

Second-Party Opinion

Korea Development Bank Sustainable Bond Framework

Evaluation Summary

Sustainalytics is of the opinion that the Korea Development Bank Sustainable Bond Framework is credible and impactful, and aligns with the Green Bond Principles (“GBP”), Social Bond Principles (“SBP”) and the Sustainability Bond Guidelines (“SBG”) 2018. This assessment is based on the following:



USE OF PROCEEDS The eligible categories for the use of proceeds are aligned with those recognized by both the GBP, SBP and SBG. Sustainalytics considers that the use of proceeds for (i) Renewable Energy, (ii) Clean Transportation, (iii) Energy Efficiency, (iv) Pollution Prevention and Control, (v) Sustainable Water and Wastewater Management, (vi) Employment Generation, and (vii) Social Enterprises will lead to positive environmental or social impacts while advancing the UN Sustainable Development Goals.



PROJECT EVALUATION / SELECTION KDB set up a three-step project evaluation and selection process in which Relationship Managers from cross-functional departments including Project Finance, Corporate Banking and SME Banking divisions conduct the initial project selection including a preliminary assessment of environmental and social risks and impacts of proposed projects. The Credit Review division provides a credit approval based on E&S Review Report, and final approval is conducted by the Treasury Department. This process is in line with market practice.



MANAGEMENT OF PROCEEDS The net use of proceeds will be managed by KDB’s Treasury Department using an internal information system. Pending full allocation, the unallocated proceeds will be held in cash, cash equivalents and/or invested in marketable securities, in accordance with KDB’s cash management policies. This process is in line with market practices.



REPORTING KDB commits to provide an “Investor Newsletter” on an annual basis including information on eligible project categories, the total amount allocated, remaining unallocated proceeds, estimated environmental and social impact of the allocated proceeds including relevant metrics, and where feasible, project examples. Sustainalytics considers KDB’s reporting scope as in line with market practice.

Evaluation date	June 2019
Issuer Location	Seoul, South Korea

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Introduction

Korea Development Bank (“KDB” or “the bank”) provides banking products and financial services and operates through various business segments such as Corporate Finance, Investment Finance, Asset Management or Insurance. KDB was founded in 1954 and is headquartered in Seoul, South Korea.

KDB has developed the Korea Development Bank Sustainable Bond Framework (the “Framework”) under which it intends to issue sustainability bonds and use the proceeds to finance and/or refinance, in whole or in part, existing and/or future projects that will promote climate mitigation, adaptation and/or sustainable societal development. The Framework defines eligibility criteria in five green and two social areas:

Green Eligible Categories

1. Renewable Energy
2. Clean Transportation
3. Energy Efficiency
4. Pollution Prevention and Control
5. Sustainable Water and Wastewater Management

Social Eligible Categories

1. Employment Generation
2. Social Enterprises

KDB engaged Sustainalytics to review the Korea Development Bank Sustainable Bond Framework dated June 2019 and provide a second-party opinion on the Framework’s environmental and social credentials and its alignment with the Green Bond Principles (GBP), Social Bond Principles (SBP), and Sustainability Bond Guidelines 2018 (SBG).¹ This Framework has been published in a separate document.²

As part of this engagement, Sustainalytics held conversations with various members of KDB’s management team to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of KDB’s sustainability bonds. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the Korea Development Bank Sustainable Bond Framework and should be read in conjunction with that Framework.

¹ The Sustainability Bond Guidelines are administered by the International Capital Market Association and are available at <https://www.icmagroup.org/green-social-and-sustainability-bonds/sustainability-bond-guidelines-sbg/>

² The KDB Sustainability Bonds Framework is available on KDB’s website at: <https://www.kdb.co.kr/index.jsp>

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the Korea Development Bank Sustainable Bond Framework

Summary

Sustainalytics is of the opinion that the Korea Development Bank Sustainable Bond Framework is credible and impactful, and aligns with the four core components of the GBP, SBP and SBG. Sustainalytics highlights the following elements of the Korea Development Bank Sustainable Bond Framework:

- Use of Proceeds:
 - KDB intends to use the net bond proceeds to finance and/or refinance projects with a maximum look-back period of two years. Sustainalytics views KDB's look-back period as aligned with market preferences. The Framework does not include an indicative timeframe for full allocation of the bonds' proceeds but communicated to Sustainalytics that full allocation is expected by 2022.
 - Sustainalytics positively views that KDB limits investment in development, construction and transmission of bio-energy and geothermal energy to those projects emitting below 100g CO₂e/kWh and hydro power to those below 25MW. KDB also confirmed that it will exclude any land and water transport dedicated to fossil fuels from financing from the bonds' proceeds. KDB confirmed to Sustainalytics that projects waste to energy project will follow the waste hierarchy.
 - KDB commits to provide a minimum of 30% energy saving and/or energy efficiency improvement through the implementation of energy storage systems, smart grids, appliances and products in new and refurbished buildings, which aligns with market practice.
 - KDB intends to use part of the proceeds to finance marine vessels which use electric propulsion, hydrogen or equipped with propulsion systems using LNG, LPG and methanol. KDB confirmed that eligible vessels will provide significant CO₂ reduction of 40% by 2030 compared to average across international shipping.³ While Sustainalytics acknowledges that LNG and LPG are fossil based fuels, Sustainalytics considers the projects to be impactful due to the following reasons:
 - there is currently no viable alternative for long distance shipping;
 - the intended carbon reduction aligns with the IMO aspirational targets and thus go beyond compliance with obligatory targets set by IMO. (Please see Section 3: Impact of Use of Proceeds for more information).
 - KDB intends to use part of the proceeds to finance SMEs (employees number <300), which (i) have increased employment by 5% and at minimum 5 jobs (employees) from the previous year and which (ii) are additionally (a) certified as 'outperforming job-creating companies' by the central or local governments or (b) classified as 'employment-expanding companies for youth employment, women who stalled their job career due to child rearing, and the disabled, or companies investing into underdeveloped regions.⁴ Sustainalytics considers the criteria for employment generation to be credible, impactful and well targeted based on the following:
 - All eligible SMEs need to have generated 5% additional employment in the last year;
 - The certification scheme for outperforming job-creating companies assesses companies on indicators,⁵ such as retention ratio, employment of disadvantaged and corporate social responsibility activities amongst others. Sustainalytics considers these indicators to contribute to select companies with sustainable job creation. While Sustainalytics acknowledges that KDB has restricted access to the information about the⁶ selection process and the weight of each indicator for the certification process, Sustainalytics sees the lack of insight into the selection process to be a limitation;
 - Sustainalytics welcomes the focus on underprivileged groups by the tax- incentives schemes used by KDB, i.e. women returning from child leave and youth;
 - KDB commits to report on the jobs created through the SMEs financed as well as the number of individuals from vulnerable groups, e.g. youth, employed by the companies financed.

³ Initial IMO Strategy on Reduction of GHG Emissions from Ships available at:

[http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Resolution%20MEPC.304\(72\)_E.pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Resolution%20MEPC.304(72)_E.pdf)

⁴ KDB finances companies eligible for tax benefits under South Korean taxation law, "Restriction of Special Taxation Act" §30-4, §85-6 and §26.

⁵ Indicators include for example incremental number of employees, increasing ratio of employment, employment of the disadvantaged, retention ratio of employment, ratio of permanent (as opposed to temporary) employment, the corporations' financial stability & profitability, and corporate social responsibility activities.

⁶ KDB indicated to Sustainalytics that "The criteria is determined by the central or local government. KDB is not allowed to access the criteria and not authorized to disclose the information which is not KDB's proprietary"

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- KDB intends to finance social enterprises defined in the article 2.1 of “Social Enterprise Promotion Act”⁷ and preliminary social enterprises⁸ certified by the head of local government or head of an administration department of central government. Sustainalytics welcomes the inclusion of an official definition by KDB and its conformation to replace loans to preliminary social enterprises that did not receive the final certification.
- For the social use of proceeds, KDB intends to finance general purpose loans to SMEs and social enterprises. Sustainalytics acknowledges that the GBP, SBP, and SBG favor project-based lending, and that there is in general less transparency associated with reporting on non-project-based financing. Sustainalytics welcomes KDBs commitment to report on jobs created and the number of jobs for vulnerable groups created.
- Project Evaluation and Selection:
 - KDB’s project evaluation process is executed by its Relationship Managers (“RMs”) comprised of representatives from the company’s Project Finance, Corporate Banking and SME Banking divisions. The RM’s conduct an environmental and social risks and impacts assessment of proposed projects. After the evaluation process, final candidate projects are selected and approved by the company’s Treasury Department. Sustainalytics assesses this process as being in line with market practices.
- Management of Proceeds:
 - KDB will manage and track the net use of proceeds using its internal information systems, which is managed by company’s Treasury Department. Pending full allocation, the unallocated proceeds will be invested in cash, cash equivalents and/or marketable securities, in accordance with KDB’s cash management policies. Sustainalytics views this process aligned with current market practices.
- Reporting:
 - KDB intends to provide an “Investor Newsletter” on an annual basis including information on the eligible project categories financed, the total amount allocated, remaining unallocated proceeds, estimated environmental and social impact of the allocated proceeds including project examples and relevant metrics impact metrics such as annual energy production in MWh, CO₂ emissions avoided, annual energy savings, reduction in fine particulate or other air pollutants emissions (in tonnes), amount of wastewater treated (million m³), decrease of pollution concentration, number of job created and/or preserved, number of small and medium corporations financed and number and type of disadvantageous beneficiaries. Sustainalytics considers KDB’s reporting scope as in line with market practice.

Alignment with Sustainability Bond Guidelines 2018

Sustainalytics has determined that the KDB’s sustainability transactions align to the four core components of the GBP, SBP and SBG 2018. For detailed information please refer to Appendix B: Sustainability Bond/ Sustainability Bond Programme External Review Form.

Section 2: Sustainability Strategy of the Issuer

Contribution of Framework to Issuer’s sustainability mandate

Sustainalytics has a positive view of KDB as an issuer for sustainability bonds. Although KDB has not set quantifiable targets for environmental and social sustainability, it has demonstrated its commitment to provide social impact and adapt to climate change in its business model through the following efforts:

- KDB identified its sustainability commitments to promote sustainable development in local and overseas markets. Its sustainability commitments include (i) supporting sustainable and quality growth through helping people and their environment by providing resource, sharing knowledge, building capacity and forging partnerships, (ii) supporting climate-change adaptation measures that promote sustainable investments, (iii) fostering energy

⁷ The term "social enterprise" means an entity certified as prescribed in Article 7 to be the one that pursues a social objective aimed at enhancing the quality of life of community residents by providing vulnerable social groups with social services or job opportunities or by contributing to the communities while conducting its business activities, such as the manufacture or sale of goods and services

The term "vulnerable social group" means a group of people who suffer hardships in purchasing needed social services at market prices or are confronted with particular difficulties in getting a job under ordinary conditions of the labor market, for whom further detailed criteria shall be prescribed by Presidential Decree.

⁸ The business scope of preliminary social enterprises is same as that of the social enterprises but some factors of the preliminary social enterprise to be certified as a social enterprise by the Social Enterprise Promotion Act has yet to meet conditions required by the Act. Both of social enterprises and preliminary social enterprises shall be registered with a governmental agency, Korea Social Enterprise Promotion Agency, link: <http://socialenterprise.or.kr/eng/index.do>

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efficiency, cleaner production, renewable energy, and carbon markets as well as the development of GHG accounting and approaches to climate change risk assessment.⁹

- KDB issued Korea's first green bond and social bond (in KRW) in 2018, stressing the company's efforts to promote sustainable financing internally. Furthermore, KDB has disclosed the environmental and social impacts of its green and social bonds such as 5,318 (tCO₂/year) reduction of emissions by solar power and 2,294 new hires by job creation.¹⁰
- KDB established target-specific financial products dedicated to socially responsible financing such as (i) special funds for job creation, (ii) socially responsible business support fund and (iii) special on-lending for job creation, which are in line with government's initiatives and KDB's mandate from the government.¹¹
- KDB signed the United Nations Global Compact (UNGC) and the Equator Principles in 2017 and engaged with the Green Climate Fund (GCF)¹² as Korea's first and only accredited entity in 2016. Sustainalytics believes that KDB's commitment to sustainable development is evidenced by its participation, engagement and involvement in international principles and organizations that promote sustainable development.

Based on KDB's sustainability commitments, activities and programmes, Sustainalytics considers KDB to be well positioned to issue green, social and sustainability bonds and that they will help the bank to enhance its sustainability strategies and performance.

Well positioned to address common environmental and social risks associated with the projects

While the use of proceeds categories are aligned with those recognized as impactful by the GBP, SBP, SBG Sustainalytics recognizes that KDB's eligible projects can have certain negative environmental and social risks. Some key environmental and social risks associated with the eligible projects include air, water, and soil pollution from construction activities and waste to energy projects, as well as workers' health and safety risks, land use change, biodiversity loss and risk related to community relations for large infrastructure projects. Moreover, social categories in general can include risks of increasing inequality if not targeted sufficiently. Sustainalytics highlights the following efforts taken by KDB to mitigate the named risks associated with KDB's projects:

- KDB integrated internationally recognized standards for project finance such as IFC's Performance Standards on Environmental and Social Sustainability¹³, as well as World Bank's Environmental, Health and Safety Guidelines,¹⁴ and the Equator Principles¹⁵ for determining, assessing and managing environmental and social risks¹⁶ for all projects valued above USD 10 million¹⁷ in borrowing costs.
- Sustainalytics highlights that KDB specifically requests that clients not aligned with the requirements of the Equator Principles will not be provided with project finance, while final project sign off will be limited to Category B and C projects under the Equator Principles criteria.¹⁸
- KDB has adopted an E&S Safeguard Procedure in which project managers provide E&S risk and impact reports based on each project, in addition to preparing E&S compliance reports during all phases of the construction period, as well as during the operation.
- KDB does not explicitly demand waste to energy projects to have air emission abatement technology, which is especially relevant for waste to energy projects using municipal waste due to potential toxic emissions. However, given KDB's strong E&S risk assessment process including Environmental Impact Assessment (EIA) and following IFC's Performance Standards on Environmental and Social Sustainability,¹⁹ as well as only financing project in

⁹ KDB Investor Relations, Annual Reports, 2018 Annual Report available at: <https://www.kdb.co.kr/index.jsp>

¹⁰ KDB Investor Relations, Annual Reports, 2018 Annual Report available at: <https://www.kdb.co.kr/index.jsp>

¹¹ KDB Investor Relations, Annual Reports, 2018 Annual Report available at: <https://www.kdb.co.kr/index.jsp>

¹² Green Climate Fund (GCF) is an operating entity of the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC)

¹³ More information on IFC's Performance Standards on Environmental and Social Sustainability are available at:

https://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES

¹⁴ World Bank's Environmental, Health and Safety Guidelines are available at:

https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

¹⁵ The Equator Principles are set of standards promoting that projects are planned and executed in a responsible manner, reflecting a series of solid environmental and social management practices. The Equator Principles website is available at: <https://equator-principles.com/>

¹⁶ <https://equator-principles.com/adoption-news/kdb-adopts-the-equator-principles/>

¹⁷ More details on the scope of application of the Equator Principles available on the Sustainability section of KDB's website at: <https://www.kdb.co.kr/index.jsp>

¹⁸ Under the Equator Principles criteria, Category A projects are expected to result in significant and irreversible negative environmental and social risks, while Category B projects will have limited negative environmental and social risks, localized, reversible and readily addressed through mitigation measures. Category C project carry minimal or no environmental and social risks and impacts.

¹⁹ KDB, Environmental and Social Safeguards, accessed June 2019: <https://www.kdb.co.kr/index.jsp>

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category B and C²⁰ of the Equator Principles, Sustainalytics is of the opinion that related risks are sufficiently addressed by KDBs internal screening processes.

In addition to KDB's internal efforts to mitigate the named risks on a global basis, Sustainalytics believes that KDB is well positioned to ensure risk mitigation in South Korea due to following governmental efforts:

- The South Korea Occupational Safety and Health Act require employers to comply with minimum safety and health requirements set by the government and promote a safe working environment through the improvement of working conditions and align with the industrial accident and disease prevention policy of the State. According to the law, employers are obliged to provide safety and health education for workers in workplace as well as taking measures in order to prevent possible harm and hazard.²¹ The government also extended the regulation to include contractors and non-employee workers in 2018.²²
- According to EIA Act of South Korea, EIA must be carried out for certain projects, including urban development, development of energy,²³ development of water resources, construction of railroads including subways, utilization and development of rivers, installation of waste disposal facilities based on three categories (i) natural environment, (ii) ambient environment covering land use, air quality, water quality, landscape, sanitation and health (iii) socioeconomic environments including population, education, local industry and public facilities.²⁴ Sustainalytics views that the EIA Act provides additional assurance over the company's implementation of a systematic approach to secure environmental protection.

Given KDB's internal processes for environmental and social risk identification, and its overlap with internationally recognized environmental performance standards and guidelines, Sustainalytics considers that KDB is well positioned to mitigate potential environmental and social risks stemming from the use of proceeds.

Section 3: Impact of Use of Proceeds

All five green and two social use of proceeds categories are recognized as impactful by GBP, SBP and SBG. Sustainalytics has focused on two below where the impact is specifically relevant in local and/or global context

Importance of fostering clean transportation and low-carbon marine vessels to meet global climate targets

KDB intends to use part of its sustainable bonds' proceeds to finance low-carbon transportation projects including electric or hydrogen-powered cars, high-tech rail, non-motorised, multi-modal transportation and the related infrastructures as well as marine vessels which use electric propulsion, hydrogen or equipped with propulsion systems using LNG, LPG and methanol. According to the International Energy Agency (IEA), the transport sector accounts for 23% of global energy-related CO₂ emissions²⁵ with a projected increase of 60% in 2050.²⁶ To combat climate change and reverse its effects, more than 75% of the Nationally Determined Contributions considered the transportation sector as a priority under the Paris Climate Agreement.²⁷ Eligible CO₂ mitigation measures of transport sector are classified into four areas by the International Transport Forum, covering electrification of railway lines and extensions of mass rapid transit lines, amongst others.²⁸

In addition, emissions from the shipping sector, which account for approximately 3% of global CO₂ emissions,²⁹ are projected to increase by 50%-250% from 2012 to 2050.³⁰ The shipping sector is expected to account for 17% of global

²⁰ Category B: projects with potential limited adverse social and environmental risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; Category C: projects with minimal or no social and environmental risk and/or impacts: https://equator-principles.com/wp-content/uploads/2017/03/equator_principles_III.pdf

²¹ South Korea Occupational Safety and Health Act available at:

<http://english.kosha.or.kr/english/legislation/occupationalSafetyAndHealth.do?mode=view&articleNo=277029&article.offset=0&articleLimit=10>

²² South Korea: Significant Changes to Workplace Safety Law Anticipated available at: <https://www.shrm.org/resourcesandtools/legal-and-compliance/employment-law/pages/global-south-korea-osh-changes-anticipated.aspx>

²³ Type and size of projects under development of energy category: (i) Power Development, Electricity Facilities: 10,000 kw, (ii) Mining Industry (300,000), (iii) Submarine Mining Industry, (iv) Oil pipeline & Oil Storage (100,000 kl)

²⁴ Environmental Impact Assessment in Korea available at: <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan031632.pdf>

²⁵ IEA Tracking Process: Transport available at: <https://www.iea.org/etp/tracking2017/transport/>

²⁶ 9 ITF, Transport CO₂ and the Paris Climate Agreement available at: <https://www.itf-oecd.org/sites/default/files/docs/transport-co2-paris-climateagreement-ndcs.pdf>

²⁷ IEA Tracking Process: Transport available at: <https://www.iea.org/etp/tracking2017/transport/>

²⁸ ITF, Transport CO₂ and the Paris Climate Agreement available at: <https://www.itf-oecd.org/sites/default/files/docs/transport-co2-paris-climateagreement-ndcs.pdf>

²⁹ ICCT, GHG Emissions from Global Shipping 2013-2015 available at: https://www.theicct.org/sites/default/files/publications/Global-shipping-GHG-emissions-2013-2015_ICCT-Report_17102017_vF.pdf

³⁰ European Commission, Reducing emissions from the shipping sector available at: https://ec.europa.eu/clima/policies/transport/shipping_en

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CO₂ emissions by 2050.³¹ To address these concerns and cope with rapidly increasing GHG emissions in the shipping sector, International Maritime Organization (IMO) adopted an initial strategy aiming to reduce carbon intensity of shipping by at least 40% by 2030, and 70% by 2050, against 2008 levels.³² Moreover, IMO obliges new ship designs built between 2020 and 2024 to become 20% more energy efficient over that period.³³ Substituting heavy fuel oil (HFO) with LPG, LNG and methanol is estimated to provide GHG savings of up to 20%.³⁴ Furthermore, compared with HFO, using LPG, LNG and methanol can reduce air pollution and particulate matter generated by the shipping sector by almost 100%.³⁵

Sustainalytics considers the financing of vessels using LNG, LPG and methanol to be impactful for the following reasons:

- (i) There is currently no viable non-fossil fuel-based alternative for long distance shipping;
- (ii) KDB committed to limit financing to those vessels that align with the IMO aspirational target to achieve 40% CO₂ reduction by 2030;
- (iii) Freight shipping, while still reliant on fossil fuels to a large extent, has relatively low carbon emissions per km per tonne compared to road and air transport.³⁶

Given the urgent need of decarbonizing transportation including shipping to mitigate climate change, Sustainalytics is of the opinion that the KDB's investments in clean transportation can contribute to the reduction of GHG emissions from the sector and thus contribute to a low-carbon economy on a global basis.

Importance of financing SMEs to enhance employment generation in South Korea

KDB intends to use part of its sustainable bonds' proceeds to finance SMEs certified as 'outperforming job-creating companies' by the central or local governments as well as 'employment-expanding companies for youth employment and women returning from childcare leave' by tax terms.³⁷ Although SMEs contribute 99.9% of the South Korean enterprises and 87.9% of total employment in the South Korea,³⁸ their reliance on bank loans to fund their businesses has significantly risen, demonstrating an increase from 73.5% in 2005 to 83.8% in 2013.³⁹ Regardless of growing numbers of SMEs, only 0.01% of small companies grew into medium-sized enterprises due to lack of growth over the period 2011-2014, demonstrating the crucial role of SME funding to prolong businesses' life cycle.⁴⁰

Since SMEs represent a way of securing economic growth, fostering employment generation and advancing innovation and social integration, the government of South Korea provides a high level of support for SMEs,⁴¹ including measure implementations in order to boost financing, business incubation center developments, and tax incentives. In 2017, the government of South Korea adopted 288 programs to support SMEs while allocating 3% of its total annual spending.⁴² In addition to funding initiatives, the South Korean government introduced a five-year roadmap on job creation that focuses on job creation in the public and private sectors and improvement of the overall quality of jobs. According to the Five-year Plan for the Administration of State Affairs, the government regarded "The job-creating economy" as one of the top priorities of national vision.⁴³

Sustainalytics considers KDB's criteria for employment generation credible given that eligible SMEs need to demonstrate a 5% increase in job generation in the last year to be eligible. In addition, the criteria for 'outperforming job-creating companies' to include relevant indicators, including number of employees, increasing ratio of employment, employment

³¹ ICCT, GHG Emissions from Global Shipping 2013-2015 available at: https://www.theicct.org/sites/default/files/publications/Global-shipping-GHG-emissions-2013-2015_ICCT-Report_17102017_vF.pdf

³² Initial IMO Strategy on Reduction of GHG Emissions from Ships available at:

[http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Resolution%20MEPC.304\(72\)_E.pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Resolution%20MEPC.304(72)_E.pdf)

³³ ICCT, GHG Emissions from Global Shipping 2013-2015 available at: https://www.theicct.org/sites/default/files/publications/Global-shipping-GHG-emissions-2013-2015_ICCT-Report_17102017_vF.pdf

³⁴ Alternative Fuels and Technologies for Greener Shipping available at: https://hydrogeneurope.eu/sites/default/files/2018-04/DNV_GL_Executive-Summary-Alt-Fuels_guidance_paper_2018-04_web.pdf

³⁵ Decarbonizing Maritime Transport available at: <https://www.itf-oecd.org/sites/default/files/docs/decarbonising-maritime-transport.pdf>

³⁶ Sims R., R. Schaeffer, F. Creutzig, X. Cruz-Núñez, M. D'Agosto, D. Dimitriu, M.J. Figueroa Meza, L. Fulton, S. Kobayashi, O. Lah, A. McKinnon, P. Newman, M. Ouyang, J.J. Schauer, D. Sperling, and G. Tiwari, 2014: Transport. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA:

https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter8.pdf

³⁷ KDB finances companies eligible for tax benefits under South Korean Tax Incentive Limitation Law §29-3 and Law §29-7.

³⁸ Ministry of SMEs and Start-ups, "Status of Korean SMEs", at: <https://www.mss.go.kr/site/eng/02/1020200000002016111504.jsp>.

³⁹ OECD Economic Surveys Korea; <https://www.oecd.org/eco/surveys/Korea-2016-OECD-economic-survey-overview.pdf>

⁴⁰ Korea Policy Brief, Entrepreneurship ; https://www.oecd.org/industry/korea-promoting-innovative-entrepreneurship_EN.pdf

⁴¹ Economic Survey of Korea 2018; <http://www.oecd.org/eco/economic-survey-korea.htm>

⁴² Jones, R. et al. (2018), "Enhancing Dynamism in SMEs and Entrepreneurship in Korea", OECD, at:

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP\(2018\)58&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2018)58&docLanguage=En)

⁴³ Five-year Plan for the Administration of State Affairs available at: <http://www.korea.net/koreanet/fileDown?fileUrl=/upload/content/file/1500533508268.pdf>

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of the disadvantaged, retention ratio of employment, ratio of permanent (as opposed to temporary) employment, the corporations' financial stability and profitability, and corporate social responsibility activities. For the 'employment-expanding companies for youth employment and women returning from childcare leave' by tax terms, KDB refers to tax benefits provided for employees returning from childcare leave and for support the youth employment growth (Restriction of Special Taxation Act §30-4).⁴⁴ Given the targeted approach, Sustainalytics considers the financed SMEs to contribute to employment generation and welcomes KDBs confirmation to report on number of jobs increased and individuals of vulnerable groups employed by the financed employees.

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This sustainability bond advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG target
Renewable Energy Energy Efficiency	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix 7.3 By 2030, double the global rate of improvement in energy efficiency
Clean Transportation	11. Sustainable Cities and Communities	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
Pollution Prevention and Control	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
Sustainable Water and Wastewater Management	6. Clean Water and Sanitation	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
Employment Generation Social Enterprises	8. Decent Work and Economic Growth	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium sized enterprises, including through access to financial services. 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value. 8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

Conclusion

KDB has developed the Korea Development Bank Sustainable Bond Framework under which it intends to issue green, social or sustainability bonds and use the proceeds to finance and/or refinance projects that will promote climate mitigation, adaptation and/or sustainable societal development in seven categories: (i) Renewable Energy, (ii) Clean Transportation, (iii) Energy Efficiency, (iv) Pollution Prevention and Control, (v) Sustainable Water and Wastewater Management, (vi) Employment Generation, and (vii) Social Enterprises. Sustainalytics assesses the framework to be aligned with the Green Bond Principles, Social Bond Principles and Sustainability Bond Guidelines 2018, regarding

⁴⁴ KPMG Korean Tax Brief, September 2018: <https://home.kpmg/content/dam/kpmg/xx/pdf/2018/09/tnf-korea-sep26-2018.pdf>

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project evaluation and selection, use of proceeds, management of proceeds and reporting. Sustainalytics highlights KDBs targeted approach for employment generation, but encourages the bank to disclose measures taken by waste to energy plants on air emission abatement and following the waste hierarchy.

Based on the above, Sustainalytics confident that KDB is well-positioned to issue green, social and sustainability bonds and that the Korea Development Bank Sustainable Bond Framework robust, transparent and impactful.

Appendices

Appendix 1: Sustainability Bond / Sustainability Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	Korea Development Bank
Sustainability Bond ISIN or Issuer Sustainable Bond Framework Name, if applicable: <i>[specify as appropriate]</i>	Korea Development Bank Sustainable Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	June, 2019
Publication date of review publication: <i>[where appropriate, specify if it is an update and add reference to earlier relevant review]</i>	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs and SBPs:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|--|--|
| <input type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other <i>(please specify)</i> : | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Evaluation Summary above.

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Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section (*if applicable*):

The eligible categories for the use of proceeds are aligned with those recognized by both the GBP, SBP and SBG. Sustainalytics considers that the use of proceeds for (i) Renewable Energy, (ii) Clean Transportation, (iii) Energy Efficiency, (iv) Pollution Prevention and Control, (v) Sustainable Water and Wastewater Management, (vi) Employment Generation, and (vii) Social Enterprises will lead to positive environmental or social impacts while advancing the UN Sustainable Development Goals.

Use of proceeds categories as per GBP:

- | | |
|--|--|
| <input type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other (<i>please specify</i>): |

If applicable please specify the environmental taxonomy, if other than GBPs:

Use of proceeds categories as per SBP:

- | | |
|--|--|
| <input type="checkbox"/> Affordable basic infrastructure | <input type="checkbox"/> Access to essential services |
| <input type="checkbox"/> Affordable housing | <input checked="" type="checkbox"/> Employment generation (through SME financing and microfinance) |
| <input type="checkbox"/> Food security | <input checked="" type="checkbox"/> Socioeconomic advancement and empowerment |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with SBP categories, or other eligible areas not yet stated in SBPs | <input type="checkbox"/> Other (<i>please specify</i>): |

If applicable please specify the social taxonomy, if other than SBPs:

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2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

KDB set up a three-step project evaluation and selection process in which Relationship Managers from cross-functional departments including Project Finance, Corporate Banking and SME Banking divisions conduct the initial project selection including a preliminary assessment of environmental and social risks and impacts of proposed projects. The Credit Review division provides a credit approval based on E&S Review Report, and final approval is conducted by the Treasury Department. This process is in line with market practice

Evaluation and selection

- | | |
|---|--|
| <input checked="" type="checkbox"/> Credentials on the issuer's social and green objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Sustainability Bond proceeds | <input type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input checked="" type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <input type="checkbox"/> Other (<i>please specify</i>): |

Information on Responsibilities and Accountability

- | | |
|--|--|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

The net use of proceeds will be managed by KDB's Treasury Department using an internal information system. Pending full allocation, the unallocated proceeds will be held in cash, cash equivalents and/or invested in marketable securities, in accordance with KDB's cash management policies. This process is in line with market practices. Sustainalytics views KDB's look-back period as aligned with market preferences. KDB does not include an indicative timeframe for full allocation of the bonds' proceeds but communicated to Sustainalytics that full allocation is expected by 2022.

Tracking of proceeds:

- | |
|---|
| <input checked="" type="checkbox"/> Sustainability Bond proceeds segregated or tracked by the issuer in an appropriate manner |
| <input checked="" type="checkbox"/> Disclosure of intended types of temporary investment instruments for unallocated proceeds |
| <input type="checkbox"/> Other (<i>please specify</i>): |

Additional disclosure:

- | | |
|---|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
|---|---|

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- | | |
|---|---|
| <input type="checkbox"/> Allocation to individual disbursements | <input type="checkbox"/> Allocation to a portfolio of disbursements |
| <input checked="" type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (<i>please specify</i>): |

4. REPORTING

Overall comment on section (if applicable):

KDB commits to provide an “Investor Newsletter” on an annual basis including information on eligible project categories, the total amount allocated, remaining unallocated proceeds, estimated environmental and social impact of the allocated proceeds including relevant metrics, and where feasible, project examples. Sustainalytics considers KDB’s reporting scope as in line with market practice.

Use of proceeds reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (<i>please specify</i>): |

Information reported:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Allocated amounts | <input type="checkbox"/> Sustainability Bond financed share of total investment |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Frequency:

- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Impact reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (<i>please specify</i>): |

Frequency:

- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Information reported (expected or ex-post):

- | | |
|---|---|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input type="checkbox"/> Energy Savings |
| <input type="checkbox"/> Decrease in water use | <input type="checkbox"/> Number of beneficiaries |
| <input type="checkbox"/> Target populations | <input checked="" type="checkbox"/> Other ESG indicators (<i>please specify</i>): |
| | <ul style="list-style-type: none"> • Renewable energy generated |

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- Clean transportation: Length of new track built, Built passenger capacity, CO2 emissions avoided equivalent avoided per year and/or per USD million Green Bond
- Amount / percentage of energy savings annually
- Reduction in fine particulate PM10, PM2.5 or other air pollutants emissions (in tonnes)
- Area of remediated land (sqm) / Amount of remediated soil (tonnes)
- Additional clean water supply (million cubic meters)
- Number of additional people and cities served
- Amount of wastewater treated (million m3)
- Decrease of pollution concentration
- Number of job created and/or preserved
- Number of small and medium corporations financed
- Number and type of disadvantageous beneficiaries

Means of Disclosure

- | | |
|---|---|
| <input type="checkbox"/> Information published in financial report | <input type="checkbox"/> Information published in sustainability report |
| <input checked="" type="checkbox"/> Information published in ad hoc documents | <input type="checkbox"/> Other (please specify): |
| <input type="checkbox"/> Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review): | |

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

<https://www.kdb.co.kr/index.jsp>

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- | | |
|--|--|
| <input type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification / Audit | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (please specify): | |

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP AND THE SBP

- i. Consultant Review: An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental and social sustainability or other aspects of the issuance of a Sustainability Bond, such as the establishment/review of an issuer's Sustainable Bond Framework. "Second Party Opinions" may fall into this category.

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- ii. **Verification:** An issuer can have its Sustainability Bond, associated Sustainable Bond Framework, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. Evaluation of the environmentally and socially sustainable features of underlying assets may be termed verification and may reference external criteria.
- iii. **Certification:** An issuer can have its Sustainability Bond or associated Sustainable Bond Framework or Use of Proceeds certified against an external green and social assessment standard. An assessment standard defines criteria, and alignment with such criteria is tested by qualified third parties / certifiers.
- iv. **Rating:** An issuer can have its Sustainability Bond or associated Sustainable Bond Framework rated by qualified third parties, such as specialised research providers or rating agencies. Sustainability Bond ratings are separate from an issuer's ESG rating as they typically apply to individual securities or Sustainable Bond Frameworks / programmes.

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Sustainalytics

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For more information, visit www.sustainalytics.com

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