

Sustainability

The HKMA is publishing its first sustainability report, as an integral part of its *Annual Report 2021*, to set out its strategy on sustainability and document its own efforts, as well as its joint efforts with the financial industry, to support the Government's climate strategies and contribute to a more climate resilient and sustainable world.

The HKMA embeds sustainability considerations across its main roles and functions, whether as a banking supervisor, a market facilitator, a responsible investor, or in maintaining financial and monetary stability. Moreover, the HKMA collaborates with local and overseas counterparts in strengthening the management and disclosures of climate risks, as well as the development of the green and sustainable finance market.

In addition, the HKMA is committed to fulfilling its corporate social responsibility, and aims to be a responsible and sustainable organisation. This commitment is manifested in various areas, including promoting a sustainable, financially inclusive and environmentally friendly marketplace, supporting the wider community, protecting the environment and nurturing a caring workplace.



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OVERVIEW

Climate change is one of the most pressing challenges facing the world today. To combat climate change, countries agreed, under the Paris Agreement¹, to take actions to cut greenhouse gas (GHG) emissions and eventually achieve carbon neutrality within this century. Meeting the Paris Agreement climate change target will require investments of an estimated US\$1–2 trillion a year globally², making sustainability one of the biggest drivers of capital flows in the decades ahead.

Hong Kong is determined to be at the forefront of this transition. The Government announced that it will strive to achieve carbon neutrality before 2050, in line with developed economies globally. Hong Kong is also the first Asian jurisdiction that has committed to specifically aligning disclosure requirements with recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) by 2025 across relevant sectors.

To the financial sector, climate change is both a source of risk and opportunity. While the financial sector cannot be spared from the threats posed by climate change, it has a key role to play in the transition by channelling more financing to activities that are consistent with a pathway towards lower GHG emissions and climate-resilient developments.

The HKMA is committed to strengthening Hong Kong's financial system to support a greener and more sustainable future, driving actions to support the Government's climate goal and contributing to the global agenda. In doing so, the HKMA incorporates sustainability considerations in carrying out its main functions and in running its operations.

First, as a banking supervisor, the HKMA aims to strengthen resilience of the banking system against climate risks and to accelerate banks' efforts in supporting the transition to a low-carbon economy. To accomplish this, the HKMA has formulated a regulatory framework setting out supervisory

requirements for banks to manage and disclose climate risks. A pilot exercise on climate risk stress test to assess the resilience of the banking sector was also concluded successfully in 2021. Meanwhile, on an ongoing basis, the HKMA takes into account climate change in monitoring financial stability risks.

Secondly, in its market development role, the HKMA is focusing its efforts in enhancing Hong Kong's role as a green and sustainable finance hub in the region, including the Greater Bay Area (GBA). Hong Kong, being Mainland's offshore financial centre, is well-positioned to channel global investments into Mainland's plans to achieve peak carbon emissions by 2030 and carbon neutrality by 2060. The HKMA is also working through the Green and Sustainable Finance Cross-Agency Steering Group (CASG)³, which the HKMA co-chairs, to build industry capacity, address data gaps and explore the development of a local green classification framework.

In fact, Hong Kong is a leader in green finance solutions, having established the world's first government Global Medium Term Note Programme dedicated to green bond issuances under the Government Green Bond Programme, and increased gradually the diversity of its issuances since 2019, both in terms of currencies and tenors. To support the issuance of green and sustainable bonds and loans in the private sector, the Government set up the Green and Sustainable Finance Grant Scheme in May 2021. Administered by the HKMA, this scheme has incentivised more corporates to seek green and sustainable financing in Hong Kong, and encouraged more green advisers and external reviewers to establish or expand their presence here.

Thirdly, as the manager of the Exchange Fund, the HKMA has ensured that environmental, social and governance (ESG) considerations are an integral part of its investment process and asset allocation decisions. In the latter part of this report, the HKMA makes its inaugural disclosures on its climate scenario analysis and carbon footprint metrics of the Exchange Fund's portfolios.

¹ The Paris Agreement is an international treaty on climate change that has the long-term goal of keeping the rise in global temperature to well below 2 degrees Celsius above pre-industrial levels, and preferably limiting the increase to 1.5 degrees Celsius.

² Energy Transitions Commission, 2020. *Making Mission Possible: Delivering a Net-Zero Economy*.

³ The CASG was co-initiated by the HKMA and the Securities and Futures Commission. The other CASG members are the Environment Bureau, the Financial Services and the Treasury Bureau, Hong Kong Exchanges and Clearing Limited, the Insurance Authority and the Mandatory Provident Fund Schemes Authority.

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Fourthly, the HKMA is stepping up its own green office initiatives to ensure its own operations conform to best practices in the management and mitigation of climate risks. As a start, the HKMA has established its carbon profile across Scope 1 and Scope 2 emissions⁴, and made corresponding disclosures. At the same time, the HKMA has implemented measures to enhance industry-wide operational efficiency and minimise resource consumption. In addition, the HKMA holds itself to high standards of corporate social responsibility (CSR) and works with its stakeholders to promote financial inclusion and financial literacy.

Greening the financial system requires close collaboration amongst central banks and supervisors. The HKMA is an active member of the international community in global policymaking and alignment of sustainability standards. The HKMA has also issued a statement to support the Central Banks and Supervisors Network for Greening the Financial System (NGFS) Glasgow Declaration⁵, reaffirming its commitment to delivering on the NGFS recommendations in taking the necessary measures to foster a greener financial system.

In driving these sustainability initiatives and assessing climate-related opportunities and risks, sustainability and green considerations are embedded in the HKMA's governance and risk management frameworks, in which the leadership is actively involved in setting the overarching objectives and guiding principles, in consultation with the Exchange Fund Advisory Committee (EFAC) and its sub-committees. The HKMA's CSR and Sustainability Committee (CSC) also assesses the potential impacts of sustainability and climate-related issues on the organisation, and devises strategies to reduce the impacts. Execution of the relevant strategies and initiatives is closely monitored and reported to the top management regularly. In addition, external consultants have been engaged to advise the HKMA in selected areas of work.

The subsequent sections of this chapter will delve into the HKMA's governance, strategies and risk management measures in undertaking green finance and sustainability work in each of its roles.

This report is prepared with reference to the disclosure elements recommended in the NGFS's *Guide on Climate-related Disclosure for Central Banks*, published in December 2021. In addition, information in relation to the HKMA's office operations makes broad reference to the reporting principles under the Global Reporting Initiative (GRI) Standards⁶ and the *ESG Reporting Guide*⁷ promulgated by the Stock Exchange of Hong Kong Limited.

Central Banks and Supervisors Network for Greening the Financial System

The NGFS provides a platform for central banks and prudential supervisory authorities to exchange experiences, share best practices, contribute to the development of environmental and climate risk management in the financial sector, and mobilise mainstream finance to support the transition towards a sustainable economy. Its purpose is to define and promote best practices to be implemented within and outside of the membership of the NGFS, and to conduct or commission analytical work on green finance.

Task Force on Climate-related Financial Disclosures

In December 2015, the Financial Stability Board created the TCFD to develop recommendations for more effective climate-related disclosures by companies to investors, lenders and insurance underwriters that could promote more informed decisions. The TCFD's recommendations are structured around four thematic areas that represent the core elements of how organisations operate: governance, strategy, risk management, and metrics and targets.

⁴ Explanations of Scope 1 and Scope 2 GHG emissions are given in the *Responsible Investment* section on page 190.

⁵ See the HKMA press release dated 3 November 2021 titled *The HKMA supports the NGFS Glasgow Declaration*.

⁶ The GRI is an international independent organisation that helps businesses, governments and other organisations understand and communicate their impacts on matters such as climate change.

⁷ The *ESG Reporting Guide* is in Appendix 27 of the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited*.

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BANKING SUPERVISOR

As the core part of the financial system, banks should be proactive in managing climate risks, and support channelling more capital to green and sustainable activities. As a banking supervisor, the HKMA focuses on building banks' resilience against climate risks and accelerating banks' efforts in supporting the transition to a low-carbon economy.

Overview of the HKMA's three-phased approach

Since May 2019, the HKMA has been promoting green and sustainable banking in three phases:

Phase I

Developing a common framework to assess the "greenness baseline" of individual banks, and collaborating with international bodies to provide technical support to banks in Hong Kong.



Phase II

Consulting the industry and other stakeholders on the supervisory expectations and requirements of green and sustainable banking.



Phase III

Focusing on the implementation of supervisory requirements, monitoring and evaluation of banks' progress in green and sustainable banking.



Guidance

Supervisory requirements on climate risk management

In 2020, the HKMA developed a common framework for assessing the "greenness baseline" of individual banks in collaboration with the industry. The HKMA also conducted the first greenness assessment of banks, which marked the completion of Phase I. To help banks prepare for the new supervisory requirements, a white paper was published in June 2020, which outlined the HKMA's initial thinking on supervisory expectations for climate risk management.

In December 2021, following an industry consultation, the HKMA issued the supervisory requirements for banks to incorporate climate considerations into governance, strategy, risk management and disclosure. In particular, specific requirements and concrete timeline were set out in mandating climate-related disclosures based on the recommendations of the TCFD before 2025.

The requirements will set a benchmark to help banks upgrade their risk management capability.

The next step is for the HKMA to monitor banks' implementation of the relevant requirements. In this regard, the HKMA has stepped up its supervisory capacity by setting up a new dedicated team within its Banking Supervision Department to carry out climate risk supervision.

This three-phased approach is an iterative and evolving process. Further to the first round of greenness assessment conducted in 2020, the HKMA is reviewing the framework to encompass the new supervisory requirements on climate risk management and potentially cover a wider scope, such as other environmental risks and measures for supporting the net zero transition. The HKMA intends to launch an updated framework in the second half of 2022.

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Sound practices supporting the transition to carbon neutrality

Apart from incorporating climate risk considerations into the risk management framework, some banks have devoted resources and taken measures to support the goals of the Paris Agreement and contribute to achieving global net zero emissions. The HKMA issued a circular in December 2021 to share with the industry the sound practices of these banks which would be of reference value to other banks in the industry in formulating their climate strategies. These sound practices are grouped into four areas: reducing GHG emissions of the banks' own operations, reducing financed emissions through portfolio alignment, assisting clients to transition, and promoting collective efforts to assist the economy to achieve a net-zero transition.

Green classification framework to facilitate green finance flows

To increase transparency across the financial markets and enable consistent policy making on green finance, the HKMA has been working with other financial regulators to explore a local green classification framework, which will facilitate navigation among the *Common Ground Taxonomy* (CGT) developed by the International Platform on Sustainable Finance (IPSF)⁸ and the green definitions adopted by China and European Union, for adoption across different financial sectors. The work will be guided by the principles of interoperability, comparability and inclusiveness, taking into account other definitions of green, transitional activities and local considerations. This initiative will reduce the risk of green washing, improve product comparability and ultimately enhance investor protection.

Assessment: climate risk stress test

To assess the banking sector's ability to cope with potential shocks brought about by climate change, the HKMA undertook a pilot exercise on climate risk stress test (CRST), which included the participation of 20 major retail banks and seven branches of international banking groups. A report summarising the results of the pilot CRST exercise was published in December 2021. The results showed that the banking sector remained resilient even in the face of extreme climate-related shocks, although these shocks could potentially give rise to significant adverse impacts on banks' financials. The CRST exercise helped to enhance banks' capabilities for measuring and assessing climate risks. In light of the CRST results, the participating banks have devised plans to strengthen their climate strategies and risk governance frameworks. The HKMA will continue to engage the industry to strengthen banks' capability and enhance the CRST framework, taking into account the lessons learnt from the pilot exercise.

Upskilling banking practitioners

As part of its capacity building work for the banking sector, the HKMA has started developing a new module on Green and Sustainable Finance under the Enhanced Competency Framework for Banking Practitioners. This is to cater for the strong demand for green and sustainable finance knowledge and skill sets in the banking industry.

⁸ The IPSF issued the CGT report on 4 November 2021. The CGT will provide a common reference point for the definition of investments which are considered as environmentally sustainable across IPSF jurisdictions.

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FINANCIAL AND MONETARY STABILITY

Climate change presents an important source of risk to the financial system. However, global efforts to assess the financial stability impact of climate change have only just begun. The HKMA is at the forefront of this. It is undertaking efforts to assess such impact by incorporating a broader range of climate scenarios into its analysis of financial risks and conducting research studies to augment its current surveillance approaches to better capture climate risks.

Integrating climate-related risks into financial stability monitoring

The HKMA takes into account climate change in its ongoing monitoring of financial stability risks, and incorporates analyses of climate-related risks in various financial stability reports. Through its active participation in the NGFS's Macrofinancial workstream, the HKMA contributes to further enriching climate scenarios for central banks and supervisors to analyse climate-related financial risks under different future climate pathways.

The above financial stability surveillance work is supplemented with empirical analysis to assess the implications of climate change and related mitigation policies for the financial system. To date, the HKMA has conducted seven applied research projects that look deeper into the following key topics:

- ◆ impact of climate risks on syndicated loan pricing;
- ◆ corporate default risk under various NGFS climate scenarios;
- ◆ stock market spillover of climate risks;
- ◆ impact of ESG factors on the cost of corporate debt;
- ◆ the relationship between ESG performance and sovereign credit risk;
- ◆ global equity investors' awareness of climate risks; and
- ◆ the pricing of climate change risks in Hong Kong's equity market.

These research findings can contribute to the formulation of a policy and regulatory framework in addressing the impacts of climate risks on financial stability in Hong Kong and the rest of the world. Locally, these studies form the basis for the HKMA's ongoing monitoring and assessment of the financial stability impacts of climate risks. The findings of these research projects have been shared with a wide range of stakeholders through various channels, including central bank research conferences and the HKMA's *Half-Yearly Monetary and Financial Stability Reports*.

Embedding sustainability considerations in the Liquidity Facilities Framework

The HKMA's Liquidity Facilities Framework serves as a collateral-based backstop source providing timely liquidity support to banks in case of need. The HKMA is prepared to explore how sustainability considerations can be embedded in evaluating eligible collaterals under this framework. For example, designated financial assets that meet pre-specified green benchmarks may be considered as eligible collaterals.

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MARKET FACILITATOR

The HKMA has been working to enhance Hong Kong's role as a regional green and sustainable finance hub by providing the necessary infrastructure and catalysts, and supporting international initiatives and alignment with global standards.

Green and Sustainable Finance Cross-Agency Steering Group: a champion of market developments

In a major step towards advancing the sustainable finance agenda for Hong Kong, the HKMA and the Securities and Futures Commission (SFC) initiated the establishment of the CASG in May 2020. The CASG aims 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. To enhance transparency on the way forward for Hong Kong, in December 2020, the

CASG released its strategic plan that sets out six key focus areas and five action points for strengthening Hong Kong's financial ecosystem to support a greener and more sustainable future (Figure 1).

Since its establishment, the CASG has been making good progress. It is now taking forward its work with a focus on capacity building and data under the Centre for Green and Sustainable Finance (see page 181), taxonomies (as mentioned in the *Banking Supervisor* section on page 178), climate-related disclosures and sustainability reporting, as well as carbon market opportunities. Specifically, a preliminary feasibility assessment of carbon market opportunities for Hong Kong was published in March 2022, and the CASG will support the development of Hong Kong into a regional carbon trading centre, including the development of a global high-quality voluntary carbon market, as well as the related opportunities arising from the GBA co-operation.

Figure 1 The CASG's key focuses and action points



Risk management

Strengthen the management of climate-related financial risks to consolidate Hong Kong's position as a global risk management centre



Capacity building

Enhance capabilities of market participants and raise awareness among the general public



Mainland opportunities

Capitalise on the opportunities presented by the Mainland to develop Hong Kong into a green finance centre in the GBA



Disclosure

Promote the flow of climate-related information at all levels to facilitate risk management, capital allocation and investor protection



Innovation

Encourage innovation and explore initiatives to facilitate capital flows towards green and sustainable causes



Collaboration

Strengthen regional and international collaboration

Five near-term actions to support a greener and more sustainable future:

- ◆ **Mandatory TCFD-aligned disclosures** across all relevant sectors no later than 2025
- ◆ Adopting **Common Ground Taxonomy**
- ◆ Supporting work of IFRS Foundation on **sustainability reporting**
- ◆ **Promoting climate-focused scenario analysis**
- ◆ Establishing a **platform to act as a focal point for cross-sectoral capacity building and repository of relevant resources**

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Centre for Green and Sustainable Finance: a cross-sector platform to help fill capacity, talent and data gaps

The CASG launched the Centre for Green and Sustainable Finance in July 2021 to co-ordinate efforts of financial regulators, Government agencies, industry stakeholders and academia in capacity building and policy development, and to serve as a resource and data repository. The Centre is taking forward measures to address the pain points faced by the financial services sector. In March 2022, the Centre launched a Data Source Repository to support the financial sector in locating data sources for climate risk management and other green and sustainable finance related analysis and research. Other measures include developing a new module on Green and Sustainable Finance under the HKMA's Enhanced Competency Framework for Banking Practitioners (as mentioned in the *Banking Supervisor* section on page 178),

working with the Government to launch a new Pilot Green and Sustainable Finance Capacity Building Support Scheme⁹ to grow the pool of green finance talent in Hong Kong, as well as launching another information repository to share useful learning resources on green and sustainable finance.

Alliance for Green Commercial Banks: an initiative supporting regional green and sustainable finance development

The HKMA has also been actively supporting regional green and sustainable finance development. In November 2020, the International Finance Corporation (IFC) and the HKMA launched the Alliance for Green Commercial Banks¹⁰ to bring together financial institutions, banking industry associations, research institutions and innovative technology providers in the region to develop a community of green commercial banks (Figure 2).

Figure 2 The Alliance for Green Commercial Banks

Why launch the Alliance?

The Alliance aims to unleash the potential of commercial banks and other financial institutions to mainstream green finance as a core business and to promote the involvement of the financial sector in global climate change activities



Market level

Unmet green financing needs



Bank level

Lack of knowledge base and capacity



The Alliance

Knowledge sharing and peer learning



Global impact

Advancing the Green Agenda globally

How does it work?

- ◆ **Acting as a knowledge hub and deploying advisory support**

Creating a one-stop shop and peer-to-peer learning platform for financial institutions to acquire knowledge, tools and information to develop their own green finance roadmaps and transform into credible green financial institutions

- ◆ **Forging a community of practice and innovation**

Bringing together the leaders in green finance to develop a community of green financial institutions across emerging markets

- ◆ **Promoting investment for green business opportunities**

Facilitating dialogue and providing thought leadership to advance the green finance agenda globally, unlocking the trillions available in green and climate-related investment opportunities

⁹ This pilot scheme was announced by the Financial Secretary in the 2022–23 Budget.

¹⁰ The HKMA is the founding member and first regional anchor for the Asia Chapter.

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The Alliance hosted nine knowledge events comprising training and roundtable sessions in 2021, covering topical issues such as green banking transformation, green buildings, voluntary carbon markets and the regulatory landscape for climate risks (Figure 3).

Figure 3 Event outreach: The Alliance for Green Commercial Banks hosted nine knowledge events in 2021

The Alliance's knowledge events in 2021 reached around 4,500 participants globally, with 27% being senior executives



Channeled through:

- Institutional and corporate banks
- Sector and industry associations
- Chambers of commerce
- Renowned media
- Other stakeholders

27% of the participants were senior executives (department head or above)

From 37 economies, covering

- Asia-Pacific
- Americas
- Europe
- The Middle East
- Africa
- Commercial banks
- Investment banks
- Non-bank financial institutions
- Development finance institutions
- Fintech
- Think tanks
- Enterprises

* Data as of 31 December 2021

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Green finance solutions: channelling capital to green the real economy

The HKMA has been contributing to green finance development in Hong Kong by, for instance, promoting the issuance of green and sustainable debt and exploring the application of Greentech. In 2021, Hong Kong witnessed a fourfold increase in green and sustainable debt (including bonds and loans) issuance, totalling US\$57 billion.

Green and sustainable bonds

To demonstrate the Government's support for sustainable development and determination to combat climate change, and to promote the development of green finance, the Government Green Bond Programme was launched in 2018. The HKMA assists in implementing green bond issuance under the Programme. A total of over US\$9 billion equivalent of green bonds, comprising institutional and retail bonds, have been issued since 2019, with the proceeds allocated to green projects in Hong Kong including green buildings, waste management, energy efficiency and conservation, etc. Annual *Green Bond Reports* have been published, with details on the allocation of the green bond proceeds and expected environmental benefits.

To streamline its regular issuance work, the Government established the world's first government Global Medium Term Note Programme dedicated to green bond issuances in early 2021 and issued close to US\$6.5 billion equivalent of institutional green bonds in February and November, covering US dollar, euro and renminbi tranches in multiple tenors ranging from three to 30 years. These issuances included the Government's inaugural issuance of euro- and renminbi-denominated bonds, providing important new benchmarks for potential issuers in Hong Kong and the region. The green bonds were well received by the global investment community, affirming investors' confidence in Hong Kong's credit strengths and economic fundamentals in the long term, and further consolidating Hong Kong's leading role as an international finance centre and premier offshore renminbi centre.

To enable residents to participate in and share the fruit of Hong Kong's sustainable development through investment, the Financial Secretary announced in the 2021–22 Budget the plan to issue retail green bonds under the Government Green Bond Programme. The HK\$20 billion inaugural retail green

bond was issued in May 2022 and was well received by the public.

To provide the industry with useful and credible market information, the HKMA has been collaborating with the Climate Bonds Initiative and the International Capital Market Association (ICMA) respectively to release annual reports featuring the Hong Kong and regional green debt markets. The ICMA report showed that US\$31 billion, or around a third of the regional total, of international green and sustainable bond issuances were arranged in Hong Kong in 2021.

In October, the Shenzhen Municipal People's Government issued RMB5 billion of offshore municipal government bonds in Hong Kong, including RMB3.9 billion of green bonds. It was the first time a Mainland municipal government issued bonds outside the Mainland. The issuance marked another milestone in the development of Hong Kong's green and sustainable finance market, highlighting its unique role to facilitate green and sustainable capital flows between the Mainland and the rest of the world.

Green and Sustainable Finance Grant Scheme

A new Green and Sustainable Finance Grant Scheme was launched in May to attract more green and sustainable financing activities to Hong Kong. The scheme has been well received by the industry. During the first year, it has subsidised the bond issuance and external review expenses of close to 100 green and sustainable debt instruments issued in Hong Kong. The scheme has also encouraged more financial institutions and professional service providers, including external reviewers, to set up and expand their presence in Hong Kong, thus enriching the green and sustainable finance ecosystem in Hong Kong.

Greentech

As part of the efforts to explore the synergy between green finance and technology, the HKMA collaborated with the Bank for International Settlements Innovation Hub Hong Kong Centre on Project Genesis to explore the use of distributed ledger technology in improving the efficiency of the bond issuance process and enhancing the transparency of environmental impact disclosure. The project was concluded in November, with two prototypes developed and concept-tested for potential issuance of tokenised green bonds to retail investors.

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RESPONSIBLE INVESTMENT

HKMA's journey of responsible investment

As the manager of the Exchange Fund and one of the largest asset owners globally, the HKMA proactively supports responsible investment (RI). The HKMA's RI journey commenced with the adoption of the *Principles of Responsible Ownership* promulgated by the SFC in 2016¹¹ and was accelerated by integrating ESG factors into its investment processes from 2017.

In 2019, the HKMA established the overarching guiding principle to give priority to ESG investments with comparable long-term risk-adjusted returns, reinforcing further the belief that an investment approach with ESG integration aligns with the investment objectives of the Exchange Fund. Further, the HKMA seeks to partner with like-minded investors and regulators to promote good RI practices, through which it can exchange views and better monitor the developments of ESG standards and initiatives. The HKMA thus joined the United Nations-supported *Principles for Responsible Investment* (PRI) as one of the earliest central bank signatories of the world's leading proponent of RI. To demonstrate its commitment to the adoption of ESG standards in investments, the HKMA also became a member of the NGFS and a supporter of the TCFD.

The HKMA believes that giving due attention to climate change can contribute to the global initiative to limit global warming on the one hand, and preserve the long-term portfolio value through concerted efforts in containing and reducing GHG emissions on the other. Since 2015, the HKMA has spearheaded investments in green and sustainable assets and made incremental steps to introduce ESG considerations in all asset classes through ESG integration. The positive experience built up therein has been the cornerstone for the HKMA to further expand its ESG investments.

Moving forward on its RI journey and navigating climate change, the HKMA strives to enhance its strategies and risk management by factoring in quantitative analysis of portfolio exposure while improving resilience to the adverse effects of climate change. Inaugural disclosures on climate scenario analysis and carbon footprint metrics of the Exchange Fund's portfolios are made in this report based on TCFD recommendations. The HKMA endeavours to progress further towards aligning its disclosures with the TCFD recommendations no later than 2025, as one of its commitments supporting the NGFS Glasgow Declaration at the UN Climate Change Conference in Glasgow (COP26) and the greening of Hong Kong's financial system.

HKMA's responsible investment journey: An incremental approach



¹¹ These voluntary principles aim to provide guidance to assist investors to determine how best to meet their ownership responsibilities.

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Governance

Taking into account the statutory purposes of the Exchange Fund, as detailed in the *Reserves Management* chapter on page 151, the HKMA has been managing the Exchange Fund prudently under the principle of “capital preservation first while maintaining long-term growth”. It believes that ESG factors can unlock the long-term sustainable value and highlight the risks of an investment. By integrating ESG factors, the HKMA aims to seek better long-term risk-adjusted return that underpins the investment objectives of the Exchange Fund.

The HKMA’s belief in RI is reflected in the overarching guiding principle. The overall RI framework, as endorsed by the EFAC, comprises a three-pronged approach — integration, active ownership and collaboration — for adoption in the Exchange Fund’s investment processes. The EFAC delegates responsibility for the oversight of ESG-related risks, including climate change risks, associated with the Exchange Fund’s investments to its Investment Sub-Committee (ISC), which reviews the RI framework and climate risk management approach.

More details about the HKMA’s RI framework are available on the HKMA website:



Within the HKMA, the implementation of RI is supported by dedicated teams under the Risk and Compliance Department (RCD), headed by the Chief Risk Officer (CRO) of the Exchange Fund Investment Office (EFIO), which reports the RI initiatives and progress to the ISC at each meeting. The EFIO ESG Committee, chaired by the CRO, has been established to co-ordinate and oversee ESG efforts across the EFIO with specialist advice from the RCD. Efforts and progress discussed by the EFIO ESG Committee are reported to the Chief Executive Officer of the EFIO.

The RCD works closely with EFIO investment teams to integrate ESG factors into investment decision-making and portfolio management, and to assist the EFIO’s management team in managing ESG and climate-related risks and opportunities in a broad range of investments:

◆ **Public investments**

The Credit, Rules and Compliance Committee, composed of senior management of the EFIO, introduces ESG factors in credit evaluation and monitors the ESG profile of fixed-income portfolios via the regular reporting provided by the RCD. In addition, the RCD participates, from an ESG perspective, in the selection, appointment and monitoring processes of external managers of the public equities portfolios.

◆ **Private investments**

The Investment Committee chaired by the Chief Executive of the HKMA takes into consideration the RCD’s and private market investment team’s assessments of ESG-related issues for each prospective investment.

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Strategies

Climate risk assessment

There is ample empirical evidence¹² indicating that the impacts of climate change and associated risks are material and the need to tackle them is getting urgent. The inherent physical and transition risks¹³, as well as market repricing of assets resulting from anticipation of possible impacts, can affect portfolio values of the Exchange Fund. As a long-term investor, the HKMA fully recognises these risks, but at the same time, also sees the potential opportunities that climate change can bring about. As such, the HKMA is building up its capabilities to better understand climate risks and opportunities, and it intends to devise sustainable investment and risk management strategies commensurate with the investment objectives of the Exchange Fund.

The trajectory of climate change is highly uncertain. Assessing its impacts over a long time horizon requires the use of modelling methodologies and assumptions that differ from traditional risk analysis. In this regard, an external consultant has been engaged with a view to advising the HKMA on leading industry practices and building up internal expertise and capacity for assessing the long term impact of climate change on the resilience of its portfolios under different scenarios.

Three climate scenarios with varying degrees of expected transition and physical damage from extreme weather events are applied to analyse the Investment Portfolio (IP) of the Exchange Fund over the short, medium and long term (see *Climate scenarios applied* below). They are broadly in line with the NGFS-recommended scenarios for forward-looking climate impact assessment. As climate scenario methodologies continue to develop, the HKMA will constantly review the scenarios as more data become available alongside the evolution of policy refinements and developments, adaptation pathways and market projections.

Climate scenarios applied

Current policies

This scenario assumes that current policies and commitments are augmented by new policies and growth in energy infrastructure spending after COP26.

Orderly transition

This scenario assumes climate policies are introduced early and become gradually more stringent to meet the Paris Agreement. Under this scenario, the energy production mix is transformed.

Hot house world

This scenario assumes only implemented policies are preserved, acceleration of emissions continues and national climate-related targets are not met, leading to irreversible changes (e.g. rise of sea levels).

¹² Intergovernmental Panel on Climate Change, 2021. *Sixth Assessment Report*.

¹³ Climate risks are widely defined by two dimensions: (i) physical risks, including acute impacts from extreme weather events, causing business disruption and physical damage of assets, and chronic changes of climate patterns that affect operations and productivity; and (ii) transition risks, involving possible abrupt devaluation of assets due to the shift towards a low-carbon economy.

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A climate stress test is also conducted to estimate the IP's climate value-at-risk based on these three scenarios to ascertain how climate-related impacts can manifest themselves in the pricing of assets in the shorter term (Figure 4). Results of the analysis show modest return impacts across the board, demonstrating the IP's climate resilience. Among the scenarios, the best outcome for the Exchange Fund is to achieve the scenario which closely resembles an orderly transition to a global low-carbon economy.

Figure 4 Key findings of the climate scenario analysis and stress test



- ◆ Minimal return impacts across all three scenarios on fixed income investments, which comprise the largest allocation in the IP



- ◆ Public equities and private market investments can yield positive returns in the short term from opportunities driven by policy changes, economic transformation and global investment flows towards low-carbon solutions under an orderly transition scenario
- ◆ Renewable energy assets stand to benefit from the transition



- ◆ The IP will increasingly suffer from projected physical risks which will manifest over time. The negative return impact is higher under the hot house world scenario, which represents a higher degree of global warming
- ◆ Energy and conventional utilities are the most vulnerable sectors

Figure 5 Growing ESG investments

Public market



Ongoing initiatives

- ◆ Investing in green bonds since 2015, and has expanded to social and sustainability bonds
- ◆ Investing in equity mandates using an ESG equities index as a benchmark for passive portfolios managed by external managers
- ◆ Investing in the Managed Co-Lending Portfolio Program (MCP) run by the International Finance Corporation with a focus on sustainable projects in emerging markets

Private market



- ◆ Proactively sourcing and investing in projects with sustainable features such as renewable energy infrastructure, and buildings and warehouses with green accreditation

Accomplishments in 2021

- ◆ Holding of ESG bonds doubled, on top of the already doubled holdings in 2020
- ◆ Invested in a green bond fund managed by an international organisation
- ◆ Explored ESG-themed active equity mandates managed by external managers
- ◆ Participated in the MCPP One Planet program focusing on climate-smart investment aligned with the Paris Agreement in emerging markets
- ◆ Invested directly in renewable energy infrastructure projects including hydropower, wind and solar electricity generation across different markets
- ◆ Invested in private equity funds that focus on energy transition and global decarbonisation

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Exercising responsible investment in private market investments

For private market investments, the HKMA exercises RI through its general partners (GPs) who work with underlying portfolio companies to integrate ESG factors in their operations. In general, the GPs have a strong ESG commitment, since they believe that good ESG practices can create long-term value for their portfolio companies while also benefiting society. The case below illustrates how a portfolio company contributed to a lower-carbon environment through deployment of innovative technologies.

Case: Clean hydrogen and carbon black production company

The HKMA has an investment in a company involved in the production of clean hydrogen and carbon black (i.e. a carbon extract in powder form). Hydrogen is a common gas and can be used widely to produce ammonia for fertilisers, while carbon black is a reinforcing

agent used in various goods such as automobile tires, inks, plastics and other rubber products. The conventional production process for the production of hydrogen and carbon black releases large amounts of GHG into the atmosphere. The company has deployed an advanced methane pyrolysis technology to split natural gas into hydrogen and solid carbon, powered by electricity from renewable energy sources. This technique produces green hydrogen and carbon black with a much lower level of carbon emissions discharged than the prevailing conventional production process. Using this new methane pyrolysis technology, it was estimated that carbon emissions could be reduced by 97% for the same amount of hydrogen and carbon black produced, and other harmful contaminants could also be reduced. In addition, this new production technology entails a lower cost and a higher production yield than other existing methods of producing both hydrogen and carbon black.

Deploying innovative technology to produce clean hydrogen and carbon black



Electricity from renewable energy to split natural gas into hydrogen and carbon black through heating without oxygen (i.e. pyrolysis)

-97% less
carbon emissions
compared to
conventional
processes

Sustainability

The growth of ESG investments also hinges on market development. To this end, the HKMA continuously contributes to international efforts to facilitate green and sustainable finance development through collaborating with like-minded investors and international organisations. In November 2021, the HKMA held its annual ESG Workshop with GPs of its private market investments, during which the GPs shared views on emerging ESG issues, including COP26, climate initiatives and the impact of COVID-19 variants, and their experiences on good ESG practices.

Capacity building

The HKMA has put a lot of emphasis on building internal capacity in terms of mobilising resources and using ESG data. Apart from engaging an external consultant to advise on scenario analysis and strategy formulation, the HKMA makes reference to data developed by an external provider when incorporating ESG factors in credit analysis, engaging with external managers on ESG matters and assessing carbon emissions of its portfolios. As the HKMA's ESG journey continues, it seeks to further upgrade research efforts and keep abreast of ESG-related developments through active participation in events held by industry-leading experts and

international organisations. To facilitate internal knowledge sharing, market insights and the latest industry practices on ESG-related topics and relevant policy developments are also discussed at regular EFIO ESG Committee meetings.

Risk management measures

Integration of ESG in credit analysis

To preserve portfolio value, the management of climate risks has been an integral part of the HKMA's investment processes of relevant asset classes. For instance, ESG factors are incorporated in the ongoing credit analysis of the bond portfolios, with regular monitoring of portfolio ESG scores.

Selection, appointment and monitoring of external managers

The HKMA attaches high importance to ESG integration and active ownership. ESG factors are taken into consideration in the selection, appointment and monitoring of its suite of external managers who are expected to discharge active ownership responsibilities on the HKMA's behalf. The following case study illustrates how the HKMA practises RI with external managers.

External managers' voting practices

HKMA's expectation and monitoring

As an active responsible investor, the HKMA requires its external managers to exercise voting rights in its public equities holdings and engage with investee companies. To ensure that its ownership responsibilities are properly discharged by external managers, the HKMA regularly reviews the extent of the engagement work as well as proxy voting results. In 2021, the HKMA reviewed the active ownership practices of a group of external managers managing equities portfolios in advanced economies. The review also assessed the external managers' climate risk management.

Outcomes of the review

The review found that, in general, the active ownership practices of external managers were acceptable. The HKMA noted an exception whereby one external manager had voted against the climate-related shareholder resolutions in most cases, despite the manager's public pledge projecting itself as a responsible asset manager with distinctive objectives and targets in climate change. When queried by the HKMA about the apparent inconsistency between its public pledge and proxy voting practice, the manager positively responded that going forward it would support shareholder resolutions that bring positive actions on climate change as far as possible. The external manager believes that concerted efforts among shareholders can accelerate the transition to greener outcomes.

Sustainability

Due diligence of general partners and encouraging transparency for private investments

In private market investments, the HKMA examines ESG policies and practices of GPs as a mandatory part of due diligence for every investment mandate.

Green accreditation is a predominant factor in real estate investments. Whilst GPs are expected to work with portfolio companies to integrate ESG factors, the HKMA has embarked on an initiative of requiring GPs to provide ESG information such as climate risk assessment and relevant metrics (including carbon emissions of underlying investments) to encourage transparency and facilitate risk monitoring.

Measuring carbon emissions

Having been on its ESG journey for several years, the HKMA uses quantitative measurement to conduct continuous risk monitoring and assess the impact of actions taken, with a view to strengthening its ESG risk management. In line with industry practices, the HKMA measures the carbon emissions of the Exchange Fund portfolios. Measuring carbon emissions allows the HKMA to understand the climate risk profile of its portfolios and identify the carbon-intensive areas that require further actions. Results from the analysis can also be used to guide the external managers to engage with targeted underlying companies with a view to reducing carbon emissions going forward.

Carbon emissions, expressed as tonnes of carbon dioxide (CO₂) equivalent (tCO₂e), are grouped under three categories according to the Greenhouse Gas Protocol¹⁴:

- ◆ **Scope 1 emissions** are direct emissions from sources owned or controlled by a company;
- ◆ **Scope 2 emissions** are indirect emissions from the generation of purchased electricity, steam, heating or cooling consumed by a company; and
- ◆ **Scope 3 emissions** are all other indirect emissions as a consequence of the activities of a company.

The HKMA uses the weighted average carbon intensity (WACI) to measure the Exchange Fund's carbon exposure. Currently, Scope 3 emissions are not assessed due to the high data uncertainty and lack of consistent methodology for measurement, which is prone to double or even multiple counting.

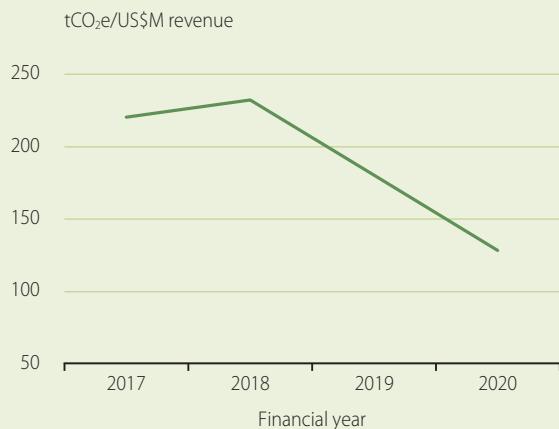
Among the diversified portfolios of the Exchange Fund, the HKMA prioritises the monitoring of carbon emissions of public equities portfolios given the availability of higher-quality data with more established measurement and disclosure practices. In addition, public equities are more susceptible to the impact of climate risks than other asset classes based on results of the above-mentioned climate scenario analysis. In Chart 1, the HKMA presents the WACI of the Exchange Fund's public equities portfolios from 2017 to 2020 using methodologies and tools developed by an external data provider. Where reported data were not available, the data provider estimated carbon emissions using its proprietary model. The reported and estimated data together covers more than 97% of the asset value of the assessed portfolios.

¹⁴ See Greenhouse Gas Protocol (<https://ghgprotocol.org/>).

Sustainability

Chart 1

Weighted average carbon intensity of the Exchange Fund's public equities portfolios



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As depicted in Chart 1, the WACI of the public equities portfolios as at the end of 2020 was 128 tCO₂e/US\$ million revenue, representing an overall 42% reduction compared to the 2017 level. The sharp reduction reflects the HKMA's determined efforts in proactively seeking climate-friendlier assets in its portfolios since the start of its RI journey in 2017. The WACI has also positively outperformed the relevant market investment benchmarks, showing that the Exchange Fund's public equities portfolios have lower exposure to carbon-intensive assets as compared to the broader market.

Weighted average carbon intensity

The WACI is a metric recommended by TCFD and NGFS. Expressed as tCO₂e/US\$ million revenue, it measures a portfolio's exposure based on emissions relative to gross revenues of underlying investments, weighted by their relative sizes in the portfolio, i.e.

$$\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \times \frac{\text{issuer's Scope 1 and Scope 2 GHG emissions}_i}{\text{issuer's US$M revenue}_i} \right)$$

WACI captures Scopes 1 and 2 emissions.

The HKMA is aware that the WACI is subject to short term fluctuations driven by multiple factors on top of emissions, such as changes in portfolio asset mix and strategies in response to market developments, and fluctuations in underlying asset valuations, and therefore would not expect a linear decline going forward. With concerted efforts by authorities, asset owners and managers in various jurisdictions to support the transformation into a low-carbon economy, the HKMA endeavours to press on with the positive momentum to progressively reduce the carbon emissions of its portfolios over the long term.

While the WACI is widely adopted for assessing portfolios' carbon exposure, it is inherently backward looking in nature, as it captures mainly the emissions data publicly disclosed by companies and does not account for companies' future transition pathways. In that regard, there are innovations on forward-looking metrics that can complement the measurement to encompass both climate risks and transition capacities. However, these methodologies are still in their infancy. As new disclosure standards issued by different jurisdictions and related collaborative efforts continue to enhance measurement methodologies with improved data availability and quality, the HKMA will continue to closely monitor developments with the aim of exploring suitable metrics for advancing the climate exposure monitoring.

Sustainability

SUSTAINABLE HKMA

The HKMA promotes and integrates sustainability considerations into its decisions, operations and practices. In doing so, the HKMA seeks to make contributions to society by leveraging its position as a central banking institution and a responsible corporate citizen.

The HKMA's approach is underpinned by three pillars: Environment, People and Social Responsibility (Figure 6).

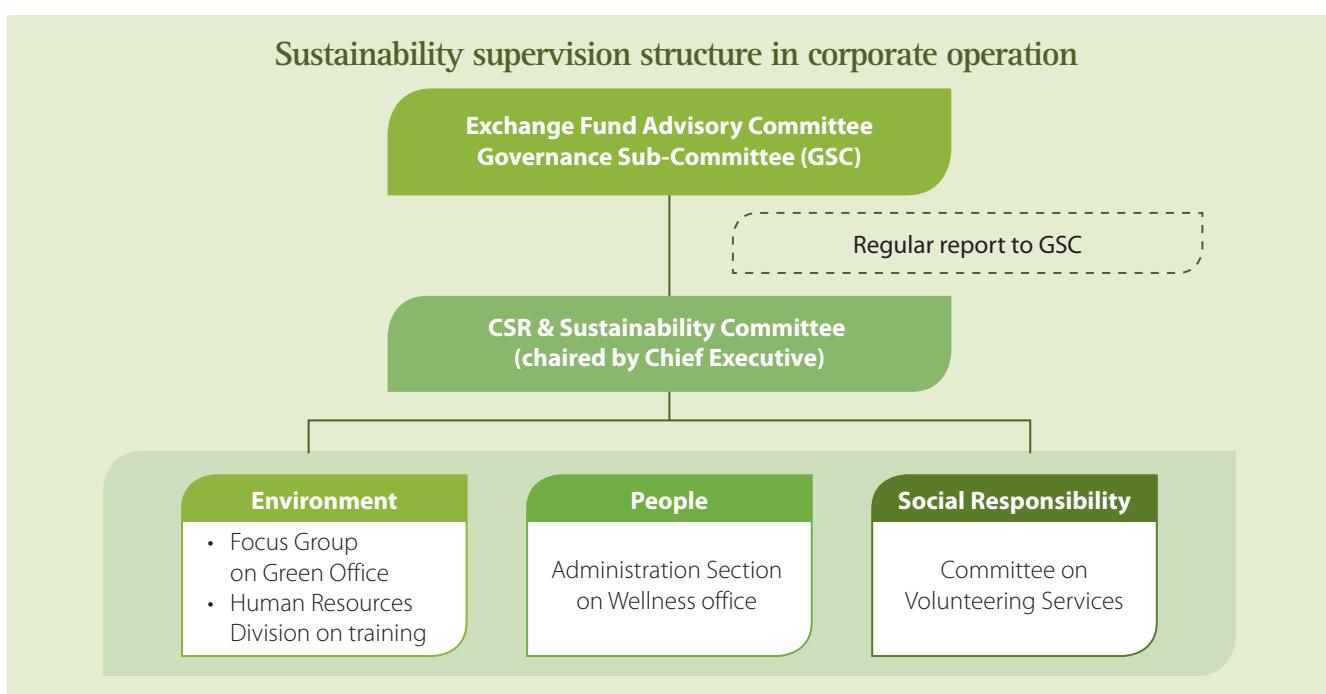
Governance

The HKMA has integrated sustainability governance into its management framework. An internal committee named CSR & Sustainability Committee (CSC) was formed in April 2021 to steer the HKMA's development and implementation of sustainability strategies. The CSC is chaired by the Chief Executive of the HKMA with the three Deputy Chief Executives and representatives from the Risk and Compliance Department and the Corporate Services Department as members. Regular reports are made to the Exchange Fund Advisory Committee's Governance Sub-Committee (GSC). Under the guidance of the CSC, there are different teams which carry out specific initiatives as shown in Figure 7 below.

Figure 6 The three pillars



Figure 7 Key components of the governance framework



Sustainability

In 2021, the HKMA strengthened its sustainability governance and conducted a survey to better understand staff's needs and expectations under the three pillars. Looking ahead, the HKMA plans to draw up a sustainability roadmap to clearly articulate its strategic directions ahead, setting out key initiatives and performance targets where appropriate, for each of the three pillars.

Climate change resilience policy

The following table summarises the HKMA's climate policy for its own operations:

Focus area	Approach
Governance 	<ul style="list-style-type: none">◆ The HKMA established the CSC, which meets regularly to discuss ESG issues, climate-related strategies and risk management, as well as to devise policies and actions to reduce the carbon footprint of the HKMA's daily operations. Regular reports are made to the GSC on these issues.
Strategy 	<ul style="list-style-type: none">◆ Climate change poses both physical and transition risks to the operations of any organisation, and the HKMA is no exception. To align with its long-term climate goals, the HKMA adopts best practices in measuring, managing and mitigating climate risks. <p>With the assistance of a consultant, the HKMA conducted a survey in 2021 to understand staff's expectations on environmental protection, and health and well-being in the office, and collected ideas to improve work in these areas. The HKMA enhanced its sustainability disclosures in its <i>Annual Report 2021</i>. A sustainability roadmap is being drawn up.</p>
Risk management 	<ul style="list-style-type: none">◆ The increasing frequency and severity of extreme weather events such as typhoons and floods may adversely affect the HKMA's premises, operations and employee safety. To minimise loss and enhance its adaptability to physical risks, the HKMA has formulated extreme weather contingency arrangements. <p>Beyond physical risks, the HKMA has also been monitoring its exposure to transition risks since 2017 by tracking its Scope 1 and Scope 2 GHG emissions, waste generation data as well as energy and paper consumption. The HKMA adopts an integrated approach to reduce its environmental footprint through energy efficiency improvements, water resources conservation and waste reduction from source in its daily operations.</p>
Metrics and Targets 	<ul style="list-style-type: none">◆ The HKMA will make best efforts to align with the Paris Agreement and will consider setting a quantifiable carbon target when drawing up the sustainability roadmap.

Sustainability

Environment

The HKMA is dedicated to enhancing environmental sustainability in its operations. Within the institution, it adopts green office initiatives to reduce its carbon footprint. Green building certification has been attained, and the HKMA will conduct energy audit and execute energy-saving plans going forward. The HKMA also pursues low-waste and recycling solutions to support Hong Kong's Municipal Waste Charging Scheme, which will become effective in 2023. At the same time, it is making best efforts to promote an environmentally friendly marketplace, including adopting measures to reduce paper usage by banks in the submission of returns to the HKMA, and to reduce the environmental impact of printing currency notes and minting coins.

Green office initiatives

Green buildings

The HKMA has obtained green building accreditation¹⁵ from LEED¹⁶. The certification demonstrates that the HKMA has adequately considered environmental factors in the interior design of the office.



The HKMA obtains Gold certification from LEED for Interior Design and Construction

Energy savings

The HKMA is committed to tackling its GHG emissions through reducing the use of electricity and fuel across its office operations and by HKMA-owned vehicles.

The HKMA has implemented various policies and energy-saving measures to reduce its energy consumption, including:

- ◆ installing energy-saving devices, including light-emitting diode (LED) lights, motion sensors and auto timers to control indoor lighting;
- ◆ setting a default room temperature of 25°C;
- ◆ procuring equipment with energy efficiency labels; and
- ◆ setting the power-saving mode as default for office equipment.



¹⁵ The accreditation is for part of the HKMA's office premises which have been recently renovated.

¹⁶ LEED (Leadership in Energy and Environmental Design) is a green building certification system developed by the United States Green Building Council and used worldwide.

Sustainability

The total energy consumption¹⁷ was 4,969.8 megawatt hour in 2021, or 3.44 megawatt-hour per head which represents a reduction of 8.06% compared to the 2017 level (Chart 2).

In 2021, the GHG emissions (Scope 1 and Scope 2)^{18,19} amounted to 2,948.18 tCO₂e, or 2.04 tCO₂e per head which represents a reduction of 22.42% compared to the 2017 level (Chart 3).

Reducing the use of paper and printing

The HKMA has rolled out various initiatives to reduce the use of paper, including:

- ◆ distributing electronic copies of meeting materials, equipping all staff with mobile devices and upgrading communication and collaboration tools in meeting rooms to achieve paperless meetings; in particular, meeting materials for the EFAC and its sub-committees have been fully digitalised;
- ◆ adopting automation and electronic processes for internal matters, including e-remittance advices for staff in relation to expense claims and payroll, training course enrolments, overseas travel records, conference room bookings and leave applications;
- ◆ using recycled paper and envelopes;
- ◆ using eco-friendly paper and ink for HKMA publications; and
- ◆ significantly scaling down the printing of hard copy HKMA publications.

Chart 2 Energy intensity

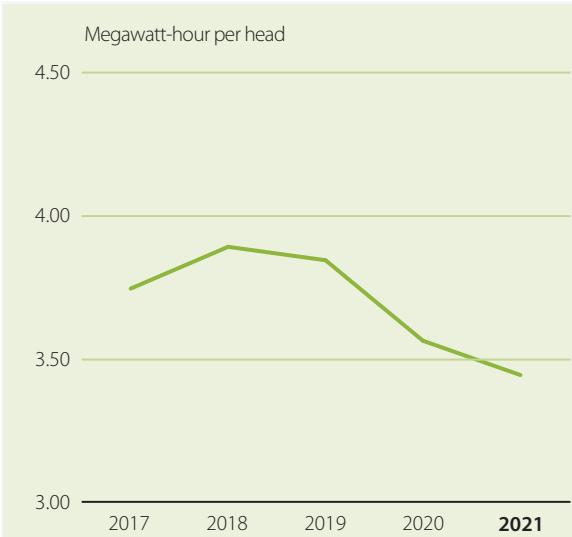


Chart 3 GHG intensity



¹⁷ Energy consumption data was based on the amount of purchased electricity and fuels consumed and the relevant conversion factors provided by the Department for Environment, Food & Rural Affairs of the UK, disclosed under the GRI requirements.

¹⁸ The calculation methodologies for GHG emissions are as follows:

- The figures were calculated based on the reporting requirements of the *GHG Protocol Corporate Accounting and Reporting Standard* issued by the World Resources Institute and the World Business Council for Sustainable Development, and the *Practical Guide on Carbon Audit and Management — Guide to Low Carbon Offices* issued by the Environmental Protection Department in Hong Kong.
- The operational control approach was adopted for the purpose of GHG accounting and reporting.
- Scope 1 direct emissions cover carbon dioxide, methane, and nitrous oxide. Hydrofluorocarbons are insignificant in the HKMA's operations while perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride are not applicable.
- Scope 2 indirect emissions were calculated by the market-based method as defined by the *GHG Protocol Corporate Accounting and Reporting Standard*.

¹⁹ The HKMA's GHG emissions are primarily indirect GHG emissions arising from electricity consumption.

Sustainability

In 2021, the total paper consumption, covering the amount of A3 and A4 size paper consumed, was 28.72 tonnes, or 0.02 tonnes per head which represents a reduction of 38.15% compared to the 2017 level (Chart 4).

Chart 4 Paper consumption intensity



In addition, the HKMA has implemented a printing management system, which requires staff to log into the printer to confirm each print job, as a means to help bring down unnecessary printouts and toner usage.

Waste management

To support the Government's tightening waste management regulations, the HKMA has taken the following actions to reduce waste in its daily operations:

- ◆ providing reusable utensils and lunch boxes for staff to store food alongside a pledge to "stop using single-use items";
- ◆ collecting different types of waste, including paper, cans, bottles, batteries, compact discs and ink cartridges, for recycling;
- ◆ increasing the number of recycling bins in office premises; and
- ◆ encouraging colleagues to give out electronic lai sees (e-laissez) and recycle used red packets at the Chinese New Year.

The non-hazardous waste generated in 2021, including general waste and recyclable waste, totalled 176.34 tonnes, or 0.12 tonnes per head which represents a reduction of 22.73% compared to the 2017 level (Chart 5).

Chart 5 Non-hazardous waste intensity



Innovative technology and equipment solutions

Apart from reducing traditional waste, the HKMA has also put forward measures to reduce the number of hardware equipment with a view to minimising electronic waste. Since 2019, the HKMA has adopted a virtual desktop infrastructure together with lightweight (small form factor) front-end devices that reduce significantly the number of physical desktop computers to cut down on electronic waste. In 2020, the HKMA began using a private cloud infrastructure, which not only increased scalable computing and storage capacities and standardised internal system designs, but also decreased the use of physical server hardware. In addition, the HKMA has increasingly procured multifunctional devices that support printing, scanning and photocopying on one machine, which lowers the number of devices used on the office premises.

Sustainability

Green culture

The HKMA organises training sessions regularly to raise staff awareness and deepen their understanding of environmental and sustainability challenges facing the global economy. To catalyse adoption of environmentally-friendly habits by staff, regular training and adoption programmes are conducted to encourage staff to go paperless and upskill them to a green and digital way of working. Annual statistics on office-wide energy and paper consumption are shared with staff to help remind them to be environmentally conscious.

Green data centres

The HKMA runs two data centres (production and backup) which account for a major portion of the organisation's entire energy consumption. To save energy, the HKMA has adopted various green practices in its data centres, including:

- ◆ using LED lighting;
- ◆ conducting round-the-clock monitoring of data centres' environmental facilities and key metrics, such as power usage efficiency;
- ◆ carrying out ongoing enhancements of environmental factors, including fine-tuning airflow, temperature and humidity controls, to achieve energy efficiency targets comparable to leading data centres in Hong Kong;
- ◆ applying relevant green designs and energy efficiency best practices recommended in the BEAM guideline²⁰ in the data centres' fitting-out works (e.g. the in-row air-conditioning system); and
- ◆ adopting advanced technology to reduce electricity consumption; for instance, the HKMA has selected private cloud infrastructure that lessens the use of physical server hardware and, hence, consumes less electricity compared to a traditional setup.

To further enhance its data centres' energy efficiency, the HKMA engaged an external consultant in December 2021 to assess and provide suggestions on the green performance of its data centres. The consultant's study report is expected to be available in mid-2022.

The HKMA was awarded ESG Care Prize at the InnoESG Prize Presentation cum ESG Forum 2021 in recognition of its efforts to work towards a sustainable future.



Marketplace support

Electronic communication channels with banks

The HKMA advocates measures to enhance operational efficiency and minimise resource consumption for both the HKMA and the financial industry. The HKMA's online system, Submission Through Electronic Transmission (STET), is a one-stop platform for banks to make electronic submissions to the HKMA, encompassing various types of regular reports that are required on a weekly, monthly, quarterly or yearly basis. Another system, e-Delivery, enables the HKMA to disseminate information such as circulars and guidelines to the banks through a secure electronic communication channel. Both systems help to save hundreds of thousands of sheets of paper annually.

Electronic payments as an alternative to cash and paper cheques

The HKMA supports increased adoption of electronic payments by promoting the use of the Faster Payment System (FPS) and stored value facilities (SVFs). More information on FPS and SVFs can be found in the *International Financial Centre* chapter on pages 131 to 132 and 145.

²⁰ The BEAM Plus Data Centres Version 1.0 guideline was published jointly by the BEAM Society and the Hong Kong Green Building Council in September 2021.

Sustainability

Electronic lai sees

During the Chinese New Year, the HKMA encouraged the public to use electronic channels, including the FPS available via online or mobile banking, as well as SVF e-wallets, to give out e-laisees to support environmental protection and COVID-19 mitigation efforts. A publicity campaign was launched via different social and traditional media channels to educate the public on using the FPS to give out e-laisees. Major banks and e-wallet operators also launched programmes to promote the use of e-laisees, such as showing festive themes in the user interface, introducing user-friendly enhancements and rolling out lucky draws or games.



【電子派利是 過數話咁易】今個新年，齊齊用電子支付方法派利是，安全、便捷又環保！



Giving out e-laisees is safe, easy and green!

Reducing environmental impact in currency operations

Coin collection programme

The Coin Collection Programme spearheads the HKMA's efforts in the recycling of coins. Introduced in 2014, the Programme is the world's first structured coin collection scheme based on the concept of a mobile truck and has, over the years, won local and international awards in recognition of its innovative and green approach. Two Coin Carts, each equipped with two high-speed coin counting machines, visit all 18 districts of Hong Kong on a rotational basis to collect coins from the public, who are given the choices for exchanging their coins for banknotes, topping up their accounts managed by SVFs, such as Octopus cards or e-wallets, or donating to the Community Chest.

The two Coin Carts have so far served about one million people and collected more than 700 million coins with a total face value exceeding HK\$1 billion. In 2021, nearly 75% of users chose to digitalise some or all of their coin values by topping up their SVF accounts. Information about the Programme, including the service schedule, is available on a designated page of the HKMA website (coincollection.hkma.gov.hk).



The Coin Carts visit all 18 districts of Hong Kong on a rotational basis to collect coins from the public

Good-as-new notes

The HKMA has been promoting the use of good-as-new notes, i.e. used notes which are in good condition, as lai see since 2006. Apart from issuing a public announcement every year ahead of the Chinese New Year encouraging the public to make good use of good-as-new notes, *inSight*²¹ articles are also published regularly reminding readers how good-as-new notes can reduce the need for printing new notes, in turn reducing the environmental footprint. While it is difficult to quantify the exact number of good-as-new notes used as lai see, observations and reports by the note-issuing banks over the years have been encouraging. The HKMA will continue this annual campaign.

²¹ *inSight* is the HKMA's official column, featuring articles written by senior executives on the major new policies and initiatives of the HKMA, or other topical issues which are of interest to the public.

Sustainability

People

The HKMA seeks to foster a healthy and inclusive workplace that enhances employees' well-being. Championing both physical and mental health, the HKMA will further improve workplace air and water quality, provide more indoor greenery and set up additional common and social areas that encourage bonding between colleagues.

Wellness office

The HKMA strives to provide a supportive, collaborative, healthy and safe workplace that fosters staff well-being and development. The office provides an open layout that increases capacity and space efficiency. Workstations are equipped with height-adjustable desks to help improve staff health and productivity. Staff members' LCD monitors include eye protection features to lessen eye strain. Where there is an operational need, staff are provided with two or more LCD monitors for use.

Staff well-being

The HKMA promotes work-life balance. To enhance staff members' physical well-being, it regularly organises seminars related to the topics of healthy lifestyles, stress management and workplace safety, and arranges annual medical check-ups and flu vaccinations for staff. Physical and fitness activities, including special interest classes such as the eight brocades (a qigong exercise) and fitness challenges, are also organised.

On mental wellness, the HKMA sponsors personal counselling services for its staff as well as their immediate family members. These services offer professional and confidential counselling support via a consultation hotline, a face-to-face interview or a clinical psychology service.

COVID-19 pandemic support

In recognition of the exceptionally challenging working environment amid the COVID-19 pandemic, all the HKMA departments have worked together to keep the organisation's operations sufficiently resourced at all times. At the same time, the HKMA has introduced special arrangements to safeguard the health and safety of all its employees, including split-team operations, work-from-home arrangements, as well as staggered work and lunch hours to avoid people bunching up in the office during peak hours. Office hygiene has been regularly monitored and maintained at a high standard. Surgical face masks and alcohol wipes are provided to staff. Social distancing is encouraged in the office and meetings are held via video conference whenever possible. On top of a COVID-19 hotline for staff, an e-platform for COVID-19 has been rolled out as a one-stop shop for staff to receive regular updates of all COVID-19-related matters.

Equal opportunities policy

As an equal opportunities employer, the HKMA believes that everyone should be able to work in an environment free of discrimination, harassment, vilification and victimisation. The HKMA's equal opportunities policy applies to job advertisements, recruitments, terms and conditions of employment, performance assessments, promotions, transfers, training opportunities, dismissals, grievance procedures and general conduct.

Sustainability

Diversity

The HKMA values diversity in its workforce, which has a balanced gender representation and covers a spectrum of different age groups. Female representation at the Executive Director grade or above was 31.3% as of January 2022.

Human capital key statistics as of 1 January 2022

Chart 6 Gender of staff

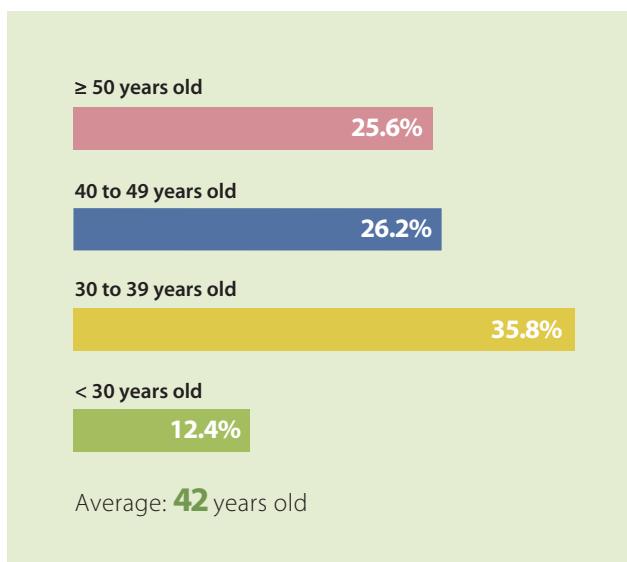


More details about the HKMA's remuneration policies and staff development initiatives can be found in the *Corporate Functions* chapter on pages 170 to 171.

Communications with staff

The HKMA values every employee's opinion. There are various communication tools for staff to offer their advice and express concerns. Two-way communication channels include corporate-wide town halls, staff suggestion box and periodic surveys.

Chart 7 Age of staff



Sustainability

Social responsibility

The HKMA is committed to fulfilling its corporate social responsibility. It looks beyond its immediate corporate boundaries to upstream and downstream sectors to broaden impacts. It advocates procuring goods and services from suppliers that uphold sustainability values. To support the wider community, it takes part in volunteer and charitable activities, and adopts measures to address the needs of special groups. The HKMA is also making ongoing efforts to promote financial literacy and inclusion. In response to the COVID-19 pandemic, the HKMA has been rolling out measures to support individuals and businesses in need to help Hong Kong's economy sail through these difficult times.

Sustainable procurement

The HKMA places high emphasis on supply chain risk management. The HKMA will continue to embed sustainability considerations in its procurement by adopting the following best practices:

- ◆ undertaking a comprehensive assessment of a supplier's product, service quality and price;
- ◆ considering a supplier's business ethics and labour practices through document screening to minimise ESG risk in the HKMA's supply chain;
- ◆ encouraging suppliers to provide environmentally friendly options in their proposals;
- ◆ including green requirements on product specifications as selection criteria where applicable; and
- ◆ procuring paper and goods that are environmentally friendly.

Volunteer services and charitable activities

The HKMA supports community services. It arranges a number of volunteer services and encourages staff to take part in different charitable activities (Table 1).

In 2021, in recognition of its commitment to care for the community, the HKMA was accredited with the "10 Years Plus Caring Organisation Logo" by the Hong Kong Council of Social Service for the 15th consecutive year.



Table 1 **Volunteer statistics from 2017–2021**

Year	Number of volunteer activities arranged	Number of participants
2017	13	135
2018	25	387
2019	26	300
2020	16	245
2021	36	758

Honour and respect the elderly

As the Hong Kong population ages, the HKMA is dedicated to caring for older adults, providing them with assistance and promoting a sense of self-worth among them. During 2021, the HKMA's volunteers reached out to 3,225 elderly and underprivileged people.

Sustainability

Distribute free meals to the elderly and underprivileged families

The HKMA Volunteer Team participated in the “Free Meal Distribution” activity organised by the Banyan Services Association and distributed 1,440 lunch boxes to the elderly and underprivileged families from February to November.



Sharing by a staff member who participated in the activity

“Greeting the elderly with big smiles and delivering hot meals to them can make a big difference in their lives. It's as simple as that, so why not lend a helping hand? I feel blessed to have the opportunity to serve. I hope that with everyone taking a small extra step, giving out an extra pinch of love, our world will be a better place.”

Other campaign highlights

Month	Campaign	Contributions
Jan	Red Packets Giving Campaign organised by Senior Citizen Home Safety Association	HKMA staff made donations, enabling deprived elderly and others in need to use the Care-on-Call Service free of charge, a 24/7 emergency support and integrated care service
Jan	Chinese New Year's charity sales organised by the Lok Sin Tong Benevolent Society	HKMA staff made donations to provide 725 meals to underprivileged families who were affected by COVID-19
Nov	Charity donations to the Banyan Services Association	HKMA staff made donations to provide 1,060 meals and 250 boxes of surgical masks
Dec	Gift packs distribution to the Banyan Services Association	HKMA staff donated and distributed 210 gift packs



Sustainability

Promoting community integration

Promoting community integration is another focus of the HKMA's volunteer services. During 2021, the HKMA participated in the following events.

Campaign highlights

	Number of participants
Paint to Love organised with the Hong Chi Association in March and December to paint canvas tote bags for the Association's students and trainees	113
 	
Fitness Challenge — "Walk More" X Hong Kong Blind Union organised from June to July to encourage staff to track the number of steps walked each day, and the top walkers enjoyed massage services offered by visually impaired individuals; this dual-purpose initiative enhanced staff's physical wellness and the employability of visually impaired masseurs	230
 	
Blindfold Lunch organised by Orbis in July and September to support services for visually impaired persons and raise public awareness of eye health	80
 	

Sustainability

Addressing the needs of special groups

Accessibility of Hong Kong banknotes

The HKMA is committed to helping the visually impaired differentiate among different denominations of Hong Kong banknotes. In addition to incorporating accessibility features, including Braille, tactile lines and high-tactility numerals in banknotes, the HKMA has sponsored the Hong Kong Society for the Blind to develop a mobile app, and together with the three note-issuing banks to sponsor the production of note-measuring templates to help the visually impaired identify the denominations of Hong Kong banknotes by scanning and measuring them respectively. Both the mobile app and the note-measuring templates are available free of charge.

Accessibility of public information

The HKMA continues to promote equal opportunities, and it endeavours to make its services accessible to all members of the public. The HKMA website has a clear navigation structure to help users search for content easily. A dedicated webpage on “Information in Other Languages” under the “Smart Consumers” section provides useful information on banking services in languages other than Chinese and English which are commonly used in Hong Kong. These languages include Bahasa Indonesia, Hindi, Nepali, Punjabi, Tagalog, Thai and Urdu, as well as Vietnamese, which was added in 2021. The HKMA is also committed to ensuring that its website and online publications conform to the World Wide Web Consortium’s *Web Content Accessibility Guidelines* 2.0 Level AA standard to the maximum extent possible, in order to help people with special needs access its online information.

Community engagement and public education

The HKMA actively runs various community engagement and education initiatives with wide-ranging themes.

The objectives of these activities are to promote smart and responsible use of banking and financial services, as well as to help the public, particularly the young generation, better understand the current developments and career opportunities in the financial industry in Hong Kong. More details about the HKMA’s public and consumer education work can be found in the *Corporate Functions* chapter on pages 160 to 162.

Sustainability

Advocating financial inclusion

The HKMA is dedicated to promoting financial inclusion in Hong Kong, and strives to enhance access to basic banking services by different segments of society to meet the basic daily needs of the public and the operational needs of legitimate businesses. In particular, the HKMA has been working closely with the banking industry on the following priority areas:

- ◆ encouraging banks to launch more physical banking facilities and develop digital and innovative channels for delivering basic banking services to serve the public, particularly the elderly, and residents in relatively remote areas and public housing estates;
- ◆ facilitating and monitoring the accessibility of bank accounts to individuals and small and medium-sized enterprises (SMEs);
- ◆ encouraging banks to launch the Simple Bank Account service that provides basic banking services with less extensive customer due diligence measures to eligible corporate customers;
- ◆ enhancing the accessibility of banking services to specific customer groups, for example, people of different races; people with physical, visual, hearing or intellectual impairments; and people with dementia (more details about the availability of barrier-free banking services at end-2021 can be found in the *Banking Stability* chapter on page 114);
- ◆ facilitating and monitoring the accessibility of bank credit to SMEs; and
- ◆ facilitating the establishment of virtual banks, which play an active role in promoting financial inclusion through their banking and other services.



Cash withdrawal service for the elderly

- Outlets of convenience store chains: **over 350**
- Hongkong Post Offices and Mobile Post Offices: **over 160**



Locations served by mobile bank branches: **30**



Simple Bank Accounts opened: **over 9,100**



Virtual bank licences granted: **8**

Sustainability

Providing guidance to banks on serving customers in need

To enhance accessibility to banking services by customers requiring special care, the HKMA has worked closely with the banking industry to develop industry guidelines which set out relevant principles and recommended good practices. Three sets of guidelines have been promulgated in recent years, with the latest guideline being issued in 2021.

Barrier-free banking measures for people with physical, visual and hearing impairments, for example:



**Practical Guideline
on Barrier-free
Banking Services**
Promulgated in
March 2018 for
implementation by
March 2021

Physical barrier-free measures

- ◆ provide permanent or temporary ramps for wheelchair access
- ◆ install call buttons at the entrance
- ◆ construct a main entrance with sufficiently clear width
- ◆ install service counters or meeting rooms for wheelchair users
- ◆ install automated teller machines (ATMs) at a height suitable for wheelchair users
- ◆ enhance design of ATM keypad protection covers

Visual barrier-free measures

- ◆ display notices stating guide dogs are welcome
- ◆ install non-slip nosings in contrasting colours on stairs
- ◆ provide voice navigation ATMs and tactile guide paths
- ◆ attach the hotline number in Braille on voice navigation ATMs
- ◆ provide audible security devices upon request
- ◆ enhance colour contrast of ATMs

Hearing barrier-free measures

- ◆ equip branches with assistive listening systems
- ◆ facilitate reporting of unauthorised transactions via live chat services
- ◆ facilitate reporting of lost credit and debit cards via online banking
- ◆ allow a third party to handle emergency services through telephone banking on behalf of the customer

Sustainability



Guideline on Banking Services for Persons with Intellectual Disabilities

Promulgated in December 2020 for implementation by December 2021



Guideline on Banking Services for Persons with Dementia

Promulgated in December 2021 for implementation by December 2022

Examples of recommended good practices

Provide services to meet banking needs

- ◆ open a basic personal or joint savings account, or a guardianship account
- ◆ offer ATM cards or debit cards with payment functions
- ◆ offer online banking services with basic functions
- ◆ allow using traditional written or seal signatures
- ◆ provide flexibility and waivers for services charges, e.g. fee for not maintaining the minimum deposit balance, counter service charge, ATM card annual fee, fee for getting printed copies of account statements, and other banking service charges

Put in place customer protection measures

- ◆ allow changing the daily limits for withdrawal, payment and transfer
- ◆ provide reminders for large transactions
- ◆ avoid encouraging applications for credit cards, loans or investment services through online or electronic channels
- ◆ avoid marketing investment, insurance and credit products

Enhance customer communications and staff training

- ◆ enhance customer communication skills and knowledge on banking services
- ◆ co-operate with social welfare institutions

Provide appropriate banking services

- ◆ open basic bank accounts
- ◆ offer ATM cards or debit cards with payment functions
- ◆ offer online and telephone banking services
- ◆ allow using traditional written or seal signatures
- ◆ exempt minimum balance requirement
- ◆ provide flexibility and waivers for service charges, e.g. counter service charge, ATM card annual fee, fee for getting printed copies of account statements and other banking service charges

Put in place customer protection measures

- ◆ allow changing daily withdrawal and debit limits
- ◆ provide reminders for large transactions
- ◆ avoid marketing investment, insurance and credit products

Enhance customer communications and staff training

- ◆ help customers understand the arrangements for authorisation under different circumstances
- ◆ explain roles and responsibilities of authorised persons
- ◆ enhance understanding on dementia and the related banking services
- ◆ co-operate with social welfare institutions

Sustainability

Community support amid the pandemic

The HKMA, together with the banking sector, has been rolling out a series of measures to support SMEs and personal customers in need to help them sail through these difficult times. Details of the HKMA's multi-pronged support measures are available on a dedicated webpage on the HKMA website.



How has the HKMA helped banks to support their customers?

Increased banking system liquidity



Corporate customers

Launched the Pre-approved Principal Payment Holiday Scheme in May 2020 and extended it four times; the new expiry date is now end-October 2022, with over 100 participating banks



Individual customers

52,000 applications for relief measures granted up to end-2021, totalling **HK\$53 billion**

Facilitate banks' support of the economy through the Banking Sector SME Lending Coordination Mechanism

83,000 applications for payment holidays and other relief measures totalling **HK\$920 billion** granted by banks up to end-2021

Banks are encouraged to offer principal payment holidays for residential mortgages and commercial vehicle loans taken out by personal customers

More flexible in handling new loan applications for upgrading commercial vehicles and extended maximum loan tenor for new commercial vehicle loans

>47,000 applications for the Special 100% Loan Guarantee approved up to end-2021, totalling **over HK\$81 billion**

Sustainability

Relief measures for businesses and individuals

Supporting smaller firms under the SME Financing Guarantee Scheme

The SME Financing Guarantee Scheme operated by HKMC Insurance Limited (HKMCI)²² helps to alleviate cash-flow pressures on SMEs. This scheme covers different products, such as the Special 100% Loan Guarantee, and the 80% and 90% Guarantee Products, which collectively approved over 26,500 applications in 2021. These initiatives have provided crucial support to SMEs, enabling them to carry on their businesses and maintain the jobs of their employees.

Setting up dedicated channels to handle enquiries on the Pre-approved Principal Payment Holiday Scheme for corporate customers

The Pre-approved Principal Payment Holiday Scheme was first launched in May 2020 to provide financial relief to eligible corporate borrowers affected by the outbreak of COVID-19. In light of another wave of local infections, the scheme was further extended to end-October 2022. The dedicated email account and enquiry hotline set up to answer queries from corporate borrowers and to follow up on their comments remained in service, handling more than 820 cases since the launch of the scheme in 2020 to end-2021.

Helping social security recipients residing on the Mainland to receive payments without returning to Hong Kong amid COVID-19

Due to pandemic-related travel restrictions, recipients and appointees of the Portable Comprehensive Social Security Assistance Scheme, Guangdong Scheme and Fujian Scheme residing in the Mainland may not be able to return to Hong Kong to receive their payments. The HKMA, the Social Welfare Department and the Hong Kong Association of Banks have jointly worked out arrangements to make it possible for these recipients and appointees to make cash withdrawals in the Mainland. Retail banks in Hong Kong allow these individuals to activate the cash withdrawal function of their Hong Kong banks' ATM cards through various channels in the Mainland. These individuals may also set up standing instructions remotely via a mail-in option, internet banking or mobile banking to regularly remit social security payments from their bank accounts in Hong Kong to their designated bank accounts in the Mainland.

²²

The Hong Kong Mortgage Corporation Limited (HKMC) is wholly owned by the Government through the Exchange Fund. HKMCI is a wholly owned subsidiary of the HKMC.

Sustainability

INTERNATIONAL COLLABORATION

The HKMA plays an active role in various international and regional sustainable finance and climate-focused groups to share experiences and co-ordinate efforts on the international front to tackle climate risks and enrich the green and sustainable finance ecosystem²³. The HKMA's participation provides an opportunity for it to contribute to the central banking and regulatory community in addressing climate change, while benefiting from the experience and insights of other jurisdictions when developing its local framework.

The HKMA is a member of the NGFS, which aims to share best practices and contribute to the development of environment and climate risk management in the financial sector, and to mobilise mainstream finance to support the transition towards a sustainable economy. The HKMA participates in NGFS workstreams relating to microprudential and supervision, macrofinancial, scaling up green finance, bridging the data gaps and research. In addition, the HKMA participates in the joint NGFS-INSPIRE²⁴ Study Group on "Biodiversity and Financial Stability".

The HKMA also participates in the work of the Basel Committee on Banking Supervision's Task Force on Climate-related Financial Risks in developing principles for the effective management and supervision of climate-related financial risks.

In addition, the HKMA participates in the Bank for International Settlements Innovation Network, which explores technology solutions that help banks identify, measure and monitor their exposures to climate risks.

The HKMA also represents Hong Kong in the International Platform on Sustainable Finance (IPSF) jointly with the SFC, which has been working to develop the Common Ground Taxonomy and promote ESG disclosures.

The HKMA actively participates in the work of the Financial Stability Board in assessing the availability of data through which climate-related risk to financial stability could be monitored. The HKMA also contributes to the Financial Stability Board's work in climate risk management, promoting climate-related disclosures, and reviewing regulatory and supervisory approaches to addressing climate risk at financial institutions.

The HKMA is a member of the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)²⁵, which has been increasing its strategic focus on climate-related risks and sustainable finance. The HKMA is the Champion of the Interest Group on Sustainable Finance of EMEAP's Working Group on Banking Supervision, and has led studies on green classifications and climate risk stress testing. The HKMA also chairs EMEAP's Working Group on Financial Markets, who finalised a project to promote investment in green bonds through the Asian Bond Fund.

The HKMA is a signatory of the *Principles for Responsible Investment*, which is the world's leading proponent of RI supported by United Nations, and participates in formulating ESG best practices and encourages other investors to adopt RI.

Additionally, the HKMA is a member of the not-for-profit organisation, FCLTGlobal, which works to foster a longer-term focus in business and investment decision-making through workshops and research studies.

²³ See the *Banking Stability* chapter on pages 98 to 100 and *International Financial Centre* chapter on pages 148 to 149 for information about the HKMA's international work in non-sustainability related areas.

²⁴ The International Network for Sustainable Financial Policy Insights, Research, and Exchange (INSPIRE) is an independent research network built to support the NGFS's work.

²⁵ The EMEAP is a co-operative organisation of central banks and monetary authorities in the East Asia and Pacific region.