



Hong Kong Special Administrative Region  
of the People's Republic of China

# Green Bond Report 2021



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# The Government Green Bond Programme

In February 2018, the Financial Secretary (FS) of the Government of the Hong Kong Special Administrative Region of the People's Republic of China (the Government) announced in his 2018-19 Budget to launch the **Government Green Bond Programme** (GGBP) with a borrowing ceiling<sup>1</sup> of HK\$100 billion (about US\$12.8 billion) to demonstrate the commitment to promoting green finance and developing the Hong Kong Special Administrative Region (the HKSAR or Hong Kong) into a more sustainable and liveable city.



As authorised by the Legislative Council of the HKSAR in November 2018, the sums raised under the GGBP are credited to the Capital Works Reserve Fund (CWRF) to provide funding for the Government's public works projects with environmental benefits. The Steering Committee on the GGBP, chaired by the FS, has been established to oversee and give strategic direction on the implementation and development of the GGBP. The Hong Kong Monetary Authority (HKMA) assists in implementing green bond issuance under the GGBP. As at 31 July 2021, the Government has successfully issued green bonds totalling US\$3.5 billion under the GGBP.

As a consistent step to consolidate and develop Hong Kong's position as a premier green finance hub regionally and internationally, the FS announced in his **2021-22 Budget** the plan to double the borrowing ceiling of the GGBP to HK\$200 billion (about US\$25.6 billion) to allow for further issuance of green bonds totalling HK\$175.5 billion (about US\$22.5 billion) in the five financial years<sup>2</sup> from 2021-22, giving the Government more room for piloting the issuance of green bonds that involves more types of currencies, project types and issuance channels. The actual size and timing of issuance will be determined having regard to the market situation. The Legislative Council approved in July 2021 the Government's proposal to expand the scope of and raise the borrowing ceiling under the GGBP to HK\$200 billion. Under the expanded GGBP, the sums raised are still credited to the CWRF but will fund a wider variety of green projects not limited to public works projects.

<sup>1</sup> It refers to the maximum amount of outstanding principal at any time under the GGBP, i.e. the principal amount of bonds issued minus that of bonds matured.

<sup>2</sup> A financial year of the Government runs from 1 April of a calendar year to 31 March of the next calendar year.

# Hong Kong's Commitments on Climate and Environmental Protection

In January 2017, the Environment Bureau published *Hong Kong's Climate Action Plan 2030+*, which represents the outcome of the dedicated work of all bureaux and relevant departments, in support of the Steering Committee on Climate Change chaired by the Chief Secretary for Administration of the Government. The Action Plan sets out Hong Kong's carbon emissions reduction target for 2030 and the concerted plans for achieving it. The Paris Agreement, which came into force in November 2016, applies to the HKSAR. As such, Hong Kong will implement the Paris Agreement and will follow its reporting timeline. Hong Kong targets to reduce its carbon intensity (carbon emissions per unit of Gross Domestic Product) by 65% to 70% between 2005 and 2030, which is equivalent to an absolute reduction of 26% to 36% and will result in per capita emissions of 3.3 to 3.8 tonnes in 2030.



In order to support the transition to a low carbon economy and minimise climate change's impact on our environment, various bureaux and departments of the Government have implemented a number of measures<sup>3</sup> and published policy documents<sup>4</sup> to address major environmental issues and to map out blueprints for low carbon and sustainable development in Hong Kong.



In addition to the introduction of the GGBP, Hong Kong has achieved good progress in areas such as improvement in air quality, nature conservation, development of renewable energy, energy saving and decarbonisation, and construction of waste-to-resources and sewage treatment infrastructures in recent years. As announced in the 2020 Policy Address, the HKSAR will strive to achieve carbon neutrality before 2050. To this end, the Government will update the "Hong Kong's Climate Action Plan" within 2021 to set out more proactive strategies and measures to reduce carbon emissions. In July 2021, the Government set up the new Steering Committee on Climate Change and Carbon Neutrality under the chairmanship of the Chief Executive of the HKSAR. It replaced the Steering Committee on Climate Change chaired by the Chief Secretary for Administration of the Government in overseeing climate strategies and actions, and will bring them to

the highest level for deliberation and decision-making. In February 2021, the Government promulgated the "Waste Blueprint for Hong Kong 2035" which sets out the vision of "Waste Reduction · Resources Circulation · Zero Landfill" and outlines the strategies to meet the challenges of waste management up to 2035, including the goal to move away from reliance on landfills for direct waste disposal by developing adequate waste-to-energy facilities. In March 2021, the Government announced Hong Kong's first Roadmap on the Popularisation of Electric Vehicles which will guide Hong Kong's future direction to attain zero vehicular emissions before 2050. The "Clean Air Plan for Hong Kong 2035" which advocates "Healthy Living · Low-carbon Transformation · World Class" and will lead Hong Kong to be a more liveable city with air quality on par with major international cities by 2035 was published in June 2021.

<sup>3</sup> Including the introduction of the **Feed-in Tariff Scheme** to further promote private development of distributed renewable energy, the **Railway Development Strategy 2014** to alleviate traffic congestion and attenuate air pollution as well as the **Harbour Area Treatment Scheme** and the **Sewerage Master Plans**.

<sup>4</sup> Including -

- ◆ **Hong Kong Biodiversity Strategy and Action Plan 2016-2021;**
- ◆ **Energy Saving Plan for Hong Kong's Built Environment 2015-2025+;**
- ◆ **Waste Blueprint for Hong Kong 2035;**
- ◆ **Hong Kong Roadmap on Popularisation of Electric Vehicles;** and
- ◆ **Clean Air Plan for Hong Kong 2035.**

# Green and Sustainable Finance Initiatives in Hong Kong



As an international financial centre, Hong Kong has an important role to play in the global economy's transition towards a low carbon and sustainable economy. Over the years, the Government has continued to provide the necessary market infrastructure and take forward various initiatives with a view to developing and consolidating Hong Kong as the green and sustainable finance centre in the region and in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), contributing to the goal of achieving carbon neutrality before 2060 in the Mainland and before 2050 in Hong Kong.

In May 2020, the Green and Sustainable Finance Cross-Agency Steering Group (Steering Group), comprising various financial regulators and Government bureaux in Hong Kong<sup>5</sup>, was set up to co-ordinate the management of climate and environmental risks to the financial sector, accelerate the growth of green and sustainable finance in Hong Kong and support the Government's climate strategies. In December 2020, the Steering Group promulgated a Strategic Plan which sets out six key focus areas<sup>6</sup> for strengthening Hong Kong's financial ecosystem to support a greener and more sustainable future in the longer term, and agreed to implement five near-term action points<sup>7</sup>. The Steering Group further announced in July 2021 its next steps, with focus on climate-related disclosures and sustainability reporting, carbon market opportunities and the launch of the new Centre for Green and Sustainable Finance (Centre) to co-ordinate cross-sector efforts in capacity building, thought leadership and policy development. The Centre will also serve as a repository for resources, data and analytics which supports the transition to a more sustainable development pathway. The Government will join hands with the financial sector and relevant stakeholders to take forward the strategic plan to mobilise capital towards sustainable projects in the region and encourage more institutions to make use of Hong Kong's platform for green investment, financing and certification.

To help banks develop the solutions needed to address climate change across emerging markets, the HKMA has co-launched the Alliance for Green Commercial Banks (Alliance) with International Finance Corporation in November 2020. With the HKMA being the founding member and first regional anchor for the Asia Chapter, Hong Kong will serve as the green finance hub among commercial banks in Asia. The Alliance will launch targeted initiatives and campaigns in the region to undertake green finance research, provide unique market insight, tailor capacity building and training support, and provide practical guidance for banks to develop their own roadmap to mainstream green finance as their core business and develop new green financial products.

In May 2021, the Government launched a three-year *Green and Sustainable Finance Grant Scheme* to provide subsidy for eligible bond issuers and loan borrowers to cover their expenses on bond issuance and external review services. The Scheme will help attract more bond issuers and borrowers to use Hong Kong's fundraising platform and professional services, boosting more green finance activities in Hong Kong. It also encourages more financial and professional service providers and external reviewers to use Hong Kong as a regional hub.

<sup>5</sup> The Steering Group is co-chaired by the HKMA and the Securities and Futures Commission of Hong Kong. Members include the Environment Bureau, the Financial Services and the Treasury Bureau, the Hong Kong Exchanges and Clearing Limited, the Insurance Authority and the Mandatory Provident Fund Schemes Authority.

<sup>6</sup> (1) strengthening climate-related financial risk management; (2) promoting the flow of climate-related information at all levels to facilitate risk management, capital allocation and investor protection; (3) enhancing capacity building for the financial services industry and raising public awareness; (4) encouraging innovation and exploring initiatives to facilitate capital flows towards green and sustainable causes; (5) capitalising on Mainland opportunities to develop Hong Kong into a green finance centre in the GBA; and (6) strengthening regional and international collaboration.

<sup>7</sup> (1) climate-related disclosures aligned with the Task Force on Climate-related Financial Disclosures recommendations will be mandatory across relevant sectors no later than 2025; (2) aim to adopt the Common Ground Taxonomy; (3) support the International Financial Reporting Standards Foundation's proposal to establish a new Sustainability Standards Board; (4) promote climate-focused scenario analysis; and (5) establish a platform to act as a focal point for financial regulators, Government agencies, industry stakeholders and the academia on Green and Sustainable Finance.



# The Green Bond Framework

As a core component of the GGBP, the Government published a **Green Bond Framework** (the Framework) in 2019 which sets out how it intends to issue green bonds to fund projects that will improve the environment and facilitate the transition to a low carbon economy. The Framework, as well as any bonds issued under it, is aligned with the Green Bond Principles (GBP) 2018 of the International Capital Market Association.

In accordance with the Framework, the proceeds of issuances will be used exclusively to finance or re-finance public works projects of the Government that fall under one or more of the eight Eligible Categories, i.e. renewable energy; energy efficiency and conservation; pollution prevention and control; waste management and resource recovery; water and wastewater management; nature conservation / biodiversity; clean transportation; and green buildings.

The Steering Committee on the GGBP reviews and approves each project submitted by bureaux and departments as “Eligible Project” based on the eligibility criteria outlined in the Use of Proceeds section and the allocation of proceeds of each Green Bond Transaction (GBT) to Eligible Projects according to the process in the Project Evaluation and Selection section of the Framework.

The proceeds of each GBT will be credited to the CWRP pending earmarking to Eligible Projects, and will be allocated to expenditures within the last two or next two financial years from the issuance date. It is expected that more than half of the proceeds will be allocated to future expenditures.

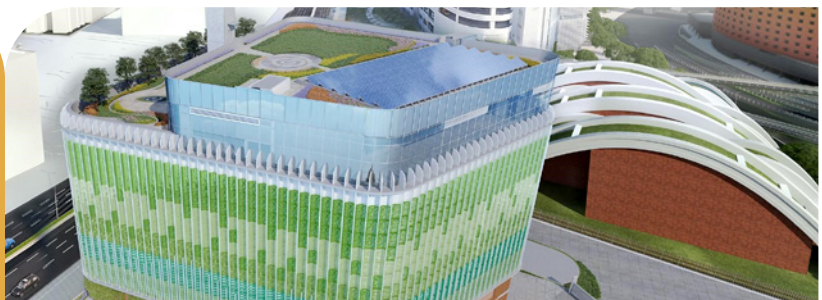
The Government will provide information on the allocation of the proceeds and expected environmental benefits on an annual basis.

Vigeo Eiris provided a second party opinion regarding, amongst other, the alignment of the Framework with the GBP 2018.



Renewable Energy

Energy Efficiency and Conservation





## Pollution Prevention and Control

## Waste Management and Resource Recovery



## Water and Wastewater Management

## Nature Conservation / Biodiversity



## Clean Transportation

## Green Buildings



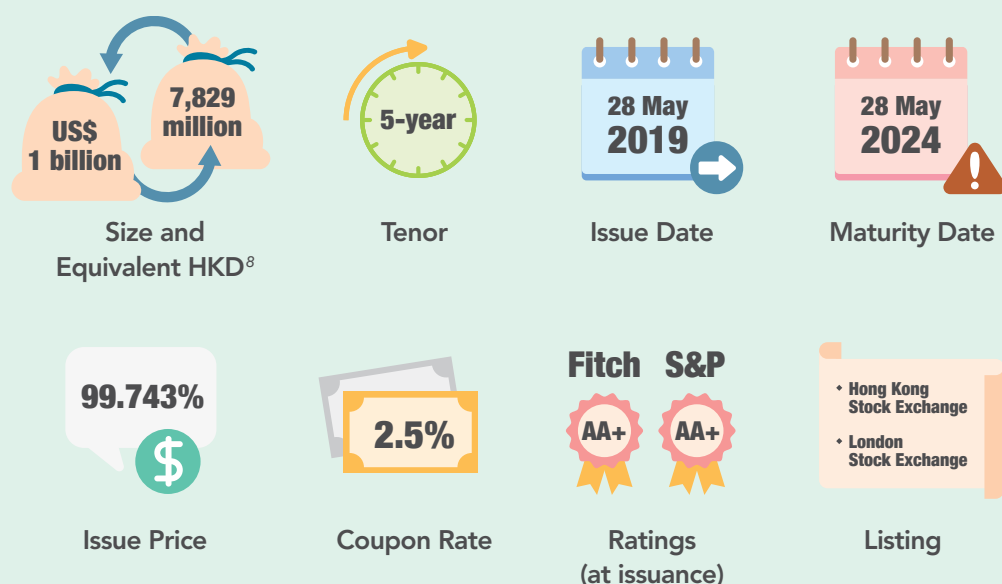
# Government Green Bond Issuances

## The Inaugural Green Bond Issuance

The inaugural green bond of US\$1 billion was successfully issued on 28 May 2019 under the Framework and received the Green Finance Certificate (Pre-issuance Stage) from the Hong Kong Quality Assurance Agency (HKQAA).

As at 30 June 2020, the total proceeds, amounting to HK\$7,829 million, have been fully allocated to seven public works projects that fall under four different Eligible Categories as defined in the Framework.

The Government issued the first report under the GGBP (i.e. *Green Bond Report 2020*) in August 2020, providing information on the project details, allocation of the proceeds and the expected environmental benefits of the seven projects funded by the inaugural green bond. The inaugural green bond received the Green Finance Certificate (Post-issuance Stage) from HKQAA.



## The February 2021 Green Bond Issuances

Following a virtual roadshow on 25 January 2021, a total of US\$2.5 billion green bonds, comprising three tranches of US\$1 billion 5-year, US\$1 billion 10-year and US\$500 million 30-year, were successfully issued on 2 February 2021 under a newly established Global Medium Term Note (MTN) Programme. The issuances also received the Green Finance Certificate (Pre-issuance Stage) from HKQAA.














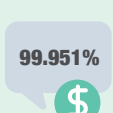
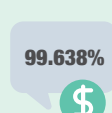
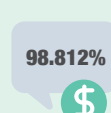






The offering was well received by the global investment community, attracting total orders exceeding US\$14 billion, which was more than five times the issuance size, with the 5-year and the 10-year tranche each attracting orders more than five times their respective issuance sizes, and the 30-year tranche attracting orders more than seven times its issuance size. The green bonds attracted interest from a diverse group of conventional and green investors, including those who are signatories to the Principles for Responsible Investment or investors who incorporate

<sup>8</sup> The bond proceeds were exchanged from US dollars to Hong Kong dollars immediately upon receipt.



environmental, social, and governance (ESG) factors into investment decisions. About 65% of the bonds were distributed to institutional investors in Asia, 20% to Europe and 15% to the United States.

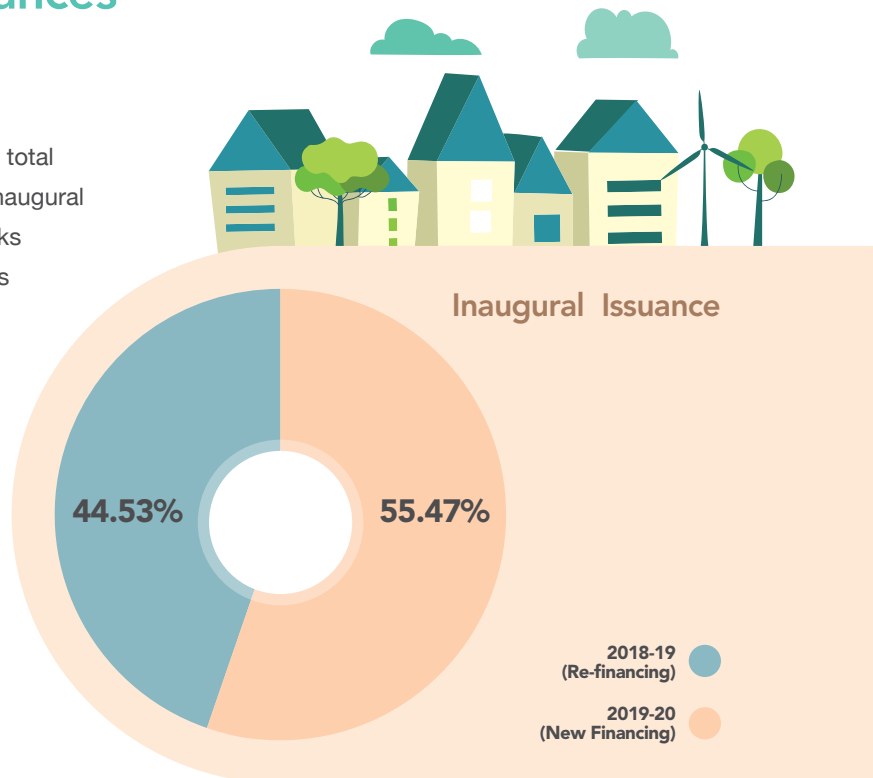
The issuances achieved a number of breakthroughs at issuance: the world's largest US dollar government green bond deal; the 30-year tranche being the longest tenor US dollar government green bond in Asia and the longest tenor issued by the Government; and the first Global MTN Programme dedicated to green bond issuances by a government.

Details of the February 2021 Issuances			
Size	 US\$ 1 billion	 US\$ 1 billion	 US\$ 500 million
Equivalent HKD <sup>8</sup>	 7,749 million	 7,725 million	 3,830 million
Tenor	 5-year	 10-year	 30-year
Issue Date	 2 Feb 2021		
Maturity Date	 2 Feb 2026	 2 Feb 2031	 2 Feb 2051
Issue Price	 99.951%	 99.638%	 98.812%
Coupon Rate	 0.625%	 1.375%	 2.375%
Ratings (at issuance)	 		
Listing	 <ul style="list-style-type: none"> <li>• Hong Kong Stock Exchange</li> <li>• London Stock Exchange</li> </ul>		

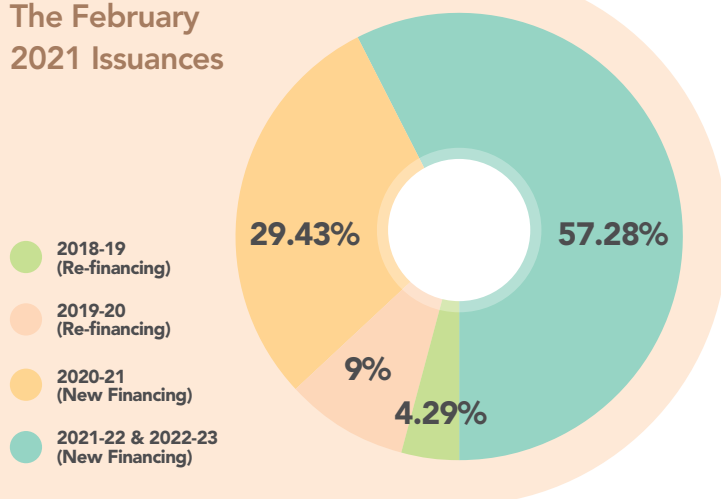
# Allocation of the Proceeds of the Green Bond Issuances

## Allocation by Financial Years

As reported in the *Green Bond Report 2020*, the total proceeds amounting to HK\$7,829 million of the inaugural issuance were fully allocated to seven public works projects under four different Eligible Categories as defined in the Framework. 44.53% and 55.47% of the proceeds were used to finance the expenditures of these seven projects in 2018-19 and 2019-20 respectively.



## The February 2021 Issuances



As at 31 July 2021, the total proceeds amounting to HK\$19,304 million of the February 2021 issuances have been fully allocated or earmarked to five projects partly financed by the inaugural issuance and another seven public works projects recently approved by the Steering Committee on the GGBP as Eligible Projects for the allocation of green bond proceeds (Newly Selected Projects). 4.29%, 9.00% and 29.43% of the proceeds have been allocated to finance the expenditures of these 12 projects in 2018-19, 2019-20 and 2020-21 respectively. The remaining 57.28% of the proceeds have been earmarked for the estimated expenditures of these projects in 2021-22 and 2022-23.



## Allocation<sup>9</sup> by Eligible Categories

### A. Waste Management and Resource Recovery

	Inaugural Issuance	February 2021 Issuances
<b>Proceeds for the Category:</b>	<b>HK\$4,045 million (US\$519 million)</b>	<b>HK\$6,781 million (US\$874 million)</b>
Proceeds Allocated:	HK\$4,045 million (US\$519 million)	HK\$2,649 million (US\$341 million)
Proceeds Earmarked:	–	HK\$4,132 million (US\$533 million)
<b>Percentage of the Total Proceeds Raised:</b>	51.67%	35.13%
<b>Projects Financed:</b>	1. Integrated Waste Management Facilities Phase 1 (I-PARK) 2. O-PARK1	1. I-PARK 2. O-PARK2*

\*Newly Selected Project

### B. Green Buildings

	Inaugural Issuance	February 2021 Issuances
<b>Proceeds for the Category:</b>	<b>HK\$2,156 million (US\$276 million)</b>	<b>HK\$8,457 million (US\$1,091 million)</b>
Proceeds Allocated:	HK\$2,156 million (US\$276 million)	HK\$4,058 million (US\$524 million)
Proceeds Earmarked:	–	HK\$4,399 million (US\$567 million)
<b>Percentage of the Total Proceeds Raised:</b>	27.53%	43.81%
<b>Projects Financed:</b>	1. West Kowloon Government Offices 2. Inland Revenue Tower in the Kai Tak Development	1. Inland Revenue Tower in the Kai Tak Development 2. Treasury Building* 3. Redevelopment of Queen Mary Hospital, Phase 1* 4. East Kowloon Cultural Centre*

\*Newly Selected Project

<sup>9</sup> The final allocation for the proceeds earmarked will be subject to the actual expenditures of the projects in 2021-22 and 2022-23 and reported in subsequent Green Bond Reports.





## C. Water and Wastewater Management

	Inaugural Issuance	February 2021 Issuances
<b>Proceeds for the Category:</b>	<b>HK\$1,127 million (US\$144 million)</b>	<b>HK\$2,021 million (US\$261 million)</b>
Proceeds Allocated:	HK\$1,127 million (US\$144 million)	HK\$1,114 million (US\$144 million)
Proceeds Earmarked:	–	HK\$907 million (US\$117 million)
<b>Percentage of the Total Proceeds Raised:</b>	14.40%	10.47%
<b>Projects Financed:</b>	<ol style="list-style-type: none"> <li>1. Upgrading of San Wai Sewage Treatment Works - Phase 1</li> <li>2. Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan</li> </ol>	<ol style="list-style-type: none"> <li>1. Upgrading of San Wai Sewage Treatment Works - Phase 1</li> <li>2. Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan</li> <li>3. West Kowloon Drainage Improvement-Inter-reservoirs Transfer Scheme*</li> <li>4. Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1*</li> </ol>

\*Newly Selected Project

## D. Energy Efficiency and Conservation

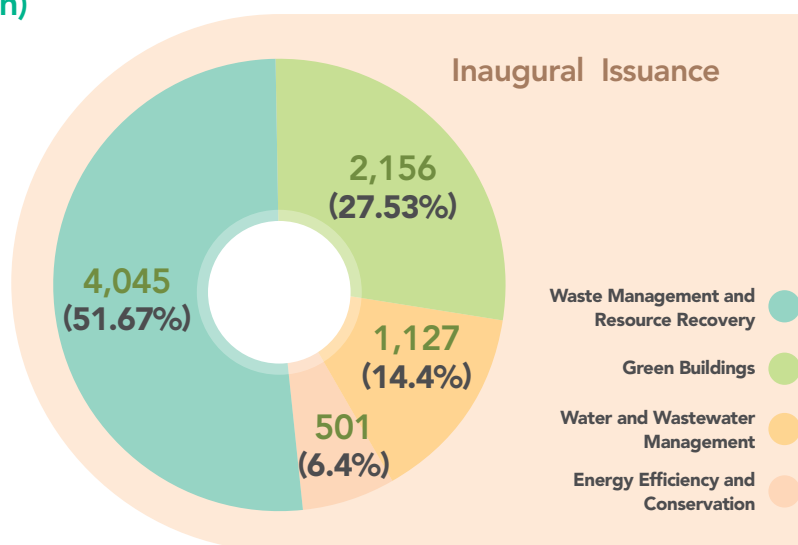
	Inaugural Issuance	February 2021 Issuances
<b>Proceeds for the Category:</b>	<b>HK\$501 million (US\$64 million)</b>	<b>HK\$2,045 million (US\$264 million)</b>
Proceeds Allocated:	HK\$501 million (US\$64 million)	HK\$425 million (US\$55 million)
Proceeds Earmarked:	–	HK\$1,620 million (US\$209 million)
<b>Percentage of the Total Proceeds Raised:</b>	6.40%	10.59%
<b>Projects Financed:</b>	<ol style="list-style-type: none"> <li>1. District Cooling System at the Kai Tak Development</li> </ol>	<ol style="list-style-type: none"> <li>1. District Cooling System at the Kai Tak Development</li> <li>2. Additional District Cooling System at the Kai Tak Development*</li> </ol>

\*Newly Selected Project



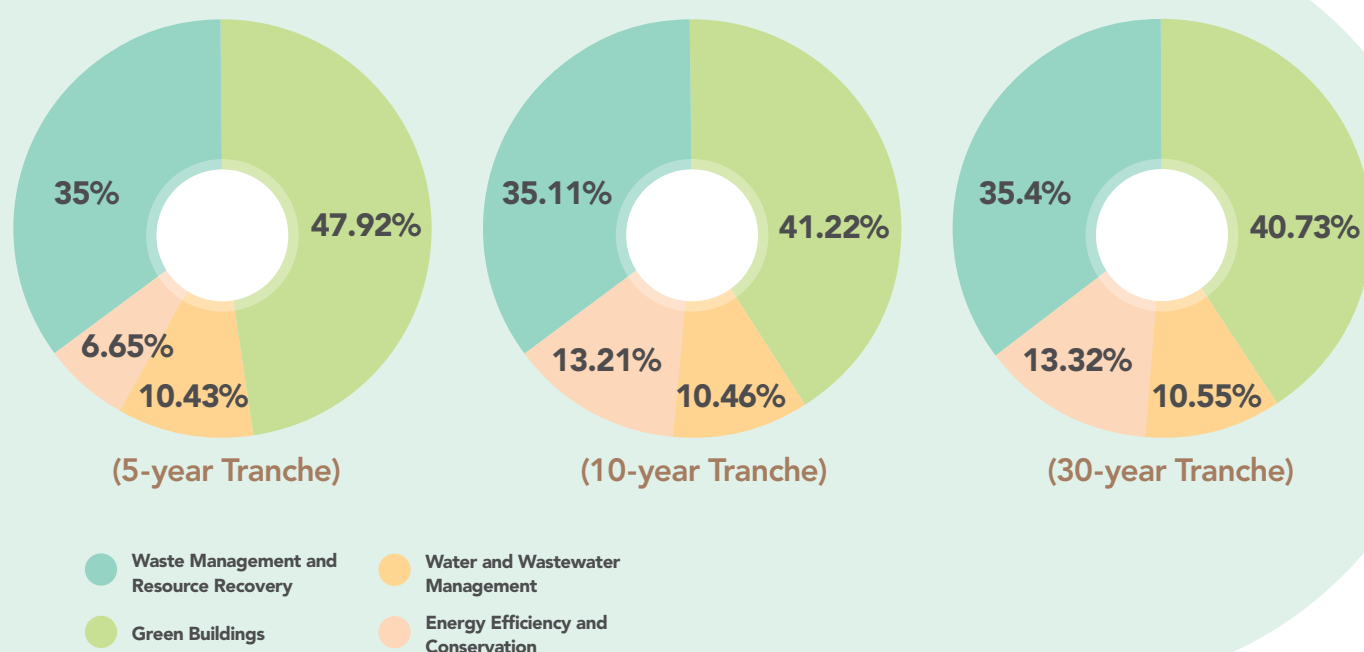


## Allocation of the Proceeds by Eligible Categories (in HKD million)



Eligible Category	5-year Tranche	10-year Tranche	30-year Tranche	All Three Tranches
(A) Waste Management and Resource Recovery	35.00%	35.11%	35.40%	<b>35.13%</b>
(B) Green Buildings	47.92%	41.22%	40.73%	<b>43.81%</b>
(C) Water and Wastewater Management	10.43%	10.46%	10.55%	<b>10.47%</b>
(D) Energy Efficiency and Conservation	6.65%	13.21%	13.32%	<b>10.59%</b>

## February 2021 Issuances



## Use of the Proceeds by Projects

Project No.	Name of Project	Eligible Category	Total Project Estimate (HKD million)	Expenditure up to 2020-21 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2021) (HKD million)
1	I-PARK	Waste Management and Resource Recovery	19,204	6,051	6,000
2	O-PARK1	Waste Management and Resource Recovery	1,589	1,418	266
3	West Kowloon Government Offices	Green Buildings	4,743	3,597	1,769
4	Inland Revenue Tower in the Kai Tak Development	Green Buildings	3,600	1,087	1,087
5	Upgrading of San Wai Sewage Treatment Works - Phase 1	Water and Wastewater Management	2,572	1,627	1,090
6	Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan	Water and Wastewater Management	1,363	422	331
7	District Cooling System at the Kai Tak Development	Energy Efficiency and Conservation	4,946	4,077	802
8	O-PARK2	Waste Management and Resource Recovery	2,453	428	428
9	Treasury Building	Green Buildings	2,281	1,012	1,012
10	Redevelopment of Queen Mary Hospital, Phase 1	Green Buildings	13,556	1,231	1,231
11	East Kowloon Cultural Centre	Green Buildings	4,176	1,501	1,114
12	West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme	Water and Wastewater Management	1,222	359	359
13	Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1	Water and Wastewater Management	2,041	461	461
14	Additional District Cooling System at the Kai Tak Development	Energy Efficiency and Conservation	4,269	124	124

## Use of the Proceeds by Green Bonds



Year Issued	Green Bond (ISIN)	Green Bond Proceeds (HKD million)	Amount Allocated for Expenditures in 2018-19, 2019-20 and 2020-21														Amount Earmarked for Expenditures in 2021-22 and 2022-23
			Project No.														1, 4 to 14
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
2019	<b>5-year green bond</b> (US43858AAB61/ USY2836BAN48)	7,829	3,779	266	1,769	386	886	241	501	0	0	0	0	0	0	0	0
2021	<b>5-year green bond</b> (US43858AAC45/ USY3422VCR79)	7,749	888	0	0	280	82	36	301	171	405	492	446	144	184	0	4,319
2021	<b>10-year green bond</b> (US43858AAD28/ USY3422VCS52)	7,725	888	0	0	280	82	36	0	171	405	492	446	144	184	83	4,513
2021	<b>30-year green bond</b> (US43858AAE01/ USY3422VCT36)	3,830	444	0	0	140	41	18	0	86	202	246	223	72	92	41	2,225
<b>Total Proceeds</b>		<b>27,132</b>	<b>6,000</b>	<b>266</b>	<b>1,769</b>	<b>1,087</b>	<b>1,090</b>	<b>331</b>	<b>802</b>	<b>428</b>	<b>1,012</b>	<b>1,231</b>	<b>1,114</b>	<b>359</b>	<b>461</b>	<b>124</b>	

Note: Individual figures may not add up to the total owing to rounding.

**Inaugural green bond**

ISIN:  
(US43858AAB61/  
USY2836BAN48)

**February 2021 5-year tranche**

ISIN:  
(US43858AAC45/  
USY3422VCR79)

**February 2021 10-year tranche**

ISIN:  
(US43858AAD28/  
USY3422VCS52)

**February 2021 30-year tranche**

ISIN:  
(US43858AAE01/  
USY3422VCT36)

# Geographical Locations of the Projects Financed



- |   |   |
|---|---|
| 1 I-PARK  | 8 O-PARK2   |
| 2 O-PARK1   | 9 Treasury Building   |
| 3 West Kowloon Government Offices   | 10 Redevelopment of Queen Mary Hospital, Phase 1                        |
| 4 Inland Revenue Tower in the Kai Tak Development   | 11 East Kowloon Cultural Centre   |
| 5 Upgrading of San Wai Sewage Treatment Works - Phase 1   | 12 West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme |
| 6 Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan | 13 Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1            |
| 7 District Cooling System at the Kai Tak Development  | 14 Additional District Cooling System at the Kai Tak Development        |



# Details and Expected Environmental Benefits of the Projects Financed

## A. Waste Management and Resource Recovery

### Major expected impacts of newly selected project (Project 8):

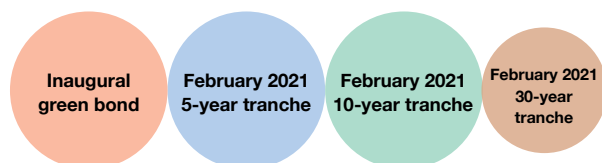
- (i) 24 million kilowatt-hours (kWh) of electricity generated / saved per year
- (ii) 67 000 tonnes of greenhouse gas emissions avoided or reduced per year, in carbon dioxide equivalent (CO<sub>2</sub>e)



### 1. Integrated Waste Management Facilities Phase 1 (Project 1)



The Integrated Waste Management Facilities, also known as I-PARK, is located in an artificial island near Shek Kwu Chau on the southern edge of Hong Kong waters. I-PARK aims to substantially reduce the bulk size of municipal solid waste and recover useful resources and is expected to be fully commissioned within 2025. The project has been financed by the proceeds of both the inaugural and the February 2021 Government green bond issuances. The project details and expected environmental benefits have been reported in the *Green Bond Report 2020*.



## 2. O-PARK1 (Project 2)



Located at Siu Ho Wan of North Lantau, O-PARK1 is the first organic resources recovery centre that adopts anaerobic digestion technology in Hong Kong to convert food waste into biogas (a source of renewable energy similar to natural gas) for electricity generation whilst the residues from the process can be produced as compost for landscaping and agriculture use. O-PARK1 has been fully commissioned in 2018. Part of the project cost was financed by the inaugural Government green bond. According to the latest assessment, O-PARK1 can prevent the emission of some 42 000 tonnes of greenhouse gases each year, which is a 68% increase from the 25 000 tonnes as originally reported in the *Green Bond Report 2020*.

For more details, please refer to the *O-PARK1 Project webpage*.

Inaugural  
green bond





### 3. O-PARK2 (Project 8)



Located at Sha Ling, North District of the New Territories, the Organic Resources Recovery Centre 2, commonly known as O-PARK2, is the second organic resources recovery centre that adopts anaerobic digestion technology in Hong Kong to convert food waste into biogas for electricity generation whilst the residues from the process can be produced as fertiliser for landscaping and agriculture use. It is capable of handling 300 tonnes of food waste per day.

O-PARK2 is expected to produce around 30 000 cubic metres of biogas on a daily basis. In addition to providing electricity and heat for its own facilities, the surplus biogas will be used for the production of electricity and fed into the power grids of the power companies. About 24 million kWh of surplus electricity can be generated annually, sufficient for use by some 5 000 households.

With the commissioning of O-PARK2, which is expected in 2023, the decrease in the use of fossil fuel for electricity generation together with the reduced amount of organic waste landfilled will prevent the emission of some 67 000 tonnes of greenhouse gases<sup>10</sup> and reduce about 110 000 tonnes of food waste to be disposed of at landfills in Hong Kong annually.

For more details, please refer to the [O-PARK2 Project webpage](#).

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<sup>10</sup> This is based on the estimated amount of greenhouse gas emissions avoided or reduced owing to (1) the expected reduction in the volume of organic waste for landfill disposal; and (2) the expected reduction of the use of fossil fuel in electricity generation given the surplus electricity produced and exported to the existing power grid.

## B. Green Buildings

### Major expected impact of newly selected projects (Projects 9, 10 and 11):

Expect to receive a BEAM Plus New Buildings certification at Gold rating or above



### 1. West Kowloon Government Offices (Project 3)

Situated at the West Kowloon Reclamation area at Yau Ma Tei, the twin-tower West Kowloon Government Offices was commissioned in 2019 and now houses the operations of nine Government departments. Part of the project cost was financed by the inaugural Government green bond. The project was awarded a final certification at the Platinum rating under the BEAM Plus New Buildings scheme by the Hong Kong Green Building Council in November 2020. The project details and expected environmental benefits have been reported in the *Green Bond Report 2020*.

Inaugural  
green bond



PLATINUM  
鉑金級  
HKGBC  
BEAM Plus  
綠建環評  
V1.2 2020



### BEAM Plus

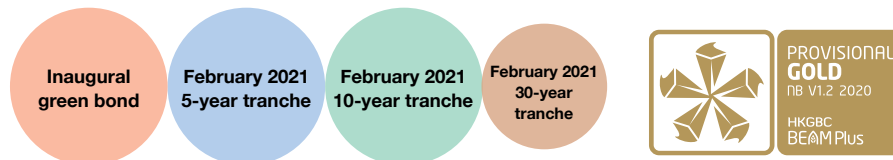
Recognised and certified by the Hong Kong Green Building Council, BEAM Plus offers a comprehensive set of performance criteria for a wide range of sustainability issues relating to the planning, design, construction, commissioning, management, operation and maintenance of a building. By providing a fair and objective assessment of a building's overall performance throughout its life cycle, BEAM Plus enables organisations and companies to demonstrate their commitment to sustainable development.

For more information, please visit [www.hkgbc.org.hk](http://www.hkgbc.org.hk).



## 2. Inland Revenue Tower in the Kai Tak Development (Project 4)

This new Inland Revenue Tower is situated at the northern fringe of the Kai Tak Development of Kowloon and is expected to complete in 2022. The project has been awarded a provisional certification at the Gold rating under the BEAM Plus New Buildings scheme by the Hong Kong Green Building Council and financed by the proceeds of both the inaugural and the February 2021 Government green bond issuances. The project details and expected environmental benefits have been reported in the *Green Bond Report 2020*.



NEW

## 3. Treasury Building (Project 9)

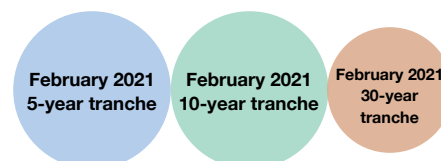


The Treasury Building is located at Cheung Sha Wan of Kowloon and is easily accessible via various means of public transport. The 22-storey building will provide about 26 500 square metres of net operational floor area accommodating facilities including, amongst others, offices of six bureaux and departments currently accommodated in the Wan Chai Government Offices Compound and five departments currently in leased private premises; a general out-patient clinic; a 100-place child care centre; and a 40-place day care centre for the elderly. The project is expected to complete in 2022.

The building will adopt various forms of energy efficient features, renewable energy technologies and recycled features, in particular –

- ◆ variable speed drive chillers to reduce the energy consumption
- ◆ automatic demand control of supply air to minimise the amount of supply air to save energy
- ◆ heat recovery system for exhaust air to conserve energy
- ◆ photovoltaic system to convert the solar radiation into usable electricity
- ◆ a rainwater harvesting system for landscape irrigation to conserve water

The Hong Kong Green Building Council has awarded a provisional certification at the Gold rating under the BEAM Plus New Buildings scheme to the project for having achieved, amongst others, about 29.11% reduction of carbon dioxide emissions (based on the assessed result in BEAM Plus Provisional Assessment Report).



## 4. Redevelopment of Queen Mary Hospital, Phase 1 (Project 10)



Established in 1937, Queen Mary Hospital (QMH) is located at Pok Fu Lam, the south western side of Hong Kong Island. QMH is a major acute hospital serving the residents of the Central and Western District and the Southern District, as well as treating many patients in other geographical districts in Hong Kong. It provides a full range of acute and tertiary services, including 24-hour Accident and Emergency (A&E) Services, in-patient service, ambulatory care and rehabilitation services, as well as specialist services covering a wide range of specialties and subspecialties. It is also the teaching hospital of the Li Ka Shing Faculty of Medicine of the University of Hong Kong, providing professional clinical training, pioneering innovative technology and conducting clinical trials for new treatment modalities. In addition, QMH serves as a tertiary and quaternary referral centre for many complex and advanced services (such as organ transplant, neonatal intensive care, coronary care, burns and reconstructive surgery and neurosurgery) for the entire territory. Since July 2003, QMH has become the only designated liver transplant centre in Hong Kong to provide world-class standard liver transplant service. The A&E Department of QMH has been designated as one of the five trauma centres in the territory.

Having established for 80 years, the design of existing facilities in QMH is outdated and no longer meets the service requirements and workflow logistics of a modern tertiary acute hospital. The scope of the project comprises, among others, the construction of a new hospital block that has large floor plates to accommodate various clinical as well as supporting facilities; the provision of potential connection between

the New Block and the existing QMH compound to suit the subsequent redevelopment phase of QMH; and the provision of a rooftop helipad solely for medical emergency purposes. The project, with a construction floor area of about 143 000 square metres, will enhance the medical service capacity of QMH to cope with the rising demand of the increasing and ageing population. The project is expected to complete in 2024.

The building will adopt various forms of energy efficient features, renewable energy technologies and recycled features, in particular –

- ◆ high efficiency air-cooled chillers with variable speed drive to reduce energy consumption
- ◆ demand control of fresh air supply with carbon dioxide sensors to minimise the amount of fresh air supply to save energy for heating up or cooling down the supplied air to maintain the desired temperature of the building
- ◆ deployment of occupancy/ motion sensors to control the supply of air-conditioning and lighting by zones
- ◆ multi-purposes heat pump for hot water, space heating and dehumidification to conserve energy
- ◆ photovoltaic system to convert the solar radiation into usable electricity
- ◆ solar hot water system to absorb solar thermal radial to heat up water, thereby minimising the electricity consumption from electric water heaters
- ◆ condensate water recycling for flushing to conserve water

The project is expected to achieve the Gold rating under the BEAM Plus New Buildings scheme of the Hong Kong Green Building Council. The energy efficient features of the project are expected to achieve 9.8% energy saving in the annual energy consumption.

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## 5. East Kowloon Cultural Centre (Project 11)



The East Kowloon Cultural Centre (EKCC) is conveniently located at East Kowloon. Situated at a densely populated area and well served by public transport systems, EKCC provides various cultural facilities and services as well as public open spaces to the community. EKCC will be easily accessible to performing groups, artists and audience, and help alleviate the current acute shortage of performing arts facilities. Tentatively targeted to be open to the public in 2023, EKCC, with a construction floor area of about 50 900 square metres, will accommodate facilities including an auditorium of 1 200 seats, a theatre of 550 seats, three multi-purpose studios ranging from 120 to 360 seats, rehearsal rooms and other ancillary facilities.

This project will adopt various forms of energy efficient features, renewable energy technologies and recycled features, in particular –

- ◆ water-cooled chiller (evaporative cooling tower using fresh water) to reduce energy consumption
- ◆ automatic demand control of chilled water circulation system to reduce energy consumption on pumping power to conserve energy
- ◆ demand control of fresh air supply with carbon dioxide sensors to minimise the amount of fresh air supply to save energy for heating up or cooling down the supplied air to maintain the desired temperature of the building
- ◆ heat recovery system for exhaust air to conserve energy
- ◆ multi-purposes heat pump for space heating and dehumidification to conserve energy
- ◆ building energy management system to improve energy efficiency
- ◆ solar hot water system to absorb solar thermal radial to heat up water, thereby minimising the electricity consumption from electric water heaters
- ◆ photovoltaic system to convert the solar radiation into usable electricity
- ◆ a rainwater harvesting system for landscape irrigation to conserve water

The Hong Kong Green Building Council has awarded a provisional certification at the Gold rating under the BEAM Plus New Buildings scheme to the project for having achieved, amongst others, about 13.2% reduction of carbon dioxide emissions (based on the assessed result in BEAM Plus Provisional Assessment Report).

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30-year tranche





## C. Water and Wastewater Management

### Major expected impacts of newly selected projects (Projects 12 and 13):

- (i) additional 3.4 million cubic metres of fresh water yield per year
- (ii) additional 3 340 cubic metres of wastewater treated per day



### 1. Upgrading of San Wai Sewage Treatment Works – Phase 1 (Project 5)



The project improves the treatment level of the existing San Wai Sewage Treatment Works located at Yuen Long of the New Territories and helps reduce pollution loads to the North-western Waters of Hong Kong. Commissioned in the first quarter of 2021, the project has been financed by the proceeds of both the inaugural and the February 2021 Government green bond issuances. The project details and expected environmental benefits have been reported in the [\*Green Bond Report 2020\*](#).

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tranche

## 2. Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan (Project 6)



The project involves the construction of about 6.5 kilometres of sewage rising main of 1.2 metres in diameter and rehabilitation of the existing sewage rising main between Tung Chung Sewage Pumping Station and Siu Ho Wan Sewage Treatment Works at the North Lantau. The project is expected to be commissioned progressively from 2023 and fully by 2025 and has been financed by the proceeds of both the inaugural and the February 2021 Government green bond issuances. The project details and expected environmental benefits have been reported in the *Green Bond Report 2020*.

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tranche

NEW

## 3. West Kowloon Drainage Improvement – Inter-reservoirs Transfer Scheme (Project 12)

The project West Kowloon Drainage Improvement – Inter-reservoirs Transfer Scheme (IRTS) involves the construction of a water tunnel of about 2.8 kilometres with 3 metres diameter from the Kowloon Byewash Reservoir to the Lower Shing Mun Reservoir; an intake structure at the Kowloon Byewash Reservoir; and an outfall structure at the Lower Shing Mun Reservoir. It aims to transfer collected surface runoff from the Kowloon group of reservoirs to the Lower Shing Mun Reservoir, thereby creating a designated storage capacity in the Kowloon Byewash Reservoir to receive further surface runoff from the catchment. The implementation of the project will improve flood protection for the areas of West Kowloon, including Sham Shui Po, Cheung Sha Wan and Lai Chi Kok, up to the required standard, strengthening their resilience in flood mitigation for combating climate change. In addition, transferring collected surface runoff from the Kowloon group of reservoirs to the Lower Shing Mun Reservoir through the IRTS will



generate an estimated average annual additional fresh water yield of about 3.4 million cubic metres<sup>11</sup>. The project is expected to complete in 2022.

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tranche

<sup>11</sup> The estimated yield will vary subject to the amount of rainfall, which fluctuates between years and is seasonal dependent.



## 4. Expansion of Sha Tau Kok Sewage Treatment Works – Phase 1 (Project 13)



The existing Sha Tau Kok Sewage Treatment Works (STKSTW), situated at the North District of the New Territories and serving only the Sha Tau Kok town area, discharges its treated effluent through a short submarine outfall into Starling Inlet. It reached its maximum capacity of 1 660 cubic metres per day in 2019. The project is for expanding STKSTW in order to improve the quality of the receiving waters of Starling Inlet, and involves, among others, the reconstruction of the existing STKSTW to increase its capacity and the construction of submarine outfall for the disposal of treated effluent from STKSTW. The reconstruction of STKSTW will increase its capacity by 3 340 cubic metres to 5 000 cubic metres per day to serve a projected population of about 20 000 with an allowance to further increase the capacity by another 5 000 cubic metres to 10 000 cubic metres per day in the future. A larger and longer submarine outfall under construction will provide sufficient capacity for discharging the increased treated effluent and for improving the dilution of effluent by water current. The project is expected to complete by 2025, meeting the development needs and population growth in the area.

The project is expected to achieve the Gold rating under the BEAM Plus New Buildings scheme of the Hong Kong Green Building Council. The energy efficient features of the project are expected to achieve 15% energy saving in the annual energy consumption.

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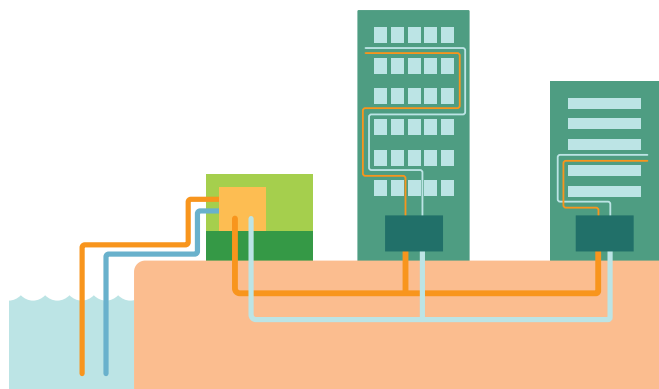
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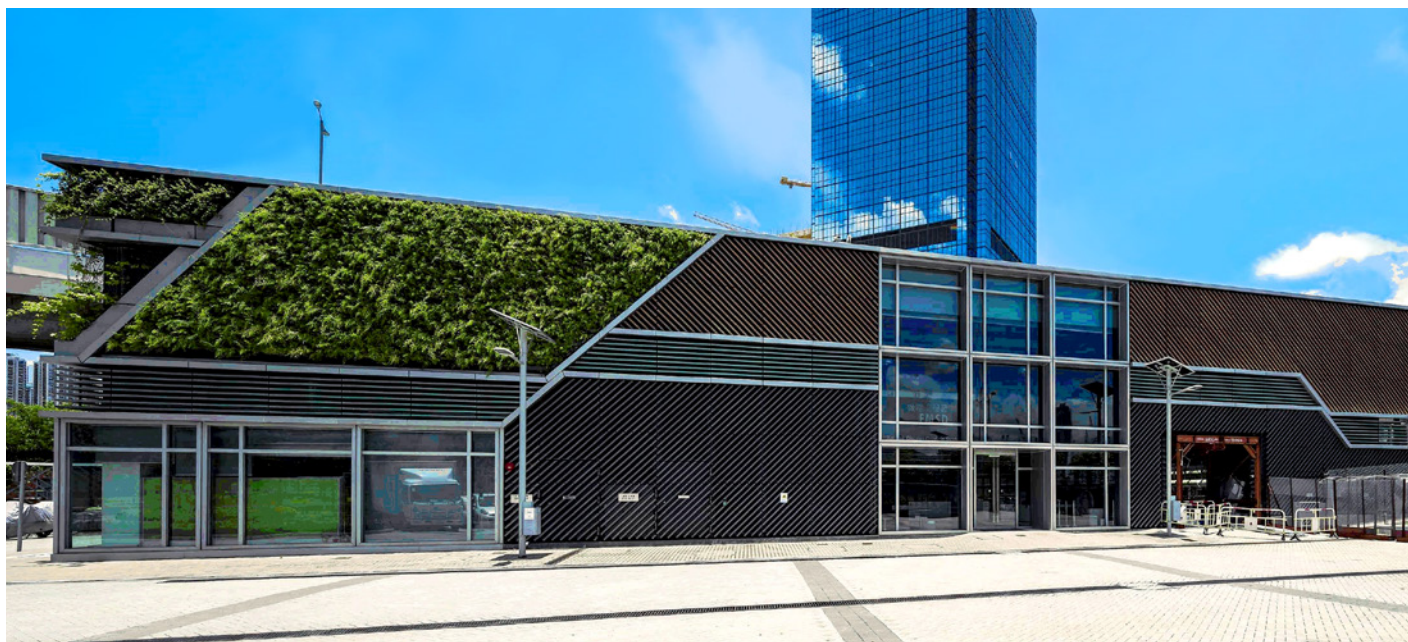
## D. Energy Efficiency and Conservation

### Major expected impacts of newly selected project (Project 14):

- (i) 35% energy efficiency improvement compared to air-cooled cooling system
- (ii) 53 million kWh of electricity saved per year
- (iii) 37 000 tonnes of greenhouse gas emissions avoided or reduced per year, in CO<sub>2</sub>e



### 1. District Cooling System at the Kai Tak Development (Project 7)



The District Cooling System (DCS) at the Kai Tak Development (KTD) is a large-scale centralised air-conditioning system that uses chilled water from the central plants to provide cooling to multiple buildings at KTD connected by an underground cooling water pipe system. Phases I, II and III (Packages A to C) of the KTD DCS project were completed between 2013 and 2020 and the remaining works under Phase III are expected to complete by 2025. The project has been financed by the proceeds of both the inaugural and the February 2021 Government green bond issuances. The project details and expected environmental benefits have been reported in the [\*Green Bond Report 2020\*](#).

Inaugural  
green bond

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5-year tranche



## 2. Additional District Cooling System at the Kai Tak Development (Project 14)



An additional DCS is under construction at KTD to meet the growth in projected cooling demand of user buildings including the New Acute Hospital, the additional commercial floor areas of about 400 000 square metres arising from the increased development intensity of KTD and the Kai Tak Sports Park. The estimated cooling capacity is about 178 megawatt of refrigeration which can serve an estimated total additional non-domestic air-conditioned floor area of about 811 000 square metres.

The additional DCS at KTD will bring about significant environmental benefits and help mitigate climate change. Upon full utilisation, the project is estimated to save about 53 million kWh of electricity a year, corresponding to an annual reduction of about 37 000 tonnes of carbon dioxide emissions<sup>12</sup>.

Apart from energy saving, DCS can bring about the following benefits for individual users and the community -

- ◆ about 5% to 10% reduction in upfront capital cost for installing chiller plants in individual buildings
- ◆ more flexible building design
- ◆ reduced heat island effects at KTD; and no noise and vibration arising from the operation of heat rejection equipment and chillers of air-conditioning plants in user buildings
- ◆ a more adaptable air-conditioning system to meet the varying demand of buildings as compared to individual air-conditioning systems

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<sup>12</sup> This is based on the estimated amount of greenhouse gas emissions avoided or reduced owing to the electricity saved with DCS as compared to traditional air-cooled systems.

## External Review

The Green Bond Report 2021 is approved by the Steering Committee on the GGBP.

The inaugural and the February 2021 Government green bond issuances under the Framework have received the Green Finance Certificate (Post-issuance Stage) from HKQAA.

For further information regarding HKQAA and its assessment, please refer to the Appendix.



**Post-issuance Stage**  
**Certificate No.: CC 7193**  
**CC 7649 - CC 7654**





# Appendix

## Assessment Summary

### Scope and Objectives

Hong Kong Quality Assurance Agency (HKQAA) has been engaged by the Government of the Hong Kong Special Administrative Region of the People's Republic of China (the HKSARG) to undertake an independent assessment on the information presented in its Green Bond Report 2021 (the Report). The assessment provides assurance, in accordance with the HKQAA Green Finance Certification Scheme 2018<sup>1</sup> (GFCS) – Post-Issuance requirements, on the alignment of the green bond and the projects financed by its proceeds mentioned in the Report against the Green Bond Framework and the Environmental Method Statement of the HKSARG. This summary reflects our opinion for the issuance of the HKQAA Green Finance Certificate. The scope of HKQAA's assessment covers the data and information for the period between 1 July 2020 and 31 July 2021.

### Process and Methodology

The process applied to this assessment is set out in GFCS. The evidence gathering process set out in GFCS was designed to ensure an independent assessment process.

Our assessment procedures performed include:

- ◆ reviewing relevant documentation;
- ◆ visiting the relevant sites;
- ◆ interviewing persons who prepare the Report; and
- ◆ verifying the selected representative sample of projects, data and information.

Raw data and supporting evidence of the selected samples have been thoroughly examined by HKQAA's assessment team during the assessment process.

### Independence

The HKSARG is responsible for the collection and presentation of the information in the Report. HKQAA is not involved in the collection and calculation of data presented in or the compilation and development of the Report. Our assessment activities are independent from the HKSARG.

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<sup>1</sup> GFCS is developed with reference to widely adopted international and national guidelines and principles. For details, please refer to Section 2.1 and Appendix 3 of the Handbook for GFCS. Please **contact** HKQAA to obtain the Handbook.



## Limitations

There are inherent limitations in performing the assessment. Assurance engagements are based on selective testing of the information and data being examined. It is possible that fraud, error or non-compliance may occur and not be detected. The assessment does not provide assurance on the information outside the defined reporting boundary and period.

There are additional inherent risks associated with the assurance over the information presented in the Report against the relevant requirements or criteria. Such assurance requires the information to be examined against source data compiled using definitions and estimation methods developed by the HKSARG. Finally, the assessment of the Report against GFCS is subjective and will be interpreted differently by different stakeholder groups.

Our assessment is limited to assurance in accordance with the GFCS post-issuance requirements, as well as the GFCS related policies and procedures in place on 31 March 2021.

## Conclusion

The information on the green bond activities presented in the Report are verified by the assessment team of HKQAA as consistent with the agreed assessment scope, objectives and criteria.

HKQAA adopts a risk-based approach. Our examination includes assessing the evidence relevant to the information and disclosures by the HKSARG in the Report.

Based on the assessment results, the assessment team has concluded that no material error or omission has been identified in the Report. It is materially correct and is a fair representation of the data and information for the reporting periods. The Report is prepared in accordance with the post-issuance requirements of GFCS.

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## Hong Kong Quality Assurance Agency

Hong Kong Quality Assurance Agency (HKQAA) is a non-profit organisation established in 1989. As one of the leading conformity assessment organisations in the region, HKQAA is committed to providing certification and assessment services for the industries. Through knowledge sharing and technology transfer, HKQAA helps enterprises enhance management performance and competitiveness.

### Ample Experience in Fostering Sustainable Finance

HKQAA has developed diverse services and obtained ample experience in the fields of social responsibility, environmental protection, sustainability and responsible investment:

- ◆ Under the nomination of the China National Institute of Standardization and the Innovation and Technology Commission of the Government of the Hong Kong Special Administrative Region (HKSAR), expert of HKQAA represents China and the HKSAR respectively to join the related ISO technical committees to develop the ISO 14030 Green Debt Instruments – Environmental performance of nominated projects and assets and ISO 32210 Framework for sustainable finance: Principles and guidance
- ◆ Observer of the Green Bond Principles (GBP) under the International Capital Market Association (ICMA)
- ◆ Approved verifier under the Climate Bonds Standard
- ◆ The only Hong Kong organisation accredited as the Designated Operational Entity by the Executive Board of the Clean Development Mechanism (CDM) under the United Nations Framework Convention on Climate Change (UNFCCC) to deliver CDM validation and verification services
- ◆ Provision of assessment and rating services on listed companies' sustainability performance for the Hang Seng Corporate Sustainability Index Series

### Enhancing Credibility in Green Finance

In keeping with the green finance development in the region, HKQAA launched the Green Finance Certification Scheme in 2018 to provide third-party conformity assessments for green bond and green loan issuers, so as to enhance credibility and stakeholder confidence in green finance.

HKQAA has developed the Scheme with reference to a number of widely recognised international and national standards on green finance including, among others:

- ◆ CDM under the UNFCCC;
- ◆ GBP under the ICMA;
- ◆ China Guiding Catalogue for the Green Industry;
- ◆ China Green Bond Endorsed Projects Catalogue;
- ◆ EU Final TEG report for Sustainable Finance Taxonomy; and
- ◆ ISO 26000:2010 Guidance on Social Responsibility.

In May 2021, in response to Government policies and market needs, HKQAA took a further step and rolled out the **Green and Sustainable Finance Certification Scheme**, which aimed to promote more capital flows towards green and sustainable uses. This echoes the Government's goals of achieving carbon neutrality before 2050 and developing Hong Kong into a regional green and sustainable finance hub.

## Enquiry

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**Designed by** the Information Services Department  
Hong Kong Special Administrative Region Government  
August 2021