releasing voluntary guidelines for sustainability reporting for listed firms. Noting a growing global investor demand for corporate disclosures that go beyond financial factors to include broader criteria, the move aimed to enhance the visibility of Singapore-listed companies to ensure that entities would remain competitive and attractive to investors.¹⁷³ A further step was taken in 2016, when reporting was made mandatory with the introduction of the SGX rule making it mandatory for all listed companies to report according to Sustainability Reporting Guidelines on a “comply or explain” basis.¹⁷⁴ This rule has helped to set Singapore’s approach for ESG reporting, providing clarity on a legal and regulatory sustainability framework for corporates to follow.

SGX’s mandatory requirement for a sustainability report pushed corporations to start incorporating material ESG factors into their business, and forced business leaders to take a stand and back their board statements on sustainability.

The mandatory requirement for a sustainability report pushed corporations to start incorporating material ESG factors into their business, and forced business leaders to take a stand and back their board statements on sustainability. It also boosted Singapore’s status as a competitive global market that prided itself on transparency and good governance. To profile Singapore’s leaders in ESG standards, SGX launched a set of equity indices – the SGX Sustainability Indices – in 2016.¹⁷⁵ The four indices include an SGX Sustainability Leaders Index, which featured a core group of 24 Singapore-listed companies that meet minimum liquidity and sustainability reporting requirements.¹⁷⁶

SGX also joined the United Nations Sustainable Stock Exchanges (SSE) initiative as a partner exchange in 2016, as part of its commitment to promote sustainability in its market and long term sustainable investment.¹⁷⁷ Being involved in the initiative allows the bourse to learn and exchange global sustainability best practices, ensuring its involvement in the development of new approaches to sustainable challenges with other progressive stock exchanges around the world.

SGX’s rules has also helped to align corporations with the prospects of Green Finance, in particular, green bonds. It remains too early to tell whether the majority of Singaporean corporations are embracing Green Finance. However, some notable exceptions are taking a leading edge approach.

One is the real estate development company City Developments Limited (CDL), which launched a S\$100 million green bond in April. While modest, this move is notable as CDL is the first Singapore company to issue a green bond. It was also the first time a green bond was offered in the Singapore dollar bond market.¹⁷⁸ Although unrated, the launch of CDL’s green bond created considerable buzz in the bond market, with multiple events

173 Wong, Wei Han (2016) “Sustainability reports boost Singapore’s status as global market”, The Straits Times, 6 July 2016, Available: <http://www.straitstimes.com/opinion/sustainability-reports-boost-spores-status-as-global-market>

174 (2010) “Singapore issues reporting guidelines”, Business and the Environment, Oct 2010.

175 Boon, Rachael (2016) “SGX launches sustainability indices”, The Straits Times, 31 May 2016, Available: <http://www.straitstimes.com/business/sgx-launches-sustainability-indices>

176 Lim, Kenneth (2016) “SGX launches four sustainability stock indices”, The Business Times, 30 May 2016, Available: <http://www.businesstimes.com.sg/companies-markets/sgx-launches-four-sustainability-stock-indices>

177 (2016) “SGX joins United Nations Sustainable Stock Exchanges initiative”, 6 September 2016, SGX, Available: http://infopub.sgx.com/FileOpen/20160906_SGX_joins_United_Nations_Sustainable_Stock_Exchanges_initiative.ashx?App=Announcement&FileID=420352

178 Shah, Vaidehi (2017) “CDL becomes first Singapore company to issue green bond”, Eco-Business, 10 April 2017, Available: <http://www.eco-business.com/news/cdl-becomes-first-singapore-company-to-issue-green-bond/>

and workshops held on the potential of green bonds subsequently. CDL has established a consistently strong record in emphasising green and sustainable dimensions in its business, and is in a good position to issue green bonds. The company has a strong portfolio of developments that achieved energy efficiency and other recognition for its industry leadership. CDL was conferred the President's Award for the Environment in 2007 – the highest accolade awarded to individuals and institutions in Singapore's field of environment and water resources – for its years of commitment and outstanding contributions to environmental conservation.¹⁷⁹

Others have since followed suit to issue green bonds. In July 2017, DBS Group Holdings debuted its first US dollar green bond, raising US\$500 million.

Going forward, as more corporates start to go green, a green knock-on effect is likely to hit supply chain networks and financiers. Demand for higher standards of environmental reporting disclosures could see corporations picking banks and business partners that have demonstrated capabilities in all aspects of financing and governance, especially green.

3. Financial Institutions and Instruments

As a major part of the economy, the financial services sector is a powerful stakeholder to help Singapore shift towards a more sustainable future economy. These aspirations, among others, were outlined in the Report of the Committee on the Future Economy. They include the need to strengthen enterprise capabilities to innovate and scale up, develop a vibrant and connected city of opportunity, and to partner one another to enable innovation and growth.¹⁸⁰

"In the future economy, our people should have deep skills and be inspired to learn throughout their lives; our businesses should be innovative and nimble; our city connected and vibrant, continually renewing itself; and our Government coordinated, inclusive, and responsive."

– Report of the Committee on the Future Economy

Green Finance offers an avenue of growth and opportunity for Singapore with its potential to unlock entrepreneurship, innovation, skills development and new jobs. The following sections describe the banking and insurance sectors, and institutional investors in relation to Green Finance and their sustainability policies and practices.

Multiple shades of green exist within Singapore's financial sector. Such diversity may be expected given the wide range of actors and relatively new policies that are emerging in this area. It is best to recognise that there will be differing levels of will and capacity, as financial institutions react to different factors. Financial institutions can be characterised as being at different stages on the issue of Green Finance, ranging from the preliminary and exploratory stages, to being early adopters and leading edge institutions – depending on their policies and practices. (Figure 4)

179 CDL's late deputy chairman and executive director Mr Kwek Leng Joo, was responsible for boosting the company's reputation as a green building champion in Singapore. He was conferred the President's Award for the Environment in 2015.

180 (2017) "Report of the committee on the future economy: pioneers of the next generation", February 2017, Available: https://www.gov.sg/~-/media/cfe/downloads/mtis_full%20report.pdf

3.1 Banks

Banks regarded as early adopters of Green Finance have put in place several practices, such as disclosing their ESG frameworks in client and credit assessment processes, and incorporating sustainability across all business units. Some have developed extensive processes to engage with corporations that consistently pollute or are in highly pollutive industries, such as mining. They have even, in some cases, developed an exclusion list to avoid doing business in certain sectors.

These banks tend to be the Singapore-based operations of foreign financial institutions. For them, such practices are driven by the need to align with sustainability requirements and commitments issued by their headquarter offices, usually in Europe or the US, and to some extent, Japan. This has its limitations. Only a few of the Singapore-based units of these global banks have their own capacity for Green Finance in Singapore and the region. Even fewer have policies and products that cater especially to the region's economic growth trajectories and opportunities.

Several of these foreign banks are looking out for Green Finance opportunities in the region, such as green bonds and investment funds, and are beginning to adapt global offerings to the needs of ASEAN and Asia. One example is the development of "green pockets" – budgets that are used to fund only green projects in the region. For example, BNP Paribas globally plans to set aside 15 billion euros in financing for renewable energy by 2020.¹⁸¹ Part of this fund will be allocated towards projects in Asia.¹⁸²

Unlike many of their foreign counterparts, Singaporean banks have not been early adopters, although DBS is now markedly moving ahead on this issue. They are at an exploratory stage, focusing on ESG issues and training, and there indeed has been recent increased attention on such issues.

Unlike many of their foreign counterparts, Singaporean banks have not been early adopters, although DBS is now markedly moving ahead on this issue. This is not, however, to say that Singaporean banks have neglected the issue. They are at an exploratory stage, focusing on ESG issues and training, and there indeed has been recent increased attention on such issues.

A significant driving factor is Singapore's long-continuing effort to deal with the transboundary haze from land and forest fires in Indonesian provinces. (Box 3) While attention has been given to the issue since the fires of 1997-98, concern peaked in 2013 and again in 2015 when pollution readings hit hazardous levels with record levels of over 400 on the Singapore Pollutant Standards Index (PSI). In relation to the fires, the behaviour of corporations that produced, refined and traded in the related resource sectors (mainly palm oil, and pulp and paper) came under scrutiny. Attention has also been focused on the financial links that such corporations have to Singaporean banks.

In 2015, the Association of Banks in Singapore (ABS) released its Guidelines on Responsible Financing, requiring banks to incorporate ESG criteria in their lending and risks assessments.¹⁸³ These guidelines have helped to formalise sustainable lending practices among the banks and kick-started the process of mainstreaming ESG considerations as part of the banks' overall business and lending practices. Capacity building and promoting awareness on ESG issues has also been a key part of the process, and banks have been encouraged to educate their staff by promoting skills development in this area.¹⁸⁴ Under the ABS Guidelines, banks now have to adhere

¹⁸¹ (2015) "BNP Paribas dedicates €15BN in financing for renewable energy and reinforces its carbon risk management policies", BNP Paribas, 19 November 2015, Available: <https://group.bnpparibas/en/press-release/bnp-paribas-dedicates-e15bn-financing-renewable-energy-reinforces-carbon-risk-management-policies>

¹⁸² Interview, 17 July 2017.

¹⁸³ The Association of Banks in Singapore (2015) "ABS Guidelines on Responsible Financing", 8 October 2015, Available: <https://abs.org.sg/docs/library/abs-guidelines-responsible-financing.pdf>.

¹⁸⁴ Tan, Nicole (2015) "ABS releases guidelines on responsible financing", Channel NewsAsia, 8 October 2015, Available: <http://www.channelnewsasia.com/news/business/abs-releases-guidelines-on-responsible-financing-8233622>

to and integrate minimum ESG standards on responsible financing practices into their business models. This includes considering greenhouse gas emissions, loss of biodiversity and critical ecosystem services, water, air and soil pollution and contamination, among other social and governance considerations. Special attention has been accorded to “elevated risk” industries such as agriculture, chemicals, forestry and fossil fuels for their pollutive and extractive nature.

Further, banks have been encouraged to disclose their senior management’s commitment towards responsible financing and to set up internal controls to stop financing industries contributing to the haze. This is especially because under Singapore law, the Transboundary Haze Pollution Act creates both civil and criminal penalties for those causing haze. Singapore banks have since opened themselves to external training with institutions, such as the World Wildlife Fund (WWF), to better integrate ESG as part of their financing decisions, risk management and financial performance. Internal training programmes have also been developed.

A 2017 WWF report on *Sustainable Banking in ASEAN*, acknowledged that Singaporean banks have made progress in recognising some key issues such as deforestation and had disclosed efforts to integrate sustainability concepts in their core business strategy. The report, which looked at the banking sectors of six ASEAN countries – Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam – considered the sustainable finance regulatory landscape as well as supporting corporate governance codes and the banking sector’s sustainability reporting guidelines in these countries.¹⁸⁵

In the case of Singapore, the ESG Integration Results of the three local banks – DBS, OCBC and UOB – showed that all three had made significant progress on disclosing their (1) efforts to integrate sustainability concepts in their core business strategy, (2) environmental and social (E&S) risk assessment and credit approval frameworks to evaluate clients and transactions, and (3) senior management responsibility for implementing E&S policies and procedures.¹⁸⁶

The report, however, noted that these three local banks were generally lacking in their participation in commitment-based sustainable finance initiatives, such as the Equator Principles, and their disclosure of sector policies. All three also failed to provide detailed disclosures on overall exposure to E&S risks and their commitments to portfolio-level E&S targets.¹⁸⁷

Out of the three banks, DBS came out tops or on a par with its local counterparts in eight out of 11 of the assessment criteria, with full marks for its efforts to integrate the relevance of sustainability to the organisation and its strategy for addressing sustainability. (*Spotlight profile on DBS Group Holdings*) The stronger showing by DBS in other areas has been a result of the bank’s growing responsiveness to the demands of its stakeholders beyond the region.

185 Stampe, Jeanne et al. (2017) “Sustainable banking in ASEAN: Addressing ASEAN’s forests, landscapes, climate, water, societies”, World Wide Fund for Nature, October 2017, Available: <http://bschool.nus.edu.sg/images/CGIO/Research-Papers/CGIO-WWF-Sustainable-Finance-Report-2017.pdf>

186 *ibid.*

187 *ibid.*

SPOTLIGHT ON:

DBS Group Holdings: Green Finance for Inclusive Growth

Singapore bank DBS Group Holdings is making strides to establish itself as a market leader for Green Finance in Singapore. In June 2017, it became the first financial institution in Singapore to issue a green bond, which was snapped up by global investors – an indication of the untapped investment opportunities in the Green Finance space.

DBS' efforts to deepen its expertise on green and sustainability bonds shows the bank's commitment to sustainability and supporting projects that have a positive impact. Besides greening its operations, the bank also aims to contribute towards the transition to a low-carbon economy.

Developing Leadership in Sustainable Finance

Beginning as the Development Bank of Singapore in the early years of the country, the bank was specifically formed to finance Singapore's industrialisation efforts. As Singapore enters into a new era of economic growth, DBS believes that inclusive growth must take priority. This is especially during a time when technology is transforming the economy and society, with potential downsides such as widening income gaps in society.

DBS aims to strengthen Singapore's position as a leader in sustainable finance. The bank has chosen to focus on four of the Sustainable Development Goals (SDGs): Goal 7 – Affordable and Clean Energy, Goal 8 – Decent Work and Economic Growth, Goal 12 – Responsible Consumption and Production, and Goal 13 – Climate Action. Green Finance is aligned with the bank's expertise in financial markets and has the potential to directly contribute to Goals 7 and 13.

DBS plans to create impact by channelling capital towards sustainable development. This includes nurturing social enterprises as well as supporting the transition to a low-carbon economy, for which Green Finance is increasingly seen as an important catalyst.

Leveraging on Green Finance opportunities in Singapore and ASEAN

As a bank with a regional presence, DBS sees the potential of Green Finance not only in Singapore but also in other ASEAN markets, particularly in Indonesia. Leaders in many areas of renewable energy are emerging from this region. A recent UNEP-DBS study estimated that there are at least US\$3 trillion worth of Green Finance opportunities in ASEAN, with significant investment potential in infrastructure, renewable energy, food/agriculture and natural assets and addressing energy efficiencies.

The market for green bonds has increased exponentially and innovative new lending products linked to investment in "CleanTech" or climate mitigation and adaptation solutions have become more widely used in other regions. Advancements in technology have made the financing of such solutions more economically viable; for instance, the cost of generating clean energy is lower today and thus is a more attractive investment option.

Aligning the bank's strategies with national and international policies is another pathway by which DBS can create impact within Singapore, the region and beyond, making DBS a truly purpose-driven bank.

3.2 Institutional Investors

While many institutional investors are sited in Singapore, green investments have grown slowly. Many investors are at a preliminary or exploratory stage on Green Finance, and tend to view ESG, if at all, only in the broadest terms and still lack a specific definition and understanding of what ESG means. Interest and knowledge of more specialised forms of investing – such as impact investing that specifically focuses on the social returns – are at an even lower base.

The institutional investors that are early adopters of Green Finance highlight considerable challenges in moving ahead. These relate to both the number of potential corporations that qualify for green investment, and among their own clients. Among corporations that are assessed for investment, there is considerable diversity in the standards and practices commonly adopted across different industries and economic sectors.

Among institutional investors in Asia, most have no specific allocation of equity or “green pockets” for sustainable or green investments, however defined. This is due, in part, to the lack of mandate from top-level decision-makers, weak demand for green investments and the perception that green investments usually disregard market-rate returns objectives. Even if a green mandate is given, there is a lack of supply of investible corporations that are demonstrably green.

While some institutional investors in Asia are looking to expand into green investments, this may not lead to investments within the region. Such investors may prefer to locate their deals in Europe instead, where there are more green investment opportunities. European counterparts offer more depth of investment and higher returns.

Most institutional investors in Asia have no specific allocation of equity or “green pockets” for sustainable or green investments, however defined. This is due, in part, to the lack of mandate from top-level decision-makers and weak demand for green investments. There is also a lack of supply of investible companies that are demonstrably green.

Despite these obstacles, some institutional investors, in particular, asset management firms, have persisted as early adopters. They seek to generate interest in green investments and have organised marketing forums on sustainable investment. In addition to their usual roadshows, fund managers have had to customise and personalise pitches to prospective investors, reportedly with some degree of success. These efforts are, however, piecemeal, and the results vary from case to case.

Early adopters have met with failures due to poor timing and a lack of conducive conditions. The impact investment fund of a leading global financial services firm failed to take off due to the lack of investor interest and awareness in the region. This was also compounded by fund manager inexperience in marketing an impact investment fund.

In the experience of other countries, sovereign and large public pensions funds have played a critical role to help move market attitudes towards greater sustainability- and climate-related investments. Given that Singapore has significant reserves and the Government has signalled a shift to sustainability, more attention is being turned to its sovereign funds, managed by Temasek Holdings and the GIC.

Both Temasek and GIC apply a “bottom-up” approach, focusing on the intrinsic value of corporations and their core risk-return framework. Both investment organisations have interest in considering how ESG factors may affect a corporation’s business and thus its ability to generate sustainable returns in the future. Both have not explicitly identified themselves as green funds, nor have they been transparent about how their ESG framework is applied to their investments. They have also not made public the parts of their portfolio they have expressly considered green or sustainable.

Both Temasek and GIC aim to deliver good long-term, risk-adjusted returns.¹⁸⁸ GIC believes that corporations with sustainable practices are more likely to deliver superior performance over time. GIC integrates sustainability considerations holistically into its investment processes, corporate and procurement practices.

In investments, GIC focuses on protecting and enhancing the long-term value of GIC's investments as well as safeguarding its reputation as a global long-term investor. To this end, investment managers consider environmental, social and governance issues, alongside conventional financial and market considerations in evaluating individual investments to make better informed decisions. Investment managers also take additional care in its valuations of corporations exposed to significant sustainability risks that will negatively impact long-term value.

GIC has invested in clean energy companies such as India's Greenko, which raised US\$1 billion through a green bond issued from Singapore in 2017, making it the largest corporate green bond issuer in Asia. GIC considers ESG in their investment decisions and remains open to including more green investments in its portfolio. Its preference has been to adopt a quieter investment approach, one that is measured, well calculated in terms of risk, with the aim of long-term, sustained returns – elements that are central and implicit in green investments.

Temasek likewise, is a responsible investor, with a commitment to delivering sustainable value over the long term. The generation of sustainable returns over the long term depends on stable, well functioning and well governed social, environmental and economic systems. Temasek considers environmental, social and governance factors when they make decisions as an investor, asset owner and shareholder. Temasek also works to understand the ESG impact of its portfolio companies, and encourages companies to adopt responsible and sustainable practices in their businesses, operations and supply chains.

Further, Temasek takes a strong interest in understanding sustainability-related challenges as a driver of business risk where it makes investments, and emphasises how sustainability has a potential for innovation and growth.¹⁸⁹ An example of Temasek's investment in this theme is Impossible Foods, a company that develops plant based burger patties with the look, taste and texture of meat. Compared to animal sources, the production of patties from plants requires less land and water, and emits less greenhouse gases.¹⁹⁰

Temasek created a new Sustainability and Stewardship Group in 2016 to lead the investment firms' initiatives around the themes of sustainability and stewardship. The Group was established in recognition of the need to strengthen the institution in challenging times and to position itself to meet current and future challenges. Temasek has also organised its annual *Ecosperity* event since 2014. *Ecosperity* is a series of sustainability-focused conferences that pulls together its top corporate leadership with partners from around the world to consider how businesses can and must be re-strategised in light of sustainability concerns.

Moving ahead, one prime example that can emerge from Temasek's thrust into the area could be the Mandai Park development. The Mandai project will be a billion-dollar development in northern Singapore that seeks to combine state-of-the-art urban development and technology with ecology, to showcase capabilities that might be exported and shared abroad.¹⁹¹ Still in its early stages, the development could well point to future projects and investments for Temasek that are increasingly aligned with sustainability, business and innovation – or to use the term they have coined, "Ecosperity".

188 Keynote address by Mr Lawrence Wong, Minister for National Development and Second Minister for Finance, at the Investment Management Association of Singapore's 20th Anniversary Conference on 23 March 2017, Available: <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2017/Keynote-Address-at-the-Investment-Management-Association-of-Singapores-20th-Anniversary-Conference.aspx>

189 Keynote address by Mr Lawrence Wong, Minister for National Development and Second Minister for Finance, at the Investment Management Association of Singapore's 20th Anniversary Conference on 23 March 2017, Available: <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2017/Keynote-Address-at-the-Investment-Management-Association-of-Singapores-20th-Anniversary-Conference.aspx>

190 (2017) "Temasek review 2017: Investor, institution, steward", Temasek, Available: <http://www.temasekreview.com.sg>

191 (2015) "STB to partner Temasek Holdings for Mandai nature project", Eco-Business.com, 16 January 2015, Available: <http://www.eco-business.com/news/stb-partner-temasek-holdings-mandai-nature-project/>

Besides institutional investors, there is a need to encourage retail investors, in particular, high-net-worth individuals to consider sustainability and green investments. While retail investors in Singapore, have not shown interest in Green Finance, some efforts are being made to raise their awareness. The Singapore Exchange partnered with the World Bank in 2017 on an education partnership about sustainable development bonds, through the SGX Academy.¹⁹² The World Bank is also exploring the possibility of launching sustainable development bonds targeted at retail investors to be listed on the SGX.¹⁹³

3.3 Insurance

The insurance industry in Singapore offers a variety of coverage to individuals and companies including life, health, general, commercial and reinsurance. Insurance companies also play a strategic role in terms of underwriting, claims management and asset management.¹⁹⁴ Favourable factors, such as a stable government, business-friendly tax regime and well-trained workforce, have helped Singapore become the key hub for foreign insurers and re-insurers in Asia.¹⁹⁵ In total, there are 361 insurers and re-insurers based in Singapore.¹⁹⁶ With Asia likely to account for nearly 40 per cent of the global insurance market by 2020,¹⁹⁷ MAS plans to develop Singapore into a global insurance marketplace by then.¹⁹⁸

Most insurance and reinsurance companies based in Singapore are at a preliminary stage and just starting to understand the need for sustainability and related disclosures.

As noted, global insurers have begun to incorporate climate issues into their business. This is both to better evaluate risk in light of climate change, as well as to offer innovative products against new and emerging risks. (Part 1, Section 3.3.) Examples of potential green insurance products that are developing includes products that allow differentiations in insurance premiums based on environmentally relevant characteristics. Customisable insurance products to underwrite clean technologies and activities to cut emissions is another possibility.¹⁹⁹

Such innovative products are needed across ASEAN and Asia. The region is especially vulnerable to both natural and climate-related disasters, such as storms, flooding and droughts. There is also significant economic impacts on integrated, cross-border supply chains across different sectors, including manufacturing and agriculture. There is an opportunity for green insurance to develop and grow, as global insurers are starting to recognise.

However, most insurance and reinsurance companies based in Singapore are at a preliminary stage and just starting to understand the need for sustainability and related disclosures. Only a minority of progressive insurers and reinsurers are looking into innovative green insurance products and services, designed for Singapore and the region. Those who aim to be such early adopters include the Singapore-based operations of global insurance and reinsurance companies that have taken a lead on sustainability issues, such as Munich Re, Swiss Re and Allianz.

192 Shiao, Vivien (2017) "World Bank exploring new issuance for retail investors on SGX", The Business Times, 3 April 2017, Available: <http://www.businesstimes.com.sg/companies-markets/world-bank-exploring-new-issuance-for-retail-investors-on-sgx>

193 Singapore Exchange (2017) "SGX and World Bank launch education partnership on bonds investment", 3 April 2017, Available: http://infopub.sgx.com/Apps?A=COW_CorpAnnouncement_Content&B=AnnouncementToday&F=JCWM0F5TN2Q45USD&H=c4508f03ea6ac8542cb73071f6f3725c1d95f8d9d869ef356fe3ec3a397d211e

194 Most insurers are also major institutional investors, and many points discussed in the previous section apply to them qua investor. As such, this section focuses primarily on the insurance industry's role as underwriter and in claims management.

195 (2016) "Singapore likely to keep status as Asia's top insurance hub", InsuranceAsia News, 4 March 2016, Available: <http://insuranceasianews.com/topics/reinsurance/singapore-likely-to-keep-status-as-asias-top-insurance-hub/>

196 Monetary Authority of Singapore, Available: <https://eservices.mas.gov.sg/figid>

197 Besides facilitating the flow of business, brokers will be essential to encouraging more green innovation and collaboration to solve and better manage environmental risks. See: (2013) "MAS: Conditions ripe for S'pore to become global insurance hub, The Business Times, 7 November 2013, Available: <http://www.businesstimes.com.sg/top-stories/mas-conditions-ripe-for-spore-to-become-global-insurance-hub>

198 (2013) "MAS: Conditions ripe for S'pore to become global insurance hub", The Business Times, 7 November 2013, Available: <http://www.businesstimes.com.sg/top-stories/mas-conditions-ripe-for-spore-to-become-global-insurance-hub>

199 The North American Task Force of the United Nations Environment Programme Finance Initiative (2007) "Green financial products and services: Current trends and future opportunities in North America", United Nations Environment Programme Finance Initiative, August 2007, Available: http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf

Their Singaporean counterparts appear to remain at a preliminary stage of recognising the issue. As institutional investors, insurers pledged support for ESG principles in March 2017, as part of the Life Insurance Association Singapore.²⁰⁰ But this is an initial step, and there remains little movement to understand risk and develop insurance that can respond to climate concerns and support sustainability more effectively.

Even as progressive insurance and reinsurance players endeavour to reap advantages as early adopters by developing leading edge products and services, questions arise about whether there is meaningful demand. At present, Singapore has no regulations or incentives encouraging the take-up of environmental liability insurance. In comparison, countries such as South Korea and Vietnam have mandated that organisations engaged in activities with a high likelihood of causing environmental pollution must be covered by environmental liability insurance.²⁰¹

There is potential for the insurance industry to offer environmentally-linked insurance products across the region. However, feedback from the industry has been that such potential is limited by the region's differences in local insurance regulations; these have not been updated to keep up with the development of newer environmental technology products.

Unless investors and issuers start to see the potential of the "green" label as a form of de-risk – in which a green label provides sufficient risk assurance that projects will follow through – green bonds will continue to remain a niche market.

3.4. Green Bonds

Singapore's financial sector plays a key enabling role to help drive the green economy by ensuring that financial and capital flows are easily accessible and directed appropriately towards developing green businesses and services. This is in the form of offering different green financial and investment products, such as green credit, bonds, funds or low-carbon indexes. A long-term capital market with depth and liquidity is also needed to attract international green bond issuers and investors. The launch of the MAS Green Bond Grant scheme was a key move to encourage foreign issuers of green bonds to conduct issuances out of Singapore.

There is considerable potential for green bonds (*Box 1*), and interest in them has grown with key Singapore corporations and financial institutions seeking to set benchmarks. Prior to the MAS Green Bond Grant scheme, the Singapore Exchange sought to establish itself as a market leader for green bonds. In 2013, it hosted the first Asia Pacific Green Bond issued by the Export-Import Bank of Korea. Since then, 27 green bonds worth over S\$15 billion in total were listed on SGX. There were 13 green bonds listed in 2017 alone, up from nine and three listed in 2016 and 2015 respectively.

Green bonds issued in Singapore have been well received. Whether strong investor interest in green bonds are a result of issuer reputation or perceived benefits associated with the bond's "green label" is still up for debate. New local green bonds have been issued by high-profile, influential and reputable corporations, such as Singapore-listed property developer City Developments Limited (CDL), which raised S\$100 million in April,²⁰² and DBS Group Holdings, which raised US\$500 million.²⁰³ GIC's investee company Greenko Energy Holdings also raised US\$1 billion on SGX.

200 Life Insurance Association Singapore (2017) "Singapore's life insurance industry pledges support for ESG efforts", 6 March 2017, Available: http://www.lia.org.sg/system/files/news/2017/03/170306_LIA_ESG_Statement.pdf

201 Moore, Andrew and Lee, Maryan (2015) "New horizons – the uptake of mandatory pollution insurance in the Asia-Pacific region", Wotton Kearney, Available: <http://www.wottonkearney.com.au/wp-content/uploads/2016/04/WK-New-Horizons-%E2%80%93-the-uptake-of-mandatory-pollution-insurance-in-the-Asia-Pacific-region.pdf>

202 (2017) "CDL issues first green bond by a Singapore firm", CDL, April – June 2017, Available: http://www.cdl.com.sg/citynews/apr2017/bizbuzz_1.html

203 DBS (2017) "DBS Group Holdings Ltd's first green bond offering attracts strong interest", DBS, 19 July 2017, Available: https://www.dbs.com/newsroom/DBS_Group_Holdings_Ltds_first_green_bond_offering_attracts_strong_interest

The buzz around green bonds has been positive for Singapore. With the support of the MAS Green Bond Grant scheme, the development and expansion of supporting services along with local expertise in green bonds is expected to grow. However, the development of a green bonds market in Singapore is not without its challenges.

Challenges for Green Bonds in Singapore

First, although investor interest exists in green or ESG-related bonds, this is still in the exploratory stage. There is also a lack of “green pockets”, where investors set aside a pool of green funds that targets projects or companies that hedge against climate risks or support a low-carbon future. Having such “green pockets” can help to boost demand for green bonds.

This is linked to the second challenge – the perception that green bonds tend to have unattractive yields to compensate for their high-risk nature. Green bonds tend to be long term, and their riskiness due to the uncertainty of whether projects will deliver intended or expected returns due to unpredictable administrative externalities as contributing risk factors. In a market where Asian investors tend to prefer short term gains and prioritise yield in their investment considerations, green bonds becomes less attractive. Difficulties of attracting Asian investors aside, issuers are hard-pressed for reasons on why they should issue a green-labelled bond. Unless investors and issuers start to see the potential of the green label as a form of de-risk – in which a green label provides sufficient risk assurance that projects will follow through – green bonds will continue to remain a niche market.

Third, there are strong suspicions about “green washing”, when companies or investment funds appear to be environmentally beneficial. This is due to the lack of value of the green label that has yet to be properly quantified and/or recognised in the market. In addition, instruments that provide data and information about the long-term environmental impacts of green projects and initiatives are still underdeveloped or in their infancy.

Fourth, there is a strong “wait-and-see” attitude towards Green Finance and its instruments. Green bonds have yet to be mainstreamed and are often viewed as a philanthropic-linked or thematic financial product. Corporations and the financial sector are looking for stronger signals from key institutional investors on their support for green bonds and its purpose.

Peer pressure can be a key driver of change. As more high-profile green bonds are issued from Singapore, it can be expected that even more are likely to follow. Greater public awareness of such issuances, whether in the media or otherwise, needs to be increased. Otherwise, the buzz and interest surrounding green bonds risks losing momentum and its potential to address climate change untapped.

3.5. Green Equities

From January 2018, corporations listed on the Singapore Exchange will produce annual sustainability reports largely according to internationally recognised frameworks with Board-approved governance. The availability of relevant and reliable ESG information will provide the inputs for determining which corporations qualify for green labelling and the degree of their greenness. Qualifying for the green label or green financing can also be seen as an assurance on the quality of the product and services produced as part of the business, which boosts the corporation’s value.

Similar sustainability disclosures are also available in several Asian markets. Within ASEAN equity markets, Malaysian-listed corporations also follow mandatory Exchange rules, Thai-listed corporations experience active encouragement by their own bourse, while other Exchanges are at various stages of the sustainability disclosure journey.

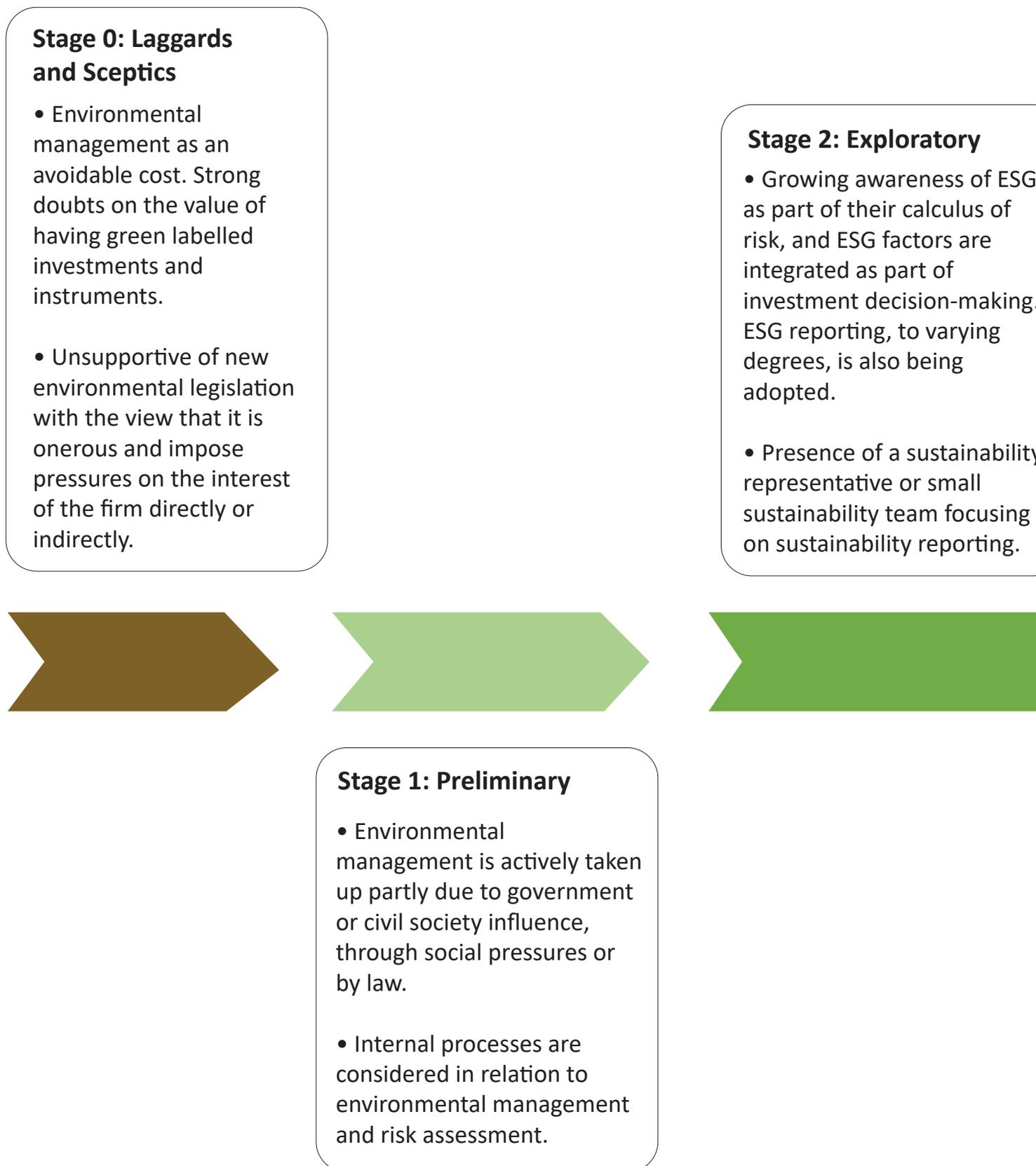
Corporations that qualify for the green label and are able to determine the degree of their “greenness” can be seen as providing assurance on the quality of the product and services produced as part of the business, which boosts the corporation’s value.

There are significant benefits if corporations start to de-risk their businesses from unsustainable practices and improve the extent and quality of sustainability reporting. Sustainability disclosures allow asset managers to incorporate such information as part of their investment decisions and to customise portfolio investments. The quality of information also improves over time as more corporations report and produce more data points.

Financial institutions should also encourage and help their clients improve their reporting standards to take advantage of emerging opportunities in the Green Finance space. There is scope for development of funds in green equities in the same way as other listed funds and ETFs. In 2016, leading ETF producer, State Street Global Advisors, expanded its product into ESG ETFs to cater to investors looking to minimise exposure to companies owning fossil fuel reserves.²⁰⁴ The introduction of similar ESG funds and ETFs, which are easily accessible investment products, opens up access to Green- or ESG-conscious investments to a much larger pool of institutional and retail investors.

²⁰⁴ (2016) “State Street Global Advisors expands suite of environmental, social and governance (ESG) ETFs”, 25 October 2016, Available: <http://newsroom.statestreet.com/press-release/corporate/state-street-global-advisors-expands-suite-environmental-social-and-governan>

Figure 4: Stages of Green – Final



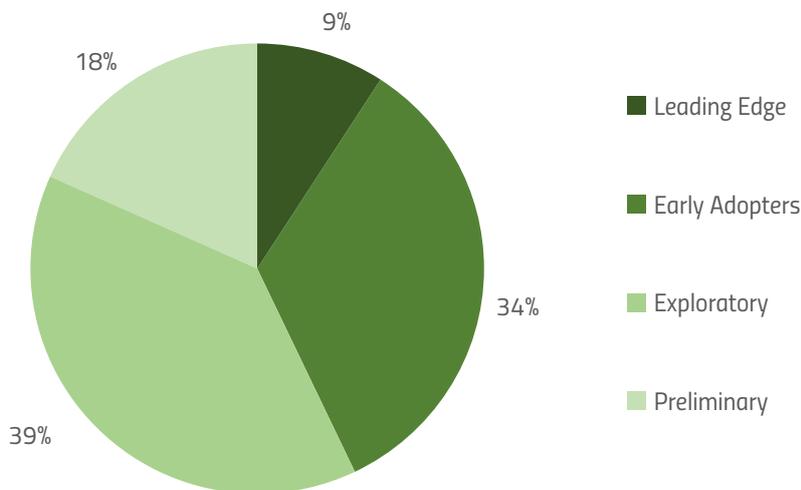
Stage 4: Leading Edge

- Financial institutions seek the highest sustainable rate of return, while being profitable in the long run.
- Corporate philosophy supports projects at a higher risk, lower rate of return and longer payback periods.
- Requires a certain level of status and demand for sustainability in society in order for more financial institutions to enter this stage.

Stage 3: Early Adopters

- Adoption of proactive, creative and innovative attitudes to develop and market environmentally friendly products. Environmental activities are also reported.
- Foreign financial institutions are influenced by sustainability requirements and commitments issued by their home offices, usually in Europe or the USA. Sustainability also tends to be incorporated across all business units, including at the individual level. Employees may also have individual KPIs to increase the number of sustainable transactions in the year.
- Search for “win-win” solutions. But efforts limited due to the narrow understanding of the effects of climate change, and the lack of financial instruments and market information of environmental risks.

Figure 5: Stages of Green - Financial Institutions in Singapore



Source: SIIA based on interviews

4. Stages of Green – Singapore’s Financial Sector

There is much diversity across the financial sector in Singapore on sustainability and Green Finance. After interviews with financial institutions, the SIIA characterised their progress in Figures 4 and 5.

The majority of financial institutions in Singapore are in the exploratory stages, which was apparent during our interviews. There is a growing awareness to integrate ESG as part of their risk assessment and investment decision making. This progress among Singaporean banks follows from the Association of Banks in Singapore’s Guidelines on Responsible Financing, and their participation in workshops, as mentioned earlier. Institutions also report on their ESG considerations but to varying degrees, depending on the demands of their stakeholders. Financial institutions, for example, the local banks that deal with mostly SME clientele, tend to have less transparent ESG disclosure.

Many of the Singapore-based offices of foreign financial institutions tend to be early adopters given their need to align policies and practices worldwide. There is also a large number of foreign financial institutions that are in Singapore. However, Singapore offices only have a marginal focus on Green Finance, with the reliance on capacity and expertise from headquarters or Hong Kong offices when green opportunities arise.

Among financial institutions, only a small number have more advanced practices and might be considered to be at the leading edge of change toward sustainability. This includes niche impact investors who, by nature of their mandate, consciously and systematically include social and sustainability benefits in their overall returns.

Progress in the insurance sector is notably less positive. A large number of players are in the preliminary stage, and just starting to understand and explore the need for sustainability and related disclosures as part of their overall business strategy.

Why do the current baselines with the financial sector differ markedly? Much has to do with the stakeholders’ differing motivations that shape their will to change.

The adoption of ESG practices by Singaporean stakeholders in the financial community has been largely due to policy directions and SGX directives. Another driver has been social pressures driven by a spike in attention over the issue of the transboundary haze pollution, especially after the passing of the Transboundary Haze

Pollution Act. *(Box 3)* The expectations of the industry are changing in response to these relatively narrowly focused factors.

Given these driving factors, financial institutions in Singapore have tended to view Green Finance measures mostly in terms of compliance and, therefore, of additional processes and added costs – some still do. They have had to urgently meet requirements in terms of capacity and rapidly adapt their internal processes and relations with customers and stakeholders.

Under these circumstances, few have, to date, gained a fuller understanding of the competitive advantages and opportunities that can arise from sustainability and Green Finance. Consequently, most financial institutions in the preliminary or exploratory stages tend to appoint their sustainability representatives as part of their marketing and communications department, or in the risk management department. There is only a limited involvement with business units.

As early adopters move ahead, their efforts should be applauded. It is hoped that they can pave the way for more to follow, but this is by no means guaranteed. Even with good intentions, the risk is that early adopters will end up frustrated by the mediocre quality and modest scale of current Green Finance efforts. At this stage, Singapore does not have an operating market for Green Finance. It is also not yet one that is sufficiently mature in transparency and size, so that the demands for Green Finance can be articulated and met by the supply of the relevant products and instruments. The efforts of a minority of early adopters, by themselves, cannot remedy this.

As noted, the Singapore Government has committed to climate change under the Paris Agreement by issuing plans and signalling a shift to a green economy. However, these changes have not registered strongly enough to drive transformation in the economy and the financial sector. *(Part 2, Section 1)*

In the next part of the Report, we consider next steps for Green Finance in Singapore and the factors and actions that can help drive change and progress.

“The Government will muster the resources, build the infrastructure, create schemes, and encourage companies and people to chase their dreams. But we need you, we need the companies and the people to step forward, to spark the bright ideas, to make progress on the challenges, and to change the world.”

– Mr. Lee Hsien Loong, Prime Minister, Founders Forum Smart Nation Singapore Reception, 20 April 2015²⁰⁵

²⁰⁵ Speech by Prime Minister Lee Hsien Loong at Founders Forum Smart Nation Singapore Reception, 20 April 2015, Available: <http://www.pmo.gov.sg/newsroom/transcript-speech-prime-minister-lee-hsien-loong-founders-forum-smart-nation-singapore>

PART 3: NEXT STEPS FOR GREEN FINANCE

Looking at Asian economies that lead the way in sustainability and climate concerns, we can identify several core elements and key efforts to build the foundations of a Green Finance hub. (Part 1, Section 2) These are reiterated, briefly, as follows:

- First, governments must signal clear policy, commitment and resolve to shift the economy towards a sustainable path. Governments must also lead by example. Government actions and spending – both directly and through its agencies and statutory boards – should be aligned with national green goals, support best practices, and “crowd in” private capital by increasing the demand for green products and services. The financial and corporate sector must also be engaged and encouraged to embrace sustainability and innovate to create new opportunities.
- Second, in tandem with the shift to a green economy, a vision for Green Finance should be set. In the early stages, conscious efforts must be made to build knowledge and allow capacity for Green Finance to grow. Knowledge must be shared and capacity developed among key stakeholders, going beyond broad concepts to look at specialised needs in different sectors of the green economy and to find innovative financial solutions.

Outreach and engagement of the financial sector, corporates, investors and the public on the investment potential of Green Finance should be implemented. The corporate sector must be encouraged to embrace sustainability and to innovate to create new opportunities. Efforts must also be made to leverage on the potential of Green Finance to better engage and empower SMEs.

- Third, efforts to nudge key players to help jump-start a Green Finance market is needed. This will require market development efforts with supportive legal and regulatory frameworks as well as incentives, especially at the early stages. One example is to incentivise or require greater corporate transparency on ESG factors so that there is more demand and supply of green investments. Another is encouraging exemplary leadership in the financial community and among corporates to catalyse the market into action.

Key institutional investors should be encouraged to dialogue and work with corporates and financial institutions, so that there can be better matches made between the demand and supply in the market. Where there are government or quasi-governmental institutional investors, especially those that manage sovereign wealth funds, their investment decisions and the criteria they adopt can influence the market and encourage the development of investment products to support Green Finance. A strong core customer base, made up of investors, issuers and borrowers also need to be developed and encouraged to participate in Green Finance. This is important for the growth of a vibrant and active green financial system in Singapore.

- Fourth, as the market progresses, it will be important to balance between setting standards and encouraging innovation. In the early stages, new green initiatives and innovations must be encouraged, and international standards and practices adapted according to local needs and practices. At the same time, there must be appropriate standards to measure their environmental impact and to reassure investors and market participants of its green value. Over time, efforts must move towards defining green in relation to different industry activities and financial products. Raising disclosure standards is critical from the perspective of corporate governance. The presence of such standards provide greater investor assurance on the potential of green investments, and allow financial institutions to conduct risk and investment assessments based on material disclosures and analysis.
- Lastly, for a Green Finance hub to develop, there must be efforts to link to the global and regional markets. This is especially true for smaller economies that wish to be a hub but have no major hinterland. Efforts must be made to better recognise opportunities for the green economy and Green Finance in the region, and pave the way for corporations and financial institutions to gain from those opportunities.

When we look at Singapore in the context of these characteristics and efforts, considerable challenges arise in developing a Green Finance hub. Some steps forward have been taken or signalled, but more is needed, and from a broader range of actors, from both the public and private sectors. The following sub-sections consider some possible steps to be taken – not only by the Government, its agencies and associated institutions but also by the corporate and financial sectors.

In so doing, this Report recognises the diversity of the current baseline on Green Finance in Singapore, where different sectors and institutions are at varying stages of green. Diversity can be a strength, and any effort to homogenise the current early stages of Green Finance should be held off until a later stage. Diversity allows institutions and corporations to adopt Green Finance at their own pace and at a level that they are comfortable, which, in turn, encourages more market players to enter and try Green Finance. Progressive players and champions for Green Finance, uninhibited by limitations, should be allowed to forge ahead and innovate. These factors are important to create an initial dynamic market momentum towards sustainability.

The Government needs to consolidate commitments on climate change with its aspirations to build a green economy, and to identify Green Finance as an opportunity to realise its national goals.

1. Creating a Green Economy

Creating a green economy is critical and will allow Green Finance to flourish. As this Report has noted, Singapore is undertaking a strategic effort to shift the economy to address sustainability and climate concerns. Government ministers have increasingly made statements on these issues, and several key environmental and economic policies have been put in place, including a carbon tax to be implemented from 2019. The Government must signal clear policy, commitment and resolve to shift the economy towards a sustainable path and create a green economy. Government actions and spending – both directly and through its agencies and statutory boards – should be aligned. The financial and corporate sectors must also be engaged and encouraged to embrace sustainability and to innovate to create new opportunities.

Steps towards this goal can include:

- **The Government needs to consolidate commitments on climate change with its aspirations to build a green economy, and identify Green Finance as an opportunity to realise its national goals.** An official statement from the highest levels of government, expressing intention and commitment to develop Singapore as a green economy, will be key, with Green Finance as a vital supporter and driver of that change.
- Building on the pioneering experience of an Inter-Ministerial Climate Change Committee chaired by a Deputy Prime Minister,²⁰⁶ **a green economy Inter-Ministerial Committee should be considered. This can help coordinate, monitor and speed up the implementation of a green economy in Singapore, with Green Financing as a key aspect.**
- **Encouraging the finance and corporate sectors to rethink potential business and investment opportunities associated with sustainability. Efforts can begin in sectors that are clearly related to sustainability (e.g. renewable energy, water).** These may then broaden to include different sectors, such as transport, telecommunications, industry, agriculture and food production, as well as forestry and land management. Prevailing perspectives – that Environmental, Social and Governance (ESG) factors and other efforts impose cost and compliance, and are undertaken reluctantly and minimally – need to be changed. A mind-set shift is needed to see the potential opportunities associated with sustainability, including combining strengths in technology, know-how and capital. Business federations and industry associations can work together with government agencies to encourage rethinking sustainability, with broader ideas augmented with road maps

²⁰⁶ This effort has been to study not only the science of climate change but also to consider how the country as a whole should respond, giving special attention to R&D of technologies relevant to sustainability and to the development of Singapore's infrastructure as a "smart city". The Government has made strong efforts to build a budding green economy for Singapore, by investing in the R&D of cutting-edge green technology.

for specific industry clusters.

- **Recognising corporations that take the lead on Green Finance with awards.** The experience of establishing the Building and Construction Authority Green Mark awards as the benchmark for the construction and property development industries can be adapted for other sectors of the economy.
- **Utilising the green economy to attract global green business, services and expertise. Sustainability should be a key factor when targeting global and regional businesses to set up in Singapore.** Leveraging on the Government's global corporate capabilities and private sector-led efforts, Singapore can incubate and grow sizeable local green or green-related businesses that support the transition to a low-carbon economy in the region.
- **Using Green Finance to engage and empower Singaporean SMEs and innovators.** A strong venture capital base for green technology and renewable energy in Singapore already exists, and a broader mandate for innovative sustainability solutions and green projects can encourage the creation of more start-ups. Green Finance can be developed so that innovative solutions are test-bedded and launched in Singapore. Additionally, going green can be emphasised for businesses that venture out into the region, with assistance offered to SMEs through Enterprise Singapore²⁰⁷ and other agencies targeting this objective.

The formation of a green economy Inter-Ministerial Committee should be considered. This can help consolidate, monitor and speed up the implementation of a green economy in Singapore, with Green Financing as a key aspect.

2. Creating Conditions for Green Finance: Vision, Know-How and Capacity

As the direction towards a green economy emerges, there will be an increased need to create the conditions for Green Finance. Efforts must necessarily start with awareness, but the effort must go beyond broad concepts to build knowledge and capacity for Green Finance among key stakeholders. Specialised needs in different sectors of the green economy can help identify innovative financial solutions. Steps towards this goal can include:

- **Developing a Green Finance roadmap, with standards, policies and expertise that are suited to the needs of Singapore and the region.** The financial and corporate sectors need to be engaged in the process to ensure that Singapore's vision for Green Finance fits with the overall needs and goals of both the public and private sectors, and well supported. Otherwise, Green Finance may be dismissed as a predominantly Western-based concept that is unsuitable for Singapore and its neighbours; Green Finance policies, expertise and standards tend to originate from countries and institutions in the West.
- **Instituting avenues and platforms for information sharing and the exchange of best practices with global leaders and experts in Green Finance.** This could take the form of a Green Finance Advisory Panel, with thought leaders and experts based in Singapore and from around the world. Another initiative to promote knowledge building, sharing and dissemination of green growth opportunities would be green investment conferences and seminars. These aim at providing a platform for policymakers, public agencies, business leaders and research experts from Singapore and elsewhere to gather and exchange ideas. At the industry level, working groups or detailed seminars would allow participants to review and discuss financial-sector solutions, and encourage an exchange of experiences and best practices. Other relevant initiatives include an information and data-sharing platform or developing research programmes within financial sector associations, think tanks and universities to promote collaboration and capacity building on Green Finance.

207 IE Singapore and SPRING Singapore will merge in 2018 to form Enterprise Singapore, a new agency that will help Singapore companies develop capabilities, innovate and take advantage of international opportunities.

Developing a Green Finance roadmap, with standards, policies and expertise that are suited to the needs of Singapore and the region, fits with the overall purpose of both public and private sectors and ensures that it will be well supported.

- **Promoting professional training and employment opportunities in green industries and customised sustainability courses for the financial sector.** As the economy shifts towards sustainability, steps are needed to encourage and enable Singaporeans to take up green-related jobs or careers in the green economy. Financial sector and tertiary institution tie-ups should be encouraged, so that training programmes are well structured, certified and recognised in the financial industry. Sustainability programmes can be one of the accredited courses under the Institute of Banking and Finance, SkillsFuture or other accredited schemes that are eligible for co-funding. Similarly, there should be **encouragement and incentives for corporations and financial institutions to tap on relevant advisory services for a green economy and Green Finance.**
- **Encouraging industry commitments and recognising positive examples will help set direction, standards as well as a precedent for others to follow.** As the Government sets the direction, banks, institutional investors and insurers should be nudged towards making a public commitment to support a green economy. Financial sector leaders that have or are making efforts to move Singapore's Green Finance initiative forward should also be recognised publicly and prominently through awards and certification.

3. Jump-starting Green Finance Markets and Investment

The Green Finance market in Singapore requires a jump-start, and public and private stakeholders have a key role to play. At the early stages, this will require policies with supportive legal and regulatory frameworks as well as incentives to encourage the demand and supply of green investments.

Steps towards this goal can include:

- **Government actions and spending – both directly and through its agencies and statutory boards – that are aligned with Green Finance.** There is strong potential for the government or quasi-governmental institutional investors, especially those that manage sovereign wealth funds, to influence the market and encourage the development of investment products to support Green Finance through their investment decisions and criteria they adopt.
- **Encouraging Singapore's statutory boards, government entities and large companies to look at Green Financing as an option to raise funds, especially for infrastructure projects.** Shifting the economy and society towards sustainability is an expensive and capital-intensive undertaking. Examples include the need to retrofit government buildings or greening selected public housing estates to become more resource efficient. The Government can consider exploring Green Finance as an avenue and option to create opportunities to fund these infrastructure undertakings with green bonds or other Green Finance instruments, rather than from the budget or reserves. Fundraising for green-linked projects should be prominently profiled, in the media or otherwise, with the private sector allowed to take part. Fundraising in the form of green bond issuance by statutory boards, such as the HDB, Land Transport Authority and PUB, can help to improve standards and develop the initial mass needed to create momentum in the green bond market in Singapore.
- **Encouraging institutional investors, in particular, large, influential or government-linked investors, to increase their portfolio of green investments or establish "green pockets", and improve transparency on their framework for integrating sustainability guidelines into investment decisions.** Large, influential or government-linked institutional investors that expand their green investments and are transparent about following sustainability guidelines in investment decisions will likely provide the market with leadership and be a catalyst for others to follow suit. Green investments, or "green pockets", should be made with market-rate returns objectives. Such investment disclosures need not be made public at the start, but

shared with the Ministry of Finance as the representative of the Government as shareholder. A further step would be sharing their criteria with investee financial institutions and corporations to ensure that they too scale up and improve the transparency and materiality of environmental disclosures. Key institutional investors should also be encouraged to shift significant equity allocations to green funds, companies or low-carbon indexes. The option of low-carbon indices provides an alternative to divestment strategies, which institutional investors may not be comfortable with at this early stage. Such indices allow institutional investors to maintain a market-wide exposure and/or recognise the uncertainties of understanding the risks related to climate change.²⁰⁸

- **Encouraging and requiring greater transparency and materiality on ESG disclosure and other green criteria.** This is helpful to address concerns about the real impact or value of sustainability reporting. Disclosures that are able to offer material environmental analyses on the potential impacts on business and investments enable financial institutions and investors to seriously consider green investments, and make sound risk adjusted decisions on the rest of their portfolio.
- **Encouraging information-sharing platforms to improve the availability of climate- and environment-related data transparency, disclosure and tracking green investments for greater investor assurance.** For example, the Task Force on Climate-related Financial Disclosures (TCFD) encourages corporations to volunteer and develop consistent climate-related financial risk disclosures to improve the transparency and quality of information provided to corporate stakeholders. The TCFD also recommends that corporations use relevant climate scenario analysis in their disclosure of climate-related risks and opportunities.
- **Encouraging financial institutions to disclose their green portfolio characteristics.** Availability of such data can improve our understanding of the financial sector's green progress. The development of green benchmarks can also motivate financial institutions to offer more green products in the long run.

Encourage institutional investors, in particular, large, influential or government-linked institutional investors, to increase their portfolio of green investments or establish "green pockets", and improve transparency on their framework for integrating sustainability guidelines into investment decisions.

- **Developing an eco-system of Green Finance practitioners to spearhead the development of the market.** Comprising financial institutions, corporations, and other supporting services in order, this network can be started by a core group of progressive market players and expanded in membership as interest in Green Finance grows.
- **Supporting training to improve the sales channels of green investment products targeted at corporate and retail customers, particularly high-net-worth clients.** Such training is aimed at raising the industry's understanding of sustainable and responsible investments, ESG and green investments, and their respective differences. Fund managers will need to be trained to market and promote such investment products to investors adequately.
- **Organising public roadshows on Green Finance to raise awareness and encourage retail investors to consider sustainability and green investments.** Efforts should start to seed awareness of Green Finance with consumers, especially millennials, through roadshows and social media platforms. This will broaden the base of those with knowledge and openness to green investment opportunities, and mainstream sustainable investment choices as a new norm. SGX, which already organises public roadshows and information sharing avenues on investment, can work with relevant stakeholders to reach out to retail investors.
- **Incentivising and expanding bank lending to support the green economy with special allocations of capital.** This can be in the form of earmarking a certain percentage of bank lending that will go towards green businesses or projects. Differentiated capital requirements and preferential refinancing can be considered

208 Boissinot, Jean and Samama, Frederic (2017) "Climate change: a policy making case study of capital markets' mobilization for public good", forthcoming.

to incentivise financing for green businesses or initiatives.²⁰⁹ To recognise innovation, financing incentives can be tiered according to (1) green performers – projects and businesses that want to improve their sustainability performance or (2) green innovators – projects and businesses that promote the sale of green products and services.²¹⁰

- **Mandating the purchase of green insurance for key industries with high environmental risks.** Corporations whose businesses carry higher environmental risks should be required to purchase environmental liability insurance to facilitate compensation for damages from environmental pollution. Compensation could include personal injuries and fatalities as well as environmental restoration, such as with haze insurance that pays out for any haze-related health conditions.
- **Start a pooling scheme to encourage the uptake of and underwriting of green risks.**²¹¹ On request by a policyholder, a participating insurer of the pooling scheme quotes a premium for the inclusion of an environmental cover, which becomes part of their commercial property (or other relevant) policy. The cover provided addresses losses to policyholders arising from damage to property caused by environmental misconduct. Insurers pay a premium to the pooling scheme for this cover. The scheme, which can be managed by an independent body, reimburses participating insurers for the costs of claims under the environmental cover they provide.

209 Volz, Ulrich (2016) "Fostering green finance in Asia", German Development Institute for the 2016 Annual Meeting of the Asian Development Bank, Available: https://www.die-gdi.de/uploads/media/Fostering_Green_Finance_in_Asia_Volz.pdf

210 (2017) "G7 Environment – Green Finance for SMEs, Expert Workshop", Palazzo Labia, Venice, 5 April 2017, Available: http://www.minambiente.it/sites/default/files/archivio/allegati/sviluppo_sostenibile/G7_egf_SMEs_all_presentations_venezia05042017.pdf

211 The concept is inspired by the terrorism pooling scheme of Pool Reinsurance Company in the UK. Under this scheme, insurance for terrorism damage is arranged through an insurer or insurance intermediary and never directly with Pool Re. The insurance may be restricted to physical damage to property or it may include business interruption losses due to property damage caused by an act of terrorism. <https://www.poolre.co.uk/what-we-do/>

SPOTLIGHT ON:

ING Bank: Supporting Green Innovation for a Sustainable Future

Financial services have an important role to play in creating a sustainable world. ING aims to empower people to stay a step ahead in life and in business, and to support a sustainable future. ING works closely with its clients to help them become more sustainable or by financing sustainable projects.

For example, ING has moved to incorporate climate-related risks by aligning its lending practices with the sectors and industries that are in line with the “2 degrees scenario”. The bank is also seeking new opportunities to facilitate green innovations.

Creating Financial Products to Support a Green Economy

As a starting point, ING actively engages in client sustainability analysis and advises companies on how their sustainability rating is linked to attracting the Environmental, Social and Governance (ESG) focused debt market investors. Green bonds give issuers access to a wider investor base that have a green mandate and can also be an integral part of the companies’ commitment to sustainability.

The bank also offers innovative green bond solutions and sustainable loans. One such example is the sustainability loan that ING launched in 2017 with Dutch health and technology company Royal Philips in the Netherlands. The loan’s interest rate is linked to Philips’ third-party sustainability rating; if the score improves, the interest falls and vice versa. This results in a direct reduction of financing costs by improving sustainability. This product won the “Green/SRI Loan of the Year” at the Global Finance Awards 2017. The sustainability loan can be applied to most other sectors including real estate and the bank is working on bringing it to the Asia Pacific.

In addition to ING’s own green financing products and services, the bank collaborated with other financial institutions and industry experts in Asia to create the Sustainable Finance Collective. This is an online funding platform for sustainable, environmental and social impact projects in Asia. Besides funding, SFC Asia also provides technical, legal, financial and sustainability advisory through an expert panel to fine-tune the projects to qualify for funding from the Collective. Companies can apply online with the details of their projects to explore what the Green Finance options available to them.

Encouraging Green Industry Collaboration

With sustainability and innovation being two key pillars for ING, the bank is able to enter into strategic dialogue with clients and other stakeholders in the region. For instance, it can help clients to stay aligned and meet changing regulatory requirements. With its global experience in green bonds and sustainable loans, ING can add value by aligning regional or local issuances with international standards and best practices in Europe.

ING’s goal is to ultimately contribute to society’s transition to be more sustainable. With products, such as the sustainability loan, and initiatives, such as SFC Asia, ING is well positioned to push for greater innovation in Green Finance in Asia.

4. Defining the Value of Green: Embracing Diversity, Encouraging Innovation and Setting Standards

Many financial institutions have yet to recognise the value of being green. For example, the usage of funds for green purposes and its environmental impacts needs to be measurable by common standards, to allow differentiation from non-green instruments and products. Being able to distinguish the value of green and measure that data over time also enables financial market participants to become more discerning in the selection of avenues and candidates for financing.

As mentioned earlier in this Report, having a diverse range of financial institutions and corporations in various stages of green is advantageous especially when a country is in its early stages of Green Finance. The same goes for defining the value of green. Having a variety of definitions and applications can help market participants establish norms and practices that are acceptable to the broader majority. In the current early stage of Green Finance development, overly rigid definitions and rules should be avoided. Instead, with financial institutions should take the opportunity to innovate and develop credible applications of green for individual industry sectors.

Singapore has endeavoured to build a good reputation when it comes to governance and standards that are closely aligned with international practices. The same should be applied to Green Finance. This is to ensure that emerging local norms, standards and practices of Green Finance are aligned with the demands and needs of the international market. It is important that the country participates in international fora so that it contributes to and shapes global standards and solutions on Green Finance.

Steps towards this goal can include:

- **The Singapore Government working with the financial sector and other relevant industries to set standards and give guidance for targeted green national projects or Green Finance incentives similar to that of the MAS Green Bond Grant scheme.** These standards should be aligned with international standards, drawn up in line with the Sustainable Singapore Blueprint, and be kept broad and easily adaptable across the economy. Where there are questions in relation to existing regulations, government should consider “safe harbour” processes or even a “sandbox” approach. This would build on Singapore’s reputation for governance and standard setting, while recognising that Green Finance is a new area for innovation.
- **Working towards an acceptable range or “band of green” definition or practices for the financial sector and other industries.** Establishing a band of green, marks minimum global standards of green while allowing room for improvement to accommodate the current capabilities of the financial sector, and should also be aligned with global standards. Industries can also try setting their own band of green. For example, groups of active banks under the ABS can generate a shared set of green norms as an industry standard. These practices should reference and adhere to global standards.
- **Encouraging corporations and financial institutions involved in Green Finance to apply global industry practices to local business conditions.** Applying international and recognised standards and guidelines – such as the Task Force on Climate-related Financial Disclosures, Green Bond Principles²¹² and Climate Principles – to local business practices will encourage corporations and financial institutions to innovate and tailor international practices to local needs and context, with the aim of developing local norms and practices. Those aligned with international practices of Green Finance are better able to make a stronger environmental and social case for business objectives and projects to be awarded green labelling and

212 The International Capital Markets Association launched the Green Bond Principles (GBP) in 2014. These voluntary process guidelines recommend transparency and disclosure to promote integrity in the development of the green bond market. They are also intended for broad use by the market – providing guidance and clarification on the key components involved in launching a credible green bond. While these principles define a green bond and its four core components, they also allow for some level of interpretation where classification of the use of green bond proceeds “should be determined by the issuer based on its primary objectives for the underlying projects”. The GBP guidelines have helped to boost market confidence and encouraged an increase in labelled green bonds, especially among corporate issuers. See: International Capital Market Association (2017) “The Green Bond Principles 2017”, ICMA, 2 June 2017, Available: <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf>

financing, with the aim of attracting local and international investors. **Industry associations can also be encouraged to review and consider whether these emerging local norms and practices should become a standard.**

- **Promoting the credibility and value of green labels and certification to potential issuers of unrated bonds.** Corporations or financial institutions that are highly reputable in the environment space but are presently unrated can use the green label to add credibility and differentiate their bonds from “junk status” to better attract investors.
- **Developing practical environmental metrics that track green projects and businesses on their long-term environmental impact and performance.** The development and use of reliable and independent certifications related to environmental risks, such as “second opinion” providers, should be promoted. This will deepen Singapore’s capacity in environmental reporting. Having such tools and frameworks in place generates important data to better determine the value of the green label. It will also encourage corporates to establish a strong green track record through improved transparency and materiality in green reporting. This creates a perpetuating cycle of green valuation that becomes more sophisticated over time due to the amount of data generated and reported. Moody’s Investors Service, for example, last year launched its Green Bond Assessment (GBA), which assesses and provides a forward-looking opinion of an issuer’s management, administration, allocation of proceeds, and reporting on environmental projects financed with green bonds.²¹³
- **Innovating and promoting financial instruments and investment vehicles that support the funding of the green economy, including new green frontier technologies.** Such green financial instruments can be in the form of green bonds, green funds or low-carbon indexes. For example, **an Exchange Traded Fund (ETF) that tracks an ESG index can be considered.** A corporate’s sustainability score impacts its weighting in the ETF; this incentivises corporations to improve ESG disclosure in order to achieve a better sustainability score and attract more investment. A lower sustainability score results in funds invested being transferred to another company with a higher score. Funding platforms for green start-ups, aimed at providing an additional source of capital flow to SMEs, which comprise about 99 per cent of businesses in Singapore, can also be established to aggregate high-potential firms.
- **Providing incentives to encourage new and innovative work and developments in Green Finance.** While Singapore can and should learn from other countries and hubs that have moved ahead, ways to leap frog the pack should be considered and encouraged. One way to boost the uptake of Green Finance is to provide incentives for financial institutions to team up with more progressive corporations and businesses, so that supply-and-demand issues can be discussed to design innovative green financial instruments, products and services.

²¹³ Moody’s Investors Service (2017) “Moody’s: Incorporating ESG into credit analysis”, August 2017.

5. Linking to the Region

The bulk of the opportunities associated with the green economy and Green Finance are not in Singapore itself but in the region. It is vital that Singapore aligns itself with the region's green movements. This will be challenging, given the diversity in ASEAN and Asia, but focus can be given to the emerging Green Finance leaders identified in this Report.

Steps towards this goal can include:

- **Singapore agencies that promote regionalisation such as Enterprise Singapore²¹⁴ should seek to incorporate Green Finance as an aspect of their engagement with Singapore companies venturing into the region.**
- **Establishing a Green Finance dialogue among ASEAN partners.** This is not only for key government ministries in ASEAN countries, but also for relevant economic agencies and financial regulators such as the MAS, SGX, and the financial sector. ASEAN processes across sectors should be encouraged to consider how environmental issues could be positively addressed with Green Finance. ASEAN countries should be encouraged to consider the green economy and Green Finance as opportunities, rather than as cost and control measures.
- **Developing and deepening relations with key regional investors, particularly China and Japan, on infrastructure investment and Green Finance. China and Japan are the two largest economies.** China has emerged as the global leader in Green Finance, while Japan is a champion for socially responsible investments. Beyond government-to-government links, Singapore should encourage the banks and financial institutions of its major country partners to strengthen their presence and capacity of their Singapore-based operations on Green Finance and related sectoral specialisations, such as infrastructure. Similarly, the Singapore Government should invite international and multilateral financial institutions, such as the World Bank, Asian Development Bank, International Finance Corporation and the new Asian Infrastructure Investment Bank, to engage more deeply on Green Finance from Singapore.
- **Developing expertise in specialised financing, particularly infrastructure financing or green investments.** This aims to take advantage of Asia's untapped opportunities in infrastructure development. Key banks should be encouraged to set up an infrastructure-focused team or department to advise on providing longer-term financing for greenfield or other related infrastructure projects. There is also a need to develop specialisations and financing experience in climate adaptation or sustainable development projects such as those related to renewable energy.

²¹⁴ IE Singapore and SPRING Singapore will merge in 2018 to form Enterprise Singapore, a new agency that will help Singapore companies develop capabilities, innovate and take advantage of international opportunities.

SPOTLIGHT ON:**Munich Re: Using Green Finance to Support New Green Technology**

As one of the world's largest reinsurers, Munich Re has made climate change strategy a critical part of its business. The German reinsurance firm, which has been in Singapore since 1975, uses the country as a base to develop its expertise in green technology and to invest in projects in the region.

Munich Re has a dedicated team that provides insurance solutions targeted at transferring new technology risks within the fast growing renewable energy sector. These are also aimed at promoting the financing of green technologies through reducing risk and securing returns for manufacturers, operators and investors. Munich Re set up a team in Asia to cater to the growing demand for technical audits.

Such technical expertise allows Munich Re to develop risk transfer solutions as new technologies arise. Paired with the expertise and knowledge of Munich Re's natural hazard experts, these technical audit activities by experts with an industry track record also help Munich Re's own asset management company MEAG to invest in the right projects, such as power grids, photovoltaic or wind parks as well as energy storage plants. MEAG manages Munich Re's global group investments of about 220 billion euros.

Using Green Insurance to Encourage Sustainable Investments

Green Finance has quickly become an effective tool in globally pushing the development and funding of clean energy solutions. As one of the most important parts of Green Finance, green insurance can be used to reduce risk perceptions of various stakeholders and encourage investments that provide environmental benefits. Munich Re plays an important role to help analyse and develop valuable green insurance for the market. Green Finance also offers an important opportunity for Munich Re to diversify its own portfolio of risks.

The demand for Green Finance is higher than ever before, as governments across the Asia Pacific are continuing the push for more renewable energy in their fuel mix. The global clean energy sector is developing fast, with a record US\$287.5 billion of new investments in 2016. The Asia Pacific region is at the heart of this. Munich Re has abundant industry expertise and experience in designing meaningful risk transfer solutions from various perspectives including technology, weather and financial risks. It is also targeted at opening up more opportunities for emerging markets in the Asia Pacific by offering localised insurance products to meet the special needs of this growing market.

The performance uncertainty and the financial returns of new technology over time is the fundamental concern of investors in green energy. Munich Re's Green Tech Solutions team is a special risks unit aimed at mitigating different green technology risks, so that investors are more comfortable with making long-term investments in this region. Risk coverages include, but are not limited to solar, wind, biomass and energy efficiency.

The availability of services that de-risk investments in such new technologies will be important to attract green entrepreneurs to use Singapore as a home base to raise capital.

CONCLUSION

The world is seeking a shift towards sustainability in response to climate concerns. As this Report has noted, a number of major Asian economies are moving, not only in relation to global concerns but also in response to the economic, social and environmental priorities within their own countries. Singapore too is shifting towards sustainability, creating a green economy in combination with technology and innovation. Future growth in Singapore and across the region will need to take into account sustainability and climate concerns, more so now than ever before.

Shifts in a country's development model require changes in finance and can bring many opportunities to those open to Green Finance. The ideas of a green or greener economy and Green Finance are not fads. Instead, they represent a strategic shift and are a key puzzle piece to help alleviate some of the region's most urgent problems. This is especially in terms of basic infrastructure, which is vital to a nation's economic development and growth, and to the welfare and potential of its people.

Singapore's financial sector is a critical cornerstone of the economy and a hub for ASEAN and Asia. The sector is well developed to support the transition and drive towards a sustainable, low-carbon future. Besides environmental benefits and financial opportunities through the adoption of Green Finance, gains in transparency and governance will improve the robustness of the financial system to better manage potential systemic risks.

However, there is a need for policies to create the conditions to support the uptake of Green Finance. It will be critical for the Government to set a clear vision of Singapore's overall strategy and direction to create a green economy. The public sector needs to encourage and create conditions that can nudge and bring together corporations, institutional investors and financial institutions on these issues. What is key to jump-starting a green economy is the need to define the value of the green label. International standards and practices should be adapted according to local needs and practices. Corporations and financial institutions alike should innovate and explore creative ways to apply such international norms to the local context so that Singapore remains internationally competitive and attractive as a financial hub.

Various financial-sector players are already prepared or taking steps forward, and these industry leaders should be encouraged to adopt an even more active role in the market. This can be through leading by example, whether by creating or taking advantage of Green Finance opportunities when they arise.

A more coherent Green Finance vision from the Government, pulling together the different existing national climate and sustainable development policies and action plans is needed. Constitutionalising Green Finance will send a strong signal and confidence of Singapore's commitment. A Green Finance Advisory Panel, comprising of Green Finance thought leaders from around the world and local experts, can also be formed to better inform and advise Singapore. The panel should aim to enhance Singapore's application of Green Finance and leverage from its opportunities.

Singapore is faced with a multitude of global challenges that are growing and fast evolving, not only in geopolitics and the economy, but also in climate change and the environment. The world is burning up at such a fast rate that countries will struggle to meet the Paris Agreement's goal to limit increases of the earth's temperature to a mere 2°C.

The urgency to mitigate climate change tends to take a backseat, especially when faced with exciting fintech opportunities and the growing threats associated with cyberterrorism. However, if left unresolved, the impacts of climate change can be equally, if not more, disastrous and costly compared to that of cyberterrorism. Its force, more disruptive than fintech on society, economies and industries.

As a densely populated small island state, Singapore is most vulnerable to the risks associated with climate change. The Government has made important first steps in integrating climate risk as part of the future economy

of Singapore. This is through recognising the need to build a green economy, and setting a clear vision, strategy and action plan to mitigate and adapt to the effects of climate change. Opportunities to innovate and scale up enterprise capabilities in solar energy, green urban development in the form of eco-smart living spaces, and water management are endless.

Mitigating climate risks and encouraging economies to transition towards a low-carbon future has become a necessity. It is also costly, becoming burdensome to governments and unpopular among constituencies. Green Finance offers itself as a substantial way to finance the costs of managing and mitigating climate change. However, there is no need to see Green Finance as an “all or nothing” solution. A step-by-step, incremental approach can be key to allow a wide spectrum of financial institutions to participate and gain.

Keeping in mind Singapore’s position and robustness as a financial hub, Green Finance is a next step forward that can and should be taken. Green Finance should be seen as a key characteristic for all international financial hubs to take up and set as a leadership example.

Green Finance will be pivotal in preparing Singapore for the future economy, in which the environment and climate are key considerations that open up opportunities for the country and its people.

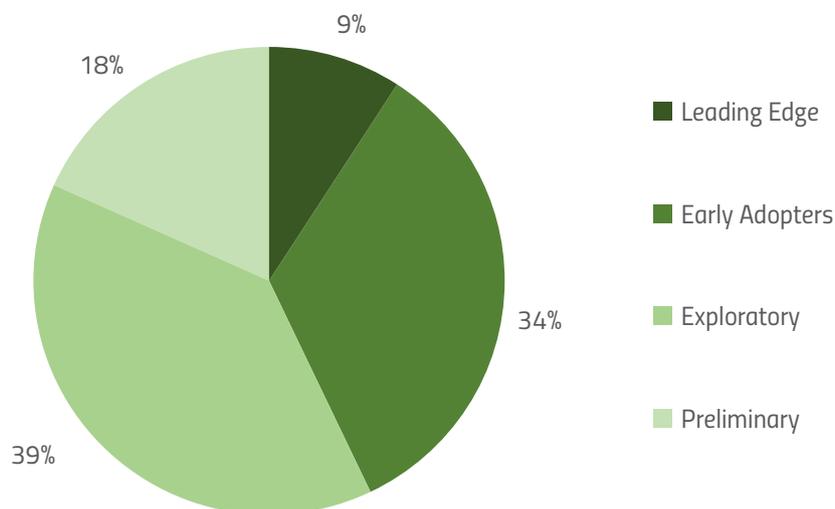
“The future economy will be one where energy-efficient and low-carbon growth takes centre stage...To stay internationally competitive, Singapore and our companies must position ourselves to stay ahead in this new and transforming global economy.”

– Mr. Masagos Zulkifli, Minister for the Environment and Water Resources, at the Exxonmobil Jurong Cogeneration plant opening ceremony, 12 October 2017.²¹⁵

²¹⁵ Speech by Mr. Masagos Zulkifli, Minister for the Environment and Water Resources, at the ExxonMobil Jurong Cogeneration Plant Opening Ceremony, 12 October 2017, Available: <https://www.mewr.gov.sg/news/speech-by-mr-masagos-zulkifli--minister-for-the-environment-and-water-resources--at-the-exxonmobil-jurong-cogeneration-plant-opening-ceremony-on-12-oct-2017>

APPENDIX

Stages of Green - Financial Institutions in Singapore



The SIIA engaged with 65 financial institutions across the banking and insurance sectors, and institutional investors as part of the Collaborative Initiative for Green Finance in Singapore. These meetings, conducted through closed-door interviews, roundtable discussion sessions and working group meetings, aimed to find out the baseline of the current level of understanding and implementation of Green Finance in Singapore.

The SIIA found that financial institutions in Singapore were involved in various “stages of green”. In order to better illustrate the SIIA’s observations of financial institutions and the stage of Green Finance that best identified them, the values 1, 2, 3 and 4 were assigned to each corresponding stage of Green. The value of “1” was awarded to each financial institution in the Preliminary stage, “2” for Exploratory stage, “3” for Early Adopters, and “4” for Leading Edge.

Each stage was characterised by a set of criteria. Financial institutions classified as Preliminary were denoted by the lightest shade of green, showing that environmental management is actively taken up as a result of government or civil society influence through social pressures or by law.

This is followed by financial institutions in the Exploratory stage, where there is growing awareness and integration of ESG factors as part of their calculus of risk. Early Adopters are a step ahead with their proactive adoption of innovative attitudes to develop Green Finance products, and search for “win-win” solutions.

Leading Edge institutions, in the darkest shade of green, tend to have a clear corporate philosophy or a green mandate to support environmentally sustainable projects, even at a lower rate of return.

The SIIA recognises there are financial institutions that are in the process of transitioning from one stage to another. This is especially as financial institutions evolve in their adoption of Green Finance moving from the Preliminary to Exploratory, or from Exploratory to the Early Adopters stage. In such cases, the SIIA, on top of primary research, also reviewed secondary sources including the company’s website, annual reports, and sustainability reports to classify financial institutions.

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PARTICIPATING ORGANISATIONS²¹⁶

1	Aberdeen Asset Management Asia Limited
2	ABN AMRO Bank N.V. Singapore Branch
3	Agricultural Bank of China Singapore Branch
4	Allianz Global Corporate & Specialty SE Singapore Branch
5	Ambler Sun Pte Ltd
6	Amundi Singapore Limited
7	Arabesque Singapore Pte. Ltd.
8	Australia and New Zealand Banking Group Limited
9	Aon Singapore Pte Ltd
10	Asia Research and Engagement
11	Aviva Ltd
12	AXA Insurance Pte Ltd
13	Bain & Company SE Asia, Inc
14	Baker & McKenzie.Wong & Leow
15	Berkeley Partners LLP
16	BNP Paribas
17	Brunswick Group LLP
18	Business Council for Sustainable Development Singapore
19	Cargill Tropical Palm Holdings Pte. Ltd.
20	Cathay United Bank Co., Ltd Singapore Branch
21	Centre for Governance, Institutions and Organizations (CGIO) NUS Business School
22	Citibank N.A., Singapore Branch
23	City Developments Limited
24	Clifford Capital Pte Ltd
25	Crédit Industriel et Commercial – Singapore Branch
26	Credit Suisse AG
27	Damson Capital Pte Ltd
28	DBS Bank Ltd
29	Eastspring Investments (Singapore) Limited
30	Embassy of France in Singapore
31	ERM
32	Ernst & Young LLP
33	European Chamber of Commerce (Singapore)
34	FIL Investment Management (Singapore) Limited
35	Fullerton Fund Management Company Ltd
36	GIC
37	Greenpeace East Asia, Hong Kong
38	HL Bank Singapore
39	HSH Nordbank AG, Singapore Branch
40	Impact Investment Exchange (IIX)
41	InfraCo Asia Development Pte. Ltd.
42	ING Bank N.V., Singapore Branch
43	INSEAD
44	International Finance Corporation (IFC)
45	KPMG Services Pte. Ltd.
46	Land Bank of Taiwan,Singapore branch
47	LGT Impact Ventures
48	Lion Global Investors Limited

²¹⁶ The list of participating organisations includes financial and non-financial institutions, such as corporations, consultancies that the SIA engaged with as part of the Collaborative Initiative for Green Finance in Singapore.

49	Lloyd's Of London (Asia) Pte Ltd
50	Macquarie Bank Limited Singapore Branch
51	Manor Group
52	Manulife Asset Management
53	Marsh & McLennan Companies
54	Malayan Banking Berhad
55	Ministry of the Environment and Water Resources (MEWR)
56	Mitsubishi UFJ Financial Group (MUFG)
57	Mizuho Bank, Ltd.
58	Moody's Investors Service Singapore Pte. Ltd.
59	Morgan Stanley Investment Management Company
60	MSCI Hong Kong Limited
61	Münchener Rückversicherungs-Gesellschaft, Singapore Branch
62	National Australia Bank Limited
63	National Bank of Abu Dhabi Singapore
64	New Forests
65	Northern Trust Asset Management
66	OCBC Bank
67	Pavilion Capital International Pte Ltd
68	Pioneer Investments
69	PricewaterhouseCoopers LLP
70	Rabobank Singapore & Representative Markets
71	RHB Bank Berhad
72	Skandinaviska Enskilda Banken AB (publ), Singapore Branch
73	Singapore Economic Development Board
74	Singapore Exchange
75	Singapore Management University
76	Singapore Reinsurance Corporation Ltd
77	Singapore Reinsurers' Association
78	Societe Generale
79	Standard Chartered Bank
80	Sustainalytics
81	Swiss Reinsurance Company Ltd, Singapore Branch
82	Temasek International Pte. Ltd.
83	The Carbon Trust
84	The Great Eastern Life Assurance Co Ltd
85	The Hong Kong and Shanghai Banking Corporation Limited
86	TPG Growth
87	Tryb Capital
88	UBS AG
89	United Overseas Bank Limited
90	Westpac Banking Corporation
91	Willowbridge Capital Pte. Ltd.
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