

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

Green Bond Report 2022





Contents





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 ceiling¹ 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 major 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 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 years² 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 to HK\$200 billion under the GGBP. Under the expanded scope of the GGBP, the sums raised and credited to the CWRF will fund, in addition to major public works projects, a wider variety of green projects including minor works projects, major systems and equipment, as well as capital subvention projects implemented by non-government organisations. As at 31 July 2022, the Government has successfully issued close to US\$10 billion worth of green bonds under the GGBP.

¹ 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.

² 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**

Hong Kong has been responding positively to the goal of the Paris Agreement to limit the increase of the global average temperature, and published in January 2017 the Hong Kong's Climate Action Plan 2030+ to set out the target to reduce Hong Kong's carbon intensity by 65% to 70% by 2030 from the 2005 level. With the implementation of various decarbonisation measures, Hong Kong is moving steadily towards the 2030 carbon reduction target. The total carbon emissions have shown a downward trend after reaching its peak in 2014. The carbon intensity in 2019 was about 35% lower than that in 2005.

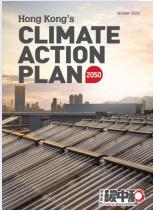
The Central People's Government sets out in "The Outline of the 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the

Long-Range Objectives Through the Year 2035" the plan to promote a comprehensive green transformation for economic and social development, and to endeavour to have carbon emissions peak before 2030 and achieve carbon neutrality before 2060. To align with the country's commitment to achieve the peak of carbon emissions before 2030 and carbon neutrality before 2060, the Chief Executive (CE) of HKSAR announced in the 2020 Policy Address that Hong Kong would strive to achieve carbon neutrality before 2050. A new interdepartmental "Steering Committee on Climate Change and Carbon Neutrality" was formed and chaired by the CE to formulate the overall strategy and oversee work progress. Four major decarbonisation strategies were announced in the 2021 Policy Address to help Hong Kong achieve carbon neutrality before 2050, namely "net-zero electricity generation", "energy saving and green buildings", "green transport" and "waste reduction", as well as the interim target to reduce Hong Kong's total carbon emissions from the 2005 levels by half before 2035. The then Environment Bureau³ announced the Hong Kong's Climate Action Plan 2050 on 8 October 2021 to set out the above mitigation strategies and targets in detail.

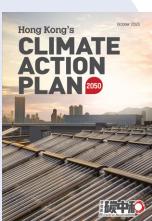
In 2020, electricity generation continued to be Hong Kong's largest source of carbon emissions (60%), followed by transport (20%) and waste (9%). Therefore, Hong Kong's decarbonisation work would focus on these three key areas. The four major decarbonisation strategies in the Hong Kong's Climate Action Plan 2050 cover the following targets and measures -

Net-zero electricity generation: Achieve the long-term target of net-zero electricity generation before 2050 by ceasing the use of coal for daily electricity generation by 2035; increasing the share of renewable energy in the fuel mix for electricity generation to 7.5% to 10% by 2035, and to 15% subsequently; and trying out the use of new energy and strengthen co-operation with neighbouring regions to raise the share of zero-carbon energy for electricity generation to about 60% to 70%.

³ The Environment Bureau has been renamed as the Environment and Ecology Bureau with effect from 1 July 2022.







- Energy saving and green buildings: Reduce the overall electricity consumption of buildings through promoting green buildings, improving buildings' energy efficiency and promoting a low-carbon lifestyle. The goal is to reduce the electricity consumption of commercial buildings by 30% to 40% and that of residential buildings by 20% to 30% from the 2015 level by 2050, and to achieve half of the above targets by 2035.
- Green transport: Achieve the long-term target of attaining zero vehicular emissions and zero carbon emissions in the transport sector before 2050, through the electrification of vehicles and ferries, development of new-energy transport and measures to improve traffic management. The Government will cease the new registration of fuel-propelled and hybrid private cars in 2035 or earlier. Apart from promoting electric buses and commercial vehicles, the Government also plans to collaborate with the franchised bus companies and other stakeholders by 2024 to test out hydrogen fuel cell electric buses and heavy vehicles.
- Waste reduction: To achieve the long-term target of carbon neutrality in waste management before 2050, the Government will strive to develop adequate waste-to-energy facilities by 2035, so as to move away from reliance on landfills for municipal waste disposal. The Government will continue to promote waste reduction and recycling, and preparatory work is underway for the implementation of municipal solid waste charging.

In the next 15 to 20 years, the Government will devote about HK\$240 billion to take forward various measures on climate change mitigation and adaptation. A new Office of Climate Change and Carbon Neutrality will be set up to strengthen co-ordination and promote deep decarbonisation. Also, a dedicated advisory committee on combating climate change will be formed to encourage different sectors in the community, including young people, to participate actively in climate actions.





Green and Sustainable Finance Initiatives in Hong Kong



Climate change poses risks to an economy but at the same time creates opportunities for its financial industry to develop green and sustainable finance. To contribute proactively to the country's "3060 Dual Carbon Targets" in relation to carbon emission peak and carbon neutrality, as well as propel Hong Kong towards its own carbon neutrality target before 2050, the Government will continue to promote the development of green and sustainable finance, encourage more entities to make use of Hong Kong's financial and professional services for green and sustainable investment, financing and certification, and attract top-notch institutions and talent to Hong Kong to provide the relevant services. Over the years, the Government has been working in concert with the financial regulators and the industry and taking a multi-pronged strategy to promote green and sustainable finance in Hong Kong. By providing the necessary market infrastructure and taking forward various initiatives, Hong Kong is consolidating its role as the green and sustainable finance centre in the region and in the Guangdong-Hong Kong-Macao Greater Bay Area.

The Government continues to join hands with the financial sector and relevant stakeholders to take forward the Strategic Plan and the five near-term action points promulgated in 2020 by the Green and Sustainable Finance Cross-Agency Steering Group (Steering Group), comprising various financial regulators and Government bureaux in Hong Kong⁴.

Since the establishment of the *Centre for Green and Sustainable Finance* (GSF Centre)⁵ in July 2021, it has been working to build capacity and enhance talent and data resources for the financial industry. In the first half of 2022, the GSF Centre launched three repositories to support the industry and students in locating useful data sources, training information and internship opportunities related to green and sustainable finance. In addition, the GSF Centre is working with the Financial Services and the Treasury Bureau on the preparation work for a new Pilot Green and Sustainable Finance Capacity Building Support Scheme as announced by the FS in the *2022-23 Budget*.

In March 2022, the Steering Group published its preliminary feasibility assessment of carbon market opportunities for Hong Kong. Based on the assessment, the Steering Group plans to develop Hong Kong into a global high-quality voluntary carbon market and to explore potential collaborations with relevant authorities. The Steering Group is considering the most appropriate market and regulatory model and is continuing the discussions with various carbon exchanges and stakeholders from across the carbon market ecosystem.

The Government continues to promote the *Green and Sustainable Finance Grant Scheme* launched in May 2021. The scheme has been well received by the industry. As at end-June 2022, about 110 applications have been approved under the scheme, covering various kinds of green and sustainable debt instruments totalling US\$35 billion. Since March 2022, the Government has lowered the minimum loan size threshold from HK\$200 million to HK\$100 million in respect of applications for subsidies for covering external review costs under the scheme, with a view to supporting smaller-sized enterprises in obtaining green financing.

⁴ The Steering Group is co-chaired by the HKMA and the Securities and Futures Commission of Hong Kong. Members include the Environment Bureau (renamed as Environment and Ecology Bureau with effect from 1 July 2022), the Financial Services and the Treasury Bureau, the Hong Kong Exchanges and Clearing Limited, the Insurance Authority and the Mandatory Provident Fund Schemes Authority.

⁵ The GSF Centre is a cross-sector platform launched by the Steering Group. It co-ordinates the efforts of financial regulators, relevant Government agencies, industry stakeholders and academia in capacity building and to improve data availability for the financial industry.

Hong Kong's Green and Sustainable Finance Strategic Plan and Five Near-Term Action Points



The Green Bond Framework

As a core component of the GGBP, the Government first published a **Green Bond Framework** (the Framework) in March 2019 which set out how it intended to issue green bonds to fund projects that would improve the environment and facilitate the transition to a low carbon economy. The Framework, as well as any bonds issued under it, was aligned with the Green Bond Principles (GBP) 2018 of the International Capital Market Association (ICMA). In February 2022, the Government released an *updated version of the Framework*, reflecting HKSAR's latest climate commitments and strategy and aligning with the latest international standards and practices in the green bond market, including the GBP 2021 of the ICMA. The updated Framework (February 2022 version) is applicable to the HKSAR Government green bond issuances thereafter.

In accordance with the updated Framework released in February 2022, the proceeds of issuances will be used exclusively to finance or re-finance green projects that fall under one or more of the nine 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; green buildings; and climate change adaptation, which is a new category added to the updated Framework.

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 CWRF 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.

V.E.⁶ has provided a second party opinion regarding, amongst others, the alignment of the Framework (February 2022 version) with the GBP 2021.



⁶ The second party opinion was originally conducted by V.E., which is now part of Moody's ESG Solutions.



Pollution Prevention and Control

Waste Management and Resource Recovery





Water and Wastewater Management

Nature Conservation / Biodiversity





Clean Transportation



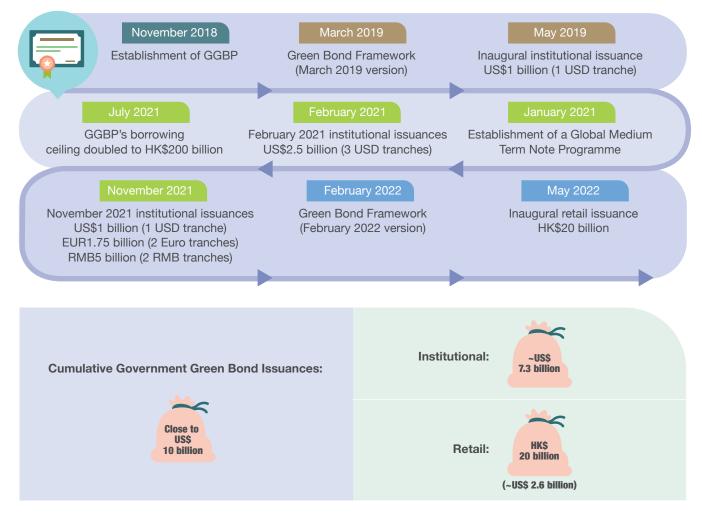


Climate Change Adaptation



Government Green Bond Issuances

Milestone



Breakthroughs Achieved

Year	Breakthroughs at Issuance
2021	 The world's first Global Medium Term Note Programme dedicated to green bond issuances by a government The world's largest USD government green bond deal The longest tenor USD government green bond ever in Asia The longest tenor Euro government green bond ever in Asia
2022	The world's largest retail green bond issuance

The November 2021 Green Bond Issuances

Riding on the experience of previous issuances, the Government has continued to issue green bonds targeting institutional investors under the Global Medium Term Note Programme since the last report, with the issuances involving more types of currencies and projects. Following a virtual roadshow for global investors on 15 and 16 November 2021, close to US\$4 billion worth of green bonds were successfully issued in late November 2021. The issuances comprised five tranches namely US\$1 billion 10-year, EUR1.25 billion 5-year, EUR500 million 20-year, RMB2.5 billion 3-year and RMB2.5 billion 5-year. The issuances attracted strong interest from a diverse group of conventional and green global investors despite market volatility at the time of offering. That was the HKSAR Government's inaugural offering of euro-denominated and renminbi-denominated bonds, setting important new benchmarks for potential issuers in Hong Kong and the region. The 20-year euro tranche was also the longest tenor euro government green bond ever issued in Asia at that time. The issuances received the Green Finance Certificate (Pre-issuance Stage) from the Hong Kong Quality Assurance Agency (HKQAA).

Details of the November 2021 Issuances

ISIN	HK0000789823	HK0000789849	HK0000789856	HK0000789864	HK0000789872				
Size	US\$1 billion	EUR1.25 billion	EUR500 million	RMB2.5 billion	RMB2.5 billion				
Proceeds in HKD ⁷	7,717 million	10,965 million	4,344 million	3,049 million	3,049 million				
Tenor	10-year	5-year	20-year	3-year	5-year				
Issue Date		24 November 2021			30 November 2021				
Maturity Date	24 November 2031	24 November 2026	24 November 2041	The last interest payment date falling on or nearest to 30 November 2024	The last interest payment date falling on or nearest to 30 November 2026				
Issue Price	99.046%	99.905%	98.942%	100%	100%				
Coupon Rate	1.750%	0%	1.000%	2.800%	3.000%				
Ratings (at issuance)	Fitch: AA- S&P: AA+								
Listing		Hong Kong Stock Exchange London Stock Exchange							

⁷ The bond proceeds were exchanged to Hong Kong dollars immediately upon receipt.

The Inaugural Retail Green Bond Issuance

The Government offered the inaugural retail green bonds (Retail Green Bond 2022) with a target issuance size of HK\$15 billion (about US\$1.9 billion) for public subscription in April 2022, which marked the debut issuance of green bonds targeting retail investors in Hong Kong. The Retail Green Bond 2022 was well received by the public, attracting over 488 000 valid applications for a total principal amount of over HK\$32 billion (about US\$4.1 billion). The final issuance size of the Retail Green Bond 2022 was expanded to HK\$20 billion (about US\$2.6 billion), making it the largest retail green bond issuance across the globe at that time. The issuance received the Green Finance Certificate (Pre-issuance Stage) from HKQAA.



The introduction of Government retail green bonds has provided members of the public with a green investment choice and further promoted the development of the local retail bond market. It has also broadened the variety of green and sustainable financial products in Hong Kong, reinforcing the city's position as a premier green finance hub both regionally and internationally.



Allocation of the Proceeds of the Green Bond Issuances

Allocation by Financial Year

The February 2021 Issuances

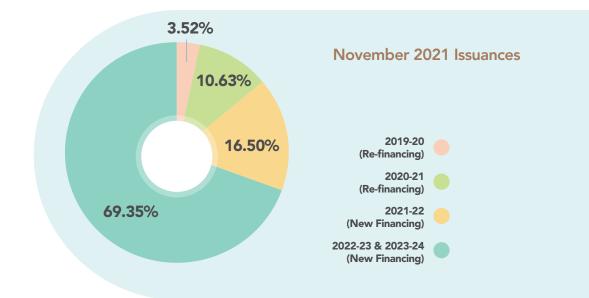
As reported in the *Green Bond Report 2021*, for the total proceeds amounting to HK\$19,304 million of the February 2021 issuances, 57.28% of them were earmarked for the estimated expenditures of 12 green projects in 2021-22 and 2022-23 as at 31 July 2021⁸. As at 31 July 2022, 33.23% of the total proceeds were used in 2021-22 by the 12 projects, leaving the remaining 24.05% for 2022-23.

NEW The November 2021 Issuances

As at 31 July 2022, the total proceeds amounting to HK\$29,124 million of the November 2021 issuances have been fully allocated or earmarked to 12 green projects partly financed by the previous issuances and 20 other projects approved by the Steering Committee on the GGBP as Eligible Projects for the allocation of green bond proceeds (Newly Selected Projects). 3.52%, 10.63% and 16.50% of the proceeds have been allocated to finance the expenditures of selected projects in 2019-20, 2020-21 and 2021-22 respectively. The remaining 69.35% of the proceeds have been earmarked for the estimated expenditures of these projects in 2022-23 and 2023-24.

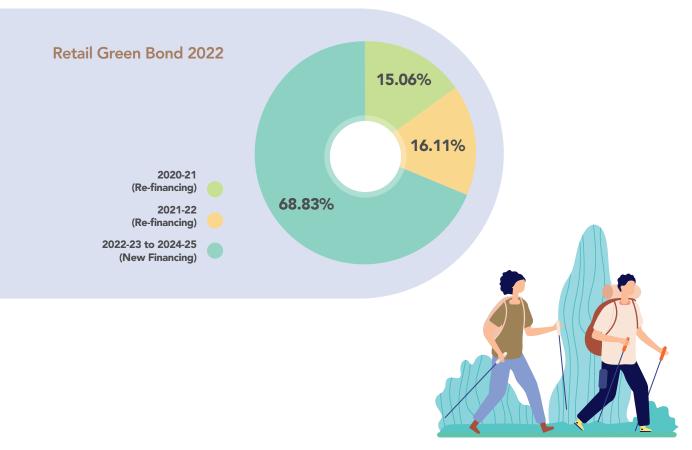
Year Green Bond (ISIN)	2019-20	2020-21	Total % of proceeds used for re-financing	2021-22	2022-23 & 2023-24	Total % of proceeds used for new financing
10-year USD (HK0000789823)	2.94%	7.36%	10.30%	16.11%	73.59%	89.70%
5-year EUR (HK0000789849)	1.07%	5.89%	6.96%	14.46%	78.58%	93.04%
20-year EUR (HK0000789856)	1.98%	15.50%	17.48%	26.57%	55.95%	82.52%
3-year RMB (HK0000789864)	15.65%	31.08%	46.73%	12.23%	41.04%	53.27%
5-year RMB (HK0000789872)	3.90%	8.58%	12.48%	14.77%	72.75%	87.52%
All Five Tranches	3.52%	10.63%	14.15%	16.50%	69.35%	85.85%

⁸ The other 42.72% were allocated to finance the expenditures of these 12 projects in 2018-19, 2019-20 and 2020-21.



NEW Retail Green Bond 2022

As at 31 July 2022, the proceeds of the Retail Green Bond 2022 amounting to HK\$20 billion have been fully allocated or earmarked to one green project partly financed by the previous issuances and 11 other projects approved by the Steering Committee on the GGBP as Eligible Projects for the allocation of green bond proceeds (Newly Selected Projects). 15.06% and 16.11% of the proceeds have been allocated to finance the expenditures of selected projects in 2020-21 and 2021-22 respectively. The remaining 68.83% of the proceeds have been earmarked for the estimated expenditures of these projects from 2022-23 to 2024-25.



Allocation⁹ by Eligible Category

(A) Waste Management and Resource Recovery

Proceeds for the Category: Proceeds Allocated:			
Proceeds Earmarked:	HK\$6,781 million (US\$874 million) HK\$4,546 million (US\$586 million) HK\$2,235 million (US\$288 million)	HK\$2,475 million (~US\$317 million) - HK\$2,475 million (~US\$317 million)	HK\$105 million (~US\$13 million) HK\$3 million (~US\$0.38 million) HK\$102 million (~US\$13 million)
Percentage of the Total Proceeds Raised:	35.13%	8.50%	0.52%
Projects ¹¹ Financed / To be Financed:	 Integrated Waste Management Facilities Phase 1 (I·PARK1) (Project 1) O • PARK2 (Project 8) 	Project 1 & Project 8	 Project 8 GREEN@WAN CHAI* (Project 35)
	(Total: 2 projects)	(Total: 2 projects)	(Total: 2 projects)

⁹ The final allocation for the proceeds earmarked will be subject to the actual expenditures of the projects from 2022-23 and reported in subsequent Green Bond Reports.

¹⁰ For the sake of simplicity, the amount of proceeds in Hong Kong dollar are presented in US dollar at a rate of 7.8 per US dollar.

¹¹ Please refer to the "Use of the Proceeds by Project" Section of this report for a brief description of each project.

(B) Green Buildings

	February 2021 Issuances	November 2021 Issuances ¹⁰	Retail Green Bond 2022 ¹⁰
Proceeds for the Category: Proceeds Allocated: Proceeds Earmarked: Percentage of	HK\$8,457 million (US\$1,091 million) HK\$7,222 million (US\$932 million) HK\$1,235 million (US\$159 million)	HK\$14,663 million (~US\$1,880 million) HK\$4,665 million (~US\$598 million) HK\$9,998 million (~US\$1,282 million)	HK\$12,914 million (~US\$1,656 million) HK\$4,141 million (~US\$531 million) HK\$8,773 million (~US\$1,125 million)
the Total Proceeds Raised:	43.81%	50.35%	64.57%
Projects Financed / To be Financed:	 Inland Revenue Tower in the Kai Tak Development (Now named as Inland Revenue Centre) (Project 4) Treasury Building (Project 9) Redevelopment of Queen Mary Hospital, Phase 1 (Project 10) East Kowloon Cultural Centre (Project 11) 	 Project 4, Project 9, Project 10 & Project 11 Fire Services Department Pak Shing Kok Married Quarters* (Project 15) Customs and Excise Department Quarters at Tsz Wan Shan* (Project 16) Reprovisioning of the Hongkong Post's Headquarters* (Project 17) Redevelopment of Kwai Chung Hospital, phase 2* (Project 18) Customs and Excise Department Quarters at Tseung Kwan O Area 123 (Po Lam Road)* (Project 19) Hospital Authority Supporting Services Centre* (Project 20) The Water Supplies Department Building and the Correctional Services Headquarters Building* (Project 21) Drainage Services Tower* (Project 22) Tseung Kwan O Government Offices* (Project 23) 	 Sports Centre, Community Hall and Football Pitches in Area 1, Tai Po* (Project 36) Extension of Operating Theatre Block for Tuen Mun Hospital* (Project 37) North District Community Health Centre Building* (Project 38) Joint User Complex at Lei King Road* (Project 39) New Acute Hospital at Kai Tak Development Area* (Project 40)
* Newly Select	(Total: 4 projects)	(Total: 13 projects)	(Total: 5 projects)

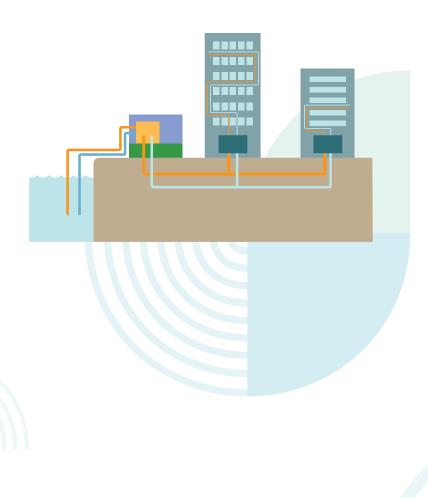
(C) Water and Wastewater Management

	February 2021 Issuances	November 2021 Issuances ¹⁰	Retail Green Bond 2022 ¹⁰
Proceeds for the Category: Proceeds Allocated: Proceeds Earmarked: Percentage of the Total Proceeds Raised:	HK\$2,021 million (US\$261 million) HK\$1,842 million (US\$238 million) HK\$179 million (US\$23 million) 10.47%	HK\$10,951 million (~US\$1,404 million) HK\$4,264 million (~US\$547 million) HK\$6,687 million (~US\$857 million) 37.60%	HK\$6,981 million (~US\$895 million) HK\$2,091 million (~US\$268 million) HK\$4,890 million (~US\$627 million) 34.91%
Projects Financed / To be Financed:	 Upgrading of San Wai Sewage Treatment Works - Phase 1 (Project 5) Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan (Project 6) West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme (Project 12) Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1 (Project 13) 	 Project 5, Project 6, Project 12 & Project 13 Rehabilitation of Trunk Sewers in Kowloon, Sha Tin and Sai Kung* (Project 24) Upgrading of Kwun Tong Preliminary Treatment Works* (Project 25) Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 1* (Project 26) Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert* (Project 27) Revitalisation of Tsui Ping River* (Project 28) Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 2* (Project 28) Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 2* (Project 29) Yuen Long Effluent Polishing Plant Stage 1* (Project 30) Siu Ho Wan Water Treatment Works Extension* (Project 31) Relocation of Sha Tin Sewage Treatment Works to Caverns* (Project 32) Shek Wu Hui Effluent Polishing Plant* (Project 33) (Total: 14 projects) 	 Enhancement Works for Kwun Tong Sewage Pumping Station* (Project 41) Upgrading of Sewage Pumping Stations and Sewerage along Ting Kok Road* (Project 42) Water Supply to New Housing Developments in Sheung Shui and Fanling* (Project 43) Implementation of Water Intelligent Network* (Project 44) In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)* (Project 45)
* Newly Selec	oted Project		

(D) Energy Efficiency and Conservation

	February 2021 Issuances	November 2021 Issuances ¹⁰
Proceeds for the Category: Proceeds Allocated: Proceeds Earmarked:	HK\$2,045 million (US\$264 million) HK\$1,051 million (US\$136 million) HK\$994 million (US\$128 million)	HK\$1,035 million (~US\$133 million) HK\$0.22 million (~US\$0.03 million) HK\$1,035 million (~US\$133 million)
Percentage of the Total Proceeds Raised:	10.59%	3.55%
Projects Financed / To be Financed:	 District Cooling System at the Kai Tak Development (Project 7) Additional District Cooling System at the Kai Tak Development (Project 14) (Total: 2 projects) 	 Project 7 & Project 14 District Cooling System at the Kwu Tung North New Development Area* (Project 34) (Total: 3 projects)

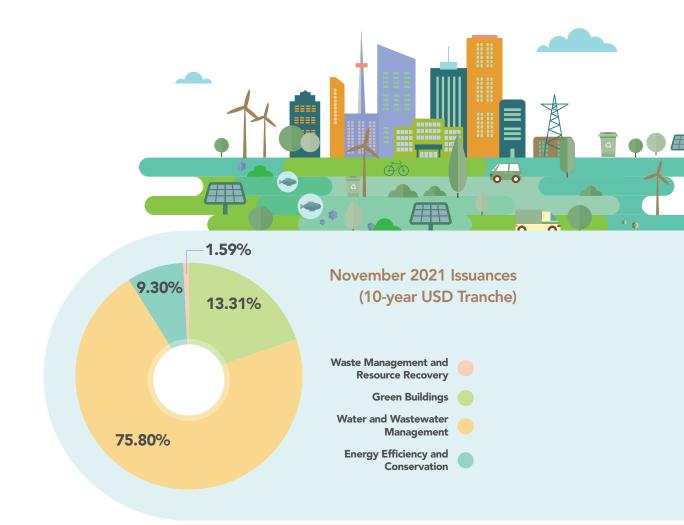
* Newly Selected Project



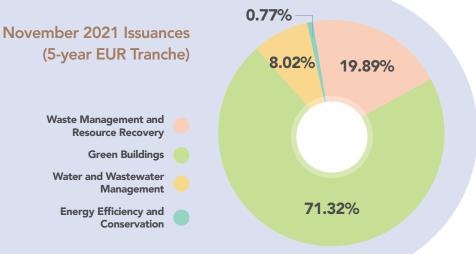
Allocation by Eligible Category

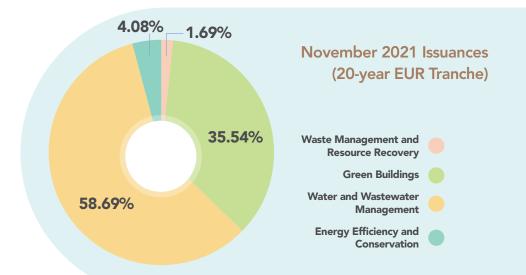
The November 2021 Issuances

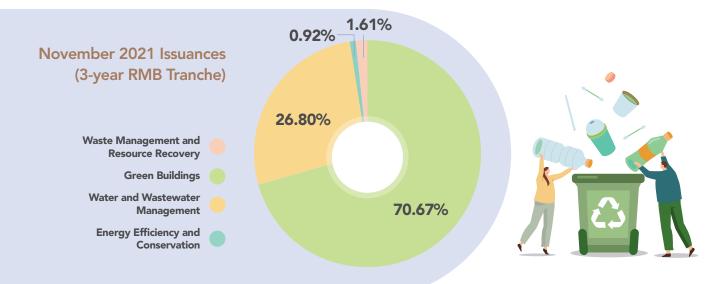
Green Bond Eligible Category	10-year USD	5-year EUR	20-year EUR	3-year RMB	5-year RMB	All Five Tranches
(A) Waste Management and Resource Recovery	1.59%	19.89%	1.69%	1.61%	1.61%	8.50%
(B) Green Buildings	13.31%	71.32%	35.54%	70.67%	69.41%	50.35%
(C) Water and Wastewater Management	75.80%	8.02%	58.69%	26.80%	28.06%	37.60%
(D) Energy Efficiency and Conservation	9.30%	0.77%	4.08%	0.92%	0.92%	3.55%

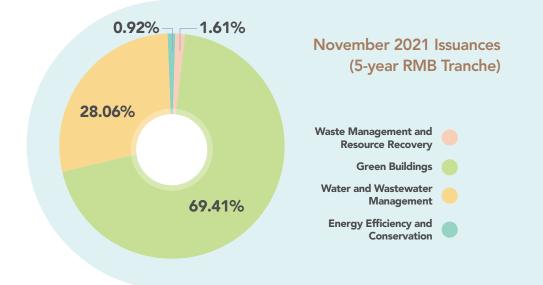


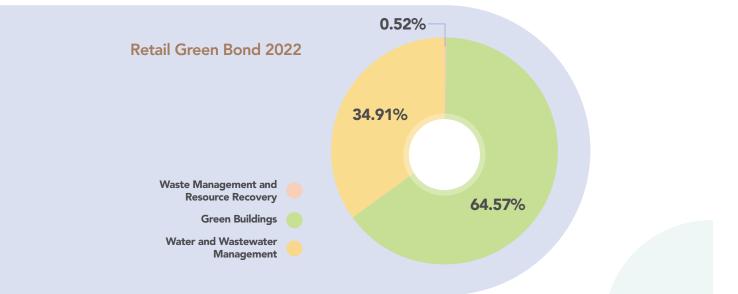














Use of the Proceeds by Project

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
1	Waste Management and Resource Recovery	I-PARK1 Construction of a municipal solid waste (MSW) incineration plant aiming to substantially reduce the bulk size of MSW and recover useful resources through employment of advanced technologies	2025	19,204	7,450	7,399	 Treatment capacity of 3 000 tonnes of MSW per day Useful materials recovered from up to 200 tonnes of MSW per day 480 million kWh of electricity generated every year 440 000 tonnes of greenhouse gas emissions avoided in carbon dioxide equivalent (CO2e) per year
2	Waste Management and Resource Recovery	O•PARK1 Construction of the first organic resources recovery centre that adopts anaerobic digestion technology in Hong Kong to convert food waste into biogas for electricity generation	2018	1,589	1,427	266	 Treatment capacity of 200 tonnes of food waste per day 14 million kWh of electricity generated every year 42 000 tonnes of greenhouse gas emissions avoided in CO2e per year
3	Green Buildings	West Kowloon Government Offices Construction of a new Government twin-tower building with a total construction floor area of about 98 000 m ² accommodating various Government departments	2019	4,743	3,608	1,769	 Achieved Final Platinum rating under the BEAM Plus New Buildings scheme About 41.9% (office) and 47.2% (carpark) reduction of CO2 emissions
4	Green Buildings	Inland Revenue Centre Construction of a new Government office building providing about 45 000 m ² of net operational floor area and connecting to the District Cooling System (DCS) at the Kai Tak Development (KTD)	2022	3,600	2,365	2,365	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 29.7% reduction of CO2 emissions

¹² The expected percentage of reduction of CO2 emissions of Projects 3, 4, 5, 9, 11, 15, 16, 17, 18, 36, 38 and 40 is based on the assessed result in the BEAM Plus Assessment Report.

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
5	Water and Wastewater Management	Upgrading of San Wai Sewage Treatment Works - Phase 1 Upgrading of the sewage treatment level from preliminary treatment to chemically enhanced primary treatment with UV disinfection and expansion of the treatment capacity from 164 000 m ³ per day to 200 000 m ³ per day	2021	2,572	1,814	1,277	 Wastewater treatment capacity raised by 36 000 m³ per day 275 000 m³ of water recycled per year Achieved Final Platinum rating under the BEAM Plus New Buildings scheme About 38.4% reduction of CO2 emissions
6	Water and Wastewater Management	Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan Construction and rehabilitation of about 6.5 km new and 6.5 km existing sewage rising main respectively between Tung Chung Sewage Pumping Station and Siu Ho Wan Sewage Treatment Works to raise the handling capacity from 60 000 m ³ per day to 120 000 m ³ per day	2025	1,363	501	411	• Wastewater handling capacity raised by 60 000 m ³ per day
7	Energy Efficiency and Conservation	District Cooling System at the Kai Tak Development Construction of the first DCS at the KTD, a large- scale energy-efficient centralised air-conditioning system, to provide cooling to multiple buildings	2025	4,946	4,208	933	 35% energy efficiency improvement compared to air-cooled cooling system 85 million kWh of electricity saved per year 59 500 tonnes of greenhouse gas emissions avoided or reduced in CO2e per year
8	Waste Management and Resource Recovery	O • PARK2 Construction of the second organic resources recovery centre that adopts anaerobic digestion technology in Hong Kong to convert food waste into biogas for electricity generation	2024	2,453	926	926	 Treatment capacity of 300 tonnes of food waste per day 24 million kWh of electricity generated every year 67 000 tonnes of greenhouse gas emissions avoided in CO2e per year

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
9	Green Buildings	Treasury Building Construction of a new 22-storey Government building providing about 26 500 m ² of net operational floor area for facilities including offices of various bureaux and departments, a general out- patient clinic, a child care centre and an elderly day care centre	2022	2,281	1,442	1,442	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 29.1% reduction of CO2 emissions
10	Green Buildings	Redevelopment of Queen Mary Hospital, Phase 1 Construction of a new hospital block and the associated facilities near the existing Queen Mary Hospital compound to enhance its medical service capacity	2024	13,556	2,048	2,048	 Expected to achieve Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 9.8% energy saving in the annual energy consumption
11	Green Buildings	East Kowloon Cultural Centre Construction of a new cultural centre with a construction floor area of about 50 900 m ² to provide various cultural facilities and services as well as public open space for the community ¹³	2022	4,176	2,141	1,754	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 13.2% reduction of CO2 emissions
12	Water and Wastewater Management	West Kowloon Drainage Improvement - Inter- reservoirs Transfer Scheme Construction of a water tunnel from the Kowloon Byewash Reservoir to the Lower Shing Mun Reservoir as well as the intake and outfall structures for transferring collected surface runoff from the Kowloon group of reservoirs to the Lower Shing Mun Reservoir	2022	1,222	551	551	• Additional 3.4 million m ³ of fresh water yield per year

¹³ According to the latest design and work plan, the East Kowloon Cultural Centre will accommodate facilities including The Hall and The Theatre with seating capacity of 1 200 and 550 seats respectively, two multi-purpose studios with seating capacity ranging from 120 to 180, an arts and technology testbed studio called The Lab, rehearsal rooms and other ancillary facilities.

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
13	Water and Wastewater Management	Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1 Reconstruction of the existing Sha Tau Kok Sewage Treatment Works to increase its capacity from 1 660 m ³ per day to 5 000 m ³ per day and construction of a larger and longer submarine outfall to improve quality of the receiving waters of Starling Inlet	2025	2,041	730	730	 Additional 3 340 m³ of wastewater treated per day Expected to achieve Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 15% energy saving in the annual energy consumption
14	Energy Efficiency and Conservation	Additional District Cooling System at the Kai Tak Development Construction of the second DCS at the KTD, a large- scale energy-efficient centralised air-conditioning system, to meet the projected growth in cooling demand of user buildings including the New Acute Hospital and the Kai Tak Sports Park	2028	4,269	619	619	 35% energy efficiency improvement compared to air-cooled cooling system 53 million kWh of electricity saved per year 37 000 tonnes of greenhouse gas emissions avoided or reduced in CO2e per year
15	Green Buildings	Fire Services Department Pak Shing Kok Married Quarters Construction of five new 16- to 17-storey quarters blocks with a total construction floor area of about 47 140 m ² for the provision of 648 departmental quarters units and the ancillary facilities	2021	1,625	1,279	1,165	 Achieved Final Platinum rating under the BEAM Plus New Buildings scheme About 13.1% reduction of CO2 emissions
16	Green Buildings	Customs and Excise Department Quarters at Tsz Wan Shan Construction of one new 25-storey quarters block with a construction floor area of about 13 300 m ² for the provision of 175 departmental quarters units and the ancillary facilities	2022	533	268	263	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 30% reduction of CO2 emissions

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
17	Green Buildings	Reprovisioning of the Hongkong Post's Headquarters Construction of an 8-storey high new building with a construction floor area of about 25 750 m ² to accommodate the Hongkong Post's Headquarters, some out- housed units and a new delivery office	2023	1,601	525	525	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 18.4% reduction of CO2 emissions
18	Green Buildings	Redevelopment of Kwai Chung Hospital, phase 2 Construction of a new Main Block and Child Block and the ancillary facilities within the existing compound of Kwai Chung Hospital to facilitate its adaptation of modernised model of psychiatric care	2023	7,452 14	1,037	1,037	 Achieved Provisional Platinum rating under the BEAM Plus New Buildings scheme About 13.8% reduction of CO2 emissions
19	Green Buildings	Customs and Excise Department Quarters at Tseung Kwan O Area 123 (Po Lam Road) Construction of two new 25- to 26-storey quarters blocks with a total construction floor area of about 23 860 m ² for the provision of 306 departmental quarters units and the ancillary facilities	2024	1,035	111	110	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme Natural ventilation is adopted in common area resulting in 55.9% energy reduction for fan power in all common area compared with Building Energy Code (BEC) 2018 Over 30% energy reduction for artificial lighting system in common area compared with BEC 2018
20	Green Buildings	Hospital Authority Supporting Services Centre Construction of a new supporting services building with a construction floor area of about 52 540 m ² to accommodate a laundry, a central food production unit for patient meals, a data centre and central emergency stores to meet the demand of the Hospital Authority	2024	3,788	329	329	 Expected to achieve Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 5.5% energy saving in the annual energy consumption

¹⁴ The Total Project Estimate is for both phases 2 and 3 of the project. Green bond proceeds will only fund phase 2 of the project.

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
21	Green Buildings	The Water Supplies Department Building and the Correctional Services Headquarters Building Construction of a new 15-storey high twin-tower office building with a net operational floor area of about 37 000 m ² for accommodating the Water Supplies Department Headquarters and its Hong Kong and Islands Regional Office, the Correctional Services Department Headquarters Building, a government dental clinic and a public carpark	2024	3,253	253	253	 Expected to achieve at least Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 10.5% energy saving in the annual energy consumption
22	Green Buildings	Drainage Services Tower Construction of a new 21-storey office building with a net operational floor area of about 19 220 m ² for reprovisioning the facilities for both the Drainage Services Department and the Social Welfare Department	2025	2,158	151	151	 Expected to achieve at least Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 10.5% energy saving in the annual energy consumption
23	Green Buildings	Tseung Kwan O Government Offices Construction of a new 16 to 18-storey twin- tower building with a net operational floor area of about 44 000 m ² for accommodating various Government departments and facilities, including a general out-patient clinic, a job centre, a government families clinic, a government dental clinic and a child care centre for government employees	2025	5,228	831	831	 Expected to achieve at least Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 10.5% energy saving in the annual energy consumption
24	Water and Wastewater Management	Rehabilitation of Trunk Sewers in Kowloon, Sha Tin and Sai Kung Rehabilitation of four existing trunk sewers ranging from 50 m to 1 km long and construction of additional trunk sewers in Kowloon, Sha Tin and Sai Kung to reduce the risk of sewage overflow	2022	679	273	239	 Risk of sewage overflow from the sewers of 1.65 km long in total greatly reduced Construction of new trunk sewers in Sha Tin and Sai Kung is expected to increase the sewage flow capacity Around 900 thousands of the population potentially benefited

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
25	Water and Wastewater Management	Upgrading of Kwun Tong Preliminary Treatment Works Upgrading of the preliminary treatment works to increase its treatment capacity from 330 000 m ³ per day to 440 000 m ³ per day	2022	350	303	231	Wastewater treatment capacity raised by 110 000 m ³ per day
26	Water and Wastewater Management	Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 1 Construction of new or modification of existing dry weather flow interceptors (DWFIs) in Tsuen Wan and West Kowloon areas to intercept the polluted stormwater during dry weather period and convey it to Stonecutters Island Sewage Treatment Works for proper treatment and disposal	2022	277	129	103	 About 70% of the total annual pollution loading from the respective stormwater systems is estimated to be removed
27	Water and Wastewater Management	Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Construction of an underground DWFI with automatic penstocks at Cherry Street box culvert, a pumping station, an underground stormwater bypass box culvert, and an underground twin rising main to intercept the polluted stormwater during dry weather period and pump it to Stonecutters Island Sewage Treatment Works for proper treatment and disposal	2022	665	327	276	 About 70% of the total annual pollution load that enters New Yau Ma Tei Typhoon Shelter through the Cherry Street Box Culvert is estimated to be removed Photovoltaic panels on the rooftop of sewage pumping station installed
28	Water and Wastewater Management	Revitalisation of Tsui Ping River Revitalisation of the existing King Yip Street nullah to turn it into a green and vibrant Tsui Ping River with environmental, ecological and landscaping upgrading, while enhancing the flood conveyance capability of the nullah	2024	1,342	223	223	 The appearance and habitat of the nullah with a length of approximately one kilometre enhanced Nullah bed of around 1.73 hectares revitalised Polluted discharge into the nullah reduced The flood conveyance capability of the nullah enhanced

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
29	Water and Wastewater Management	Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 2 Upgrading of the existing sewerage system in West Kowloon and Tsuen Wan, including construction of new gravity sewers of about 14.5 km long and replacement of existing gravity sewers of about 19 km long, to accommodate the projected flow increase and to reduce the risk of pollution caused by leakage from ageing sewers	2026	2,286	159	159	 Sewage flow capacity increased Coastal water quality improved and the associated odour problem alleviated
30	Water and Wastewater Management	Yuen Long Effluent Polishing Plant Stage 1 Reconstruction of part of the existing Yuen Long Sewage Treatment Works to increase its treatment capacity from 70 000 m ³ per day to 100 000 m ³ per day and reserve space for future construction of co-digestion facilities for sludge and food waste	2027	6,950	666	623	 Wastewater treatment capacity raised by 30 000 m³ per day Residual organic content of the effluent reduced by 50%
31	Water and Wastewater Management	Siu Ho Wan Water Treatment Works Extension Upgrading of the Siu Ho Wan Water Treatment Works to increase its water treatment capacity from 150 000 m ³ per day to 300 000 m ³ per day and increase the transfer capacity of the related raw water supply systems	2027	3,806	69	65	Water treatment capacity raised by 150 000 m ³ per day

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
32	Water and Wastewater Management	Relocation of Sha Tin Sewage Treatment Works to Caverns Relocation of Sha Tin Sewage Treatment Works (STSTW) to caverns to release the existing site for innovation and technology development and other uses beneficial to people's livelihood and social development and improve the environment of the existing site and its surroundings	2031	16,792	1,381	1,035	 The environment of the existing STSTW site and its surroundings greatly improved Odour management efficiently enhanced for the benefit of the surrounding communities About 28 hectares of land released, bringing multifold benefits to the community and the economy Treated effluent utilised for equipment cooling to save energy Existing E&M equipment in Upstream Sewerage and Pumping Stations (USPS) upgraded (e.g. 31.5% of capacity upgrade for Ma On Shan Sewage Pumping Station), ensuring sufficient future development potential in Ma On Shan area as well as maintaining the durability of USPS
33	Water and Wastewater	Shek Wu Hui Effluent Polishing Plant	2034	11,973	1,310	1,310	Wastewater treatment capacity raised by 5,000 m ³ per day

3	Water and Wastewater Management	Shek Wu Hui Effluent Polishing Plant Reconstruction of the existing Shek Wu Hui Sewage Treatment Works to increase the treatment capacity from 105 000 m ³ per day to 170 000 m ³ per day ¹⁵ , and upgrading of the sewage treatment level to tertiary standard for conversion into a "Shek Wu Hui Effluent Polishing Plant"	2034	11,973	1,310	1,310	 Wastewater treatment capacity raised by 65 000 m³ per day Achieved Provisional Platinum rating under the BEAM Plus New Buildings scheme
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¹⁵ The ultimate treatment capacity of Shek Wu Hui Sewage Treatment Works is 190 000 m³ per day. Part of the increased capacity (i.e. 20 000 m³ per day) is proposed to cater for the needs of the First Phase development of Kwu Tung North and Fanling North New Development Area and is funded separately.

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
34	Energy Efficiency and Conservation	District Cooling System at the Kwu Tung North New Development Area Construction of a DCS, a large-scale energy-efficient centralised air-conditioning system, in support of the low-carbon development at the Kwu Tung North New Development Area	2034	5,788	0.2	0.2	 Approximately 35% energy efficiency improvement compared to air-cooled cooling system 42 million kWh of electricity saved per year 29 400 tonnes of greenhouse gas emissions avoided or reduced in CO2e per year
35	Waste Management and Resource Recovery	GREEN@WAN CHAI Design and construction of facilities for holding publicity and educational programmes, and collecting and handling recyclables for the community in Wan Chai District	2020	29	22	3	 1 591 visitors received in 2021 since opening to the public in October 2021 More than 76.9 tonnes of recyclables collected in 2021 19 educational events organised in 2021
36	Green Buildings	Sports Centre, Community Hall and Football Pitches in Area 1, Tai Po Construction of a new sports centre cum swimming pools, a community hall, football pitch and ancillary facilities at a project site of about 25 100 m ²	2021	2,163	1,296	794	 Achieved Provisional Gold rating under the BEAM Plus New Buildings scheme About 42% reduction of CO2 emissions
37	Green Building	Extension of Operating Theatre Block for Tuen Mun Hospital Construction of a new operating theatre (OT) extension block with a construction floor area of about 21 982 m ² to accommodate 20 OTs, intensive care unit and associated supporting areas, the linkage with the existing OT block, a new Electrical Building and an additional Dangerous Good Building; as well as expansion and refurbishment of the existing facilities and building for integration with the extension block	2024	2,730	1,511	1,056	 Expected to achieve Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 5.9% energy saving in the annual energy consumption

Project 38	Eligible Category Green Building	Name of Project and Brief Description	Year / Expected Year of Completion 2023	Total Project Estimate (HKD million) 1,780	Expenditure up to 2021-22 (HKD million) 324	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million) 324	 Major Expected Impacts¹² Achieved Provisional Platinum rating under the BEAM Plus New Buildings scheme About 16.6% reduction of CO2 emissions
		and child health centre, a student health service centre, an elderly health centre, offices of the Department of Health and other facilities					
39	Green Building	Joint User Complex at Lei King Road Construction of a new joint-user building with a construction floor area of about 12 180 m ² to accommodate a district library and other facilities	2024	674	77	77	 Expected to achieve Gold rating under the BEAM Plus New Buildings scheme The energy efficient features of the project are expected to achieve 10.5% energy saving in the annual energy consumption
40	Green Building	New Acute Hospital at Kai Tak Development Area Construction of a new acute hospital comprising five building blocks - the Acute Block, the Administration Block, the Oncology Block and the Specialist Out-patient Clinic Block with a total construction floor area of about 573 595 m ²	2025	36,567	3,171	1,890	 Expected to achieve Platinum rating under the BEAM Plus New Buildings scheme About 21.2% reduction of CO2 emissions
41	Water and Wastewater Management	Enhancement Works for Kwun Tong Sewage Pumping Station Construction of an underground balancing facility with a temporary storage capacity of 16 000 m ³ at the Kwun Tong Sewage Pumping Station site to regulate the excessive preliminarily treated sewage from Kwun Tong Preliminary Treatment Works during its extreme peak flow periods	2023	1,054	783	368	 Additional 16 000 m³ of sewage temporary storage capacity

Project	Eligible Category	Name of Project and Brief Description	Year / Expected Year of Completion	Total Project Estimate (HKD million)	Expenditure up to 2021-22 (HKD million)	Green Bond Proceeds Allocated (as at 31 July 2022) (HKD million)	Major Expected Impacts ¹²
42	Water and Wastewater Management	Upgrading of Sewage Pumping Stations and Sewerage along Ting Kok Road Upgrading of the existing Ting Kok Road sewerage system in Tai Po to increase its treatment capacity from 11 500 m ³ to 22 000 m ³ per day	2023	847	324	262	 Wastewater treatment capacity raised by 10 500 m³ per day
43	Water and Wastewater Management	Water Supply to New Housing Developments in Sheung Shui and Fanling Construction of a fresh water service reservoir and the associated trunk mains and distribution mains to improve the fresh water supply to Sheung Shui and Fanling areas for the planned new housing developments	2024	1,700	516	413	 Total service reservoir storage capacity raised by 55 000 m³ Around 160 thousands of the population potentially benefited
44	Water and Wastewater Management	Implementation of Water Intelligent Network Establishment of a water intelligent network across Hong Kong to monitor the water loss of the fresh water distribution network for follow-up actions	2024	2,131	406	261	 Leakage rate in government water mains reduced from about 15% in 2019 to below 10% by 2030 with full implementation of the project and other measures
45	Water and Wastewater Management	In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) to replace the aged treatment facilities and uprate the treatment capacity of the South Works from 360 000 m ³ per day to 550 000 m ³ per day	2026	8,827	2,007	787	 Water treatment capacity raised by 190 000 m³ per day Around 300 thousands of the population potentially benefited

Issuances	Inaugural ¹⁶		February 2021				November 2021			Retail Green Bond 2022
Green Bond (ISIN)	5-year USD (US43858AAB61/ USY2836BAN48)	5-year USD (US43858AAC45/ USY3422VCR79)	10-year USD (US43858AAD28/ USY3422VCS52)	30-year USD (US43858AAE01/ USY3422VCT36)	10-year USD (HK0000789823)	5-year EUR (HK0000789849)	20-year EUR (HK0000789856)	3-year RMB (HK0000789864)	5-year RMB (HK0000789872)	3-year HKD (HK0000844578)
Total Bond Proceeds (HKD million)	7,829	7,749	7,725	3,830	7,717	10,965	4,344	3,049	3,049	20,000
Amount Allocated for Expenditures up to 2021-22 (HKD million)	7,829	5,876	5,857	2,928	2,038	2,349	1,913	1,798	831	6,235
Amount Earmarked for Expenditures beyond 2021-22 (HKD million)	0	1,873	1,868	902	5,679	8,616	2,431	1,251	2,218	13,765

¹⁶ 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 2019 version of the Framework. For more details of the allocation, please refer to the *Green Bond Report 2020*.

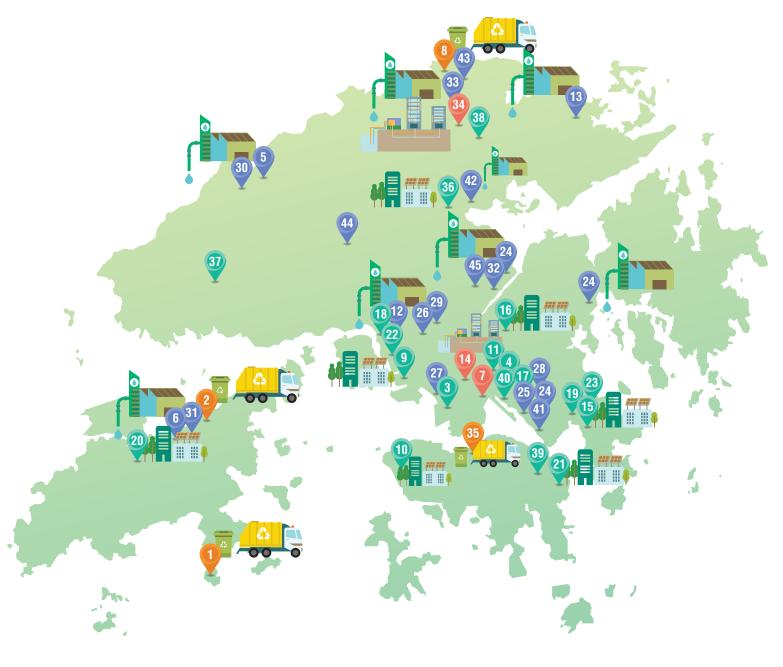
Project			Breakdo	wn of Amount A	Allocated for Ex	penditures up t	to 2021-22 (HKI	D million)		
1	3,779	1,448	1,448	724	0	0	0	0	0	0
2	266	0	0	0	0	0	0	0	0	0
3	1,769	0	0	0	0	0	0	0	0	0
4	386	791	791	396	0	0	0	0	0	0
5	886	156	156	78	0	0	0	0	0	0
6	241	68	68	34	0	0	0	0	0	0
7	501	432	0	0	0	0	0	0	0	0
8	0	370	370	185	0	0	0	0	0	0
9	0	577	577	288	0	0	0	0	0	0
10	0	819	819	410	0	0	0	0	0	0
11	0	702	702	351	0	0	0	0	0	0
12	0	220	220	110	0	0	0	0	0	0
13	0	292	292	146	0	0	0	0	0	0
14	0	0	413	206	0	0	0	0	0	0
15	0	0	0	0	0	0	0	1,165	0	0
16	0	0	0	0	0	0	263	0	0	0
17	0	0	0	0	0	525	0	0	0	0
18	0	0	0	0	259	415	156	104	104	0
19	0	0	0	0	0	0	0	0	110	0
20	0	0	0	0	0	329	0	0	0	0
21	0	0	0	0	0	0	0	0	253	0
22	0	0	0	0	0	0	151	0	0	0
23	0	0	0	0	0	831	0	0	0	0
24	0	0	0	0	0	0	0	0	239	0
25	0	0	0	0	0	0	0	231	0	0
26	0	0	0	0	0	0	0	0	103	0
27	0	0	0	0	0	0	0	276	0	0

Project			Breakdo	wn of Amount A	Allocated for Ex	(penditures up	to 2021-22 (HKI	D million)		
28	0	0	0	0	56	89	33	22	22	0
29	0	0	0	0	0	159	0	0	0	0
30	0	0	0	0	623	0	0	0	0	0
31	0	0	0	0	65	0	0	0	0	0
32	0	0	0	0	1,035	0	0	0	0	0
33	0	0	0	0	0	0	1,310	0	0	0
34	0	0	0	0	0	0	0.2	0	0	0
35	0	0	0	0	0	0	0	0	0	3
36	0	0	0	0	0	0	0	0	0	794
37	0	0	0	0	0	0	0	0	0	1,056
38	0	0	0	0	0	0	0	0	0	324
39	0	0	0	0	0	0	0	0	0	77
40	0	0	0	0	0	0	0	0	0	1,890
41	0	0	0	0	0	0	0	0	0	368
42	0	0	0	0	0	0	0	0	0	262
43	0	0	0	0	0	0	0	0	0	413
44	0	0	0	0	0	0	0	0	0	261
45	0	0	0	0	0	0	0	0	0	787

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



Geographical Locations of the Projects Financed





Project	Name of Project	Location
1	I·PARK1	Near Shek Kwu Chau
2	O·PARK1	Siu Ho Wan, Lantau Island
3	West Kowloon Government Offices	Yau Ma Tei
4	Inland Revenue Centre	Kai Tak
5	Upgrading of San Wai Sewage Treatment Works - Phase 1	Yuen Long
6	Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan	Between Tung Chung and Siu Ho Wan
7	District Cooling System at the Kai Tak Development	Kai Tak
8	O·PARK2	Sha Ling
9	Treasury Building	Cheung Sha Wan
V	Redevelopment of Queen Mary Hospital, Phase 1	Pok Fu Lam
1	East Kowloon Cultural Centre	Lower Ngau Tau Kok
12	West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme	Kowloon Byewash Reservoir and Lower Shing Mun Reservoir
13	Expansion of Sha Tau Kok Sewage Treatment Works - Phase 1	Sha Tau Kok
14	Additional District Cooling System at the Kai Tak Development	Kai Tak
15	Fire Services Department Pak Shing Kok Married Quarters	Tseung Kwan O
16	Customs and Excise Department Quarters at Tsz Wan Shan	Tsz Wan Shan
V	Reprovisioning of the Hongkong Post's Headquarters	Kowloon Bay
18	Redevelopment of Kwai Chung Hospital, phase 2	Kwai Chung
19	Customs and Excise Department Quarters at Tseung Kwan O Area 123 (Po Lam Road)	Tseung Kwan O
20	Hospital Authority Supporting Services Centre	Tung Chung
21	The Water Supplies Department Building and the Correctional Services Headquarters Building	Chai Wan
22	Drainage Services Tower	Cheung Sha Wan
23	Tseung Kwan O Government Offices	Tseung Kwan O
24	Rehabilitation of Trunk Sewers in Kowloon, Sha Tin and Sai Kung	Kowloon, Sha Tin and Sai Kung

Project	Name of Project	Location			
25	Upgrading of Kwun Tong Preliminary Treatment Works	Kwun Tong			
26	Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 1	West Kowloon and Tsuen Wan			
27	Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert	Near New Yau Ma Tei Typhoon Shelter			
28	Revitalisation of Tsui Ping River	Kwun Tong			
29	Upgrading of West Kowloon and Tsuen Wan Sewerage Phase 2	West Kowloon and Tsuen Wan			
30	Yuen Long Effluent Polishing Plant Stage 1	Yuen Long			
31	Siu Ho Wan Water Treatment Works Extension	Siu Ho Wan			
32	Relocation of Sha Tin Sewage Treatment Works to Caverns	Sha Tin			
33	Shek Wu Hui Effluent Polishing Plant	Sheung Shui			
34	District Cooling System at the Kwu Tung North New Development Area	Kwu Tung North			
35	GREEN@WAN CHAI	Wan Chai			
36	Sports Centre, Community Hall and Football Pitches in Area 1, Tai Po	Tai Po			
37	Extension of Operating Theatre Block for Tuen Mun Hospital	Tuen Mun			
38	North District Community Health Centre Building	Sheung Shui			
39	Joint User Complex at Lei King Road	Sai Wan Ho			
40	New Acute Hospital at Kai Tak Development Area	Kai Tak			
41	Enhancement Works for Kwun Tong Sewage Pumping Station	Kwun Tong			
42	Upgrading of Sewage Pumping Stations and Sewerage along Ting Kok Road	Tai Po			
43	Water Supply to New Housing Developments in Sheung Shui and Fanling	Sheung Shui and Fanling			
44	Implementation of Water Intelligent Network	Entire Hong Kong			
45	In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)	Sha Tin			



Expected Environmental Benefits of the Projects Financed

A. Waste Management and Resource Recovery

Major expected impacts of newly selected project (Project 35): More than 76.9 tonnes of recyclables collected in 2021

GREEN@WAN CHAI (Project 35)



Opened to the public in 2021, GREEN@WAN CHAI is one of the Recycling Stations under the community recycling network built and being actively expanded by the Environmental Protection Department to strengthen the support for waste reduction and recycling at the district level. The network, branded as GREEN@COMMUNITY, comprises Recycling Stations, Recycling Stores and Recycling Spots across the territory. Apart from accepting common types of recyclables for subsequent processing, Recycling Stations proactively connect with housing estates and property management companies in the respective districts to establish a service network through different recycling programmes and educational activities.

GREEN@WAN CHAI serves the Wan Chai District, a well-developed community with a population of around 167 000. With a view to building a sustainable and aesthetically pleasing recycling station and promoting green culture, architectural design ideas for the station were invited from the public with relevant professional qualifications through a Design Idea Competition concluded in 2017. The final design and construction of the station had the ideas and concepts of the winning entries incorporated. The design of the station has won two awards - the merit award in the Architectural Services Department Annual Award 2021 and a Good Design Award 2021 in Japan for its integration with the surrounding environment to promote green culture.

GREEN@WAN CHAI focuses on promoting the concept of "Recycle Clean". The operator, being a non-profit organisation, educates the public through various activities, including exhibitions, talks and workshops, on the types of materials that can be recycled and the proper recycling procedures for different materials such as simple cleansing and appropriate sorting. This helps to progressively reduce the contamination of recyclables and to enhance their quality and value. Through the publicity and public education activities at GREEN@WAN CHAI, members of the public may bring home the messages of "Use less, Waste less" and "Clean Recycling", which will be conducive to the effectiveness in waste reduction.

For more details, please refer to the GREEN@COMMUNITY webpage.

Green Design Highlights of GREEN@WAN CHAI

Eco-Brick



GREEN@WAN CHAI has applied eco-brick in the outdoor area for road paving. The eco-brick contains around 20% to 25% of glass cullet by weight of the total aggregates. Glass cullet is the product of glass containers after recycling procedures. Adopting the eco-brick at Recycling Station can demonstrate "turn waste into resources".

Rainwater Harvesting



The green area at the central courtyard is designed as a rain garden with the adoption of "sponge city" concept to harvest rainwater. It acts as the buffer during rainstorm thus reducing surface runoff from paved area and saving drainage pipework. The collected rainwater can also irrigate and facilitate the microhabitat in the garden.

Smart & Durable Materials

Glass-reinforced plastic (GRP) is used instead of timber, which is not only more durable, but also able to be molded with various textural surfaces to simulate the appearance of timber. Comparably less construction waste is produced as the production of GRP uses the same mold multiple times to cast the exact length, and does not require the trimming of unwanted length of timber. The three-dimensional curvilinear sub-frame produced by GRP is thus more accurate and enables building of the complicated profile of the feature trellis without cutting trees, thus reducing carbon emission.



Reduce Solar Heat



A trellis roof is built over to provide an iconic enclosure while shielding the electrical and mechanical installations at the roof below, as well as contributing to the passive cooling for the accommodations underneath thus reducing solar heat gain.

Cross Ventilation



The building envelop opens up to maximize cross ventilation and creates multiple layers of space from the public to private, from open, semi-open to enclosed area.

Upcycled Materials



Iron window frames were salvaged from the demolition of the ex-Electrical and Mechanical Services Department Headquarters. Although aged and may not fulfil the modern needs of window for a modern building, architect has redesigned and given them a new life by upcycling them as main entrance doors for the Office and Multi-purpose Room, which also preserved the collective memories through them.

Upcycled Wishing Tree



The Environmental Wishing Tree at GREEN@ WAN CHAI is upcycled from fallen trees and other general yard waste, while the wishing tags hanged on the tree are recycled from the used plastic bottles and other plastics.

B. Green Buildings

Major expected impact of newly selected projects (Projects 15 to 23 and 36 to 40): Received or expect to receive a BEAM Plus New Buildings certification at Gold rating or above



Fire Services Department Pak Shing Kok Married Quarters (Project 15)





The Married Quarters at Pak Shing Kok, Tseung Kwan O for the Fire Services Department is the first high-rise building project adopting the Modular Integrated Construction (MiC) method as a concrete construction approach in Hong Kong. With the concept of "factory assembly followed by on-site installation", the innovative MiC method allows free-standing integrated modules (completed with finishes, fixtures and fittings) to be manufactured in a prefabrication factory and then transported to the building site for installation. The adoption of MiC method reduced about four months of construction contract period. In accordance with the study "Modular Integrated Construction for High-rises: Measured Success" published by the University of Hong Kong in 2020, the quality of works, labour productivity, working environment and site safety were improved while the construction waste, electricity and water usage, air, noise and water pollution reduced. Thus, impact to natural environment and ecology were minimised. All MiC modules were designed as maximally 2.5 meters wide so as to minimise the disturbance to other road users during the transportation. Commenced in September 2018 and completed in the first quarter of 2021, the project has turned a new page in Hong Kong's construction industry. The quarters, built using a total of 3 726 concrete modules, comprises five quarters blocks, among which four have 16 storeys and one has 17 storeys. With eight units on each floor, the quarters provide 648 three-bedroom units. The ancillary facilities include a building management office, covered walkway, recreation space including a multifunction room, outdoor children playground and covered car parks with electric vehicle chargers.

The project has adopted various forms of energy-efficient features and renewable energy technologies, in particular lift power regeneration and photovoltaic system. Green roof and planting areas for environmental and amenity benefits have been provided. A rainwater harvesting system has been adopted for irrigation purpose.

The project originally targeted to attain Gold Rating of the BEAM Plus¹⁷ New Buildings scheme of the Hong Kong Green Building Council and eventually attained Final Platinum Rating for having achieved, amongst others, about 13.1% of annual reduction of carbon emissions and 52.8% of annual water saving (based on the assessed result in BEAM Plus Final Assessment Report).

For more details, please refer to the **BEAM Plus Online Exhibition webpage**.

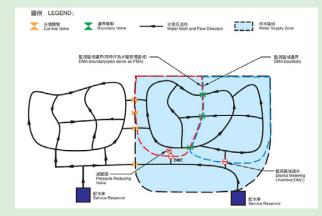
¹⁷ Recognised and certified by the Hong Kong Green Building Council, BEAM Plus offers a comprehensive set of performance criteria for a wide range of sustainability issues relating to the planning, design, construction, commissioning, management, operation and maintenance of a building. By providing 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*.

C. Water and Wastewater Management

Major expected impacts of newly selected projects (Projects 24 to 33 and 41 to 45):

- (i) Water treatment capacity raised by 340 000 m³ per day
- (ii) Total service reservoir storage capacity raised by 55 000 m³
- (iii) Wastewater treatment capacity raised by 215 500 m³ per day
- (iv) Sewage temporary storage capacity raised by 16 000 m³
- (v) Leakage rate in government water mains reduced from about 15% in 2019 to below 10% by 2030 with full implementation of the project and other measures
- (vi) About 28 hectares of land released, bringing multifold benefits
- (vii) Nullah bed of around 1.73 hectares revitalised
- (viii) 70% of total annual pollution loading removed
- (ix) Sewage flow capacity increased and risk of sewage overflow greatly reduced

Implementation of Water Intelligent Network (Project 44)



 WIN - Schematic diagram of a District Metering Area



 Analysing data collected by WIN to monitor water loss

The water supply network of Hong Kong comprises water mains of total length of more than 8 000 kilometres, most of which are laid underground. The network is massive and complex. Furthermore, the hilly terrain of Hong Kong makes the water supply pressure generally higher than that of other cities. On top of that, busy traffic and frequent roadworks cause disturbance to underground water mains. All these factors contribute to an increasing risk of water mains bursts or leaks, making it a great challenge to the Government to manage the water supply network.

Over the years, the Water Supplies Department (WSD) has been taking a multi-pronged approach to tackle the problem. One of the key measures is to implement the Water Intelligent Network (WIN) project. Under WIN, WSD is progressively establishing about 2 400 District Metering Areas within the fresh water distribution network to collect water flow and pressure data to monitor water loss for determining the most suitable network management measures, including active leakage control, pressure management, speedy and quality main repair, as well as main replacement and rehabilitation, in order to combat water loss. With full implementation of WIN and other measures, the Government targets to reduce the leakage rate in government water mains from about 15% in 2019 to below 10% by 2030.

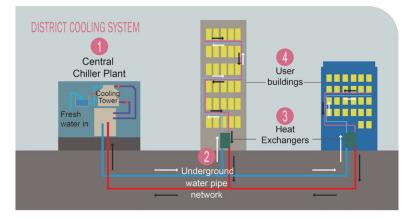
For more details, please refer to the WIN webpage.

D. Energy Efficiency and Conservation

Major expected impacts of newly selected project (Project 34):

- (i) Approximately 35% energy efficiency improvement compared to air-cooled cooling system
- (ii) 42 million kWh of electricity saved per year
- (iii) 29 400 tonnes of greenhouse gas emissions avoided or reduced per year, in CO2e

District Cooling System at the Kwu Tung North New Development Area (Project 34)



In addition to two District Cooling System (DCS) projects under construction at the Kai Tak Development (Project 7 and Project 14) to meet the cooling demand of user buildings, another DCS is being built at the Kwu Tung North New Development Area (KTN NDA) in support of its low-carbon development. With an estimated cooling capacity of about 190 megawatt of refrigeration, the DCS at KTN NDA can cover a total air-conditioned floor area of about 1.1 million square metres.

The DCS can achieve approximately 35% energy efficiency improvement compared to air-cooled cooling system, which brings significant environmental benefits and helps mitigate climate change. Upon full utilisation, the project is estimated to save up to 42 million kWh of electricity a year, corresponding to an annual reduction of about 29 400 tonnes of carbon dioxide emissions¹⁸.

Apart from being an energy-efficient air-conditioning system itself, the DCS is designed to include various forms of energy efficient features and renewable energy technologies, including light-emitting diode general lighting, occupancy sensors for lighting control and a photovoltaic system. The DCS plant building is expected to achieve Gold Rating under the BEAM Plus New Buildings scheme.

The DCS can also bring along 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 KTN NDA; 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 airconditioning systems

For more details, please refer to the DCS webpage.

¹⁸ 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 2022 is approved by the Steering Committee on the GGBP. All 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 CC 7948 - CC 7953



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 2022 (the Report). The assessment provides assurance, in accordance with the HKQAA Green Finance Certification Scheme 2018¹ (GFCS) – Post-Issuance requirements, on the alignment of the green bonds and the projects financed by their 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 August 2021 and 31 July 2022.

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.

¹ 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 28 July 2022.

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 2022

