



# Second-Party Opinion

## K-water Green Financing Framework

### Evaluation Summary

Sustainalytics is of the opinion that the K-water Green Financing Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2021 and the Green Loan Principles 2021. This assessment is based on the following:



**USE OF PROCEEDS** The eligible categories for the use of proceeds – Renewable Energy, Sustainable Wastewater Management, Sustainable Water Management and Climate Change Adaptation – are aligned with those recognized by the Green Bond Principles and Green Loan Principles. Sustainalytics considers that investments in the eligible categories are expected to contribute to the transition towards a low-carbon and green economy in South Korea and to advance the UN Sustainable Development Goals, specifically SDGs 6, 7 and 13.



**PROJECT EVALUATION / SELECTION** Korea Water Resources Corporation has established a committee which is responsible for evaluating and selecting eligible projects in line with the eligibility criteria. Korea Water Resources Corporation’s environmental and social risk management processes are applicable to all allocation decisions made under the Framework, which Sustainalytics considers to be adequate risk management systems. Sustainalytics considers the project selection process in line with market practice.



**MANAGEMENT OF PROCEEDS** Korea Water Resources Corporation’s Finance Department will be responsible for the management and allocation of net proceeds. Korea Water Resources Corporation will track the net proceeds through a dedicated ledger. Korea Water Resources Corporation intends to allocate all net proceeds within two years of issuance or drawdown. Pending allocation, net proceeds will temporarily be held in cash or cash equivalent investment instruments. This is in line with market practice.



**REPORTING** Korea Water Resources Corporation intends to report on allocation and impact of proceeds of green bonds in its Sustainability Report or Green Bond Report on an annual basis until full allocation. Korea Water Resources Corporation may report on allocation and impact of proceeds of green loans in its Sustainability Report or Green Loan Report, subject to the respective loan agreement. This is in line with market practice.

<b>Evaluation Date</b>	March 31, 2022 <sup>1</sup>
<b>Issuer Location</b>	Daejeon, Republic of Korea

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<sup>1</sup> The K-water Green Financing Framework dated March 2022 updates and replaces K-water 2018 Green Bond Framework for Green and Water Bond Issuances. This Second-Party Opinion replaces Sustainalytics’ previously provided second-party opinion, which was dated March 15, 2018.

## Introduction

Korea Water Resources Corporation (“K-water” or the “Company”) is a governmental agency in South Korea specializing in water. The Company was established in 1967 for the comprehensive development and efficient management of national water resources. As a public enterprise, K-water undertakes the duties of construction, operation, and management of water and waterworks facilities, renewable energy facilities, as well as development of industrial complexes and special-purpose zones. The Company also aims to protect public safety from disasters such as drought and flood, improve the public livelihood, and enhance public welfare by providing public access to water resources.

K-water has developed the K-water Green Financing Framework (the “Framework”) under which it intends to issue green bonds and obtain green loans and use the proceeds to finance or refinance, in whole or in part, existing or future projects expected to contribute to the transition towards a low-carbon and green economy in South Korea. The Framework defines eligibility criteria in four areas:

1. Renewable Energy
2. Sustainable Wastewater Management
3. Sustainable Water Management
4. Climate Change Adaptation

K-water engaged Sustainalytics to review the K-water Green Financing Framework, dated March 2022, and provide a second-party opinion on the Framework’s environmental credentials and its alignment with the Green Bond Principles 2021 (GBP)<sup>2</sup> and the Green Loan Principles 2021 (GLP).<sup>3</sup> The Framework will be published in a separate document.<sup>4</sup>

### Scope of work and limitations of Sustainalytics’ Second-Party Opinion

Sustainalytics’ Second-Party Opinion reflects Sustainalytics’ independent<sup>5</sup> opinion on the alignment of the reviewed Framework with the current market standards and the extent to which the eligible project categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework’s alignment with the Green Bond Principles 2021, as administered by ICMA;
- The credibility and anticipated positive impacts of the use of proceeds; and
- The alignment of the issuer’s sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.11, which is informed by market practice and Sustainalytics’ expertise as an ESG research provider.

As part of this engagement, Sustainalytics held conversations with various members of K-water’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 the Framework. K-water representatives have confirmed (1) they understand it is the sole responsibility of K-water to ensure that the information provided is complete, accurate or up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the Framework and should be read in conjunction with that Framework.

<sup>2</sup> The Green Bond Principles are administered by the International Capital Market Association and are available at <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>.

<sup>3</sup> The Green Loan Principles are administered by the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications & Trading Association and are available at: <https://www.lsta.org/content/green-loan-principles/#>.

<sup>4</sup> The K-water Green Financing Framework is available on the Korea Water Resources Corporation’s website at: [https://www.kwater.or.kr/eng/inve/greenBondPage.do?s\\_mid=1782](https://www.kwater.or.kr/eng/inve/greenBondPage.do?s_mid=1782)

<sup>5</sup> When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics’ hallmarks is integrity, another is transparency.

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and K-water.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible projects expected to be financed with bond proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner. The Second-Party Opinion is valid for issuances aligned with the respective Framework for which the Second-Party Opinion was written for a period of twenty-four (24) months from the evaluation date stated herein.

In addition, the Second-Party Opinion opines on the potential allocation of proceeds but does not guarantee the realised allocation of the bond proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument, either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that K-water has made available to Sustainalytics for the purpose of this Second-Party Opinion.

## Sustainalytics' Opinion

### Section 1: Sustainalytics' Opinion on the K-water Green Financing Framework

Sustainalytics is of the opinion that the K-water Green Financing Framework is credible and impactful and aligns with the four core components of the GBP and GLP. Sustainalytics highlights the following elements of the K-water Green Financing Framework:

- Use of Proceeds:
  - The eligible categories – Renewable Energy, Sustainable Wastewater Management, Sustainable Water Management and Climate Change Adaptation – are aligned with those recognized by the GBP and GLP. Sustainalytics believes that the eligible categories are expected to contribute to the transition towards a low-carbon and green economy in South Korea.
  - K-water has established a two-year look-back period for its refinancing activities, which Sustainalytics views to be in line with market practice.
  - Under the Renewable Energy category, K-water may finance or refinance the acquisition, construction, development, deployment, operation, maintenance and upgrade of renewable energy infrastructures. This may include the following:
    - Solar photovoltaic power facilities
    - Tidal power facilities
    - The upgrade of hydropower auxiliary or add-on facilities of existing small hydropower plants (below 10 MW) with a power density above 10 W/m<sup>2</sup> or life-cycle carbon intensity below 100 gCO<sub>2</sub>e/kWh, without increasing the size of the dam or reservoir.<sup>6</sup> In addition, K-water may finance construction of new small run-of-river hydropower plants. Sustainalytics notes that K-water limits the financing to small run-of-river hydropower projects which are not subject to the environmental impact assessment requirement prescribed in the Environmental Impact Assessment Act of South Korea.<sup>7</sup> However, Sustainalytics considers that it is market practice to have an environmental and social impact assessment for newly built hydropower plants, and further encourages K-water to undertake an environment and social impact assessment for each project, and report relevant environmental and social risk mitigation measures.

<sup>6</sup> K-water confirmed to Sustainalytics that the add-on facilities could increase efficiency and thereby increase energy efficiency or electricity generation capacity of the existing small hydropower plants, but will not increase the water storage size and not impose additional negative environmental impact.

<sup>7</sup> K-water communicated to Sustainalytics that, in accordance with Article 8 and 11 of the Environmental Impact Assessment Act of South Korea, the Environmental Impact Assessment Council need not to conduct deliberation on strategic EIA assessment if the area specified for the relevant project is smaller than 60,000 m<sup>2</sup>.

- Hydrothermal energy limited to hydrothermal energy convergence cluster projects with a carbon emission co-efficiency of 0.852 tCO<sub>2</sub>e/RT.<sup>8</sup> K-water has confirmed to Sustainalytics that the heat pump systems for the projects are water-sourced electric heat pumps. This is in line with market practice.
    - Green hydrogen
  - Under the Sustainable Wastewater Management category, K-water may finance or refinance the following:
    - Construction, development, operation, maintenance and upgrade of wastewater treatment facilities or pumping stations meeting the net energy consumption levels of new plants.<sup>9</sup>
    - Renovation or upgrade of wastewater treatment facilities that are expected to achieve an expected 20% reduction in energy consumption.
    - Sustainalytics views positively the inclusion of a defined energy efficiency threshold for the installations of energy efficiency systems, equipment and technologies.
  - Under the Sustainable Water Management category, K-water may finance or refinance construction, development, operation, maintenance, renovation and upgrade of water supply infrastructure that meets the following criteria: (i) net average energy consumption for abstraction and treatment  $\leq 0.5$  kWh/m<sup>3</sup> of water produced, or (ii) infrastructure leakage index  $\leq 1.5$ . Projects may include construction of water purification plants and pumping stations, renewal or replacement of old water facilities, replacement of dysfunctional measuring devices and installation of automation systems. Sustainalytics considers this to be aligned with market practice.
  - Under the Climate Change Adaptation category, K-water may finance or refinance the following:
    - Flood mitigation, prevention and control projects based on climate change vulnerability assessments and adaptation studies. This may include the development of nature-based waterways and adjoining waterfront areas, and the preservation of aquatic biodiversity for “Waterfront city” projects in Busan Eco-Delta City, Sihwa Multi-Techno Valley and Songsan Green City.<sup>10</sup>
    - Research and development of climate change adaptation technologies, such as climate information or modelling and response systems for climate change related disasters.
    - Sustainalytics views the financing to be aligned with market practice.
  - K-water commits to exclude financing of activities related to hazardous chemicals or waste, and projects related to fossil fuel. Sustainalytics views the exclusion of these activities to further strengthen the Framework.
- Project Evaluation and Selection:
  - K-water has established a Green Finance Working Group (the “Working Group”) which is comprised of representatives from the Company’s Investment Committee, the Finance Department, the ESG Management Team, and the Investment and Funding Review Committee. The Working Group will be responsible for evaluating and selecting eligible projects in line with the Framework’s eligibility criteria.
  - K-water has in place processes to identify, analyze and report environmental and social risks associated with projects, which are applicable to all allocation decisions made under this Framework. Sustainalytics considers these environmental and social risk management systems to be adequate and aligned with market expectation. For additional detail see Section 2.
  - Based on the cross-functional oversight for project selection and risk management system, Sustainalytics considers this process to be in line with market practice.
- Management of Proceeds:
  - K-water’s Finance Department will be responsible for the management and allocation of net proceeds and will track the net proceeds through a dedicated ledger.

<sup>8</sup> Where RT refers to a refrigeration ton, which is equivalent to 3,51685 kW.

<sup>9</sup> The net energy consumption thresholds are:

- $\leq 35$  kWh per population equivalent (p.e.) per annum for treatment plant capacity below 10,000 p.e.;
- $\leq 25$  kWh per p.e. per annum for treatment plant capacity between 10,000 and 100,000 p.e.;
- $\leq 20$  kWh per p.e. per annum for treatment plant capacity above 100,000 p.e.

<sup>10</sup> K-water, Waterfront City, at: [https://www.kwater.or.kr/eng/busi/water03/waterfrontCityPage.do?s\\_mid=1829](https://www.kwater.or.kr/eng/busi/water03/waterfrontCityPage.do?s_mid=1829)

- K-water intends to allocate all net proceeds within two years of issuance or drawdown. Pending allocation, unallocated proceeds will be temporarily held in cash or cash equivalent sustainable investment instruments in accordance with K-water treasury management.
- Based on the presence of an internal tracking system and the disclosure of temporary use of net proceeds, Sustainalytics considers this process to be in line with market practice.
- Reporting:
  - K-water intends to report on the allocation and impact of net proceeds of green bonds annually until full allocation in its Sustainability Report or in a standalone Green Bond Report, which will be published on the Company's website. K-water may provide allocation and impact reporting of the net proceeds from green loans in its annual Sustainability Report or in a standalone Green Loan Report, subject to the respective loan agreement.<sup>11</sup>
  - Allocation reporting will include the percentage of allocated proceeds in the total amount of proceeds, the percentage of proceed allocation by eligible project category, the remaining balance of unallocated proceeds, the proportion of proceeds allocated to financing and refinancing, and case studies of selected allocated eligible projects.
  - In addition, K-water is also committed to reporting on relevant impact indicators where feasible, such as the installed capacity (MW), annual avoided GHG emissions (tCO<sub>2</sub>), annual renewable energy production (MWh), avoided water leakage (m<sup>3</sup>), amount of wastewater treated (m<sup>3</sup>), number of people and cities served, flood control capacity (m<sup>3</sup>), and number of waterways and length (km). A detailed list of impact metrics can be found in Appendix 1.
  - Based on K-water's commitment to allocation and impact reporting on an annual basis, Sustainalytics considers this process to be in line with market practice.

#### Alignment with Green Bond Principles 2021 and Green Loan Principles 2021

Sustainalytics has determined that the K-water Green Financing Framework aligns with the four core components of the GBP and GLP. For detailed information, please refer to Appendix 1: Green Bond/Green Bond Programme External Review Form.

## Section 2: Sustainability Strategy of K-water

### Contribution of the Framework to Korea Water Resources Corporation's Sustainability Strategy

Sustainalytics is of the opinion that K-water demonstrates a commitment to sustainability by focusing on the following key environmental areas: (i) expansion of renewable energy, (ii) integration of water and wastewater management, and (iii) climate change adaptation.

In 2021, K-water became a member of RE100, through which members commit to using 100% renewable energy by 2050.<sup>12</sup> K-water aims to achieve this commitment by introducing floating photovoltaic systems in its purification plants, procuring renewable energy and replacing Company vehicles with electric and hydro-electric vehicles.<sup>13</sup> In addition, K-water commits to generate 16,500 RT<sup>14</sup> of hydrothermal energy through seawater convergence project by 2025,<sup>15</sup> and aims to expand the generation of hydrothermal energy to 286,000 RT (approximately 1GW) by 2030.<sup>16</sup> The Company also operates the Sihwa Lake tidal power plant with a total power output capacity of 254 MW, generating up to 552.7 GWh of electricity annually.<sup>17</sup> Furthermore, K-water commits to achieve low-energy tap water supply and carbon neutrality for multi-region water purification plants by 2030 through clean energy and green purchase.<sup>18</sup> In 2020, K-water increased its clean energy production by 19.5% from 2018. In 2021, the Company established a Carbon Neutrality Roadmap with the commitment to reduce 7.8 Mt of GHG emissions by 2050.<sup>19</sup>

<sup>11</sup> K-water has confirmed to Sustainalytics that it commits to keep readily available up-to-date information on the use of proceeds to be renewed annually until fully drawn and to present the information in generic terms or on an aggregated project portfolio basis in conformity with any applicable confidentiality agreements.

<sup>12</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)

<sup>13</sup> Ibid.

<sup>14</sup> RT refers to a refrigeration ton, which is equivalent to 3,51685 kW.

<sup>15</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)

<sup>16</sup> K-water, "Linking Nature & People" at <https://www.kwater.or.kr/eng/sust/brocDownload.do?downloadSeq=530>

<sup>17</sup> Ibid.

<sup>18</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)

<sup>19</sup> Ibid.

K-water aims to achieve integrated water management through reducing water leakages and introducing advanced water treatment systems. By 2021, the Company had replaced 318 km of worn-out pipelines and installed 167.6 km of multiple water supply network to prevent water and energy losses in the distribution grid.

With regard to climate change adaptation, K-water plans to establish smart water management systems and drought management systems for rainfall prediction, drought analysis and flood response. In 2020, the Company's National Drought Information Portal registered 7.5 times more users than in 2018. In 2021, the Company developed the Busan Eco Delta Smart City programme to mitigate the effects of draughts and floods resulting from the rapidly changing climate. The programme uses water management technology, real-time analysis and prediction systems and hydrothermal energy, aiming to reach 10 cities by 2026.<sup>20</sup>

Sustainalytics is of the opinion that the K-water Green Financing Framework is aligned with the Company's overall sustainability strategy and initiatives and will further the Company's action on its key environmental priorities.

### Approach to managing environmental and social risks associated with the projects

Sustainalytics recognizes that the net proceeds from the instruments issued under the Framework will be directed towards eligible projects that are expected to have positive environmental impact. However, Sustainalytics is aware that such eligible projects could also lead to negative environmental and social outcomes. Some key environmental and social risks possibly associated with the eligible projects include effluents and waste generated in construction and operation, land use and biodiversity issues and worker's health and safety.

Sustainalytics is of the opinion that K-water can manage or mitigate potential risks through implementation of the following:

- K-water has implemented measures to prevent environmental pollution generated from project construction and operation. K-water monitors impacts on air, water, soil, land use and biodiversity, resulting from its project activity through environmental impact assessment (EIA) studies mandated by the EIA Act (2017)<sup>21</sup> and the Company's Environmental and Green Management Policy.<sup>22</sup> To prevent and control water pollution, the Company monitors and mitigates water pollution through stable isotope analysis, having also established 51 dam branches and weir management offices to enable immediate response to water pollution and green algae. The Company has also established environmental emergency response systems, such as crisis response system and a risk phase-specific emergency operation facility for its operations.<sup>23 24</sup>
- K-water commits to mitigate projects' effects on land use and biodiversity and implement ecological restoration measures in project areas. The Company aims to achieve this by: (i) creating buffer zones and biotope alternative habitats, such as fish spawning areas, (ii) providing safe animal movement through green corridors, (iii) creating alternative habitats for protected species water exit channels, (iv) replanting uprooted trees, (v) prevention of earth and sand erosion, and (vi) land use restoration through ecological belts, estuary ecosystem restoration and dam basin preservation.<sup>25</sup> As part of its EIAs, the Company assesses the impacts on land use and biodiversity, and formulates an environmental management plan to address issues such as biodiversity loss, diversion of natural river flow and reservoir operations, such as through the creation of green belts in dam plain areas.
- K-water is committed to establishing a management system focusing on the health and safety of employees and field workers as well as the public. The Company's Safety Management Charter declares safety pledges and practises safety priority management, safe work environments and systematic maintenance of facilities and safety inspections. The Company has established and implemented an occupational health and safety management system in compliance with the ISO 45001 standard, which relates to workplace safety, prevention of occupational injury, industrial accidents and stakeholder awareness raising.<sup>26</sup>

<sup>20</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)

<sup>21</sup> Korea Environment Corporation, "EIA (Environmental Impact Assessment)", (2017) at: <https://www.keco.or.kr/en/core/contentsid/3016/index.do>

<sup>22</sup> K-water "Conducting Business Harmonizing with Environment", (2020) at: [https://www.kwater.or.kr/eng/sust/sub02/servicePage.do?s\\_mid=1110](https://www.kwater.or.kr/eng/sust/sub02/servicePage.do?s_mid=1110)

<sup>23</sup> K-water, "Sustainability Report", (2017) at: [https://www.kwater.or.kr/web/eng/download/smreport/2017\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2017_SMReport.pdf)

<sup>24</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)

<sup>25</sup> K-water "Conducting Business Harmonizing with Environment", (2020) at: [https://www.kwater.or.kr/eng/sust/sub02/servicePage.do?s\\_mid=1110](https://www.kwater.or.kr/eng/sust/sub02/servicePage.do?s_mid=1110)

<sup>26</sup> K-water, "Sustainability Report", (2021) at: [https://www.kwater.or.kr/web/eng/download/smreport/2021\\_SMReport.pdf](https://www.kwater.or.kr/web/eng/download/smreport/2021_SMReport.pdf)



Based on these policies, standards and assessments, Sustainalytics is of the opinion that K-water has implemented adequate measures and is well positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

### Section 3: Impact of Use of Proceeds

All four use of proceeds categories are aligned with those recognized by the GBP and GLP. Sustainalytics has focused on three below where the impact is specifically relevant in the local context.

#### Importance of financing renewable energy projects in South Korea

South Korea's per capita GHG emissions stood at 13.3 tCO<sub>2</sub>e in 2018, which is 1.7 times higher than the G20 average of 8 tCO<sub>2</sub>e.<sup>27</sup> In 2020, fossil fuels accounted for 81.3% of the total primary energy supply in South Korea,<sup>28</sup> and the share of renewable energy sources in its energy supply was lower than in other IEA countries,<sup>29</sup> highlighting the need for measures to reduce emissions by increasing the share of renewable energy. In July 2018, the South Korean government launched a new climate action plan setting out the goal of reducing GHG emissions by 32.5% by 2030, compared to 2018.<sup>30</sup> Moreover, the South Korean government is committed to increasing the share of renewable electricity to 20% by 2030 and to 30-35% by 2040, as well as to gradually phasing-out coal and nuclear from the energy mix.<sup>31</sup> To achieve these targets, the government has deployed various programmes and policies, such as the 2050 Carbon Neutrality Strategy,<sup>32</sup> and the plan to achieve a coal-free electricity mix by retiring all coal plants (36.4 GW capacity) by 2029 to align with the Paris Agreement.<sup>33</sup>

Based on the above context, Sustainalytics is of the opinion that K-water's investments in renewable energy are expected to increase the share of renewable energy in the energy mix of South Korea and therefore contribute to achieving the targets in the country's 2050 Carbon Neutrality Strategy.

#### Importance of sustainable water management in South Korea

South Korea's population density and water scarcity are the highest among OECD countries, highlighting the need for more efficient water infrastructure and management.<sup>34</sup> More specifically, the amount of rainfall per capita in South Korea stood at just 17% of the global average in 2016,<sup>35</sup> which makes water resources management especially critical in the country. According to World Resources Institute, water stress in most areas in Korea is Medium - High (20-40%).<sup>36</sup> Rainfall variation is expected to increase over time in the country, thus putting increased pressure on water availability.<sup>37</sup> In this context, the Korean government regards the protection of water resources while ensuring a stable supply of water for all as an important mission of the government.<sup>38</sup> To that end, the Government has integrated water management under the Ministry of Environment, and enacted the Framework Act on Water Management under which a series of water related regulations and governance bodies are established.<sup>39</sup> In accordance with the Act, the government will develop a National Water Management Plan every ten years, starting from 2020, to define policy goals and specific measures on water issues including water resources. Specifically, the government plans to prioritize the work

<sup>27</sup> Climate Transparency, "Brown to Green: G20 Transition to a Low Carbon Economy. Republic of Korea", (2018), at: [https://newclimate.org/wp-content/uploads/2018/11/B2G\\_2018\\_South\\_Korea.pdf](https://newclimate.org/wp-content/uploads/2018/11/B2G_2018_South_Korea.pdf)

<sup>28</sup> IEA, "Country Profile, Korea", at: <https://www.iea.org/countries/korea>

<sup>29</sup> IEA, "Korea 2020 Energy Policy Review", (2020), at: <https://www.iea.org/reports/korea-2020>

<sup>30</sup> Climate Action Tracker, "South Korea", (2021), at: <https://climateactiontracker.org/countries/south-korea/>

<sup>31</sup> Tachev, V. (2021), "South Korea Prepares for Net-Zero by 2050. But Is It Enough?", Energy Tracker Asia, at: <https://energytracker.asia/south-korea-prepares-for-net-zero-by-2050-but-is-it-enough/>

<sup>32</sup> Ministry of Environment of South Korea, "Ministry of Environment unveiled its Action Plan 2021 to implement the 2050 Carbon Neutrality Strategy", (2021), at: <http://www.me.go.kr/eng/web/board/read.do?menuId=461&boardMasterId=522&boardId=1449070>

<sup>33</sup> Climate Analytics, "South Korea must exit coal by 2029 to be in line with the Paris Agreement", (2020), at: <https://climateanalytics.org/latest/south-korea-must-exit-coal-by-2029-to-be-in-line-with-the-paris-agreement/>

<sup>34</sup> OECD, "Water management in Korea: from goals to action", at: <https://www.oecd.org/about/impact/water-management-in-korea.htm>

<sup>35</sup> The GlobalEconomy.com, "Precipitation – Country rankings", (2017), at: <https://www.theglobaleconomy.com/rankings/precipitation/>

<sup>36</sup> World Resources Institute, "Aqueduct 3.0: Updated Decision-Relevant Global Water Risk Indicators", (2019), at: <https://www.wri.org/research/aqueduct-30-updated-decision-relevant-global-water-risk-indicators>

<sup>37</sup> Pendergrass, A.G. et al. "Precipitation variability increases in a warmer climate" (2017), Scientific Reports 7 (2017), at <https://doi.org/10.1038/s41598-017-17966-y>

<sup>38</sup> Ministry of Environment of South Korea, "Water Resources", at: <http://eng.me.go.kr/eng/web/index.do?menuId=465&msclId=c080f8bdac2511eca80b04791383d536>

<sup>39</sup> Kang, J. (2020), "Integrated Water Management of Korea: Implementation Status & Cases of the SDG Indicator 6.5.1", Ministry of Environment, at: [https://unodsd.un.org/sites/unodsd.un.org/files/ms.\\_jiyeon\\_kang\\_presentation.pdf](https://unodsd.un.org/sites/unodsd.un.org/files/ms._jiyeon_kang_presentation.pdf)

on pollution control, addressing inequity in water supply between urban and rural areas, enhancing stability, safety and efficiency of water grid, as well as preventing water-related disasters.<sup>40</sup>

Based on the above context, Sustainalytics is of the opinion that K-water’s financing of sustainable water management operations is expected to contribute to improving water management in South Korea.

**Importance of climate change adaption in South Korea**

Climate change has resulted in more intense rainfall and more severe floods and droughts in many parts of the world.<sup>41</sup> In South Korea, the impact of climate change has led to rising temperature, changed rainfall patterns and increased occurrence of extreme natural disasters such as heavy snowfalls and draughts.<sup>42</sup> In 2020, a record-breaking period of heavy rains and precipitation caused severe flood damage in South Korea.<sup>43</sup> To address the issue, the Korean government formulates the National Climate Change Adaptation Plan every five years since 2010, and conducted national climate change risk assessment in 2019.<sup>44</sup> The third National Climate Change Adaptation Plan for 2021-2025 has identified 232 measures to be implemented by the Korean Government over the five years to enhance the country’s adaptive capacity to the various climate risks.<sup>45</sup> The Plan included adaptation measures such as the integration of countermeasures for floods, increase the efficiency of water resources management, and the development of systematic and accurate structures to predict early warnings of floods.<sup>46</sup> Furthermore, to address the issue at the city level, smart water management systems and technologies are integrated into the national pilot smart cities such as Busan Eco Delta Smart City and the Sejong Smart City.<sup>47</sup>

Based on the above context, Sustainalytics is of the opinion that K-water’s financing of climate change adaptation projects will contribute to the goals in South Korea’s National Climate Change Adaptation Plan.

**Alignment with/contribution to SDGs**

The Sustainable Development Goals (SDGs) were adopted in September 2015 by the United Nations General Assembly and form part of an agenda for achieving sustainable development by the year 2030. The instruments issued under the K-water Green Financing Framework are expected to help advance the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
Renewable Energy	7. Affordable and clean energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Sustainable 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
Sustainable Water Management	6. Clean Water and Sanitation	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

<sup>40</sup> Ministry of Environment of South Korea, “Water Resources”.

<sup>41</sup> Intergovernmental Panel on Climate Change, “Climate change widespread, rapid, and intensifying – IPCC”, (2021), at: <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>

<sup>42</sup> Ministry of Foreign Affairs and Trade, “Korea’s Vulnerability to Climate Change and its Adaptation Policies”, at: <https://research.fit.edu/media/site-specific/researchfitedu/coast-climate-adaptation-library/asia-amp-indian-ocean/south-korea-north-korea/DEC-MAFT.-S.-Korea-Vulnerability--CC-Adaptation-Policies-ppt.pdf?msclkid=9101c339ac2f11ec899379bcd61dbdbb>

<sup>43</sup> Gibson, J. (2020), “Heavy Rains Wreak Havoc on South Korea Flooding is widespread after weeks of downpours”, The Diplomat, at: <https://thediplomat.com/2020/08/heavy-rains-wreak-havoc-on-south-korea/>

<sup>44</sup> Republic of Korea, “The Republic of Korea’s Update of its First Nationally Determined Contribution”, (2020), at: [https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Republic%20of%20Korea%20First/201230\\_ROK's%20Update%20of%20its%20First%20NDC\\_editorial%20change.pdf?msclkid=870996e0ac3011ecb1c208ad29083efd](https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Republic%20of%20Korea%20First/201230_ROK's%20Update%20of%20its%20First%20NDC_editorial%20change.pdf?msclkid=870996e0ac3011ecb1c208ad29083efd)

<sup>45</sup> Lee D. et al. (2021), “The development process and significance of the 3rd National Climate Change Adaptation Plan (2021-2025) of the Republic of Korea”, Sci Total Environ, at: doi: 10.1016/j.scitotenv.2021.151728.

<sup>46</sup> Ministry of Foreign Affairs and Trade, “Korea’s Vulnerability to Climate Change and its Adaptation Policies”.

<sup>47</sup> Open & Agile Smart Cities, “South Korea: National Pilot Cities Join the OASC Network”, (2020), at: <https://oascities.org/south-korea-national-pilot-cities-join-the-oasc-network/#:~:text=Water%20is%20also%20at%20the%20centre%20of%20the,revolutionise%20the%20entire%20process%20of%20urban%20water%20circulation.?msclkid=17489ec6ac3611ec87e7e52e4026221b>



Climate Change Adaptation	13. Climate Action	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
---------------------------	--------------------	--

## Conclusion

K-water has developed the K-water Green Financing Framework under which it may issue green bonds and obtain green loans, and use the proceeds to finance Renewable Energy, Sustainable Wastewater Management, Sustainable Water Management and Climate Change Adaptation projects. Sustainalytics considers that the projects funded by the green bond and green loan proceeds are expected to contribute to the transition towards a low-carbon and green economy in South Korea.

The K-water Green Financing Framework outlines a process by which proceeds will be tracked, allocated, and managed, and makes commitments for K-water to report on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the K-water Green Financing Framework is aligned with the overall sustainability strategy of the Company and that the green use of proceeds categories will contribute to the advancement of the UN Sustainable Development Goals 6, 7 and 13. Additionally, Sustainalytics is of the opinion that K-water has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects.

Based on the above, Sustainalytics is confident that the Korea Water Resources Corporation is well positioned to issue green bonds and that the K-water Green Financing Framework is robust, transparent, and in alignment with the four core components of the Green Bond Principles 2021 and Green Loan Principles 2021.

## Appendix

### Appendix 1: Green Bond / Green Bond Programme - External Review Form

#### Section 1. Basic Information

Issuer name: Korea Water Resources Corporation

Green Bond ISIN or Issuer Green Bond Framework Name, if applicable: K-water Green Financing Framework

Review provider's name: Sustainalytics

Completion date of this form: March 31, 2022

Publication date of review publication:  
Original publication date *[please fill this out for updates]*.

#### 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 GBP:

- |  |  |
|--|--|
| <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 checked="" type="checkbox"/> Consultancy (incl. 2 <sup>nd</sup> 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.

## 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 – Renewable Energy, Sustainable Wastewater Management, Sustainable Water Management and Climate Change Adaptation – are aligned with those recognized by the Green Bond Principles and Green Loan Principles. Sustainalytics considers that investments in the eligible categories are expected to contribute to the transition towards a low-carbon and green economy in South Korea and to advance the UN Sustainable Development Goals, specifically SDG 6, 7 and 13.

#### Use of proceeds categories as per GBP:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Renewable energy  | <input type="checkbox"/> Energy efficiency   |
| <input 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 type="checkbox"/> Clean transportation  |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management   | <input checked="" 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 GBP | <input type="checkbox"/> Other ( <i>please specify</i> ):  |

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

### 2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

Korea Water Resources Corporation has established a Committee which is responsible for evaluating and selecting eligible projects in line with the eligibility criteria. Korea Water Resources Corporation's environmental and social risk management processes are applicable to all allocation decisions made under the Framework, which Sustainalytics considers to be adequate risk management systems. Sustainalytics considers the project selection process in line with market practice.

#### Evaluation and selection

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Credentials on the issuer's environmental sustainability 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 Green Bond proceeds | <input checked="" 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*):

Korea Water Resources Corporation’s Finance Department will be responsible for the management and allocation of net proceeds. Korea Water Resources Corporation will track the net proceeds through a dedicated ledger. Korea Water Resources Corporation intends to allocate all net proceeds within two years of issuance or drawdown. Pending allocation, net proceeds will temporarily be held in cash or cash equivalent investment instruments (“Green Bonds”). This is in line with market practice.

**Tracking of proceeds:**

- |   |
|---|
| <input checked="" type="checkbox"/> Green 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 |
| <input type="checkbox"/> Allocation to individual disbursements                             | <input checked="" 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*):

**Use of proceeds reporting:**

- Project-by-project
  On a project portfolio basis
- Linkage to individual bond(s)
  Other (*please specify*):

**Information reported:**

- Allocated amounts
  Green Bond financed share of total investment
- Other (*please specify*):  
*Percentage of proceed allocation by eligible project categories; balance of unallocated proceeds, proportion of proceeds allocated to financing and/or refinancing; case studies of selected allocated eligible green project, subject to confidentiality*

**Frequency:**

- Annual
  Semi-annual
- Other (*please specify*):

**Impact reporting:**

- Project-by-project
  On a project portfolio basis
- Linkage to individual bond(s)
  Other (*please specify*):

**Information reported (expected or ex-post):**

- GHG Emissions / Savings
  Energy Savings
- Decrease in water use
  Other ESG indicators (*please specify*): Installed renewable energy capacity (MW), annual avoided GHG emissions (tCO<sub>2</sub>), annual renewable energy production (MWh), avoided water leakage (m<sup>3</sup>), amount of wastewater treated (m<sup>3</sup>), number of people and cities served, flood control capacity (m<sup>3</sup>), and number of waterways and length (km).

**Frequency**

- Annual
  Semi-annual
- Other (*please specify*):



**Means of Disclosure**

- |   |   |
|---|---|
| <input type="checkbox"/> Information published in financial report  | <input checked="" type="checkbox"/> Information published in sustainability report                      |
| <input type="checkbox"/> Information published in ad hoc documents  | <input checked="" type="checkbox"/> Other (please specify): annual Green Bond Report, Green Loan Report |
| <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.)

**SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE****Type(s) of Review provided:**

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

**Review provider(s):****Date of publication:****ABOUT ROLE(S) OF INDEPENDENT REVIEW PROVIDERS AS DEFINED BY THE GBP**

- i. **Second-Party Opinion:** An institution with environmental expertise, that is independent from the issuer may issue a Second-Party Opinion. The institution should be independent from the issuer's adviser for its Green Bond framework, or appropriate procedures, such as information barriers, will have been implemented within the institution to ensure the independence of the Second-Party Opinion. It normally entails an assessment of the alignment with the Green Bond Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability, and an evaluation of the environmental features of the type of projects intended for the Use of Proceeds.
- ii. **Verification:** An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or environmental criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Green Bond proceeds, statement of environmental impact or alignment of reporting with the GBP, may also be termed verification.
- iii. **Certification:** An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against a recognised external green standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.
- iv. **Green Bond Scoring/Rating:** An issuer can have its Green Bond, associated Green Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental performance data, the process relative to the GBP, or another benchmark, such as a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material environmental risks.

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