



# Second-Party Opinion

## PUB Green Financing Framework

### Evaluation Summary

Sustainalytics is of the opinion that the PUB Green Financing Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2021 and the ASEAN Green Bond Standards 2018. This assessment is based on the following:



**USE OF PROCEEDS** The eligible categories for the use of proceeds – Sustainable Water and Wastewater Management and Renewable Energy – are aligned with those recognized by the Green Bond Principles 2021 and the ASEAN Green Bond Standards 2018. Sustainalytics considers that investments in the eligible categories are expected to lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDGs 6 and 7.



**PROJECT EVALUATION / SELECTION** PUB has established the Sustainability Committee, which is co-chaired by deputy chief executives and supported by a number of department directors, to oversee the project evaluation and selection. PUB has processes in place to identify and mitigate common environmental and social risks associated with the eligible projects, which are applicable to all allocation decisions made under the Framework. Sustainalytics considers PUB’s risk management system to be adequate and the project selection process in line with market practice.



**MANAGEMENT OF PROCEEDS** PUB’s Finance Department will oversee the management of proceeds on a portfolio basis via a green bond register, with oversight from the CFO. PUB intends to fully allocate net proceeds within three years of issuance. Pending full allocation, unallocated proceeds will be held in cash instruments in accordance with PUB’s approved cash investment policy. This is in line with market practice.



**REPORTING** PUB intends to report on allocation of proceeds on its website annually until full allocation. Allocation reporting may include the amount of allocated proceeds by eligible category, the description of eligible green projects as well as the share of financing versus refinancing. Impact reporting may include relevant environmental impact indicators. Sustainalytics views PUB’s allocation and impact reporting as aligned with market practice.

**Evaluation date** March 25, 2022

**Issuer Location** Singapore

#### Report Sections

Introduction .....	2
Sustainalytics’ Opinion .....	3
Appendices .....	9

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### Alignment with the ASEAN Green Bond Standards 2018

The ASEAN Green Bond Standards 2018 provide guidance to issuers and communicate more specifically what issuers should do to issue credible green bonds in ASEAN countries. Sustainalytics is of the opinion that the green categories under the Framework align with the ASEAN Green Bond Standards 2018.

## Introduction

PUB (“PUB” or the “Agency”) is a statutory board under Singapore’s Ministry of Sustainability and the Environment. As the national water agency, PUB manages Singapore’s water supply, water catchment and used water through collection, production, distribution and reclamation. Additionally, PUB acts as the national coastal protection agency and is responsible for protecting Singapore’s coastline from sea level rise.

PUB has developed the PUB Green Financing Framework (the “Framework”) under which it intends to issue green bonds and use the proceeds to finance and refinance, in whole or in part, existing and future projects that aim to strengthen Singapore’s water security and sustainability and generate positive environmental benefits. The Framework defines eligibility green categories in two areas:

1. Sustainable Water and Wastewater Management
2. Renewable Energy

PUB engaged Sustainalytics to review the PUB Green Financing Framework, dated February 2022, and provide a second-party opinion on the Framework’s environmental credentials and its alignment with the Green Bond Principles 2021 (GBP)<sup>1</sup> and the ASEAN Green Bond Standards 2018 (ASEAN GBS).<sup>2</sup> The Framework has been published in a separate document.<sup>3</sup>

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

Sustainalytics’ Second-Party Opinion reflects Sustainalytics’ independent<sup>4</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, and the ASEAN Green Bond Standards 2018 as administered by ACMF;
- 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 1.11.2, 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 PUB’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. PUB representatives have confirmed (1) they understand it is the sole responsibility of PUB 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.

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

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 and loan proceeds but does not measure the actual impact. The

<sup>1</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>2</sup> The ASEAN Green Bond Standards are administered by the ASEAN Capital Markets Forum and are available at <https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bond-standards>.

<sup>3</sup> The PUB Green Financing Framework is available on PUB’s website at: <https://www.pub.gov.sg/sustainability>.

<sup>4</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.

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 and loan 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 PUB has made available to Sustainalytics for the purpose of this Second-Party Opinion.

## Sustainalytics' Opinion

### Section 1: Sustainalytics' Opinion on the PUB Green Financing Framework

Sustainalytics is of the opinion that the PUB Green Financing Framework is credible and impactful, and aligns with the four core components of the GBP and ASEAN GBS. Sustainalytics highlights the following elements of PUB's Green Finance Framework:

- Use of Proceeds:
  - The eligible categories – Sustainable Water and Wastewater Management, and Renewable Energy – are aligned with those recognized by the GBP and ASEAN GBP. Sustainalytics notes that the proceeds of instruments issued under the Framework are expected to facilitate sustainable water management and strengthen Singapore's water security and sustainability.
  - Under the Sustainable Water and Wastewater Management category, PUB may finance projects that prevent water pollution and water losses, as well as to treat and conserve water. Examples of eligible projects include:
    - Water quality and wastewater monitoring systems, such as volatile organic sensors and leak detection sensors that enable early detection of pollution events and water losses, and facilitate prompt intervention. This is in line with market practice.
    - Water collection, storage and distribution systems and infrastructure, such as stormwater management systems, inter-reservoir pipelines, service reservoirs and water supply pipelines to prevent and reduce water losses in the network. Sustainalytics considers this to be aligned with market practice.
    - Water recycling systems and wastewater treatment systems that minimize the pollution of water sources, facilitate water conservation and promote the reduction of waste generated. Sustainalytics notes that PUB excludes treatment of wastewater from fossil-fuel based activities and considers the Agency's investment criteria to be aligned with market practice.
    - Sustainalytics views positively that PUB intends to achieve a reduction in GHG emissions relative to a business-as-usual baseline for their water treatment and wastewater management activities, specifically regarding the production of NEWater.<sup>5</sup> The Agency intends to achieve this through improving the design of the wastewater treatment processes and monitoring the reduction in GHG emissions throughout its operation.
  - Under the Renewable Energy category, PUB may finance solar photovoltaic systems and electricity generators using biogas. The Agency has confirmed to Sustainalytics that the biogas is a by-product from its wastewater treatment process. Sustainalytics considers the Agency's investment criteria to be aligned with market practice.

<sup>5</sup> NEWater is Singapore's local supply of high-grade reclaimed water that is treated from wastewater. More information at: <https://www.pub.gov.sg/watersupply/fournationaltaps/newater>

- Project Evaluation and Selection:
  - PUB has established a Sustainability Committee, which is co-chaired by deputy chief executives and supported by a number of department directors, to manage the internal process for reviewing and selecting eligible projects.
  - The Sustainability Committee will be responsible for reviewing nominated green projects in line with the eligibility criteria in the Framework. Environmental screening will be conducted on nominated projects to identify those in biodiversity-sensitive areas and to conduct relevant environmental and social impact assessments. Sustainalytics considers these environmental and social risk management systems to be adequate. For more detail, please refer to Section 2.
  - All eligible green projects will receive final approval by PUB's Chief Executive, before being earmarked for the use of proceeds under the Framework.
  - Based on the clear designation of responsibility and the presence of risk management systems, Sustainalytics considers this process to be in line with market practice.
- Management of Proceeds:
  - PUB's Finance Department will oversee the management of proceeds on a portfolio basis with oversight from its Chief Financial Officer. PUB will create a green bond register to monitor and track the allocation of the use of proceeds and intends to fully allocate net proceeds within 36 months of issuance.
  - Pending full allocation, unallocated proceeds will be held in cash instruments, in accordance with PUB's approved cash investment policy. Any expenditures that fail to meet the eligibility criteria in the Framework will be reallocated on a best-effort basis to replacement assets that comply with the Framework's eligibility criteria as soon as reasonably practicable.
  - Based on the existence of internal tracking mechanisms to allocate proceeds in a timely manner and the disclosure on temporary use of proceeds, Sustainalytics considers this process to be in line with market practice.
- Reporting:
  - PUB intends to report on the allocation and impact of eligible projects on an annual basis until full allocation. Allocation reporting will be made publicly available on the Agency's website, while impact reporting will be publicly reported through PUB's Sustainability Report.
  - Allocation reporting will include the amount of allocated proceeds by eligible category and the description of green projects, the share of financing versus refinancing and the remaining balance of unallocated proceeds.
  - Impact reporting will include environmental impact indicators where relevant, such as amount of GHG emissions avoided (tCO<sub>2e</sub>), amount of wastewater treated (m<sup>3</sup>), recovery rate of wastewater recycling process (%), amount of renewable energy generated (MWh) and the number of system distribution losses. For the full list of impact indicators, please refer to Appendix 2: Green Bond/Green Bond Programme External Review Form.
  - Based on PUB's commitment to allocation and impact reporting on an annual basis, Sustainalytics considers this process to be in line with market practice.

#### **Alignment with ASEAN Green Bond Standards 2018**

The ASEAN Green Bond Standards 2018 provide guidance to issuers and communicate more specifically about what issuers should do to issue credible green bonds in ASEAN capital markets. Sustainalytics is of the opinion that the eligible green project categories under the PUB Green Financing Framework align with the ASEAN Green Bond Standards 2018 (ASEAN GBS). For detailed information, please refer to Appendix 1: Alignment with ASEAN Green Bond Standards 2018 (ASEAN GBS).

#### **Alignment with Green Bond Principles 2021**

Sustainalytics has determined that the PUB Green Financing Framework aligns with the four core components of the Green Bond Principles 2021 (GBP). For detailed information, please refer to Appendix 2: Green Bond/Green Bond Programme External Review Form.

## Section 2: Sustainability Strategy of PUB

### Contribution of the Framework to PUB's sustainability strategy

Sustainalytics is of the opinion that PUB demonstrates a commitment to sustainability with a focus on sustainable water management. As part of PUB's Sustainability Report 2020/2021, the Agency conducted a materiality assessment that revealed three key priority areas: (i) sustainable water management, (ii) resource efficiency and circularity, and (iii) climate change adaptation.<sup>6</sup>

Under its commitment to sustainable water management, PUB aims to ensure a sustainable supply of water for all in Singapore through diversifying its water resources, adopting a multi-pronged water demand management approach and protecting its infrastructure to minimise water loss. To diversify its water resources, PUB collects rainwater from two-thirds of Singapore's land, imports water from Malaysia, reclaims wastewater into NEWater and desalinates seawater. The Agency also implemented a water reclamation process to recycle, treat and reuse Singapore's wastewater for household, industrial and commercial purposes. This additional supply of reclaimed water is known as NEWater, having five plants in operation.<sup>7</sup>

PUB actively manages water demand through a multi-pronged approach that includes: i) a water pricing strategy implemented through the Water Conservation Tax, ii) mandating water efficiency standards, and iii) encouraging water conservation. Under the mandatory water efficiency standards, the Agency enforced its Water Efficiency Labelling Scheme (MWELS), a grading system imposed on suppliers to rate the water efficiency level of a product, and mandates all large water users to establish and submit water efficiency management plans for at least three consecutive years.<sup>8</sup> Moreover, the Agency has committed to reducing household water consumption to 130 litres per capita per day by 2030 from 154 litres in 2020.

PUB seeks to achieve minimum loss and leakage during water transmission by employing leak detection monitoring sensors to monitor the integrity of water transmission infrastructure. As of 2021, PUB had installed 300 leak detection monitoring sensors in Singapore's water network, targeting an expansion to 1,200 sensors by the end of 2022, covering close to 40% of total transmission pipelines in the country. Thanks to these efforts, total distribution losses for potable water amounted to 8% in 2020, a 0.2 percentage point improvement from the previous year.

As part of its commitment to resource efficiency and circularity, PUB reduces its carbon footprint by deploying solar photovoltaic (PV) systems on the rooftops of its plants and its reservoirs. PUB's solar PV system can generate 64 MWp of solar power, offsetting 7% of the Agency's annual energy consumption and reducing carbon emissions by approximately 32 kt per year. In addition to increasing the share of renewable energy, PUB prioritizes waste minimization at its waterworks and water reclamation plants. Through testing and investing in technologies, including anaerobic membrane bioreactors and pyrolysis of sludge to produce biochar for soil amendment, the Agency reduced its waste generation by 17,600 tons in 2021 compared to the previous year.

Under its commitment to climate change adaptation, PUB implements coastal protection and stormwater management initiatives to strengthen Singapore's overall resilience against climate change and sea-level rise. The Agency is currently preparing a Coastal Inland Flood Model to inform adaptation planning and operations management and continuous review of flood risks for coastal protection. Regarding stormwater management, PUB implemented detention tanks and bioretention basins to provide temporary storage at the stormwater source and invested in pathway solutions, such as building new drains and increasing the conveyance capacities of existing drains to prevent and alleviate floods. Through these efforts, PUB reduced flood-prone areas by 1 hectare in 2020.

Based on the above context, Sustainalytics is of the opinion that the PUB Green Financing Framework is aligned with PUB's overall sustainability strategy and initiatives and will further the Agency's action on its key environmental priorities.

<sup>6</sup> PUB, Sustainability, PUB Sustainability Report 2020/2021, available at: [https://www.pub.gov.sg/Documents/Publications/PUB\\_Sustainability\\_Report.pdf](https://www.pub.gov.sg/Documents/Publications/PUB_Sustainability_Report.pdf)

<sup>7</sup> PUB, NEWater, at: <https://www.pub.gov.sg/watersupply/fournationaltaps/newater>

<sup>8</sup> Large water users are defined by PUB as those that used 60,000 m<sup>3</sup> or more in the preceding calendar year.

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

Sustainalytics recognizes that the net proceeds from the bonds 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 associated with the eligible projects could include land use and biodiversity issues associated with large-scale infrastructure development, effluents, waste generated in construction and occupational health and safety.

Sustainalytics is of the opinion that PUB is able to manage or mitigate potential risks through implementation of the following:

- The Singapore Government requires all new development projects to undergo a thorough evaluation process that addresses the potential impacts on the environment, traffic, public health and heritage. For projects near sensitive areas, such as nature reserves, marine and coastal areas, more detailed environmental studies are required alongside consultation with technical agencies, such as the National Parks Board and National Environment Agency. Planning approvals are only granted to development proposals that have met requirements imposed by regulatory agencies and have demonstrated the adequacy of proposed mitigation measures to potential negative impacts.<sup>9</sup>
- Under PUB's Code of Practice on Sewerage and Sanitary Works<sup>10</sup> and Singapore's Sewerage and Drainage Act<sup>11</sup>, developers and engineers must minimize a development's impact on public sewers, minimize flood risks to developments and ensure that premises are served by proper sanitation to safeguard public health and water resources. This is ensured by requiring detailed building plans, construction impact assessments, monitoring programmes and risk assessment reports to be submitted to the Agency for clearance prior to commencing building and structural works.
- To mitigate effluents and waste generated during construction and operation, PUB works with relevant government agencies at the planning stage to manage site developments with high pollution risks surrounding the water catchment area.<sup>12</sup> For potentially pollutive developments within water catchment areas, such as farms, the Agency requires developers to implement best management practices to prevent spillage of hazardous or toxic substances and contaminated run-off from affecting catchment raw water quality. PUB also conducts routine monitoring of effluent discharge from desalination and other water treatment plants to ensure compliance of effluent quality with regulations. Furthermore, PUB actively reduces sludge generation through several measures and testing technologies, such as thermal hydrolysis and alternative coagulants for water treatment.
- Regarding occupational health and safety, PUB established a Health and Safety Board Committee and a Safety Steering Committee which oversee PUB's health and safety strategies and initiatives. In 2020, PUB also developed a Health and Safety Excellence programme which identifies its organizational safety management system and drives safe behaviour among employees. PUB's safety management system is aligned with Singapore Ministry of Manpower's Workplace Safety and Health guidelines.<sup>13</sup>

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

<sup>9</sup> Singapore Urban Redevelopment Authority, "Environmental Impact Assessment", at: <https://www.ura.gov.sg/Corporate/Planning/Our-Planning-Process/Bringing-plans-to-Reality/Environmental-Impact-Assessment>

<sup>10</sup> PUB, "Code of Practice on Sewerage and Sanitary Works", 2019, at: [https://www.pub.gov.sg/Documents/COPSSW2nded2019AddendumNo1\\_final.pdf](https://www.pub.gov.sg/Documents/COPSSW2nded2019AddendumNo1_final.pdf)

<sup>11</sup> Singapore Statutes Online, "Sewerage and Drainage Act", <https://sso.agc.gov.sg/Act/SDA1999>

<sup>12</sup> PUB, "PUB Sustainability Report 2020/2021", at: [https://www.pub.gov.sg/Documents/Publications/PUB\\_Sustainability\\_Report.pdf](https://www.pub.gov.sg/Documents/Publications/PUB_Sustainability_Report.pdf)

<sup>13</sup> PUB, "PUB Sustainability Report 2020/2021", at: [https://www.pub.gov.sg/Documents/Publications/PUB\\_Sustainability\\_Report.pdf](https://www.pub.gov.sg/Documents/Publications/PUB_Sustainability_Report.pdf)

### Section 3: Impact of Use of Proceeds

Both use of proceeds categories are aligned with those recognized by the GBP and ASEAN GBS. Sustainalytics focuses below on the one whose impact is specifically relevant in the local context.

#### The importance of promoting sustainable water and wastewater management in Singapore

According to the World Resources Institute, Singapore is expected to be one of the most water-stressed countries by 2040,<sup>14</sup> due to its rapidly growing population and flood risk.<sup>15</sup> Singapore’s population has grown substantially from 1.8 million in 1965 to 5.69 million in 2020,<sup>16</sup> alongside a sharp increase in per capita GDP from USD 516 to USD 59,797 during the same period.<sup>17, 18</sup> As a result, the country’s total daily water consumption has increased from 70 million gallons in 1965<sup>19</sup> to 430 million gallons in 2021.<sup>20</sup> Without new natural water sources to draw on, increasing water demand that follows population growth and economic development are expected to stress Singapore’s water systems. By 2060, Singapore’s total water demand could almost double.<sup>21</sup> At the same time, as a low-lying city-state, Singapore is vulnerable to the consequences of climate change, such as rising sea levels, intense rainfall and other extreme weather events.<sup>22</sup>

Given the above context, effective management of water resources, including addressing water scarcity and flood risk, is a key issue for Singapore to sustain its economic growth. To tackle these challenges, the Singapore Government’s Singapore Green Plan 2030<sup>23</sup> outlines important water-related targets for key areas, including water conservation, the energy efficiency of water treatment and carbon footprint of water production. For example, the government pledges to reduce the energy consumption from desalination processes from 3.5 kWh/m<sup>3</sup> currently to 2 kWh/m<sup>3</sup> by 2025 and reduce household water consumption to 130 litres per capita per day by 2030.

Based on the above, Sustainalytics is of the opinion that PUB’s financing of projects in sustainable water management is expected to positively contribute to Singapore’s efforts to secure its water supply and ensure sound water management practices.

#### 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 bonds issued under the PUB Green Financing Framework are expected to help advance the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
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
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

<sup>14</sup> World Resources Institute, “Ranking the World’s Most Water-Stressed Countries in 2040”, (2015), at <https://www.wri.org/insights/ranking-worlds-most-water-stressed-countries-2040>

<sup>15</sup> McKinsey & Company, “From resource to asset: Building a water-resilient Singapore”, (2019), at <https://www.mckinsey.com/business-functions/operations/our-insights/from-resource-to-asset-building-a-water-resilient-singapore>

<sup>16</sup> Singapore Government Website, “Population in Brief 2020”, (2020), at: <https://www.population.gov.sg/files/media-centre/publications/pib-2020-final.pdf>

<sup>17</sup> World Bank, Singapore GDP per capita (current US\$), at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=SG>

<sup>18</sup> World Bank, Singapore Population, at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=SG>

<sup>19</sup> Project Firefly, “Water Management: A Unique Singapore Perspective”, (2014), at: <https://project-firefly.com/node/18602>

<sup>20</sup> PUB, “Singapore Water Story”, at: <https://www.pub.gov.sg/watersupply/singaporewaterstory>

<sup>21</sup> PUB, “Singapore Water Story”, at: <https://www.pub.gov.sg/watersupply/singaporewaterstory>

<sup>22</sup> World Bank, Climate Change Knowledge Portal, Singapore Country Summary, at: <https://climateknowledgeportal.worldbank.org/country/singapore>

<sup>23</sup> Singapore Government, Ministry of Sustainability and the Environment, Green Plan 2030, at: <https://www.greenplan.gov.sg/>

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## Conclusion

PUB has developed the PUB Green Financing Framework under which it may issue green bonds and use the proceeds to finance and refinance, in whole or in part, existing and future projects that aim to strengthen Singapore's water security and sustainability, and generate positive environmental benefits. Sustainalytics considers that the projects funded by the green bond proceeds are expected to provide positive environmental impact.

The PUB Green Financing Framework outlines a process for tracking, allocating and managing proceeds, and makes commitments for PUB to report on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the PUB Green Financing Framework is aligned with the overall sustainability strategy of the Agency and that the financing of projects under the green use of proceeds categories will contribute to the advancement of the UN Sustainable Development Goals 6 and 7. Additionally, Sustainalytics is of the opinion that PUB has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects funded by the proceeds.

Based on the above, Sustainalytics is confident that PUB is well positioned to issue green bonds and that the PUB Green Financing Framework is robust, transparent and in alignment with the four core components of the Green Bond Principles 2021 and the ASEAN Green Bond Standards 2018.



## Appendices

### Appendix 1: Alignment to the ASEAN Green Bond Standards 2018 (ASEAN GBS)

<b>ASEAN GBS Criteria</b>	<b>Alignment with the ASEAN GBS</b>	<b>Sustainalytics' comments on alignment with the ASEAN GBS</b>
Eligibility	Yes	The ASEAN GBS requires that issuers must be in or that the proceeds be directed to assets in an ASEAN country. PUB qualifies given that PUB intends to finance projects in Singapore.
Use of Proceeds	Yes	The ASEAN GBS offers specific clarification that fossil fuel power generation projects are excluded. PUB has confirmed this exclusion criteria to Sustainalytics.
Process for Project Evaluation and Selection	Yes	The ASEAN GBS specifies information that must be clearly communicated to investors before issuance regarding project selection. PUB's Sustainability Committee, that is co-chaired by Deputy Chief Executives with support from several Department Directors, are responsible for reviewing, selecting and validating eligible assets under the Framework.
Management of Proceeds	Yes	The ASEAN GBS mandates that proceeds must be appropriately tracked and that temporary investments be disclosed. Within the Framework, PUB disclosed that it will track and monitor the use of proceeds using its internal green bond register. Unallocated proceeds will be invested in accordance with PUB's approved cash investment policy.
Reporting	Yes	The ASEAN GBS requires annual reporting on the allocation of funds and the expected impacts. PUB confirms that it will provide an annual allocation report until full allocation and report on the impact of the use of proceeds.
Annual Review	Yes	The ASEAN GBS encourages, but does not require, annual reviews. PUB intends to provide annual reviews.

## Appendix 2: Green Bond / Green Bond Programme - External Review Form

### Section 1. Basic Information

Issuer name:	PUB
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable:	PUB Green Financing Framework
Review provider's name:	Sustainalytics
Completion date of this form:	March 25, 2022

### 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 – Sustainable Water and Wastewater Management and Renewable Energy – are aligned with those recognized by the Green Bond Principles 2021 and the ASEAN

Green Bond Standards 2018. Sustainalytics considers that investments in the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDG 6 and 7.

**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 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):

PUB has established the Sustainability Committee, which is co-chaired by deputy chief executives and supported by a number of department directors, to oversee the project evaluation and selection. PUB has processes in place to identify and mitigate common environmental and social risks associated with the eligible projects, which are applicable to all allocation decisions made under the Framework. Sustainalytics considers PUB's risk management system to be adequate and 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 type="checkbox"/> Summary criteria for project evaluation and selection publicly available                  | <input type="checkbox"/> Other ( <i>please specify</i> ):   |

### Information on Responsibilities and Accountability

- Evaluation / Selection criteria subject to external advice or verification
  In-house assessment
- Other (please specify):

### 3. MANAGEMENT OF PROCEEDS

Overall comment on section (if applicable):

PUB's Finance Department will oversee the management of proceeds on a portfolio basis via a green bond register, with oversight from the CFO. PUB intends to fully allocate net proceeds within three years of issuance. Pending full allocation, unallocated proceeds will be held in cash instruments in accordance with PUB's approved cash investment policy. This is in line with market practice.

#### Tracking of proceeds:

- Green Bond proceeds segregated or tracked by the issuer in an appropriate manner
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (please specify):

#### Additional disclosure:

- Allocations to future investments only
  Allocations to both existing and future investments
- Allocation to individual disbursements
  Allocation to a portfolio of disbursements
- Disclosure of portfolio balance of unallocated proceeds
  Other (please specify):

### 4. REPORTING

Overall comment on section (if applicable):

PUB intends to report on allocation of proceeds on its website annually until full allocation. Allocation reporting may include the amount of allocated proceeds by eligible category, the description of eligible green projects as well as the share of financing versus refinancing. Impact reporting may include relevant environmental impact indicators. Sustainalytics views PUB's allocation and impact reporting as aligned with market practice.

#### Use of proceeds reporting:

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

**Information reported:**

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

**Frequency:**

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

**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 (please specify):                 |

**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 checked="" type="checkbox"/> Other ESG indicators (please specify): Number of sensors or system coverage, number of leaks avoided, number of system distribution losses, amount of wastewater treated and/or recycled (m <sup>3</sup> ), amount of waste avoided/reduced, recovery rate of wastewater recycling process (%), amount of renewable energy generated (MWh) |

**Frequency**

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

**Means of Disclosure**

- |   |   |
|---|---|
| <input type="checkbox"/> Information published in financial report  | <input type="checkbox"/> Information published in sustainability report   |
| <input type="checkbox"/> Information published in ad hoc documents  | <input checked="" type="checkbox"/> Other (please specify): PUB's website |
| <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 checked="" type="checkbox"/> Verification / Audit             | <input type="checkbox"/> Rating        |
| <input type="checkbox"/> Other ( <i>please specify</i> ): Assurance  |  |

**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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