Shanghai Pudong Development Bank Co., Ltd. Singapore Branch

Green Bond Framework

14 February 2023

Contents

1. Background

Founded in 1993, Shanghai Pudong Development Bank ("**SPDB**" or the "**SPDB Head Office**") is a joint-stock commercial bank headquartered in Shanghai, China, which provides a variety of financial services in corporate and personal banking in China with overseas presence via branches in Hong Kong, Singapore and London. SPDB Head Office has been actively promoting green finance and innovation to support the transition to low carbon and circular economy.

SPDB ranked the 18th in terms of tier 1 capital and 9th among Chinese banks in *The Banker*'s "Top 1000 World Banks" in July 2022 and the 226th place among the *Fortune*'s "Global 500" list in August 2022. The Bank upholds the core values of "Practising integrity and striving for excellence", and remains committed to innovative development and serving the real economy. While supporting and benefiting from the rapid development of the Chinese economy, SPDB has made the substantive leapsforward from a small-to-medium bank to a medium-to-large bank, and from a traditional commercialbank who merely served as a fund intermediary to a financial group capable of rendering a full package of financial services. SPDB is fully committed to corporate citizenship and fulfilling its social responsibility. Over the years, SPDB received several awards granted by the China Banking Association, such as *Excellent Charity Project of the Year*, *Best CSR Green Finance of the Year* and *Best Outlet for Special CSR Contribution ofthe Year*, to name but a few.

Shanghai Pudong Development Bank Singapore Branch ("**SPDB Singapore**") obtained banking license from the Monetary Authority of Singapore on 21 March 2017, and started operations in the following month. Exemplifying the corporate values of "upholding integrity, striving towards excellence", the Branch's business footprints span from Singapore, its key market, to regional markets such as Southeast Asia, the Indian sub-continent, Middle East, Australia and New Zealand.

Leveraging Singapore's strategic importance as a regional financial hub, the Branch has, in addition to our sterling portfolio of corporate, global financial markets & commodities trading businesses, established our Wealth Management unit in June 2020 to provide comprehensive banking solutions in and across regional markets. In February 2021, SPDB established its very own SPDB Innovation Centre to attract IT talents for the Bank's digital finance ecosystem, while working in tandem with Singapore's technology-driven Smart Nation masterplan.

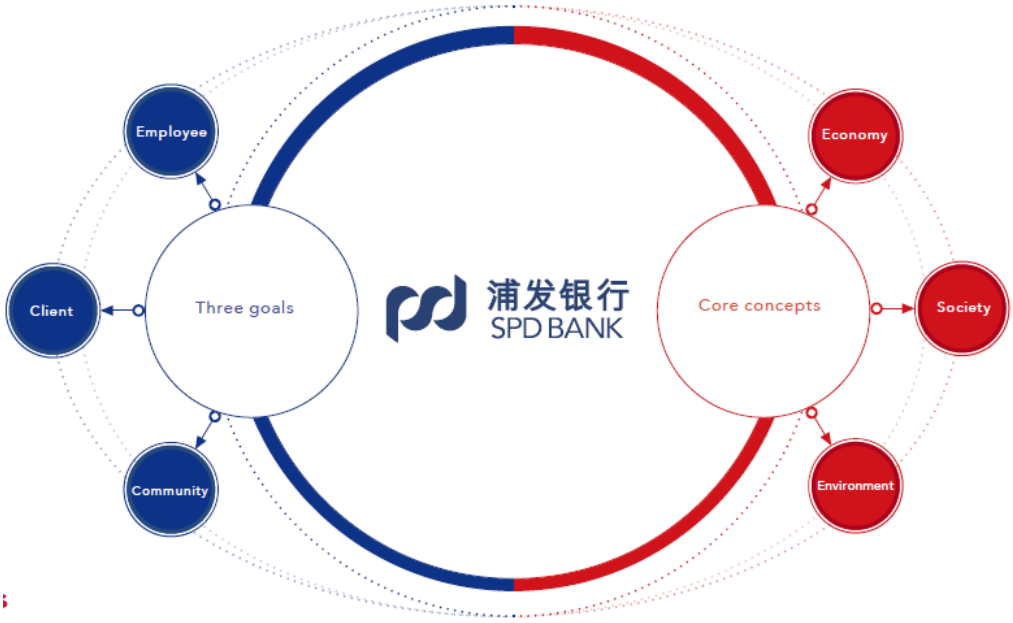
Three Goals and Core Concepts

SPDB deems corporate social responsibility as an organic constitute of its culture, brand and core competitive edge. SPDB is actively enforcing its responsibilities towards the economy, the society and the environment, and is dedicated to growing into a respectable listed bank.

Economic responsibility: SPDB is dedicated to legitimate integrity, and continuous value creation for our shareholders.

Social responsibility: SPDB is dedicated to improving welfare of our staff, clients, the community, and other stakeholders.

Environmental responsibility: SPDB is committed to actively tackle and avert environmental risks; to continuously make green financial innovation; to build a low-carbon green bank, and to pursue sustainable development.



SPDB's Commitment and Strategy in Green Finance

The Bank has been actively expanding our green credit business and supporting the environmental protection industry. As the first bank in China to issue a corporate social responsibility report since 2006, SPDB officially started to disburse green loans in 2008 and has since enhanced credit-granting towards the low-carbon and circular economy. As of the end of 2018, the Bank's green credit balance has exceeded RMB 210 billion, contributing to an estimated annual reduction of 1.5 million tonnes of coal consumption, nearly 4 million tonnes of carbon dioxide emission reduced or avoided, and almost 250 thousand tonnes of water savings.

SPDB continues to encourage green finance innovation; strengthen linkage with external institutions; conduct regular training on green credit; deepen the development of green finance and support the transition to green and low-carbon economies. In 2016, the Bank has become the first Chinese financial institutions to issue a green bond onshore, with an accumulative issuance size of RMB 50 billion, and has served nearly 600 corporate customers. Meanwhile, SPDB serves as a Director in the Green Finance Committee of the China Society for Finance and Banking, to contribute to the steering of market governance and policy-making in green finance. The Bank also contributed to the publication "Carbon Finance Guide" for the design and implementation of carbon emission trading in China.

As such, SPDB is well-recognized as a green bank, reflected by multiple international and domestic green awards. For example, the Bank has received the *Largest Green Bond Issuer Award* by the ClimateBonds Initiatives ("CBI") in early 2017, and the *Best Green Finance Award for Social Responsibility* for two consecutive years in 2017 and 2018 by the China Banking Association, the *Best Green Bond Bank* by Asiamoney, and the *Best Green Bank Award* by CFO World Magazine.

Green Finance Management and Policies

SPDB incorporates environmental and social risks management into all the stages of the entire project financing process, and strictly implements the relevant policies for energy conservation, emission reduction, and environmental and social risk management. Meanwhile, the Bank constantly aims to optimize the environmental and social risk management and control standards to improve our capacity to tackle environmental and social risks.

SPDB actively supports environmental protection by appropriately tilting credit resources towards green loans. The Bank considers energy conservation and emission reduction as a major indicator in enterprise appraisal and prudently dealt with companies with high energy consumption, high discharge, resource consumption and output surplus. SPDB has been actively supporting small and medium-sized enterprises in sectors related to energy conservation and emission reduction. For clients who fail to satisfy the standards for green credit, SPDB will exit such banking relationships.

2. SPDB Singapore Green Bond Framework

SPDB Head Office has developed its Green Bond Framework[1] under which it intends to issue green bonds and use the proceeds to finance and refinance, in whole or in part, existing and future projects that will promote energy conservation and emission reduction in China.

In the spirit of SPDB Head Office's Green Bond Framework, SPDB Singapore has developed this Green Bond Framework (the "**Framework**") committing SPDB Singapore to provide financial services to support our clients and their businesses in Asia-Pacific region (including China) in minimizing environmental footprint to create positive environmental and social impacts and addressing the challenges to effectively tackle climate change.

The Framework is developed to facilitate SPDB Singapore to:

- Address the increasing regional needs in sustainable financing and government roadmap;
- Integrate the environmental, social and governance ("ESG") considerations into our operation and business;
- Establish a holistic approach for the identification, classification, management and reporting of sustainable financing activities; and
- Support SPDB Head Office's corporate sustainability strategy.

This Framework is developed for SPDB Singapore as the guiding document to enter into a range of debt financing instruments and related advisory services. The Framework covers green bonds ("**GBs**") – to finance or refinance new or existing eligible green assets or projects, as defined in Table 1 under Section 2.1.

The Framework is developed in line with both international and regional standards and guidelines as listed below:

- International Capital Market Association ("**ICMA**"), Green Bond Principles ("GBP") 2021[2]
- ASEAN Capital Markets Forum ("**ACMF**"), ASEAN Green Bond Standards ("ASEAN GBS") 2018[3]

The Framework contains the key components of: (i) Use of Proceeds, (ii) Process for Project Evaluationand Selection, (iii) Management of Proceeds, and (iv) Reporting.

[1] https://www.spdb.com.cn/home/sygg/201910/P020191018593735164818.pdf
[2] https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/
[3] https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bond-standards

2.1 Use of Proceeds

The proceeds from any green bonds issued under this Framework (the "**Proceeds**") will be used to finance and/ or refinance the new or existing assets or projects that fall under the eligible green asset categories and contribute to SDGs, as outlined in Table 1 below.

The Proceeds from SPDB Green Bond Issuances will be used to finance or refinance, in part or in full, new or existing green assets/projects which meet the criteria outlined below ("Eligible Green Categories").

They will only be allocated to expenditures incurred for the eligible assets/projects that occurred no earlier than 24 months prior to the date of issuance.

2.1.1 Eligible Green Categories

Table 1: Eligible Green Categories

Eligible Green Categories	Description	Contributions to UN Sustainable DevelopmentGoals ("UN SDGs")[4]	Environmental Objectives and Benefits
Renewable Energy	• Construction and operation of renewable energy generation facilities, including: ○ onshore solar (concentrated solar power and photovoltaics) ○ onshore wind ○ geothermal (with a lifecycle emissions threshold of below 100 grams of CO_2 equivalent (CO_2-e)) excluding enhanced geothermal systems. ○ Bioenergy for electricity generation and biofuel for transportation (eligible feedstocks including waste and residues as sources, or sustainable sources with certification of Roundtable on Sustainable Biomaterials ("RSB"), or International Sustainability and Carbon Certification ("ISCC") Plus and other equivalent international standards) to the extent they do not exceed 16.0gCO2e/MJ for biofuel produced for heating and co-generation and 18.8gCO2e/MJ for biofuel for transport. Woody products as source of energy shall be excluded. Projects relating to i) Facilities producing biomass/biofuel ii) Heating/cooling and co-		• Climate Change Mitigation • Greenhouse Gas Reduction

[4] Please refer to this link for full mapping by ICMA: https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/mapping-to-the-sustainable-development-goals/

	generation facilities using biofuel/biomass, iii) Bio-refinery facilities iv) Supporting infrastructure associated with those listed in i,ii,iii ○ hydropower with power generation > 10W/m2 or the lifecycle GHG is < 50 g CO2e/kWh or do not have an artificial reservoir ○ marine renewable (offshore wind and solar facilities or hybrids, tidal, wave and ocean energy, and dedicated transmission infrastructure) • Transmission infrastructure wholly dedicated to renewable energy such as construction of transmission network and supporting infrastructure such as energy storage systems and inverters (electrical grid networks, battery, compressed air and capacitor storage and dedicated infrastructure such as equipment housing infrastructure) • Manufacturing facilities wholly dedicated to renewable energy types as listed above • Development of low-carbon hydrogen production[5] produced from electrolysis		
Green Buildings	• Development, construction, retrofitting and/or acquisition of buildings that have received or are expected to receive regional, national or international certifications, including: ○ Singapore Building and Construction Authority ("BCA") Green Mark - Gold and above for assets that have received certification under the old scheme (pre 1st November 2021), and Gold^{Plus} and above for assets seeking certification under the new scheme or - Super Low Energy Certification or above		• Climate Change Mitigation • Natural Resource Conservation • Prevention of the degradation of natural capital

[5] The production of hydrogen complies with the life-cycle GHG emissions savings requirement of 73.4% for hydrogen [resulting in life-cycle GHG emissions lower than 3tCO2e/tH2] and 70% for hydrogen-based synthetic fuels relative to a fossil fuel comparator of 94g CO2e/MJ in analogy to the approach set out in Article 25(2) of and Annex V to Directive (EU) 2018/2001. Life-cycle GHG emissions savings are calculated using the methodology referred to in Article 28(5) of Directive (EU) 2018/2001 or, alternatively, using ISO 14067:2018(119) or ISO 14064-1:2018(120). Quantified life-cycle GHG emission savings are verified in line with Article 30 of Directive (EU) 2018/2001 where applicable, or by an independent third party.

	○ Hong Kong BEAM Plus - Gold and above ○ U.S. Leadership in Energy and Environmental Design ("LEED") - Gold and above ○ China Green Building Evaluation Label – Three Star ○ EDGE Green Certification - EDGE Certified and above for assets located in developing countries (as per defined by the United Nations), otherwise EDGE Advanced and above. ○ Building Research Establishment Environmental Assessment Method ("BREEAM") – Very Good and above ○ Green Building Council of Australia (GBCA) Green Star – Five-star or above ○ New Zealand Green Building Council (NZGBC) Green Star – Five-star or above ○ National Australian Built Environment Rating System (NABERS) – Five-star Energy rating or above		
Energy Efficiency	• Projects for industrial and building energy efficiency and energy efficiency improvement, including energy management centres and energy-efficient infrastructure construction projects ○ Refurbished buildings including upgrading of equipment (such as lighting system and chillers) which will provide at least 30% energy saving • Application of energy efficient technologies or products, including energy storage, smart grids, or district heating except for energy storage listed in the exclusion list		• Climate Change Mitigation • Greenhouse Gas Reduction
Pollution Prevention and Control	• Application of technologies or products in industrial process (excluding those using fossil fuels) for the reduction of air emissions, greenhouse gas control, soil remediation. • Waste management processes, including waste prevention, waste reduction, waste recycling and energy/emission-efficient		• Pollution Prevention and Control • Natural Resource Conservation • Waste Prevention, Recycling • Greenhouse Gas Reduction

	waste to energy		
Clean Transportation	• Purchase and construction of infrastructure related to electrified railway, urban rail transit, and other types of electrified transportation (fully electric, hydrogen, or other zero-direct emissions transport - including private vehicles, passenger trains, urban subway/metro, trams, electric buses and taxis and their directly supporting infrastructure. • Hybrid private cars, fossil fuelled public transport and infrastructures for EVs with emissions under 50gCo2/p-km up to year of issuance 2025 (and net-zero after that), • Development, manufacturing and (or) acquisition of electric vehicles (EV) and hydrogen vehicles • Development and (or) construction of infrastructure wholly dedicated to EVs including charging stations		• Climate Change Mitigation • Pollution Prevention and Control • Greenhouse Gas Reduction
Sustainable Water and Wastewater Management	• Project related to sewage treatment, river training, flood control and water conservation • Desalination facilities that use electricity with an average carbon intensity at or below 100gCO_2e/kWh		• Pollution Prevention and Control • Prevention of the degradation of natura capiital
Climate Change Adaptation	• Development and construction of climate adaptation infrastructure to increase the resilience against extreme weather events, by upgrading, replacing or relocating infrastructure to reduce vulnerability to flood defense, wildfire management, landslides. • Development of climate observation and early warning and information support systems		• Climate Change Adaptation
Circular Economy Adapted Products, Production Technologies and Processes	• Development and (or) implementation of substitution of virgin materials with secondary materials (such as steel, aluminum, glass, plastics) originating from the recovery of materials and resources		• Pollution Prevention and Control • Natural Resource Conservation • Reduction of raw material extracted, recycling
Environmentally sustainable management of living natural resources and land use	• The preservation, restoration of natural landscapes including the designing and building of green landscapes, ecological parks and ecological function areas, etc. • Development and (or) application of environmentally sustainable agriculture technology including biological crop		• Biodiversity • Natural Resoiurce Conservation • Preservation and restoration of natural landscapes

	protection, drip-irrigation or closed-loop agriculture project • Forestry project with certification to Forest Stewardship Council ("FSC") or equivalent, including afforestation or reforestation, and preservation or restoration of natural landscapes. There is no conversion from natural landscape and health of the forest is well managed		
Terrestrial and Aquatic Biodiversity Conservation	• Development and (or) implementation of ongoing monitoring and surveillance of marine protected areas through automated monitoring of human activities that affects marine diversity and threats to ocean including overfishing, litter, water pollution.		• Biodiversity • Natural Resource Conservation

In the meantime, SPDB Singapore is aware of the classification systems developed or under development in the regional and international context, such as the following:

- The European Union (EU) Taxonomy[6]
- Climate Bonds Taxonomy (Climate Bonds Initiative)[7]

SPDB Singapore has taken consideration of the above and developed a sectoral based approach to identify the eligibility of related assets or projects.

2.1.2 Exclusionary Criteria

SPDB commits that any activities, assets and technologies related to the below will be excluded fromEligible Green Assets or Projects:

- Fossil fuels related assets, such as any efficiency upgrades to clean coal technology;
- Mining and quarrying;
- Nuclear fuels related assets;
- Hazardous chemicals and radioactive substance; and
- Palm oil related assets.

In addition, referring to the ACMF ASEAN Green Bond Standards and the recommendations from the Green Finance Industry Taskforce ("**GFIT**")[8], SPDB Singapore also commits to not knowingly applying green bonds for any assets or projects that are involved in the below activities:

- illegal logging operations and (or) land clearance by open burning;
- animal cruelty;
- trade of endangered species as defined by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- operations or projects that threaten the outstanding universal value or special characteristics of UNESCO World Heritage Sites, Ramsar Wetlands, forests of high conservation value and would impact critical natural habitats;
- exploitation of labour (including forced labour and child labour);
- violation of the rights of local communities;

[6] https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf

[7] https://www.climatebonds.net/standard/taxonomy

[8] GFIT was convened by the Monetary Authority of Singapore (MAS).

- lacking measures to manage or mitigate the risk of air, soil, and water pollution;
- hydropower project larger than 20MW;
- alcohol;
- gambling;
- tobacco; and
- weaponry.

2.2 Process for Project Evaluation and Selection

While SPDB Head Office has established the risk management approach to integrate environmental and social risks in the financing process, SPDB Singapore will incorporate the Guidelines on Responsible Financing published by The Association of Banks in Singapore ("**ABS**") and Guidelines on Environmental Risk Management for Banks introduced by Monetary Authority of Singapore ("**MAS**") with the relevant Headquarter policies to assess the suitability of clients, and to identify and manage the perceived environmental and social risks associated with the relevant assets.

For the process of evaluation and selection of eligible green assets SPDB Singapore has set up:

1. ESG Steering Committee : Currently comprising of General Manager (Chair), Deputy General Manager - Front Office (Deputy Chair), Deputy General Manager - Back Office, and Department Heads of the following Departments:
   1) Corporate Business Management;
   2) Corporate & Investment Banking;
   3) Corporate & Transaction Banking;
   4) Financial Markets;
   5) Financial Institutions;
   6) Wealth Management;
   7) Finance;
   8) Legal & Compliance; and
   9) Human Resources and Administration

2. ESG Advisory Panel: Currently comprising of Deputy General Manager - Front Office, as well as Department Heads of the following Departments:
   10) Corporate Business Management;
   11) Corporate & Investment Banking;
   12) Corporate & Transaction Banking;
   13) Finance; and
   14) Legal & Compliance

3. ESG Working Group: Currently headed by Department Head of Corporate & Investment Banking and comprising representatives from Corporate & Investment Banking and Corporate Business Management

2.2.1 Preliminary screening

Front line Business Units will liaise with their clients and identify assets that can be potentially labelled as eligible green assets or projects in accordance with the internal Sustainable Financing Guidelines developed by SPDB Singapore. The preliminary asset list will then be submitted to the ESG Working Group of SPDB Singapore.

2.2.2 Review and Approval

The nominated assets will be reviewed by ESG Working Group, which will be overseen by the ESG Advisory Panel. The reviewed assets will be validated and approved by the ESG Advisory Panel.

2.2.3 Update and maintenance

ESG Advisory Panel will report the approved eligible assets to ESG Steering Committee on quarterly basis and ESG Steering committee will have full rights to override ESG Advisory Panel's decision if deemed appropriate.

Post bond issuance, SPDB Singapore will also conduct review and checking on the Eligible Green Assets financed on a semi-annual basis. SPDB Singapore branch will remove and replace projects that are no longer eligible, on a timely basis.

2.3 Management of Proceeds

SPDB Singapore will establish a Green Finance Asset Register (the "**Register**") to record the allocation of the Proceeds. The Proceeds will be deposited in general funding accounts and tracked through a formal internal process to ensure the link of the Proceeds to the Eligible Green Assets.

The Register will include the following information on the allocation of proceeds of all labelled assets:

- ✓ Company Identifier
- ✓ Asset Label
- ✓ Amount
- ✓ Tenor
- ✓ Green Undertaking (e.g. certification, if any)
- ✓ Anticipated Environmental and Social Impacts (mapped with the KPIs set out in the Reporting section)

When issuing its green bonds, SPDB Singapore aims to fully allocate the proceeds to eligible green assets or projects within 24 months from any green bond issuance(s). During the lifetime of the issued green bond, SPDB Singapore will maintain an equal or larger total amount of eligible green assets or projects than the net proceeds of the bond. The proceeds allocation will be earmarked. SPDB Singapore will substitute the maturing assets or projects that cease to be eligible with the alternative up-to-date eligible green assets or projects as timely as practically possible. To the extent that any proceeds of a green bond have not been allocated to eligible green assets or projects during the life of the bond, any temporarily unallocated balance of net proceeds will be invested in money market instruments with good credit ratings and market liquidity. On a best efforts basis, SPDB Singapore has committed to not investing in any activities in the nature of being greenhouse gas intensive, high-polluting, resource-intensive or unethical.

2.4 Reporting

On an annual basis until full allocation, and on a timely basis upon material changes in proceeds allocation, SPDB Singapore commits to publish reporting related to its green bonds (the "**Report**"), providing information on the allocation and the environmental impacts of the Proceeds as follows:

2.4.1 Allocation reporting

SPDB Singapore will report the allocation of proceeds, including the total amount of Proceeds allocated to Eligible Green Assets Category, the amount of refinancing and the amount of unallocated Proceeds. Subject to confidentialitydisclosures, SPDB may provide some project examples.

2.4.2 Impact reporting

Where possible, SPDB Singapore commits to provide impact reporting to demonstrate the expected environmental benefits ofthe Eligible Green Assets financed. The impact indicators, evaluation methods and key assumptions will be described in the Report. The environmental impacts of eligible assets or projects will be evaluated in quantitative terms as applicable, and refer to and adopt, where possible, the guidance and impact reporting templates provided in

the "*Harmonised Framework for Impact Reporting*"[9]. Some examples of impact indicators are listed below:

Eligible Green Categories	**Potential environmental impact indicators**
Renewable Energy	- Annual greenhouse gas (GHG) emissions reduced / avoided in tonnes of carbon dioxide equivalent (CO2-e); - Annual renewable energy generation in megawatt-hour (MWh) / gigawatt-hour (GWh) (electricity) and gigajoule (GJ) / terajoule (TJ) (other energy); and - Capacity of renewable energy plant(s) constructed, rehabilitated, or to be served by transmission systems, in megawatt (MW)
Green Building	- Building assets by type of scheme, certification level and square metre (m2) green building area; - Annual GHG emissions reduced / avoided in tonnes of CO2-e. vs local baseline/baseline certification level; - Percentage of energy use reduced / avoided vs local baseline/building code; and - If relevant, percentage of renewable energy (RE) generated on site (specifying the relevant RE form)
Energy Efficiency	- Annual energy savings in MWh / GWh (electricity) and GJ / TJ (other energy savings) based on benchmark; and - Annual GHG emissions reduced / avoided in tonnes of CO2-e
Pollution Prevention and Control	- Annual waste reduced / avoided (tonnes); - Annual GHG emissions reduced / avoided (tonnes of CO2-e); - Area of land remediated / bought back in to use (hectares); and - Annual reduction / avoidance of air pollutants: particulate matter (PM), sulphur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs)
Clean Transportation	- Length of tracks built or maintained in case of infrastructure - Number of electric vehicles and hydrogen vehicles supported; - Passenger-kilometres (i.e. the transport of one passenger over one kilometre) and (or) passengers; or tonne-kilometres (i.e. the transport of one tonne over one kilometre) and (or) tonnes; - Annual GHG emissions reduced / avoided in tonnes of CO2-e; and - Reduction of air pollutants: particulate matter (PM), sulphur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs)
Sustainable Water and Wastewater Management	- Improvement in capacity to withstand flood Annual absolute (gross) water use before and after the project in cubic metre per year (m3/a), reduction in water use in percentage; - Annual absolute (gross) amount of wastewater treated, reused or avoided before and after the project in m3 /annum and population equivalent per year (p.e./a) and as percentage; - Annual absolute (gross) amount of raw/untreated sewage sludge that is treated and disposed of (in tonnes of dry solids per year (p.a.) and in percentage); and - Annual absolute (gross) amount of sludge that is reused (in tonnes of dry solids and in percentage)

[9] https://www.icmagroup.org/sustainable-finance/impact-reporting/green-projects/

Climate Change Adaptation	- Reduction in land-loss from inundation and (or) coastal erosion in km²; - Reduction in repair costs and (or) operating days lost due to landslides; and - Reduction in the number of operating days lost to disrupted transport networks or other infrastructure
Circular Economy Adapted Products, Production technologies and Processes	- The percentage and (or) absolute amount in tonnes p.a. of virgin raw materials that are substituted by secondary raw materials and by-products from manufacturing processes.
Environmentally sustainable management of living natural resources and land use	- Number of protected species - Maintenance / safeguarding / increase of natural landscape area (including forest) in km² and in percentage; - Increase of area under certified land management in km² or m² and in percentage (in buffer zones of protected areas); - Absolute number of indigenous species, flora or fauna (trees, shrubs and grasses, etc.) restored through the project; and - Annual GHG emissions reduced in tonnes of CO2-e.
Terrestrial and Aquatic Biodiversity Conservation	- Maintenance / safeguarding / increase of protected area in km² and in percentage for increase; - Absolute number of predefined target organisms and species per km² (bigger fauna) or m² (smaller fauna and flora) before and after the project; - Absolute number of protected and (or) priority species that are deemed sensitive in protected / conserved area before and after the project; - Changes in the CO2, nutrient and (or) pH levels for coastal vegetation, and coral reefs in percentage; and - Absolute number of invading species and (or) area occupied by invading species in m² or km² before and after the project.

3. External Review

SPDB Singapore has engaged Moody's to review this Framework and provide a Second Party Opinion ("SPO") on the Framework to confirm its alignment with regional standards and international guidelines.

Post-issuance, SPDB Singapore may also engage an external assurance provider to provide post-issuance verification on our annual reporting as mentioned in Section 2.4.

The relevant external review reports will be made publicly available via annual updates on SPDB's official website.

Disclaimer

The information and opinions contained in this Green Bond Framework are provided as at the date of this document and are subject to change without notice. SPDB does not assume any responsibility or obligation to update or revise any such statements, regardless of whether those statements are affected by the results of new information, future events or otherwise.

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MOODY'S INVESTORS SERVICE

ASSESSMENT
27 March 2023

Send Your Feedback

Shanghai Pudong Development Bank Co., Ltd. Singapore Branch

Second Party Opinion – Green Bond Framework Assigned SQS2 Sustainability Quality Score

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Summary

We have assigned an SQS2 sustainability quality score (very good) to Shanghai Pudong Development Bank Co., Ltd. Singapore Branch's (SPDB Singapore) green bond framework dated 14 February 2023. SPDB Singapore has established its use-of-proceeds framework with the aim of financing 10 eligible green project categories — renewable energy; green buildings; energy efficiency; pollution prevention and control; clean transportation; sustainable water and wastewater management; climate change adaptation; circular economy adapted products, production technologies and processes; environmentally sustainable management of living natural resources and land use; and terrestrial and aquatic biodiversity conservation. The framework is aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP) 2021 (including the June 2022 Appendix 1) and demonstrates a significant contribution to sustainability.

Sustainability quality score

SQS2

SQS5	SQS4	SQS3	SQS2	SQS1
Weak	Intermediate	Good	Very good	Excellent

Alignment with principles
USE OF PROCEEDS

Overall alignment

Not aligned	Partially aligned	Aligned	Best practices

FACTORS	ALIGNMENT
Use of proceeds	
Evaluation and selection	
Management of proceeds	
Reporting	

Contribution to sustainability

Overall contribution

Poor	Limited	Moderate	Significant	High

Expected impact
Relevance and magnitude

ADJUSTMENTS

ESG risk management	No adjustment
Coherence	No adjustment

Scope

We have provided a Second Party Opinion (SPO) on the sustainability credentials of SPDB Singapore's green bond framework, including the framework's alignment with the ICMA's GBP 2021 (including the June 2022 Appendix 1). Under its framework, SPDB Singapore plans to issue use-of-proceeds green bonds to finance 10 eligible green project categories — renewable energy; green buildings; energy efficiency; pollution prevention and control; clean transportation; sustainable water and wastewater management; climate change adaptation; circular economy adapted products, production technologies and processes; environmentally sustainable management of living natural resources and land use; and terrestrial and aquatic biodiversity conservation — as outlined in Appendix 2 of this report.

Our assessment is based on the latest version of SPDB Singapore's framework dated 14 February 2023, and our opinion reflects our point-in-time assessment of the details contained in this version of the framework, as well as other public and non-public information provided by the bank.

We produced this SPO based on our Framework to Provide Second Party Opinions on Sustainable Debt, published in October 2022.

Issuer profile

Shanghai Pudong Development Bank (SPDB) is a joint-stock commercial bank headquartered in Shanghai, China, which provides a variety of financial services in corporate and personal banking in China with an overseas presence via branches in Hong Kong SAR, China; Singapore; and London. SPDB has been actively expanding its green credit business to support environmental protection. The bank disbursed its first green loan in 2008. As of year-end 2021, its green credit balance was RMB311.4 billion, an increase of RMB94.8 billion over the course of the year.

The Singapore Branch (SPDB Singapore), the issuer of green bonds under this framework, began operations in 2017 and covers different regional markets, including Southeast Asia, the Indian subcontinent, the Middle East, Australia and New Zealand. SPDB Singapore has developed this framework as a commitment to provide financial services to support clients and their businesses in Asia-Pacific (APAC) by minimising their environmental footprint and addressing challenges to tackle climate change.

Strengths

» Clearly defined and relevant environmental objectives associated with all eligible categories

» Transparent project selection and evaluation process, including the ongoing monitoring of the eligibility of assets throughout the life of the bond

» Project benefits are measurable and will be quantified in future impact reporting

» Proceeds management is in line with the market practice, which allows for the proper allocation to projects

Challenges

» Some eligible categories lack granular details on thresholds or specific assets to be financed

» No commitment to commission an independent audit of the tracking and allocation of funds, and an independent impact assessment on environmental benefits by a qualified third-party reviewer, at least until full allocation and in case of significant changes

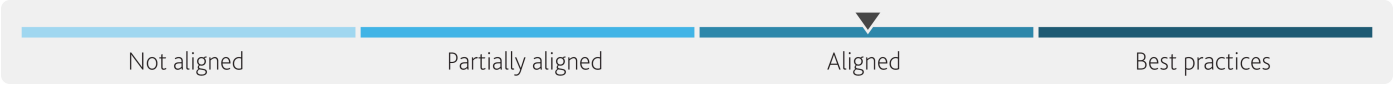
» Impact reporting to be done until full allocation but not until the maturity of the bond

Alignment with principles

SPDB Singapore's green bond framework is aligned with the four core components of the ICMA's GBP 2021 (including the June 2022 Appendix 1):

- ☑ Green Bond Principles (GBP)
- ○ Social Bond Principles (SBP)
- ○ Green Loan Principles (GLP)
- ○ Social Loan Principles (SLP)
- ○ Sustainability-Linked Bond Principles (SLBP)
- ○ Sustainability Linked Loan Principles (SLLP)

Use of proceeds



Clarity of the eligible categories – ALIGNED

SPDB Singapore has clearly defined and communicated the nature of the expenditure for financed projects, as well as exclusion criteria. The bank will provide loans to clients financing eligible projects, as defined in the framework, and the projects will be located in APAC. Descriptions of the projects to be financed are articulated, and for most of the projects, the general definition includes references to the technical thresholds upon which the bank has defined project eligibility. For example, the bank has set a life cycle emissions threshold of below 100 g of CO_2 equivalent (CO_2e)/kilowatt-hour (kWh) for geothermal projects to be eligible for financing, in line with the standard prescribed within the EU Taxonomy. However, some eligible projects lack granularity on technical thresholds, types of eligible technologies and specific assets to be financed. These include projects related to waste to energy, and sustainable water and wastewater management.

Clarity of the environmental objectives – BEST PRACTICES

SPDB Singapore has clearly outlined the relevant environmental objectives associated with all the 10 eligible categories. These include climate change mitigation; pollution prevention and control, natural resource conservation and biodiversity conservation. The bank has referenced eight UN Sustainable Development Goals (SDGs) — including SDG6 (Clean Water and Sanitation), SDG7 (Affordable and Clean Energy), SDG9 (Industry, Innovation and Infrastructure), SDG11 (Sustainable Cities and Communities), SDG12 (Responsible Consumption and Production), SDG13 (Climate Action), SDG14 (Life Below Water) and SDG15 (Life on Land) — in articulating the objectives of the eligible categories, and the objectives are coherent with the recognised international standards.

Clarity of the expected benefits – ALIGNED

SPDB Singapore has identified clear expected environmental benefits for all the eligible categories and these are relevant based on the projects that are likely to be financed under each category. The benefits are measurable, and they will be quantified for all categories in the annual reporting until the full allocation of the proceeds. The bank has committed to a lookback period of no longer than 24 months from the time of issuance. However, no commitment has been made to disclose the share of proceeds used for refinancing before each issuance.

Best practices identified

- Objectives set are defined, relevant and coherent for all project categories
- Relevant benefits are identified for all project categories
- Benefits are measurable and quantified for most projects, either ex-ante with clear baselines or with a commitment to do so in future reporting
- Commitment to transparently communicate the associated lookback period(s) where feasible

Process for project evaluation and selection

Transparency and quality of process for defining eligible projects – BEST PRACTICES

SPDB Singapore has established a clear process for determining the eligibility of projects, with a granular decision-making process formalised in its public framework. The process comprises three stages — preliminary screening, review and approval, and update and maintenance. The ESG Working Group will be responsible for reviewing eligible assets identified and screened by front-line business units, and these reviewed assets will go through a final approval process by the ESG Advisory Panel. The ESG Advisory Panel will also report the approved assets to the ESG Steering Committee on a quarterly basis. The process involves relevant internal expertise and will be traceable through internal documentation. The bank will also review all financed projects on a semiannual basis to ensure continued compliance with the eligibility criteria defined in the framework. Projects that no longer meet the eligibility criteria will be removed on a timely basis and replaced with eligible projects.

Environmental and social risk mitigation process – BEST PRACTICES

SPDB Singapore has implemented the Monetary Authority of Singapore's (MAS) Guidelines on Environmental Risk Management for Banks and SPDB's group-level policy on environmental and social risk management in screening clients and identifying and managing the environmental and social risks associated with the relevant assets. This process is included in summary format in the bank's framework and will be disclosed in SPDB's annual sustainability report. As required by MAS' guidelines, appropriate governance and strategy have been set up to incorporate environmental considerations into SPDB Singapore's risk management processes, and to manage and monitor the bank's risk exposure at both the customer and portfolio levels. SPDB Singapore has identified additional due diligence measures for customers deemed to face higher environmental risks, involving additional monitoring and checks. Where clients do not satisfy the bank's standards for green credit, the bank will exit the banking relationship.

Best practices identified

- The roles and responsibilities for project evaluation and selection are clearly defined and include relevant expertise
- There is evidence of continuity in the selection and evaluation process through the life of the financial instrument(s), including compliance verification and procedures to undertake mitigating actions when needed
- The process for project evaluation and selection is traceable
- Material environmental and social risks for most project categories are identified
- Presence of corrective measures to address environmental and social risks across projects
- ESG controversies are monitored

Management of proceeds

Allocation and tracking of proceeds – BEST PRACTICES

SPDB Singapore has defined a clear process for the management and allocation of bond proceeds in its publicly available framework. Net proceeds from bonds issued under the framework will be placed in the bank's general treasury account and tracked internally using a green finance asset register to ensure that the proceeds are used only for eligible projects. SPDB Singapore commits to maintain an equal or larger total amount of eligible projects than the net proceeds during the lifetime of the green bond, and the bank has communicated to us through internal documentation that the balance of the tracked proceeds will be updated semiannually. The allocation period will be within 24 months from the time of issuance.

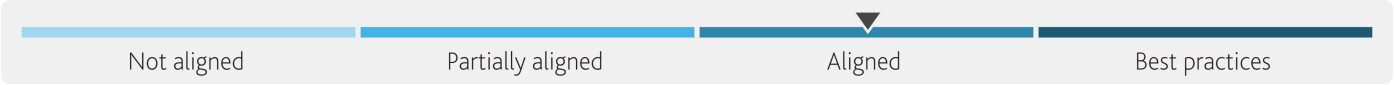
Management of unallocated proceeds – BEST PRACTICES

Unallocated proceeds will be invested in money market instruments. SPDB Singapore has committed to not investing unallocated proceeds in carbon-intensive, highly polluting, resource-intensive or unethical activities. In the event of project divestment or postponement, the bank has communicated to us through internal documentation that it will reallocate the proceeds to a new eligible project or projects.

Best practices identified

- Broad disclosure of a clearly articulated and comprehensive management of proceeds policy to external stakeholders; bondholders or lenders at a minimum
- Short allocation period, for example typically less than 24 months
- Disclosure on temporary placement and presence of exclusion criteria toward environmentally or socially harmful activities
- Commitment to reallocate proceeds to projects that are compliant with the framework

Reporting



Transparency of reporting – ALIGNED

SPDB Singapore will report annually on the use of proceeds of the green bonds issued under its framework, until the full allocation of proceeds and on a timely basis in case of significant changes to proceeds allocation. SPDB Singapore has communicated to us through internal documentation that the reporting will be made publicly available on its website.

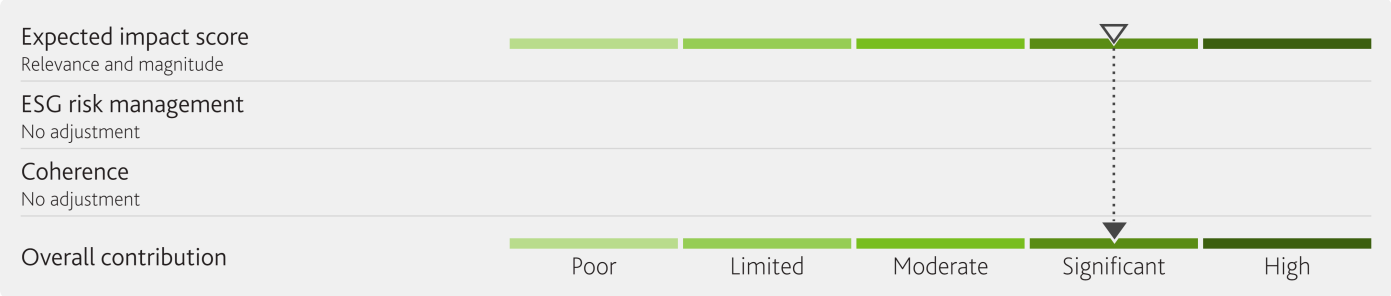
In the framework, SPDB Singapore has disclosed the indicators to be included in the allocation reporting, including the amount of proceeds allocated at the eligible category level, share of refinancing and balance of unallocated funds. Reporting will also cover relevant environmental reporting indicators for eligible projects. The calculation methodologies and key assumptions used to report on environmental impacts will also be disclosed in the impact reporting. SPDB Singapore has not committed to an independent verification of the tracking and allocation of proceeds to eligible projects or categories, although the bank communicated to us through internal documentation that it may do so. SPDB Singapore will not obtain an independent external review on its impact reporting.

Best practices identified

- Reporting on allocation of proceeds and benefits done at least at eligible category level
- Clear and relevant indicators to report on the expected environmental/social impact of all the projects, where feasible, or eligible categories
- Disclosure of reporting methodology and calculation assumptions to bondholders or lenders at a minimum

Contribution to sustainability

The framework demonstrates a significant expected contribution to sustainability.

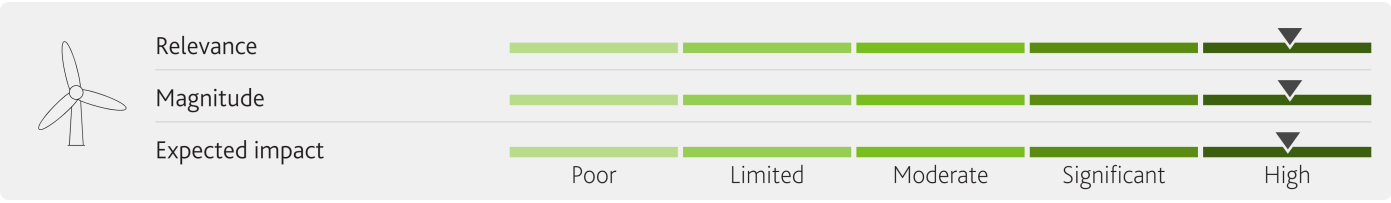


Expected impact

The expected impact of the eligible project categories on green objectives is significant. Based on the information provided by SPDB Singapore, we expect most of the proceeds from forthcoming issuances to be allocated to the green buildings category, followed by the renewable energy category. Thus, we have assigned higher weightages to these two categories when assessing the overall contribution to sustainability. A detailed assessment by eligible category is provided below.

Commercial banks typically direct financing to the sectors which are important for a country's economic development or are key to national strategy. In this regard, most of the activities below are largely relevant to SPDB Singapore's business.

Renewable energy

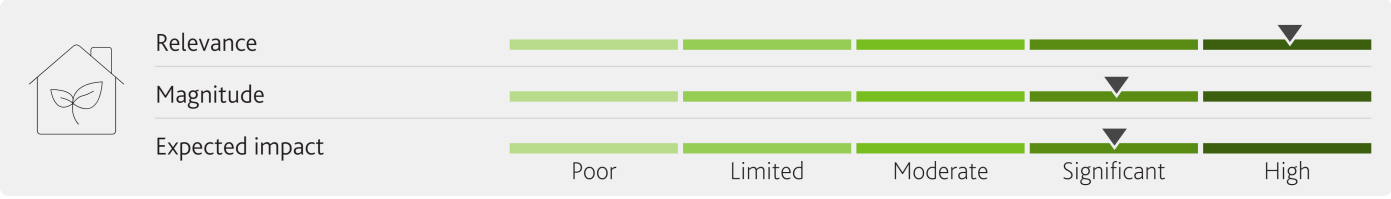


Under its framework, SPDB Singapore intends to finance the construction and operation of renewable energy generation facilities (including solar, wind, geothermal, bioenergy, hydropower and marine), as well as transmission infrastructure and manufacturing facilities dedicated to renewables and the development of low-carbon hydrogen production.

Financing the energy transition is highly relevant to the banking sector because of its critical role in catalysing green finance to support sustainable development amid the increasing scrutiny from stakeholders to decarbonise portfolios. It is particularly important for banks operating in Asia. APAC accounts for most of the global energy consumption, with 85% powered by fossil fuels in 2022[1]. However, a large funding gap exists in the region for climate change mitigation activities, including investments in renewable energy. The APAC region requires an estimated $122 trillion to fund its transition to net zero[2].

We expect projects in this category to have an overall high contribution to the region's climate mitigation efforts by delivering a long-term reduction in greenhouse gas (GHG) emissions. All the subcategory definitions refer to the most advanced technologies available, which we expect to not have any lock-in effects.

Green buildings

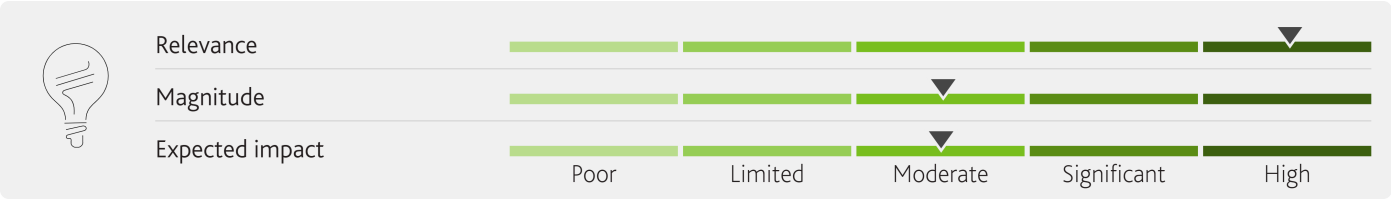


This category covers new and existing buildings that have received or are expected to receive regional, national or international building certifications listed in the framework.

Financing energy and resource-efficient buildings in APAC is highly relevant because of the importance of building decarbonisation in achieving overall emissions reduction in the region, and the banking sector's role in sustainable finance. The operation of buildings accounted for 30% of the global final energy consumption in 2021[3], and across Asia, the share of energy use in buildings ranged from 49% in China to 23% in the Association of Southeast Asian Nations (ASEAN) region in 2019[4]. The building construction industry also contributes to more than 30% of natural resource extraction and 25% of solid waste generation, globally[5]. As a result, this sector can play a leading role in the valuing and integration of CO_2 emissions and the use of natural resources for the development, design and management of real estate assets.

SPDB Singapore has communicated to us through internal documentation that the buildings to be financed in the forthcoming issuances under this category are likely to be buildings in Singapore certified under the Building and Construction Authority Green Mark (GM) scheme — with the majority being certified under the latest standard GM: 2021 — and buildings in China certified under the Green Building Evaluation Label or Leadership in Energy and Environmental Design (LEED) certifications. Based on this, we expect the eligible projects to have a positive impact on reducing carbon emissions. However, reaching net zero carbon emissions by 2050 would require emissions to fall by more than 98% from the 2020 level[6], requiring significant efforts in reducing building energy demand through clean and efficient technologies[7]. Because some countries in Asia do not currently have mandatory building energy codes or building certification schemes in place for all building types, certified buildings are likely to drive higher standards for buildings' energy efficiency and natural resource usage beyond the business-as-usual scenario in the region. It is important to note that the applicable certification schemes could differ depending on different factors, including the building type and location, and whether it is new, existing or retrofitted. The building certification schemes also differ in terms of their scoring categories and criteria. This results in varying levels of environmental performance that each certification system suggests should materialise for the certified building.

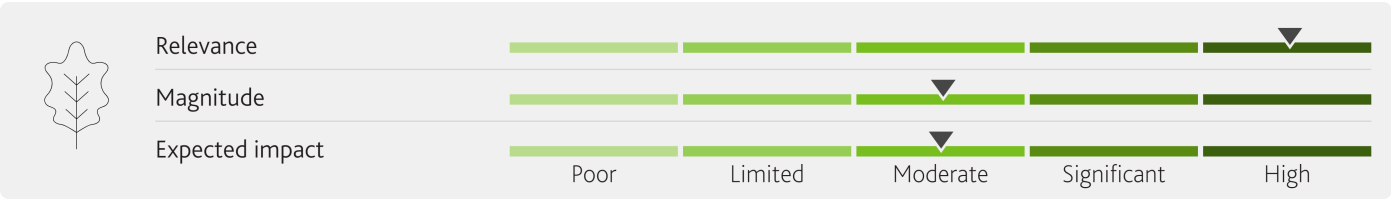
Energy efficiency



Increasing energy efficiency is one of the key pillars of decarbonising the global economy, according to the International Energy Agency (IEA). The projects under this category are thus highly relevant to APAC and also in a global context, because several countries in APAC have set energy efficiency targets. For example, the ASEAN member states target a collective 32% decrease in energy intensity by 2025 from 2005 levels, via a regional action plan focusing on the buildings, transport and industrial sectors[8]. For the buildings sector, which is one of the sectors the eligible projects may pertain to, energy efficiency, along with electrification, are two of the main drivers of decarbonisation.

We expect the proposed projects under this category to deliver an overall moderate positive impact on climate change mitigation. An energy savings target of at least 30% for refurbished buildings is largely in line with the industry standard. However, the framework lacks granular detail on the specific energy efficiency projects to be financed and energy efficiency improvement thresholds for projects outside of the buildings sector.

Pollution prevention and control

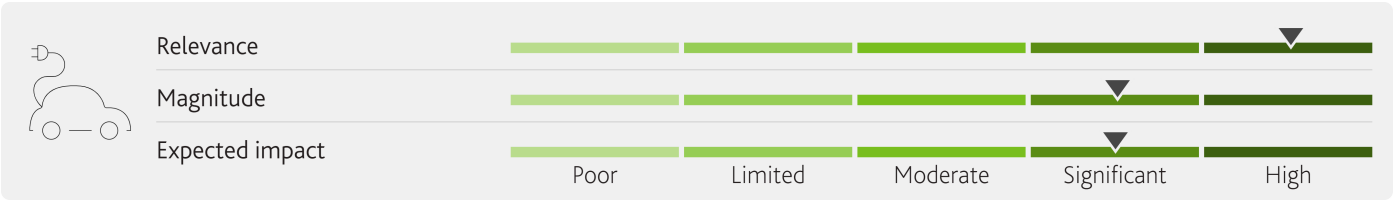


Financed projects under this category are highly relevant to the region. The generation of solid waste is likely to increase substantially in APAC because of continued urbanisation, and population and economic growth. Additionally, solid waste collection rates in the region are relatively low, reaching only 44% in South Asia and 71% in East Asia and the Pacific[9]. Thus, open dumping remains the most

common waste disposal method in parts of the region, which could lead to various environmental problems[10]. In addition to waste management issues, the region faces air and soil pollution. Air pollution poses a significant risk to health for a large proportion of the region's population, contributing to an annual estimated 4 million early deaths[11]. Human-induced soil degradation also remains an issue in the region[12]. Eligible projects related to the reduction of air emissions, GHG control and soil remediation will focus on industrial processes, one of the key sources of air and soil pollution.

Projects related to waste management processes will also be financed under this category, including waste prevention and waste reduction, which is the top priority in the EU's waste hierarchy[13] SPDB Singapore also intends to finance projects related to waste recycling, which is key for building feedback loops in a circular economy, as well as waste energy recovery projects. However, the bank has not specified that the financed waste projects will follow the waste hierarchy to minimise resource loss in the process. Moreover, some sub-categories lack detailed eligibility criteria, such as technical thresholds and specific sectors that are eligible under this project category. In particular, we consider this category to have an overall moderate magnitude due to the financing of waste-to-energy projects. While waste-to-energy projects help to reduce reliance on landfills, which is relevant to many countries in APAC, energy recovery from waste is the last option in the waste hierarchy before disposal. Furthermore, waste-to-energy facilities could contribute to other environmental externalities if they are not designed properly.

Clean transportation



Projects under this cateogry are highly relevant in APAC as electric vehicles and electrified public transportation will reduce the transport sector's reliance on fossil fuels and could also result in cleaner air. Global CO_2 emissions from the transport sector accounted for 37% of total CO_2 emissions from end-use sectors in 2021, having the highest reliance on fossil fuels of any sector. GHG emissions from the transport sector in APAC are projected to grow significantly in the next few decades, particularly in the region's developing countries. Asia's share of total worldwide transport-related CO_2 emissions is likely to reach 31% by 2030[14].

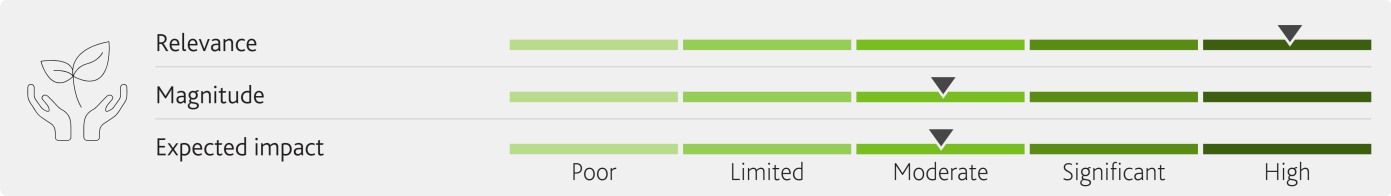
Under this category, SPDB Singapore will finance electrified modes of transportation that have no direct GHG emissions. Thus, we do not expect such projects to have long-term negative lock-in effects. Because the current energy mix in APAC is still highly reliant on fossil fuels, the short-term positive impact on GHG emissions reduction will be moderate. However, as decarbonisation of the grid progresses, electrified transportation modes will have a greater positive impact on the environment. However, the bank will also finance hybrid or fossil fuel modes under this category, although the projects will comply with the Climate Bonds Initiative's low carbon transport criteria of 50 gCO_2/passenger-kilometre (p-km) with a declining threshold to reach 0 gCO_2/p-km before 2026.

Sustainable water and wastewater management

Sustainable water and wastewater management projects are relevant in APAC, although to varying degrees across developed and developing countries. Sustainable wastewater management is viewed as one of the key solutions to meeting the region's health and environmental sustainability goals. In the region, 80% of the wastewater is discharged into waterways without sufficient treatment[15]. There are also growing challenges around water security, stemming from the region's economic and population growth, as well as climate change. An estimated 3.4 billion people could be living in water-stressed environments in Asia by 2050[16]. Flood control projects could increase the region's resilience against natural disasters. APAC is the most affected region when it comes to disaster displacement. A total of 225.3 million internal displacements were reported from 2010 to 2021, 50% of which were caused by floods[17].

Under this category, SPDB Singapore intends to finance sewage treatment, river training, flood control and water conservation. The projects are related to water and wastewater management, and eligible projects are likely to generate a positive impact on the claimed environmental objectives of this category. However, the sub-category lacks details on specific project types, eligible technologies and technical thresholds to fully evaluate the environmental and social externalities associated with the proposed projects. The bank will also finance desalination facilities that use electricity with an average carbon intensity at or below 100 gCO_2e/kWh. However, desalination plants are highly energy intensive and discharge potentially harmful residue, such as brine. Thus, we consider this category to have an overall limited magnitude. While desalination plants may be necessary to meet water demand in select countries, specific project locations have not been provided. Additionally, the eligibility criteria lacks specified requirements for water recovery, energy efficiency and brine management.

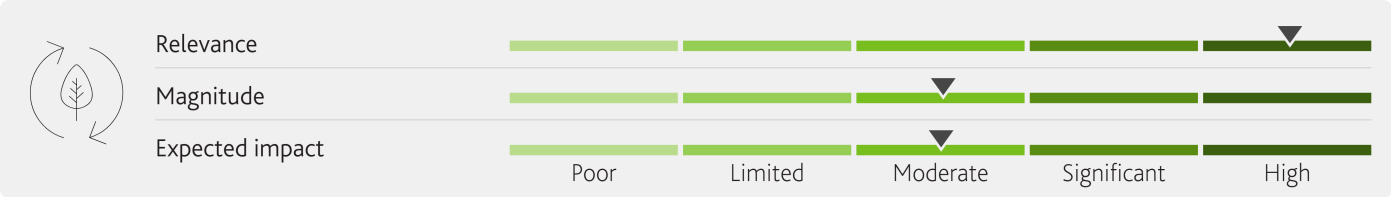
Climate change adaptation



APAC is the most vulnerable to climate change risks. Therefore, climate change adaptation is highly relevant in the region and for the banking sector's sustainability priorities. Floods, landslides and wildfires were among the most common disasters that caused human displacement in the region from 2010 to 2021[18].

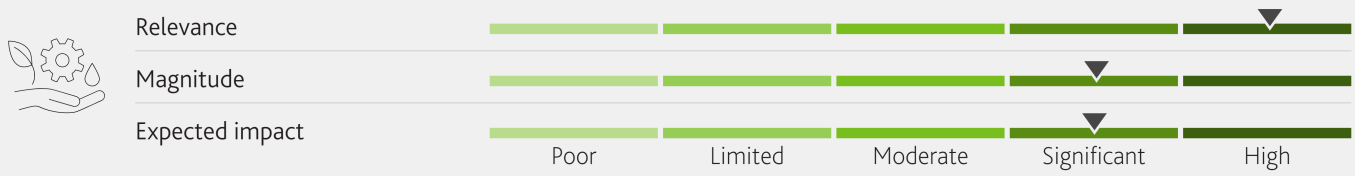
Projects under this category relate to the development and construction of climate adaptation infrastructure to increase resilience again extreme weather events, which include flood defense, wildfire management and landslide prevention, as well as projects related to the development of climate observation, and early warning and information support systems. Although the projects are likely to contribute to the management of climate change impacts in the region, we do not have an exhaustive overview of the specific types of projects to be implemented. As infrastructure projects under this category are likely to have negative environmental impacts typically associated with large-scale construction projects for climate change adaptation, we consider this category to have a moderate magnitude.

Circular economy adapted products, production technologies and processes



Recycling rates are low and recycling infrastructure is limited in several countries in APAC, for example, for plastic and E-waste[19]. Eligible projects under this category are therefore considered highly relevant and would support an increase in recycling rates of recyclable materials, including plastic, glass and metals. SPDB Singapore intends to finance recycling facilities and remanufacturers under this category. Establishing a feedback loop and transforming waste management in a linear economy to resource management in a circular economy have long-term positive impacts on several environmental aspects, including the preservation of natural resources and climate change mitigation. However, the bank has not specified that the financed waste projects will follow the waste hierarchy to minimise resource loss in the process. Additionally, the framework lacks specific details on minimum qualifying thresholds for eligible projects, such as recovery rate, and percentage of circular feedstock used, which is particularly relevant when evaluating remanufacturers under this category.

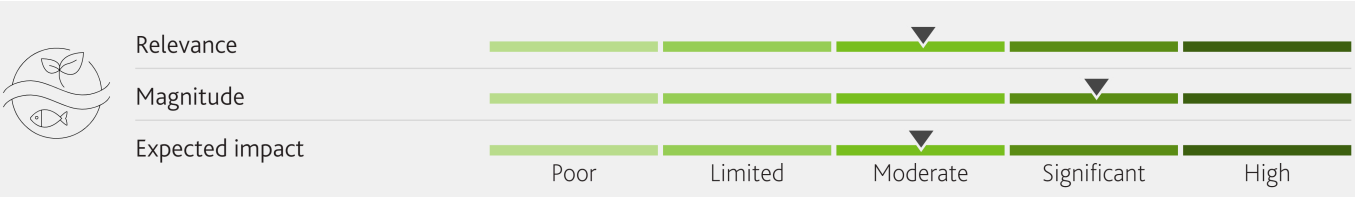
Environmentally sustainable management of living natural resources and land use



APAC houses 17 of the 36 global biodiversity hotspots, and over 200 million people in the region are directly dependent on the forest for their subsistence needs, including food, medicine and fuel. However, 60% of the region's grasslands are degraded because of overgrazing by livestock, invasion by alien species or conversion to agricultural land[20]. Eligible forestry projects under this category are likely to contribute to the preservation and restoration of natural landscapes. SPDB Singapore has confirmed through internal documentation that all forestry projects under this category will be certified by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC), which are regarded as industry best practice certifications.

Under this category, the bank also intends to finance environmentally sustainable agriculture technology, which will facilitate greater resource efficiency. Some of the key challenges for the agriculture sector are the increased use of chemical inputs, substantial water consumption and agricultural waste generation[21]. The proposed agriculture technology projects are highly likely to contribute to resource conservation. For example, drip irrigation is regarded as a more efficient method of applying water and nutrients to crops than other irrigation methods such as sprinkler systems, and can reduce runoff and evaporation[22]. However, without an exhaustive list of eligible agricultural projects, we lack visibility into the potential environmental impacts under this sub-category, such as whether projects would be operating on land converted from high carbon stock lands and whether they would maintain emission-efficient practices.

Terrestrial and aquatic biodiversity conservation



Projects under this category directly support marine conservation through the monitoring of marine protected areas (MPAs) in the region. APAC is the region with the largest area covered by MPAs[23] and is also home to most of the world's coral reefs and almost half of the world's mangrove forests[24]. A large proportion of the global population engaged in the fisheries and aquaculture sector resides in Asia, but unsustainable aquaculture practices have contributed to the increasing degradation of the region's marine ecosystems. While the projects under this category may not be as relevant to commercial banks in the context of sustainable financing, the development and implementation of the ongoing monitoring of MPAs are highly relevant to the region and can help provide long-term protection to important marine and coastal ecosystems, and we do not expect resulting negative lock-in effects. However, MPAs have limited coverage of the entire marine ecosystem and they are sometimes ineffective in meeting their intended objectives because of poor management and insufficient protection[25]. Thus, we consider this category to have a significant magnitude.

ESG risk management

We have not applied a negative adjustment for ESG risk management to the expected impact score. SPDB has implemented environmental and social risk management measures at the group level in identifying and managing the environmental and social risks related to financed projects. SPDB Singapore also complies with the mandatory guidelines set by Singapore's central bank on environmental risk management for banks in assessing and monitoring customers' environmental risks. The bank conducts enhanced due diligence for customers with higher environmental risks, which includes site visits and monitoring of adverse news. The bank may also appoint an independent third party to evaluate a customer's environmental risk management and implementation, where necessary.

Coherence

We have not applied a negative adjustment for coherence to the expected impact score. Projects to be financed under SPDB Singapore's framework align with the bank's sustainability priorities, including the promotion of green finance and innovation to support the transition to a low-carbon and circular economy. The development of green finance is one of the strategic priorities of SPDB at the group level, and the bank aims to become a leader and pioneer in green finance among Chinese commercial banks by 2026. Banks play a key role in enhancing social and economic development by supporting the real economy and mitigating risks resulting from activities with negative societal impacts. The integration of environmental considerations in the allocation of resources to companies and individuals will support environmentally responsible behaviour. Green projects financed under SPDB Singapore's framework are also relevant to the climate pledges of governments in APAC, including China's climate objectives to achieve peak CO_2 emissions before 2030 and carbon neutrality before 2060, and Singapore's net zero target by 2050.

Appendix 1 - Mapping eligible categories to the United Nations' Sustainable Development Goals

The 10 eligible categories included in SPDB Singapore's framework are likely to contribute to eight of the United Nations' Sustainable Development Goals (SDGs), namely:

UN SDG 17 Goals	Eligible Category	SDG Targets
GOAL 6: Clean Water and Sanitation	Sustainable Water and Wastewater Management	6.1: Achieve universal and equitable access to safe and affordable drinking water for all
		6.3: Improve water quality by reducing pollution, eliminating dumping and minimizing hazardous chemicals and materials
	Terrestrial and Aquatic Biodiversity Conservation	6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
GOAL 7: Affordable and Clean Energy	Renewable Energy	7.2: Increase substantially the share of renewable energy in the global energy mix
	Energy Efficiency	7.3: Double the global rate of improvement in energy efficiency
GOAL 9: Industry, Innovation and Infrastructure	Energy Efficiency	9.4: Upgrade infrastructure and retrofit industries to make them sustainable, with all countries taking action
GOAL 11: Sustainable Cities and Communities	Clean Transportation	11.2: Provide access to safe, affordable, accessible and sustainable transport systems for all
	Pollution Prevention and Control	11.6: Reduce the adverse per capita environmental impact of cities, with special attention to air quality and waste management
GOAL 12: Responsible Consumption and Production	Environmentally sustainable management of living natural resources and land use	12.2: Achieve the sustainable management and efficient use of natural resources
	Pollution Prevention and Control	12.4: Achieve environmental management of chemicals and all wastes, and reduce their release to air, water and soil
	Circular Economy Adapted Products, Production Technologies and Processes	12.5: Substantially reduce waste generation through prevention, reduction, recycling and reuse
	Pollution Prevention and Control	
GOAL 13: Climate Action	Renewable Energy Green Buildings Energy Efficiency Clean Transportation	13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
	Climate Change Adaptation	13.3: Improve awareness and human and institutional capacity on climate change mitigation, adaptation and impact reduction
GOAL 14: Life Below Water	Terrestrial and Aquatic Biodiversity Conservation	14.2: Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts
GOAL 15: Life on Land	Environmentally sustainable management of living natural resources and land use	15.2: Promote the implementation of sustainable management of all types of forests

The mapping of the UN's SDGs in this SPO considers the eligible project categories and associated sustainability objectives/benefits documented in the bank's financing framework, as well as resources and guidelines from public institutions, such as the ICMA's SDG Mapping Guidance and the UN's SDG targets and indicators.

Appendix 2 - Summary of eligible categories in SPDB Singapore's framework

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Renewable Energy	Construction and operation of renewable energy generation facilities, including: - Onshore solar (concentrated solar power and photovoltaics) - Onshore wind - Geothermal (with a lifecycle emissions threshold of below 100 grams of CO_2 equivalent (CO_2-e)) excluding enhanced geothermal systems. - Bioenergy for electricity generation and biofuel for transportation (eligible feedstocks including waste and residues as sources, or sustainable sources with certification of Roundtable on Sustainable Biomaterials ("RSB"), or International Sustainability and Carbon Certification ("ISCC") Plus and other equivalent international standards) to the extent they do not exceed 16.0gCO_2e/MJ for biofuel produced for heating and cogeneration and 18.8gCO_2e/MJ for biofuel for transport. Woody products as source of energy shall be excluded. Projects relating to: i) Facilities producing biomass/biofuel ii) Heating/cooling and cogeneration facilities using biofuel/biomass, iii) Bio-refinery facilities iv) Supporting infrastructure associated with those listed in i,ii,iii - hydropower with power generation > 10W/m^2 or the lifecycle GHG is < 50 g CO_2e/kWh or do not have an artificial reservoir - marine renewable (offshore wind and solar facilities or hybrids, tidal, wave and ocean energy, and dedicated transmission infrastructure) Transmission infrastructure wholly dedicated to renewable energy such as construction of transmission network and supporting infrastructure such as energy storage systems and inverters (electrical grid networks, battery, compressed air and capacitor storage and dedicated infrastructure such as equipment housing infrastructure) Manufacturing facilities wholly dedicated to renewable energy types as listed above Development of low-carbon hydrogen production* produced from electrolysis *The production of hydrogen complies with the life-cycle GHG emissions savings requirement of 73.4% for hydrogen [resulting in life-cycle GHG emissions lower than 3tCO2e/tH2] and 70% for hydrogen-based synthetic fuels relative to a fossil fuel comparator of 94g CO2e/MJ in analogy to the approach set out in Article 25(2) of and Annex V to Directive (EU) 2018/2001. Life-cycle GHG emissions savings are calculated using the methodology referred to in Article 28(5) of Directive (EU) 2018/2001 or, alternatively, using ISO 14067:2018(119) or ISO 14064-1:2018(120). Quantified life-cycle GHG emission savings are verified in line with Article 30 of Directive (EU) 2018/2001 where applicable, or by an independent third party.	Climate Change Mitigation	- Annual greenhouse gas (GHG) emissions reduced/avoided in tonnes of carbon dioxide equivalent (CO_2-e); - Annual renewable energy generation in megawatt-hour (MWh) / gigawatt-hour (GWh) (electricity) and gigajoule (GJ) / terajoule (TJ) (other energy); and - Capacity of renewable energy plant(s) constructed, rehabilitated, or to be served by transmission systems, in megawatt (MW)

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Green Buildings	Development, construction, retrofitting and/or acquisition of buildings that have received or are expected to receive regional, national or international certifications, including: - Singapore Building and Construction Authority ("BCA") Green Mark, Gold and above for assets that have received certification under the old scheme (pre 1st November 2021), and Gold^{Plus} and above for assets seeking certification under the new scheme, or Super Low Energy Certification or above - Hong Kong BEAM Plus, gold and above - U.S. Leadership in Energy and Environmental Design ("LEED"), gold and above - China Green Building Evaluation Label, Three Star - EDGE Green Certification, EDGE Certified and above for assets located in developing countries (as per defined by the United Nations), otherwise EDGE Advanced and above. - Building Research Establishment Environmental Assessment Method ("BREEAM"), Very Good and above - Green Building Council of Australia (GBCA) Green Star, Five-star or above - New Zealand Green Building (NZGBC) Green Star, Five-star or above - National Australian Built Environment Rating System (NABERS), Five-star Energy rating or above	Climate Change Mitigation Natural Resource Conservation	- Building assets by type of scheme, certification level and square metre (m^2) green building area; - Annual GHG emissions reduced / avoided in tonnes of CO_2-e. vs local baseline/baseline certification level; - Percentage of energy use reduced / avoided vs local baseline/building code; and - If relevant, percentage of renewable energy (RE) generated on site (specifying the relevant RE form)
Energy Efficiency	Projects for industrial and building energy efficiency and energy efficiency improvement, including energy management centres and energy-efficient infrastructure construction projects - Refurbished buildings including upgrading of equipment (such as lighting system and chillers) which will provide at least 30% energy saving Application of energy efficient technologies or products, including energy storage, smart grids, or district heating except for energy storage listed in the exclusion list	Climate Change Mitigation	- Annual energy savings in MWh / GWh (electricity) and GJ / TJ (other energy savings) based on benchmark; and - Annual GHG emissions reduced/avoided in tonnes of CO_2-e
Pollution Prevention and Control	Application of technologies or products in industrial process (excluding those using fossil fuels) for the reduction of air emissions, greenhouse gas control, soil remediation Waste management processes, including waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy	Pollution Prevention and Control Natural Resource Conservation	- Annual waste reduced/avoided (tonnes); - Annual GHG emissions reduced/avoided (tonnes of CO_2-e); - Area of land remediated/bought back in to use (hectares); and - Annual reduction/avoidance of air pollutants: particulate matter (PM), sulphur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs)

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Clean Transportation	Purchase and construction of infrastructure related to electrified railway, urban rail transit, and other types of electrified transportation (fully electric, hydrogen, or other zero-direct emissions transport - including private vehicles, passenger trains, urban subway/metro, trams, electric buses and taxis and their directly supporting infrastructure. Hybrid private cars, fossil fuelled public transport and infrastructures for EVs with emissions under 50gCo_2/p-km up to year of issuance 2025 (and net-zero after that), Development, manufacturing and (or) acquisition of electric vehicles (EV) and hydrogen vehicles Development and (or) construction of infrastructure wholly dedicated to EVs including charging stations	Climate Change Mitigation Pollution Prevention and Control	- Length of tracks built or maintained in case of infrastructure - Number of electric vehicles and hydrogen vehicles supported; - Passenger-kilometres (i.e. the transport of one passenger over one kilometre) and (or) passengers; or tonne-kilometres (i.e. the transport of one tonne over one kilometre) and (or) tonnes; - Annual GHG emissions reduced / avoided in tonnes of CO_2-e; and - Reduction of air pollutants: particulate matter (PM), sulphur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs)
Sustainable Water and Wastewater Management	Project related to sewage treatment, river training, flood control and water conservation Desalination facilities that use electricity with an average carbon intensity at or below 100gCO_2e/kWh	Pollution Prevention and Control	- Improvement in capacity to withstand flood Annual absolute (gross) water use before and after the project in cubic metre per year (m^3/a), reduction in water use in percentage; - Annual absolute (gross) amount of wastewater treated, reused or avoided before and after the project in m^3 /a and population equivalent per year (p.e./a) and as percentage; - Annual absolute (gross) amount of raw untreated sewage sludge that is treated and disposed of (in tonnes of dry solids per year p.a.) and in percentage); and - Annual absolute (gross) amount of sludge that is reused (in tonnes of dry solids and in percentage)

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Climate Change Adaptation	Development and construction of climate adaptation infrastructure to increase the resilience again extreme weather events, by upgrading, replacing or relocating infrastructure to reduce vulnerability to flood defense, wildfire management, landslides Development of climate observation and early warning and information support systems	Climate Change Adaptation	- Reduction in land-loss from inundation and (or) coastal erosion in km²; - Reduction in repair costs and (or) operating days lost due to landslides; and - Reduction in the number of operating days lost to disrupted transport networks or other infrastructure
Circular Economy Adapted Products, Production Technologies and Processes	Development and (or) implementation of substitution of virgin materials with secondary materials (such as steel, aluminum, glass, plastics) originating from the recovery of materials and resources	Pollution Prevention and Control Natural Resource Conservation	- The percentage and (or) absolute amount in tonnes p.a. of virgin raw materials that are substituted by secondary raw materials and by-products from manufacturing processes
Environmentally sustainable management of living natural resources and land use	The preservation, restoration of natural landscapes including the designing and building of green landscapes, ecological parks and ecological function areas, etc. Development and (or) application of environmentally sustainable agriculture technology including biological crop protection, drip-irrigation or closed-loop agriculture project Forestry project with certification to Forest Stewardship Council (“FSC”) or equivalent, including afforestation or reforestation, and preservation or restoration of natural landscapes. There is no conversion from natural landscape and health of the forest is well managed.	Biodiversity Natural Resource Conservation	- Number of protected species - Maintenance / safeguarding / increase of natural landscape area (including forest) in km² and in percentage; - Increase of area under certified land management in km² or m² and in percentage (in buffer zones of protected areas); - Absolute number of indigenous species, flora or fauna (trees, shrubs and grasses, etc.) restored through the project; and - Annual GHG emissions reduced in tonnes of CO_2-e

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Terrestrial and Aquatic Biodiversity Conservation	Development and (or) implementation of ongoing monitoring and surveillance of marine protected areas through automated monitoring of human activities that affects marine diversity and threats to ocean including overfishing, litter, water pollution.	Biodiversity Natural Resource Conservation	- Maintenance / safeguarding / increase of protected area in km² and in percentage for increase; - Absolute number of predefined target organisms and species per km² (bigger fauna) or m² (smaller fauna and flora) before and after the project; - Absolute number of protected and (or) priority species that are deemed sensitive in protected / conserved area before and after the project; - Changes in the CO_2, nutrient and (or) pH levels for coastal vegetation, and coral reefs in percentage; and - Absolute number of invading species and (or)area occupied by invading species in m² or km² before and after the project

Moody's related publications

Second Party Opinion analytical framework:

» Framework to Provide Second Party Opinions on Sustainable Debt, October 2022

Topic page:

» ESG Credit and Sustainable Finance

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

1 International Renewable Energy Agency: Asia and Pacific, accessed on 17 January 2023.
2 Climate Finance Markets and the Real Economy, December 2020.
3 International Energy Agency: Buildings, September 2022.
4 Global Alliance for Buildings and Construction: 2021 Global Status Report for Buildings and Construction, 19 October 2021.
5 Journal of Cleaner Production: Circular economy in the construction industry: A systematic literature review, July 2020.
6 Global Alliance for Buildings and Construction: 2022 Global Status Report for Buildings and Construction, 9 November 2022.
7 International Energy Agency: Buildings, September 2022.
8 IEA: Roadmaps towards sustainable and energy efficient buildings and cooling in Southeast Asia, April 2021.
9 Asian Development Bank Institute: Solid waste management in developing Asia: Prioritizing waste separation, November 2020.
10 See preceding footnote.
11 Asian Development Bank: Air Quality in Asia, March 2022.
12 The Economics of Land Degradation: The Economics of Land Degradation Neturality in Asia, March 2018.
13 European Union: Waste prevention and management, accessed on 17 January 2023..
14 Asian Development Bank: Reimagining the Future of Transport in Asia and the Pacific, 2022.
15 Asian Development Bank: Asian Water Development Outlook 2020, December 2020.
16 International Institute for Sustainable Development: OECD report outlines governance fixes to Asia-Pacific water stress, 26 May 2021.
17 Asian Development Bank: Disaster displacement in Asia and the Pacific, September 2022.
18 See preceding footnote.
19 United Nations Environment Programme: Waste management in ASEAN countries, 2017.
20 United Nations Environment Programme: Scientists warn of dangerous decline in Asia-Pacific's biodiversity, 23 April 2018.
21 Food and Agriculture Organization of the United Nations: The state of the world's land and water resources for food and agriculture, 2021.
22 Penn State Extension: Drip irrigation for vegetable production, 23 February 2016.
23 Protected Planet: Marine Protected Areas, accessed on 26 January 2023.
24 The Economic and Social Commission for Asia and the Pacific: SDG14 in Asia and the Pacific: an accelerator approach for implementation, 2018.
25 The Organisation for Economic Co-operation and Development: Marine Protected Areas: Economics, management and effective policy mixes, December 2016.

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