

# People's Republic of China — Hong Kong Special Administrative Region: Selected Issues



# PEOPLE'S REPUBLIC OF CHINA—HONG KONG SPECIAL ADMINISTRATIVE REGION

## SELECTED ISSUES

January 2025

This paper on the People's Republic of China—Hong Kong Special Administrative Region was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on December 17, 2024.

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# PEOPLE'S REPUBLIC OF CHINA— HONG KONG SPECIAL ADMINISTRATIVE REGION

## SELECTED ISSUES

December 17, 2024

Approved By  
**Asia and Pacific  
Department**

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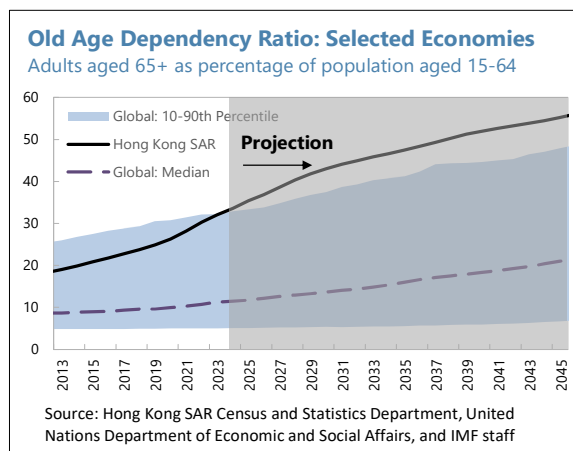
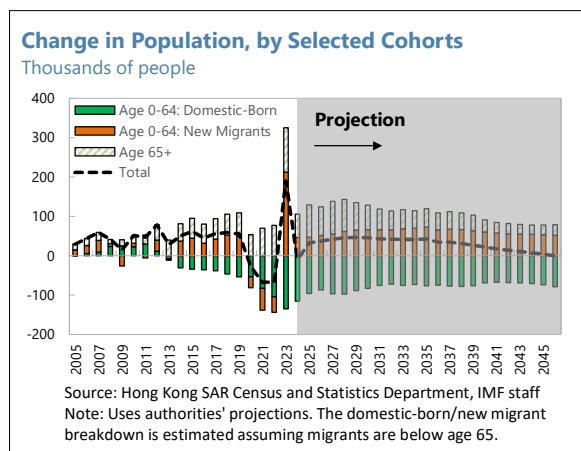
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# THE FISCAL IMPLICATIONS OF POPULATION AGING FOR HONG KONG SAR<sup>1</sup>

*Hong Kong SAR's significant demographic pressures will create fiscal challenges for the authorities. Fiscal expenditure pressures from population aging have already been rising rapidly for over a decade and are expected to increase significantly in coming years, even without factoring in the cost of needed improvements to the social security system. An aging population is also going to adversely affect the economy's potential output growth and fiscal revenue, with the effect larger in a scenario where the working age population shrinks. Revenue-boosting tax reforms and other fiscal measures will be needed to provide a stable funding base for Hong Kong SAR's high-quality development into the medium term.*

## A. Introduction

**1. Hong Kong SAR faces significant demographic pressures in the medium term and beyond.** With a fertility rate among the world's lowest, and one of the highest average lifespans, Hong Kong SAR is set to face rapid population aging in the coming decade. The number of older adults (age 65+) is set to increase by 25 percent by 2030 from mid-2024, and by 59 percent by 2045, according to authorities' latest demographic projections. The working age population (ages 15-64) is set to remain roughly stable, although only with significantly increased inward migration to replace the sizeable decline in domestic-born working age adults. Given these trends, the old-age dependency ratio—the share of older adults relative to working age adults—is on track to be among the world's highest by 2045.



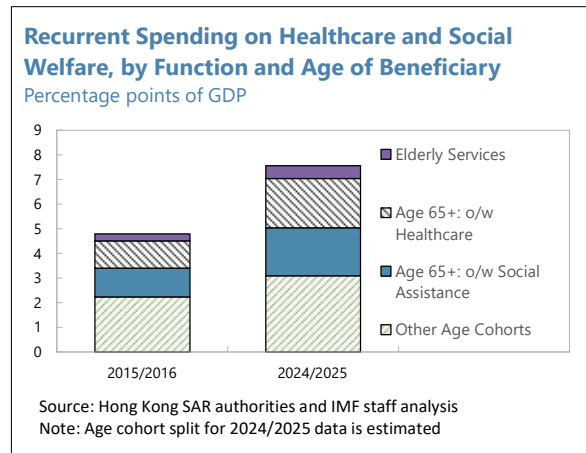
**2. An aging population will create fiscal challenges for the Hong Kong SAR's government.** The territory's main pension program—the Mandatory Provident Fund (MPF)—is a mandatory defined contribution scheme with the objective of helping the workforce save for basic

<sup>1</sup> Prepared by Henry Hoyle.

retirement needs. As net replacement rates are low compared in international experience, it is designed to complement other pillars in Hong Kong SAR's multi-pillar retirement protection framework. These include means-tested, non-contributory financial assistance schemes and subsidized healthcare, which in practice form a critical part of the social safety net for lower-income older adults. This spending is set to rise sharply as the population ages. At the same time, slower growth in the working age population, combined with lower labor force participation among the older age cohorts, is likely to limit the territory's economic growth potential and its fiscal revenues.

**3. Fiscal expenditure burdens related to the aging population have already been rising rapidly.** Recurring government spending on social welfare and healthcare budgeted for 2024/2025 stood at 7½ percent of GDP, which is 2.8 percentage points of GDP higher than in 2015/2016. More than two-thirds of that increase is estimated to be driven by spending on older adults. This reflects both the nearly 50 percent growth in that age cohort in the same period as well as increased per capita spending, which rose more than 40 percent. The key components of this older adult-related spending are as follows:

- *Healthcare* (2.1 percent of GDP). As in other countries, older adults are disproportionate users of medical services, accounting for nearly 60 percent of the hospital system's patient days in 2022/2023 (with half of that adults aged +80). Funding for Hong Kong SAR's Hospital Authority accounts for the bulk of this spending, as costs are waived for much of the elderly population. Growth in this segment has been to a large degree driven by the more than 60 percent increase in per capita spending since 2015/2016.

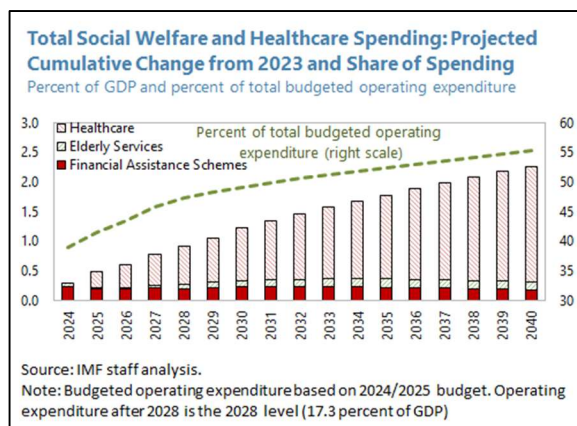


- *Financial assistance* (1.9 percent of GDP). This accounts for an estimated 40 percent of fiscal expenditure on older adults as of 2024, with most of it through means-tested programs like the Older Adult Living Allowance (OALA) and the Comprehensive Social Security Allowance (CSSA). The coverage ratio of these schemes was 75 percent as of September 2024, and has remained stable over the last decade, with roughly 70-75 percent of older adults benefiting from these programs.<sup>2</sup>
- *Elderly care* (0.5 percent of GDP). This comprises spending on subsidized long-term care services including residential care services, community care services, and other support services. As of 2023, elderly care spending per older adult increased 47 percent in CPI-adjusted terms from a decade earlier.

<sup>2</sup> About 21 percent of older adults are receiving the Old Age Allowance (OAA), which is not means-tested and has relatively lower benefits (1,620 HKD per month from February 2024).

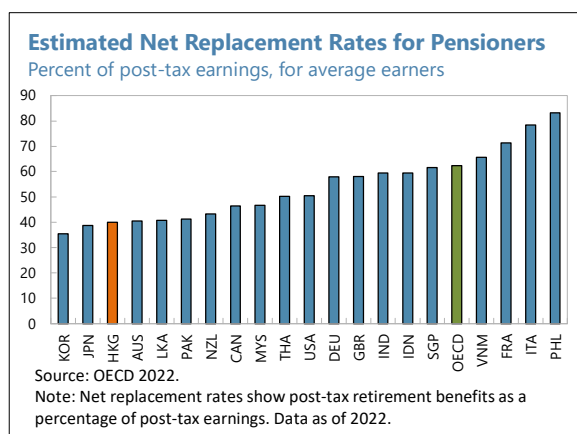
## B. The Fiscal Implications of Aging in the Coming Years

**4. Aging-related spending is expected to grow significantly in coming years.** Staff's estimates—factoring in the growth in older adults, price inflation, among other assumptions—suggest that such spending will further increase by 0.6 percentage points of GDP by 2027, 1.0 percentage points by 2030, and 1.8 percentage points by 2040. Under these assumptions, total healthcare and social welfare spending would rise to 55 percent of authorities' long-term budget projections for operating expenditure, up from 36 percent in 2023. Healthcare costs are projected to account for the bulk of this increase, reflecting older adults' intensive use of such services and an assumption of medical cost inflation of 1 percent per year. Financial assistance programs and elderly service spending are also likely to continue growing, although only modestly, with per capita benefits for both assumed to grow in line with CPI.<sup>3</sup> Taken together, these assumptions generate annualized growth in CPI-adjusted per capita benefits that are lower than realized growth from 2012-2023, the last period with complete data on elder-related spending.



**5. Hong Kong SAR's long-closed pension scheme for civil servants may also require increased outlays in the coming decades.** The defined benefit pension scheme for civil servants was closed to new entrants in 2000 but had an additional HKD 1 trillion (32 percent of GDP) of unfunded obligations on a net present value basis as of March 2023. The annual fiscal expenditure on scheme benefits of around 1.5 percent of GDP may rise in the medium term depending on the scheme's maturity.

**6. Needed improvements to the social security system would further increase fiscal costs.** Public social protection expenditure as a share of GDP has been rising in recent years but is low in cross-country context. The net replacement rate of the combined primary social security scheme (OALA) and the individual- and employer-funded MPF system were 40 percent for average earners, about two-thirds the OECD average level of 62.4. Raising the OALA's benefit levels to improve the net replacement rate by



<sup>3</sup> Benefit levels for the financial assistance schemes (OALA, CSSA, and OAA) are adjusted based on growth in the Social Security Assistance Index of Prices, which is compiled by the Hong Kong SAR government on a monthly basis to reflect the impact of price changes on CSSA recipients. For the purpose of this analysis, benefit levels for these schemes are expected to grow in line with CPI.

10 percentage points—closing the gap with the OECD average net replacement rate by about half—would add roughly 0.7 percent of GDP to the scheme's annual cost in 2025, gradually increasing to 0.9 percent of GDP by 2040.

**7. An aging population will also drag on the economy's potential output and fiscal revenues.** The authorities' projections show that the labor force will likely remain relatively stable in coming decades, as inward migration and rising labor force participation among the working age population offset the aging of the domestic-born population. This will represent a slowdown in labor supply growth relative to the 2010-2019 period, when the labor force grew by about 1 percent on average. The annual contribution of labor supply to potential output growth from 2025-2040 is projected to be 0.1 percentage points lower than from 2010-2019 (cf. paragraph 12 in the Staff Report). Absent new fiscal measures, this is expected to limit the growth in fiscal revenues by an equivalent amount, as revenues are assumed grow in line with GDP.

**8. The effect of aging on fiscal revenues would be even larger in a scenario where the working age population shrinks.** If inward migration does not increase from historically average levels, i.e. just over 30,000 newcomers per annum, the labor force is likely to fall by about 4 percent by 2030 and 10 percent by 2040.<sup>4</sup> The drag on fiscal revenues via lower potential output growth would mean 3 percent lower revenues by 2030 versus the baseline demographic scenario, and a 7.5 percent decline by 2040.<sup>5</sup> Additional long-term impacts on growth could come if aging-related expenditures crowd out productivity-enhancing government investments in infrastructure or education, or other public goods.

**9. The links between aging and economic growth are however highly uncertain, and negative impacts could be offset by migration, adaptive investments, or other factors.** While labor supply growth is likely to fall to zero or even shrink, the impact on potential growth could be offset by higher productivity. Labor shortages may induce firms to invest more in automation and other labor-saving innovations, boosting profits and growth, as had occurred in Japan and other aging countries. The labor supply may also grow more than expected if older individuals stay in the workforce longer, or if patterns of migration, mortality, and fertility differ substantially from projections.

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<sup>4</sup> This demographic scenario is based on the United Nations Department of Economic and Social Affairs (UNDESA) 2024 population projections, using the zero migration variant for Hong Kong SAR. It then assumes each year 32,000 migrants come, evenly distributed through the 20-24, 25-29, 30-34, 35-39 year old age cohorts. This population is assumed to have children at the UNDESA rate of childbirths per 1000 childbearing population.

<sup>5</sup> Potential output estimates are derived by using the assumptions and parameters of the aggregate production function used in paragraph 12 of the Staff Report, but using an alternative path of hours worked. This is based on the demographic scenario described in footnote 5, the age cohort- and year-specific labor force participation rates assumed by Hong Kong SAR's Census and Statistics Department, and an assumption for hours worked based on a gradual recovery in the labor force participation rate from the current historically low levels to those reported in 2017-18 by 2039.

## C. Policy Implications

**10. Aging-related fiscal pressures will require revenue-boosting tax reforms and other fiscal measures.** Hong Kong SAR's low-tax regime has supported its growth as an international financial center and trading hub but will face challenges in funding the cost of caring for its growing population of older adults. A transition to a higher and broader tax revenue base will help Hong Kong SAR absorb aging-related costs while simultaneously adhering to its balanced budget rule, which itself is a key foundation for the territory's macrofinancial resilience. A comprehensive tax reform plan should include the following core elements:

- *Further increases to the progressivity of the personal income tax (PIT).* These will provide a more stable source of revenues compared to land premium and stock market stamp duty revenues, with the additional benefit of reducing inequality.
- *Increases in excise taxes and eventual establishment of a VAT.* These taxes will raise revenues while minimizing impacts on the competitiveness of the business environment.
- *Taxes on dividends and capital.* Taxes on dividends are common in other financial centers. Capital gains taxes could also be considered.

**11. Tax reforms should be designed to take into account the impact on the business environment, including from tax competitiveness vis a vis other financial centers.** At the same time, these factors must be weighed against the need to provide funding for needed public services and investments over the medium term, which will provide a key foundation for the territory's economic diversification and high-quality growth.

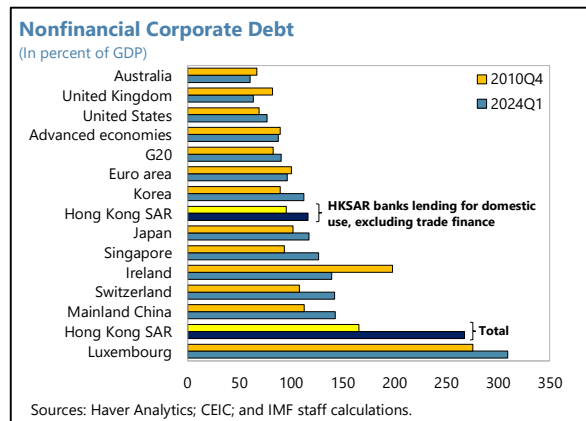


# CORPORATE SECTOR VULNERABILITIES IN HONG KONG SAR<sup>1</sup>

Hong Kong SAR's corporate sector vulnerabilities appear manageable but have increased in recent years. Local non-real estate (RE) firms have seen weakening profitability and lower debt-servicing capacity, reflecting pandemic scarring effects and higher funding costs driven by the hiking cycle of U.S. monetary policy. While, on aggregate, their leverage level and liquidity appear manageable, there is high heterogeneity across firms, with smaller listed firms appear to be more vulnerable. As for the local RE firms, they are exposed to changes in property prices given their sizeable holding of investment properties and inventory. However, their relatively low leverage helps mitigate risks. Mainland Chinese firms listed in Hong Kong SAR show rising financial vulnerabilities, primarily due to weakening profitability and property market adjustment that have adversely affected property developers' balance sheets. Proactive efforts are warranted to ensure effective monitoring and management of financial vulnerabilities in the corporate sector, including ensuring banks' proactive management of nonperforming assets, assessing the impact of the ongoing property market adjustments, and calibrating policies to support small businesses appropriately.

## A. Introduction

**1. Corporate debt level in Hong Kong SAR is among the highest in the world.** Total corporate debt in Hong Kong SAR grew significantly in 2010s and stood at 268 percent of GDP in 2024Q1, only second to that of Luxemburg (based on BIS statistics). As an important international fund-raising platform (especially for Mainland China), Hong Kong SAR's financial system has provided a significant portion of credit to Mainland Chinese and foreign entities for their operations outside the territory. However, with bank lending for domestic use amounting to 116 percent of GDP and bonds issued by local firms adding another 27 percent of GDP (as of 2024Q1), the debt level of local firms exceeds that of the G20 average and some major advanced economies.

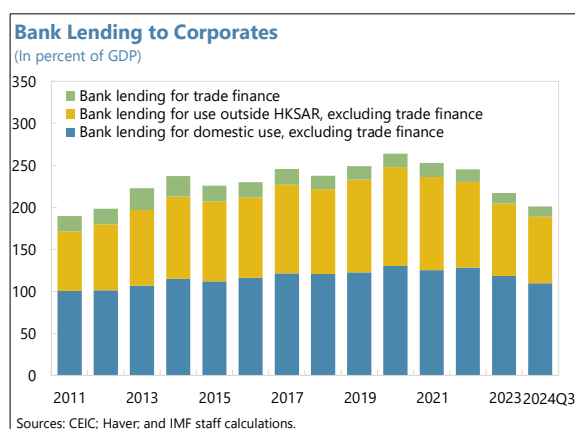
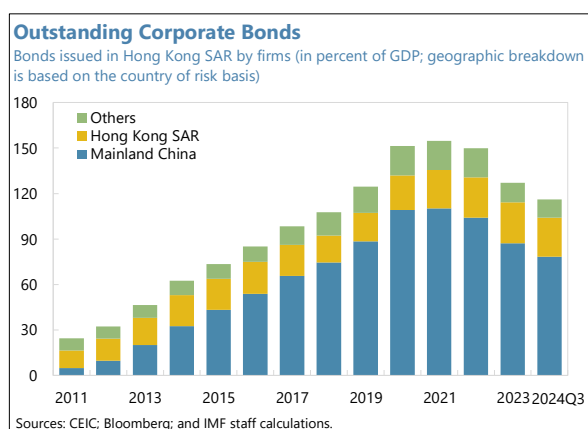


**2. However, more recently, corporate credit growth has weakened significantly.** Since 2020Q3, bank lending to corporates has fallen by 70 percent of GDP,<sup>2</sup> mainly driven by the decline in both lending for use outside the territory (41 percent of GDP) and for domestic use (24 percent of GDP). The former largely reflects a challenging economic environment in Mainland China amid the ongoing correction in the property market, while the latter has been underpinned by a slow

<sup>1</sup> Prepared by Phakawa Jeasakul (MCM) and Hong Xiao (IMF Resident Representative Office in Hong Kong SAR).

<sup>2</sup> The ratio of corporate debt to GDP peaked in 2021Q2 and has declined by 37 percentage points since then.

post-pandemic economic recovery in Hong Kong SAR. The hiking cycle of U.S. monetary policy, which led to higher funding costs and stronger USD and HKD, has also driven Mainland Chinese firms to switch to onshore borrowing in RMB.



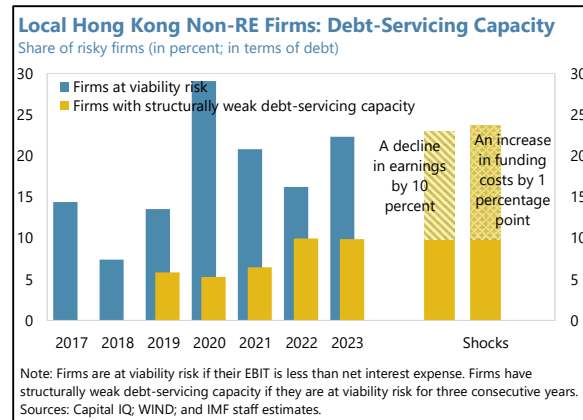
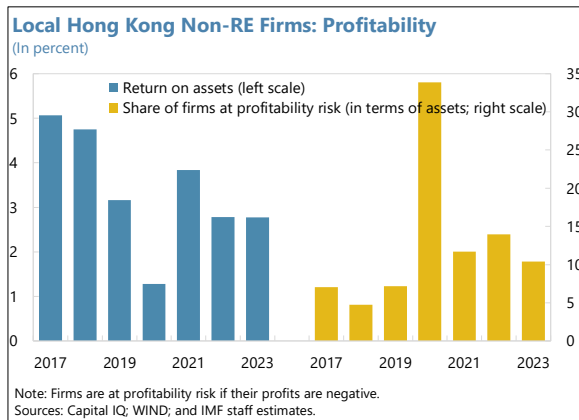
**3. Against this backdrop, the analysis assesses financial vulnerabilities of Hong Kong SAR's corporate sector, using firm-level data of listed firms.** The analysis covers nearly 2,300 companies listed on the HKEX (the stock exchange in Hong Kong SAR), out of which 824 are local Hong Kong firms (10 percent of total assets). The rest of the sample largely comprises of Mainland Chinese firms given Hong Kong SAR's role as an important offshore fund-raising platform for them. The analysis is organized into three sections, comprising an analysis on local firms excluding those in the RE sector, an analysis on local firms in the RE sector, and an analysis on Mainland Chinese firms. A particular focus on local RE firms is warranted given their relative importance to macro-financial stability amid the ongoing property market adjustment. An analysis on Mainland Chinese firms is also relevant as they can affect financial services activity (and thus economic output) and overall investor sentiment.

## B. Hong Kong SAR's Local Non-RE Firms

**4. Profitability of non-RE firms has been on a falling trend since 2021.** Their return on assets stood at 2.8 percent in 2023, down from 4.7 percent in 2018. At the same time, the share of loss-making firms—although lower than the 2020 peak of nearly 34 percent—stood at 10.4 percent in 2023, above pre-pandemic levels. Weak profitability appears broad-based, reflecting persistent scarring effects from several years of economic contraction. The energy, materials, communication, and consumer discretionary sectors have seen a particularly high share of loss-making firms.

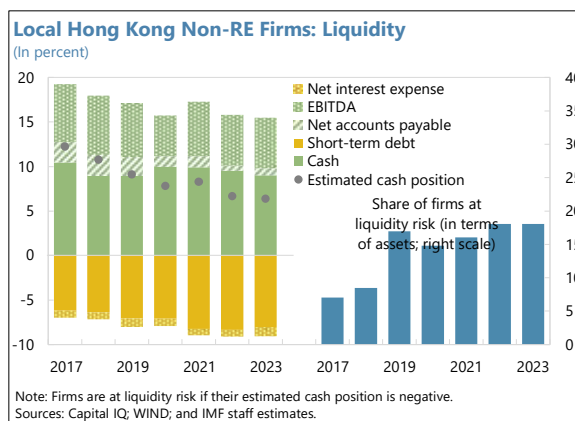
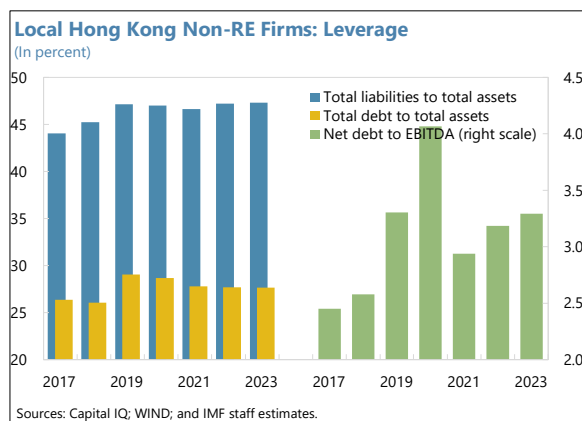
**5. Firms' weak earnings, together with higher funding costs amid the U.S. rate hiking cycle, have reduced firms' debt-servicing capacity.** 22.3 percent of firms (in terms of debt) were not able to generate sufficient earnings to cover their interest expense in 2023—an increase of 14.9 percentage points from 2018—and the share of firms that had not exhibited the debt-servicing capacity for three consecutive years amounted to 9.9 percent. The latter, which reflects a structurally weak debt-servicing capacity, was particularly evident among firms in the consumer discretionary and communication sectors and may result in additional banks' nonperforming loans especially if

the economy faces sustained challenging macro-financial conditions. Staff estimates suggest that, in an adverse scenario where earnings further fall by 10 percent for three years, the share of firms (in terms of debt) with structurally weak debt-servicing capacity could increase to 23 percent under a static balance sheet assumption<sup>3</sup>. In addition, a further increase in funding costs by 1 percentage point for three years would increase the share of firms with structurally weak debt-service capacity to 23.7 percent.

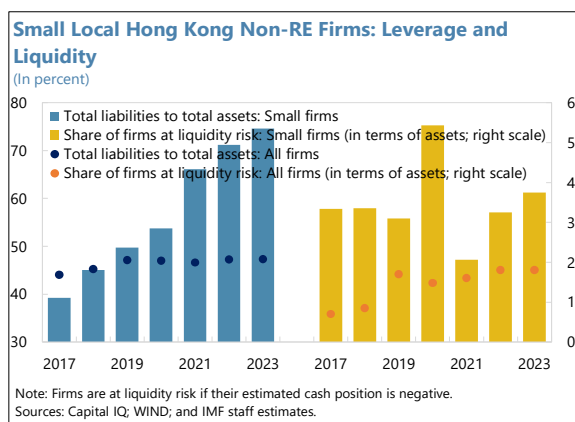
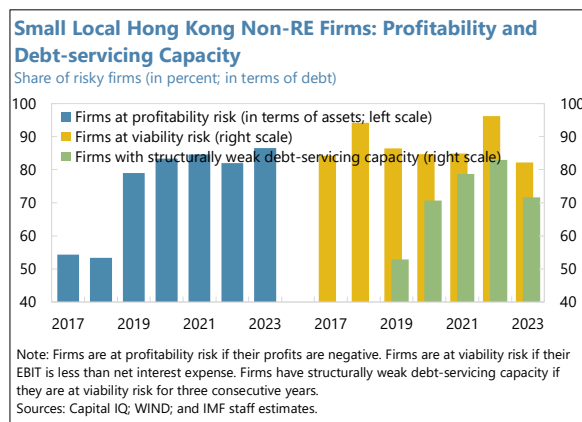


**6. Aggregate leverage level and liquidity risk appear manageable, although there are some pockets of vulnerabilities.** Leverage and indebtedness indicators have been relatively stable in recent years albeit at higher levels post-pandemic. The ratio of total liabilities to total assets has fluctuated around 47 percent in recent years, a level that is low compared with Asian peers. Meanwhile, net debt stood at 3.3 times of earnings in 2023, up from 2.6 in 2018, primarily reflecting weaker earnings post-pandemic. Firms in the materials sector have seen a particularly high level of net debt to earnings. Solvency risk also appears low as the share of firms with negative equity was minimal at a level below 1 percent. Overall liquidity risk is limited as firms generally hold sufficient cash to meet short-term obligations and net accounts payable, resulting in a positive adjusted cash position at 1.7 percent of total assets in 2023. Furthermore, their estimated cash position was even more positive at 6.4 percent of total assets as their earnings exceeded interest expense. However, the aggregate liquidity position masks high heterogeneity across firms as 18 percent of them (in terms of assets) exhibited a negative estimated cash position, indicating their vulnerability to refinancing risk.

<sup>3</sup> Under this assumption, which is typically used in the IMF surveillance to gauge corporate sector vulnerabilities, firms are not undertaking mitigating actions in response to shocks (e.g., liquidate assets to repay debt).



**7. Smaller listed firms show notably weaker profitability and debt-servicing capacity.** The analysis considers a quintile of smallest listed local non-RE firms in the sample, thus capturing firms with total assets of less than HK\$142 million. In 2023, about 87 percent of these small firms in terms of assets were loss-making, and about 72 percent exhibited a structurally weak debt-servicing capacity (i.e., for three years). This finding pointed to the existence of firms with sustained financial weakness among small cap stocks in both the Growth Enterprise Market (GEM) Board and the Main Board.<sup>4,5</sup> Furthermore, smaller listed firms were more leveraged, and they tend to be more exposed to liquidity risk.



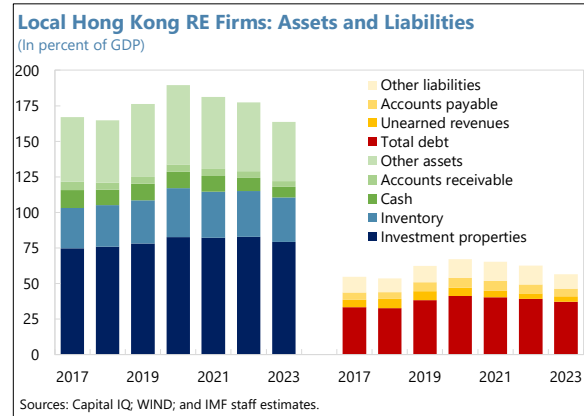
### C. Hong Kong SAR's Local RE Firms

**8. The RE sector is very large, and RE firms have sizeable balance sheets holding both investment properties and inventory.** RE firms' total assets amounted to about 164 percent of GDP, thus accounting for 44 percent of all local Hong Kong firms' total assets.

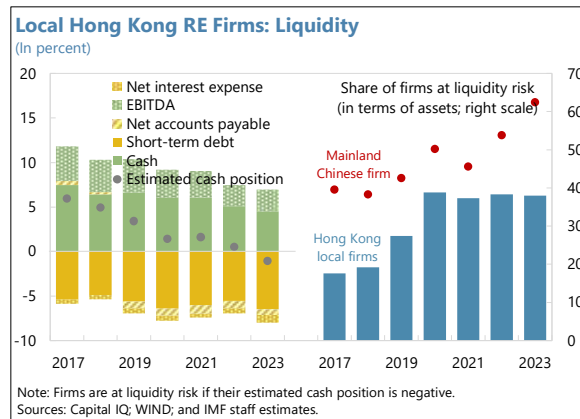
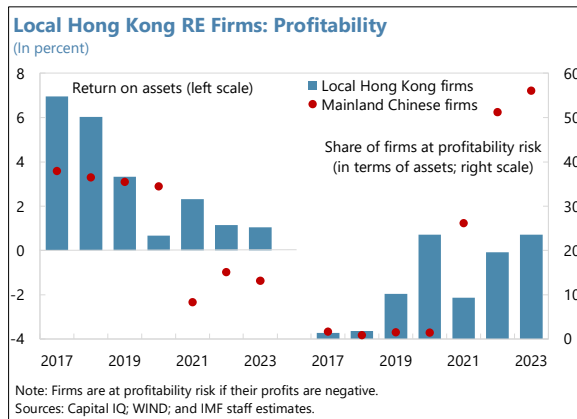
<sup>4</sup> The analysis captures about 150 relatively small firms, of which one-third are listed on the Main Board and the remaining are listed on the GEM Board. The findings show that smaller firms on both Boards are financially weak.

<sup>5</sup> The GEM is a specialized board of the HKEX for small and mid-sized firms to raise capital to fund their growth.

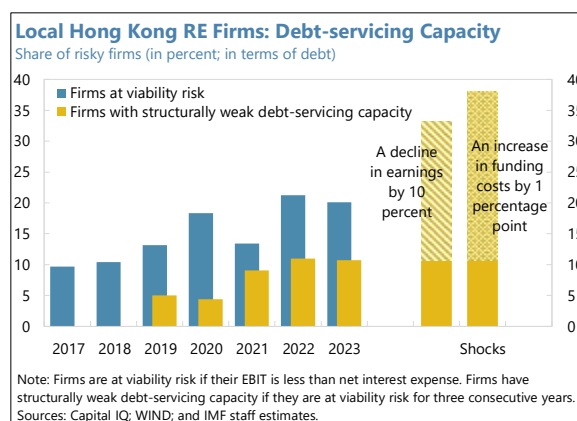
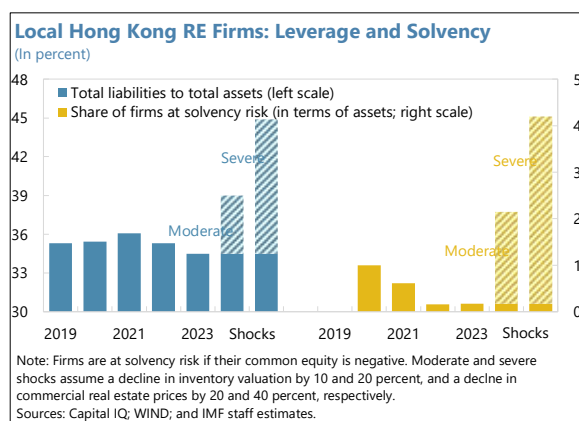
Their balance sheets consist of investment properties (48 percent), inventory of unsold properties, property under construction and to-be-developed land, cash and liquid assets, and other assets. With total liabilities to total assets standing at 35 percent in 2023, the balance sheets of RE firms are not significantly leveraged. However, this ratio is highly sensitive to possible changes in property prices given their potential effect on the value of RE firms’ assets.



**9. RE firms suffered from weakening profitability post-pandemic, while their liquidity risk has increased.** In terms of profitability, their return on assets has declined notably to 1.0 percent in 2023 from 6.0 percent in 2018, reflecting the impact of the pandemic and the ongoing property market adjustment. About 23.5 percent of RE firms in terms of assets were loss-making in 2023, a sharp increase from 1.8 percent in 2018. Together with higher funding costs, weak earnings have reduced their debt-servicing capacity. About 20 percent of RE firms in terms of debt were not able to generate sufficient earnings to cover interest expense in 2023, and the share of firms with structurally weak debt-servicing capacity has crept up to 10.7 percent. Regarding liquidity risk, more RE firms have become exposed to refinancing risk as 38 percent of them in terms of assets exhibited a negative estimated cash position, mainly driven by a decline in cash holding and an increase in short-term debt.



**10. Several macro-financial headwinds could exacerbate financial vulnerabilities of RE firms.** Amid the ongoing property market adjustment, the leverage of RE firms could increase by 5 percentage points to 39 percent if inventory valuation falls by 10 percent and commercial RE prices drops by 20 percent. Under the same scenario, the share of debt belonging to firms with negative equity would increase but remain low at 2.1 percent. Meanwhile, the share of debt belonging to firms with structurally weak debt-servicing capacity could increase to 33.3 percent in the case that earnings fall by 10 percent for three years and to 38.1 percent in the case that funding costs increase by 1 percentage point for three years.



## D. Mainland Chinese Firms Listed in Hong Kong SAR

**11. Financial vulnerabilities of Mainland Chinese firms listed in Hong Kong SAR have increased in recent years.**<sup>6</sup> These vulnerabilities are largely driven by overall weakening profitability since the onset of the pandemic and increased weaknesses of property developers.

- *Overall weakening profitability.* The return on assets of Mainland Chinese firms fell to 2.1 percent in 2023 from 3.4 percent in 2019, and the share of loss-making firms in terms of assets increased to 18.3 percent. The decline in profitability has also reduced firms’ debt-servicing capacity. The share of debt belonging to firms with structurally weak debt-servicing capacity increased by 13.5 percentage points to 19 percent, largely driven by property developers.
- *Property developers’ weak balance sheets.* The ongoing property sector adjustment in Mainland China has significantly hit property developers’ balance sheets. Mainland Chinese property developers are facing falling profitability (return on assets at -1.4 percent in 2023), elevated leverage (total liabilities to total assets at 83 percent), and a negative estimated cash position (14.4 percent of total assets). Furthermore, there is a significant tail of financially weak property developers that are loss-making and maintain structurally weak debt-servicing capacity, negative equity, and negative estimated cash position.



<sup>6</sup> See Selected Issue Paper on “Assessing Vulnerabilities of China’s Corporate Sector” that accompanies China’s 2024 Article IV.

**12. Given their dominance in Hong Kong SAR's stock exchange, financial weaknesses of Mainland Chinese firms have likely affected Hong Kong SAR's financial services activity and investor sentiment.** Weak earnings and profitability of Hong Kong SAR-listed Mainland firms has contributed to their lower share prices, likely resulting in weaker incentives of both local and Mainland Chinese firms to raise equity financing in the territory. Meanwhile, concerns about firms' repayment ability could affect investors' appetite to invest in corporate bonds. This has not only affected the local financial services sector, which was a key driver of past growth, but may have also undermined investor sentiment with possible effects on private consumption and investment.

## E. Policies to Promote Macro-Financial Stability

**13. Proactive efforts are warranted to ensure effective monitoring and management of financial vulnerabilities in the corporate sector.** Key actions should include:

- **Ensuring that banks remain proactive in managing nonperforming assets.** Given the notable pandemic scarring effects, Mainland China's ongoing property sector adjustment, and potential macro-financial headwinds, it is important that banks continue recognizing nonperforming assets and making appropriate provisions.
- **Effectively monitoring the impact of the ongoing property market adjustments in Hong Kong SAR.** While financial vulnerabilities of local Hong Kong RE firms appear manageable, it is important to remain vigilant given the importance of the property market to the economy and the size of RE firms' balance sheets.
- **Carefully calibrating policy support to small businesses.** Policy support to small businesses, including the existing credit guarantee schemes, should be well calibrated to strike a proper balance between providing necessary support and facilitating an orderly exit of non-viable firms. Expanded use of the Commercial Data Interchange could also help overcome information asymmetry problems and improve financing access for small viable businesses.

# HONG KONG SAR'S ECONOMY IN THE FACE OF CLIMATE CHANGE: RISKS AND PROSPECTS<sup>1</sup>

*Hong Kong SAR is facing ongoing challenges from climate change, with projections indicating that these issues will remain prevalent or even intensify in the future. In response, Hong Kong SAR has embraced a comprehensive three-pronged climate strategy—the Climate Action Plan 2050—that focuses on mitigation, adaptation, and building resilience, and sets ambitious goals of reducing carbon emissions by 50 percent before 2035 and achieving carbon neutrality before 2050. Simultaneously, there is a concerted effort to bolster infrastructure and community resilience against natural disasters. Although significant strides have been made towards decarbonizing the economy and building resilience in the last few years, sustained action is pivotal to reach carbon neutrality, including by reducing emissions in hard-to-abate sectors and improving energy efficiency across industries. It would also be crucial to continue strengthening resilience against extreme weather events, further integrate climate into systemic risk analysis, and foster a green finance ecosystem.*

## A. Introduction

**1. Climate change threatens long-term economic prosperity and human livelihoods globally, creating extensive macroeconomic challenges across different sectors.** Its widespread effects can stifle economic growth, intensify poverty, and increase income inequalities, especially in regions ill-prepared for environmental shifts ([IMF, 2023](#)). For instance, the rising frequency and intensity of natural disasters—such as floods, cyclones, and wildfires—result in substantial economic costs due to infrastructure damage, supply chain disruptions, and higher insurance premiums. Furthermore, transitioning to a low-carbon economy, although essential, presents additional challenges, demanding significant investments in green technologies and infrastructure. Therefore, the macroeconomic impacts of climate change call for a unified effort from policymakers, businesses, and communities to adopt sustainable practices, invest in climate resilience, and drive innovation.

**2. Hong Kong SAR has started to experience the effects of global warming, and the trend is expected to continue in the future.**<sup>2</sup> The annual mean temperature in Hong Kong SAR has shown a significant upward trend, rising by 0.14°C per decade from 1885 to 2023. The rise accelerated to 0.30°C per decade during the period from 1994 to 2023, with projected increases ranging from about 1.2 to 3.6 degrees Celsius under different greenhouse gas emission scenarios by 2100 (Figure 1). The city's dense urban environment can intensify this warming trend, creating an “urban heat island” effect where urban areas become notably warmer than their surroundings, posing risks to human health and escalating energy consumption from cooling ([Aflaki et al., 2017](#)). The annual rainfall has also shown an increasing trend, with 2023 recording the heaviest rainfall

<sup>1</sup> Prepared by Fozan Fareed.

<sup>2</sup> Hong Kong SAR is affected by both acute and chronic climate hazards. Acute climate hazards are sudden, short-term events like storms or floods, while chronic climate hazards are long-term, ongoing issues such as rising sea levels.

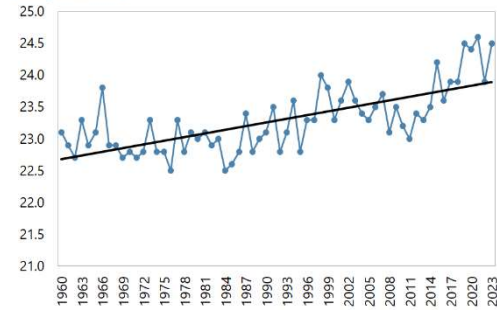


recorded in the city. Ongoing challenges with air quality and population density exacerbate health risks, while the frequency of extreme weather conditions has also risen over the last decade (Figure 1).

**Text Figure 1. Hong Kong SAR: Climate Change Effects: Temperature and Precipitation**

**Annual Mean Temperature**

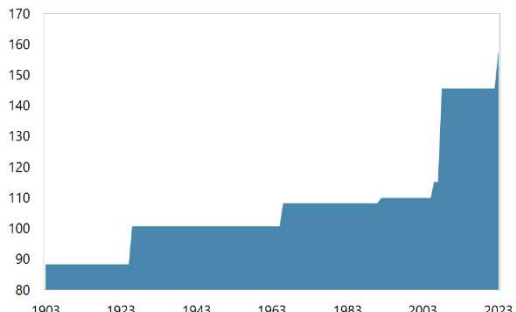
(In degrees Celcius)



Source: Hong Kong Observatory.

**Highest Hourly Rainfall Record**

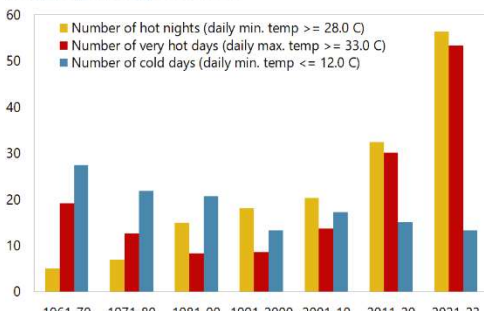
(In millimeters)



Sources: Hong Kong Observatory; and IMF staff calculations.

**Frequency of Extreme Weather Conditions**

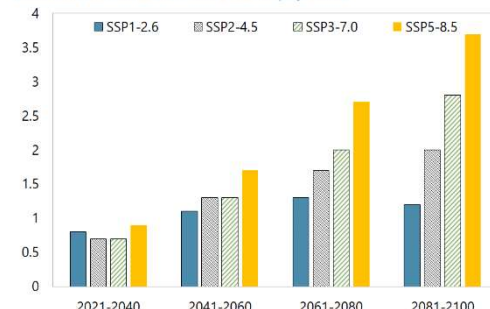
In days per year, average over a decade



Sources: Hong Kong Observatory; and IMF staff calculations.

**Projected Increase in Temperature**

(Relative to 1995-2014 level; Based on mean projections)



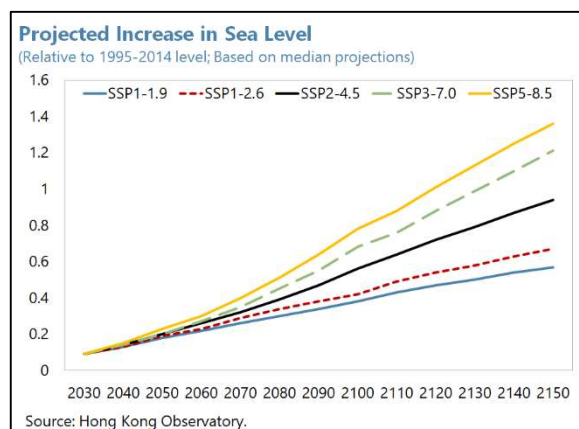
Source: Hong Kong Observatory.

Note: SSPs refer to Shared Socioeconomic Pathways climate scenarios. SSP1 describes a sustainable future with low challenges to mitigation and adaptation, SSP2 envisions a middle-of-the-road scenario with moderate challenges, SSP3 depicts a fragmented world with high challenges to both mitigation and adaptation, and SSP5 represents a fossil-fueled development pathway with severe mitigation challenges.

**3. The rise in sea level also poses a risk to Hong Kong SAR's coastal and low-lying areas, exacerbating the threat of flooding and the potential for damage to infrastructure and livelihoods.** On average, the mean sea level around Hong Kong SAR rose at a rate of 0.03m per decade during 1954-2023,<sup>3</sup> and future projections indicate a significant increase by the end of the

<sup>3</sup> Based on the tide gauge records in Victoria Harbor (Hong Kong Observatory).

century (2100), with expected rises ranging from about 0.4 to 0.8 meters under median projection of mean sea level for different greenhouse gas emissions scenarios (text Figure). The increasing sea level coupled with more frequent and severe storm surges will increase the exposure of both coastal infrastructure and populations to sea flooding risk. In the past, severe tropical cyclones and storm surges in Hong Kong SAR have led to significant economic losses due to damage to property, public infrastructure, and business interruptions ([Choy et al., 2020](#)).



## B. Climate Risks and Potential Economic Implications

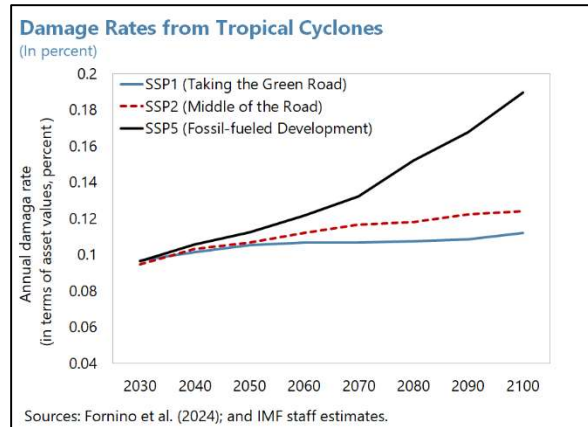
**4. To better assess the economic implications of damages from tropical cyclones—one of the most critical climate hazards for Hong Kong SAR—forward-looking damage estimates are analyzed based on [Fornino et al. \(2024\)](#).** Damages are determined as the interaction of three components: the projections of individual hazards (hazard severity), the exposure of economic assets to these hazards, and the vulnerability in the event the hazard materializes. Damage rates are defined as the loss of value of assets, expressed in percent of the value of those assets before being hit by tropical cyclones. These exclude indirect damages, for example, those arising from business interruption, spillovers, and, more generally, second round effects. The hazards data reflect wind speeds, produced by Jupiter Intelligence using data from global circulation models and a synthetic tropical cyclone model, and available for various return periods.

**5. The analysis also considers three climate scenarios with distinct underlying assumptions about future socio-economic developments, emission pathways, and policy responses, each leading to varying levels of global warming and associated impacts.** SSP1-2.6 refers to a “taking the green road” scenario with low emissions and limited warming, SSP2-4.5 refers to middle of the road scenario with medium emissions and moderate warming, and SSP5-8.5 refers to a fossil fueled development scenario with high emissions leading to severe warming. The damage functions used in this analysis to calibrate economic damages caused by tropical cyclones come from [Eberenz et al. \(2017\)](#). These functions are regionally calibrated by using simulated damages from CLIMADA and reported damages.<sup>4</sup> Economic exposures are incorporated through downscaled GDP data from [Murakami and others \(2021\)](#).

**6. The results show that damages from tropical cyclones could vary significantly.** Under the “taking the green road” (SSP1-2.6) scenario, damages from tropical cyclones in Hong Kong SAR

<sup>4</sup> Additional details of the model, underlying assumptions, and description of climate scenarios are available from [Fornino et al. \(2024\)](#).

are estimated to be around 0.1 percent of asset value per year. Conversely, in a scenario that envisions a fossil fuel-dependent world with high carbon emissions (SSP5-8.5), the damages from tropical cyclones are projected to increase substantially and reach about 0.19 percent of asset value per year, indicating close to a 100 percent increase by 2100 compared to SSP1-2.6. The SSP2-4.5 (“middle-of-the-road”) scenarios also shows increases in damage rates, however, much smaller compared to SSP5-8.5 scenario (Fornino et al., 2024).



**7. The economic effects of climate risks can be also analyzed using the Network for Greening the Financial System (NGFS) scenarios.** NGFS Climate Scenarios (Phase IV) provide a detailed framework to help policymakers assess the economic and financial risks associated with climate change. These scenarios are designed to model a range of potential climate futures, considering varying levels of policy stringency, technological advancements, and societal behaviors. The main assumptions include different levels of global warming (e.g., 1.5°C, 2°C, and higher pathways), the pace and scale of the transition to a low-carbon economy, and the extent of physical risks like extreme weather events and sea level rise. The scenarios also account for regional differences, capturing how climate impacts and transition efforts vary across different regions. All NGFS scenarios are based on the assumptions from the Shared Socioeconomic Pathway 2 (SSP2), known as the “Middle of the Road” scenario, which represents a balanced scenario that is neither overly optimistic nor pessimistic. Table 1 provides a brief description of the three NGFS scenarios under consideration.<sup>5</sup>

**Text Table 1. Hong Kong SAR: Key Assumptions behind NGFS climate Scenarios**

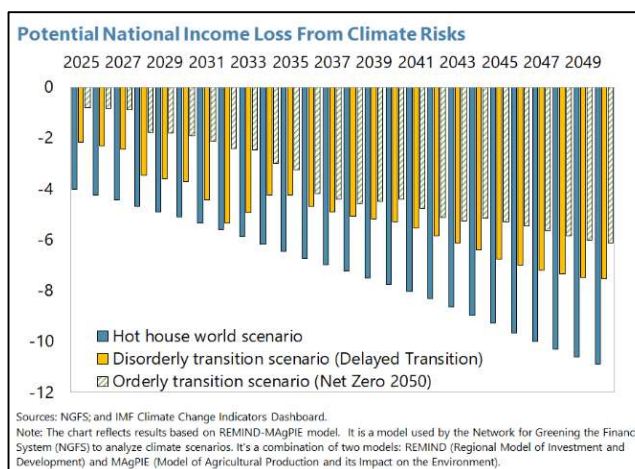
NGFS Climate Scenario	End of century (peak) warming	Technology change	Carbon Dioxide	Regional policy variation
Hot house world	2.9 °C	Slow change	Low use	Low variation
Disorderly (Delayed transition)	1.7 °C	Slow/Fast change	Medium use	High variation
Orderly (Net Zero 2050)	1.5 °C	Fast change	Medium use	Medium variation

Source: NGFS (2023)

**8. Overall, the economic implications of physical climate risks on Hong Kong SAR’s growth are substantial.** According to the NGFS estimates, in a “hot house world” scenario, where minimal climate policies and ongoing fossil fuel reliance lead to severe warming and impacts, GDP

<sup>5</sup> Detailed description of the NGFS climate scenarios and all the underlying assumptions are available here (NGFS Scenarios Portal).

losses could be as high as 10.9 percent by 2050 compared to a scenario with no physical nor transition risks.<sup>6</sup> In other words, this scenario suggests that climate risks could cause an additional 4.8 percent in GDP losses compared to an “orderly transition” scenario by 2050. In a “disorderly transition” scenario of the NGFS—characterized by delayed and abrupt climate policies leading to economic and financial instability—Real GDP losses are projected to be 1.4 percent higher by 2050 compared to an orderly transition scenario.



### C. Climate Action Plan: Mitigation, Adaptation, and Resilience

**9. Hong Kong SAR has developed a comprehensive three-pronged strategy to address climate change, focusing on mitigation, adaptation, and resilience enhancement.** The authorities’ Climate Action Plan 2050, announced in 2021, aims to reduce carbon emissions by 50 percent (relative to 2005 level) before 2035 and achieving carbon neutrality before 2050 by increasing the use of renewable energy sources, improving energy efficiency, and reducing reliance on fossil fuels, alongside other policy measures (Table 2). A full implementation of this action plan will help Hong Kong SAR to transform its infrastructure, economy, and society to be more resilient and environmentally conscious.

#### Mitigation Strategies

**10. Hong Kong SAR has outlined four major decarbonization strategies to combat climate change and reach carbon neutrality (Table 2).** These strategies include: i) achieving net-zero electricity generation, ii) promoting energy saving and green buildings, iii) advancing green transport, and iv) implementing waste reduction. Each of these strategies is designed to address specific areas of concern, focusing on reducing emissions, enhancing energy efficiency, and promoting sustainable development across various sectors:

<sup>6</sup> This hypothetical scenario represents a world in which climate change does not occur. This scenario serves as a benchmark for understanding what might happen if no actions are taken to mitigate or adapt to climate change. Also, the scenarios are global and have no material impact from Hong Kong SAR’s emissions. For further details, see [NGFS Scenarios Portal](#).

**Text Table 2. Hong Kong SAR: Summary of Targets and Timeline**

Theme	Targets	Target Year
<b>Carbon neutrality</b>	Achieve carbon neutrality	2050
	50 percent reduction in carbon emissions (from 2005 levels)	2035
<b>1. Net-zero electricity generation</b>	No coal for daily electricity generation	2035
	Increase the share of renewable energy in the fuel mix for electricity generation to 7.5 to 10 percent	2035
	Increase the share of renewable energy in the fuel mix for electricity generation to 15 percent	2050
	Increase the share of zero-carbon energy to 60 to 70 percent <sup>1</sup>	Before 2035
<b>2. Energy saving and green buildings</b>	30-40 percent reduction in electricity consumption in commercial buildings	2050
	20-30 percent reduction in electricity consumption in residential buildings	2050
	Achieve half of the above energy consumption reductions for commercial and residential buildings	2035
<b>3. Green transport</b>	Cease the new registration of fuel-propelled and hybrid private cars	2035 or earlier
	Implement strategies in the Clean Air Plan to promote adaption of new energy transport to expedite low-carbon transformation	2035
	Take forward measures set in the EV Roadmap to attain zero vehicular emissions	2050
<b>4. Waste reduction</b>	Implement the Waste Blueprint to move away from the reliance on landfills for municipal waste disposal	2035
	Regulation of disposable plastic tableware and other plastic products in phases, reducing plastic at source.	2025
	Develop adequate waste-to-energy facilities	2035
<p>Source: Hong Kong SAR's Climate Action Plan 2050</p> <p><sup>1</sup> Zero-carbon energy refers to energy which does not generate carbon emissions during their production or usage. Zero-carbon energy under application in Hong Kong SAR includes solar, wind and nuclear energy. The authorities are also closely monitoring the development of new zero-carbon energy (e.g. green hydrogen), and plan to adopt such energy as the technologies become mature.</p>		

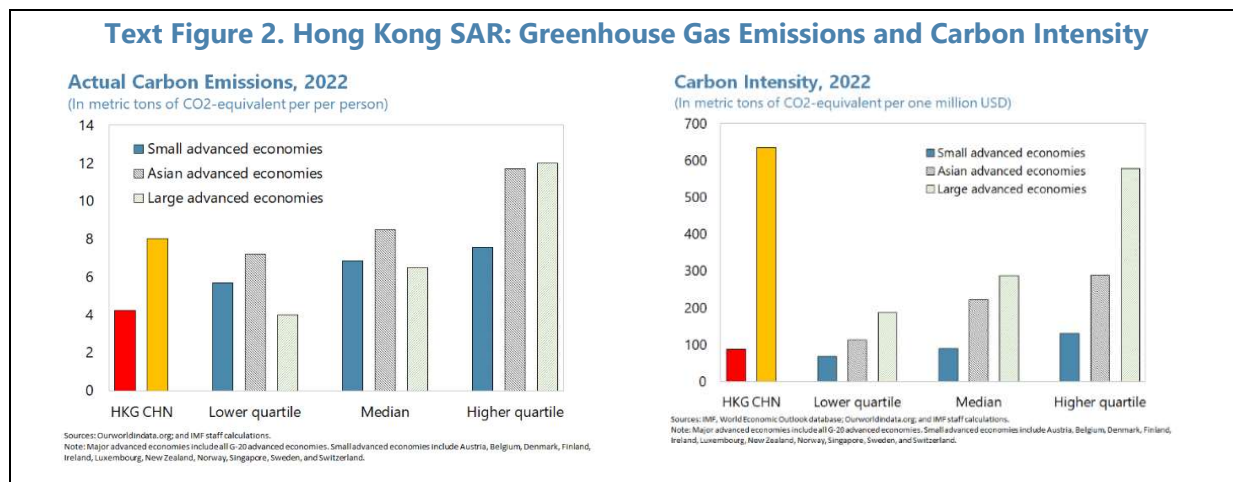
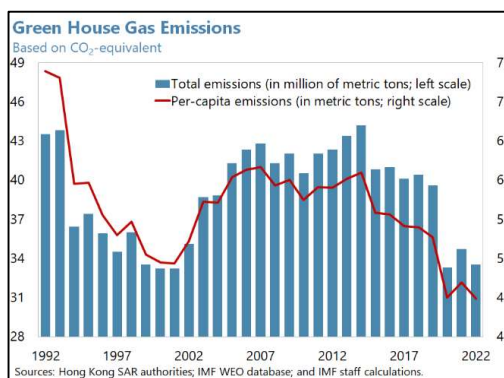
- **Net-Zero Electricity Generation:** The plan aims to transition to net-zero electricity generation by significantly reducing reliance on fossil fuels and increasing the share of zero-carbon energy sources. This includes investing in advanced technologies and infrastructure for cleaner energy production, such as solar power and exploring the use of green hydrogen energy.
- **Energy Saving and Green Buildings:** The plan focuses on enhancing energy efficiency through stricter building codes and promoting green building standards. Initiatives include retrofitting existing buildings to meet higher energy performance standards and encouraging the construction of new buildings with sustainable design features.
- **Green Transport:** Hong Kong SAR is committed to developing a low-carbon transport system by expanding electric vehicle (EV) infrastructure and promoting the use of public transportation.

Efforts include increasing the number of EV charging stations<sup>7</sup> and investing in electric buses and taxis as well as hydrogen powered vehicles (such as busses) to reduce emissions from the transport sector. In June 2024, the Hong Kong SAR Government announced the *Strategy of Hydrogen Development*, focusing mainly on the commercial applications of hydrogen energy.

- **Waste Reduction:** Authorities are working to minimize waste generation through improved recycling programs and waste-to-energy technologies. Key actions include enhancing waste segregation, promoting recycling initiatives, and investing in facilities that convert waste into energy or reusable materials.

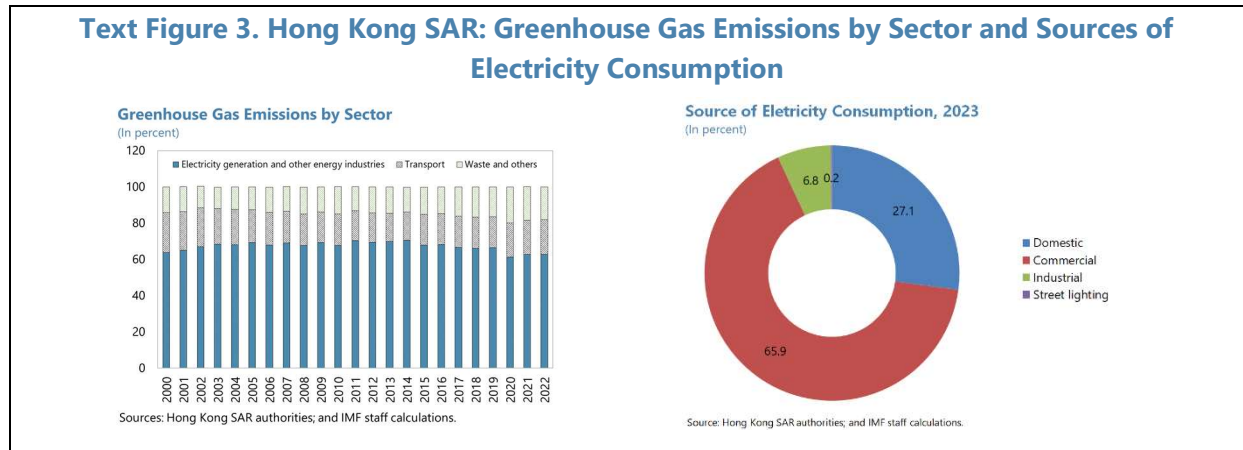
**11. Significant progress has been made by Hong Kong SAR towards reducing carbon emissions in recent years as compared to global peers.** Since peaking in 2014, total greenhouse gas emissions have been on a downward trend

(Figure 2). In 2022, total emissions amounted to about 33.5 million metric tons of CO<sub>2</sub>-equivalent, down from 44.2 million metric tons in 2014. Per capita, emissions have also been decreasing, dropping to 4.4 metric tons in 2023 as power plants transition from coal to natural gas for electricity generation. Compared to other advanced economies in 2022, Hong Kong SAR's per capita carbon emissions and carbon intensity were among one of the lowest. This relatively low level of carbon emissions reflects Hong Kong SAR's services-oriented economy, which is driven by less carbon-intensive activities.

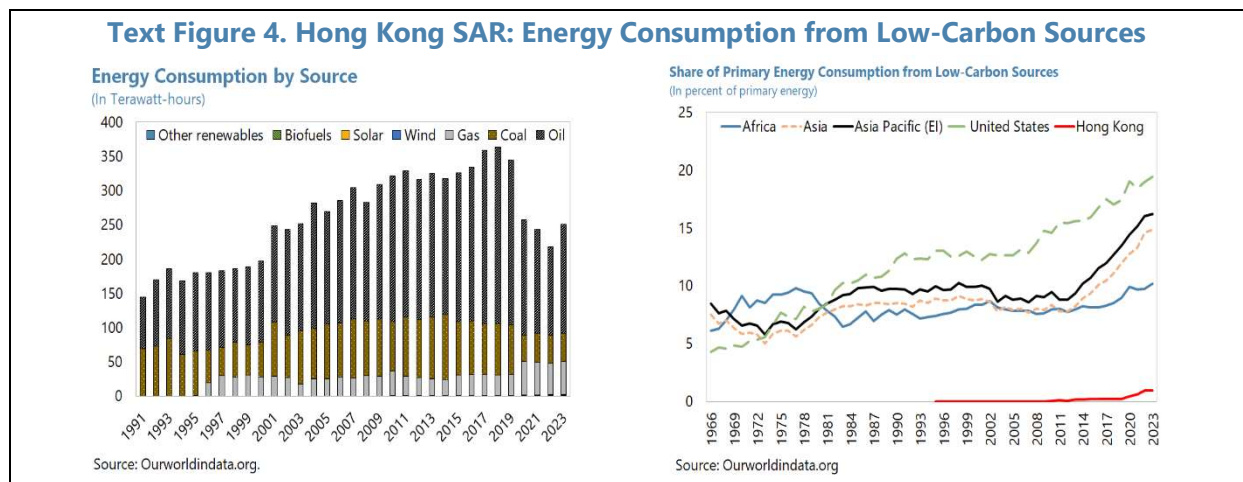


<sup>7</sup> The government aims to expand the electric vehicle (EV) charging network, with about 200,000 EV charging spaces expected by mid-2027 through the EV-Charging at Home Subsidy Scheme and gross floor area concessions. A new \$300 million scheme will subsidize the private sector to install 3,000 quick chargers by 2030.

**12. Electricity generation remains the primary source of carbon emissions in Hong Kong SAR, accounting for about 63 percent of total emissions (Text Figure 3).** The majority of this electricity is consumed by commercial and residential buildings, accounting for about 66 and 27 percent of electricity consumption, respectively. The second largest source of carbon emissions is transportation, accounting for 19 percent of total emissions, followed by waste and other sectors (18 percent).



**13. The share of renewable energy remains less than 1 percent in the electricity fuel mix, which is significantly lower compared to global peers (Figure 4).** While coal's usage in the electricity fuel mix has declined over the last decade and natural gas has gained prominence as a fuel source for electricity generation in recent years, Hong Kong SAR still maintains a significant reliance on fossil fuels (Figure 4). This underscores the urgent need for increased investment in renewable energy sources to reduce carbon emissions and align with international standards. The government aims to increase the share of renewable energy to 7.5-10 percent by 2035 and to 15 percent by 2050 and has earmarked a total of \$3 billion to install renewable energy facilities at government buildings and infrastructure since 2017-18. As of September 2024, about \$2.2 billion have been approved for more than 250 projects, including the installation of solar energy generation systems at government offices, schools, recreational grounds, and others.



## Adaptation and Resilience Building Measures

**14. Hong Kong SAR is intensifying its adaptation and resilience initiatives to address the growing physical risks brought by climate change.** The Climate Action Plan 2050 prioritizes robust adaptation strategies to safeguard residents and infrastructure. Simultaneously, the plan emphasizes resilience-building efforts aimed at enhancing societal readiness for extreme weather events. This includes a strong focus on community engagement, public education, and the development of comprehensive preparedness measures to ensure that the population is well-equipped to face the challenges of a changing climate.<sup>8</sup>

- **Managing Risks from Tropical Cyclones and Heavy Rainfalls:** To mitigate the impact of increasingly severe tropical cyclones and heavy rainfall, the plan includes upgrading drainage systems and enhancing building codes to ensure structures can withstand extreme weather. Additionally, the implementation of early warning systems and emergency response protocols is being strengthened. The government has implemented a three-pronged flood prevention strategy that includes stormwater interception in upstream areas, flood storage in midstream regions, and drainage improvement in downstream. Additionally, measures have been taken to ensure that critical public infrastructure, including railway and road infrastructure, are resilient to flood risks. The government is conducting a strategic study on flood management to address sea level rise and extreme rainfall, drawing on global expertise to develop a long-term prevention strategy. Moreover, to address landslide risks from extreme rainstorms, the government plans to keep enhancing slope safety through regular maintenance, risk-based strengthening programs, and expert-reviewed management improvements.
- **Combatting Sea Level Rise and Storm Surges:** Climate change causes sea level rise, and the intensification of tropical cyclones leads to increased waves and storm surges, amplifying the impact on coastal and low-lying areas. The government completed a coastal hazards study at end-2021, which identified 26 coastal low-lying or windy residential areas with higher risks for the formulation of improvement works and management measures to safeguard public safety. These improvement works are anticipated to be completed by 2027. The government also commenced a study on shoreline management plan with the aim to provide guidelines on planning and implementing urban coastal development and protection measures and formulate the related long-term strategies and preventive measures in order to enhance the capacity to combat climate change.
- **Adapting to Rising Temperatures:** The plan addresses rising temperatures by promoting sustainable management of urban forests, aiming to further enhance greenery and mitigate the urban heat island effect. Building designs are also being adapted to improve energy efficiency and reduce indoor heat. Moreover, following a study on the potential effects of extreme

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<sup>8</sup> The government has put in efforts to prioritize climate-resilient infrastructure, with the Climate Change Working Group on Infrastructure (CCWGI) established in 2016 to coordinate adaptation efforts, support reporting, and study the impacts of extreme weather on critical infrastructure, among other priorities.

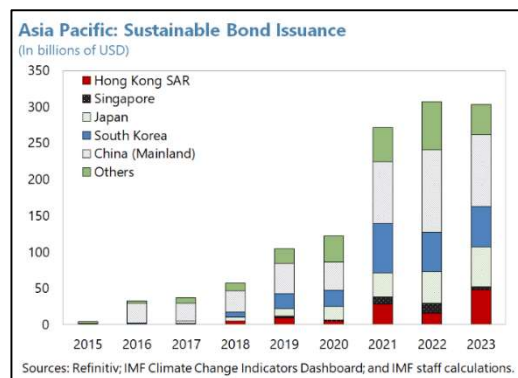


temperatures on government infrastructures (2020), the government largely completed a review of the design standards relating to public infrastructure and government buildings in 2023.

- Addressing Droughts and Water Supply Issues:** The three major sources of water supply in Hong Kong SAR include imported water from Dongjiang in Mainland China, local yield, and seawater for flushing. In the face of the contemporary challenges of growing demand and climate change, the authorities have been implementing Total Water Management Strategy since 2008 to safeguard water sustainability. The strategy aims to control freshwater demand growth and enhance resilience by utilizing climate-resilient water resources. Key initiatives include promoting water conservation, encouraging water-efficient devices, and improving water loss management through 2,400 District Metering Areas (DMAs) in the Water Intelligent Network (WIN). Additionally, the use of alternative water sources, such as lower grade water (viz. seawater and recycled water) for non-potable purposes and desalination, have enhanced the overall resilience of water supply.
- Resilience Building Efforts:** Community resilience is an important aspect in the Climate Action Plan. Efforts include public education campaigns to raise awareness of climate risks and the development of neighborhood-based preparedness programs. These initiatives aim to empower residents to take proactive measures to reduce their vulnerability to climate-related hazards. Additionally, the authorities have established early warning systems, with the Hong Kong Observatory closely monitoring weather conditions and issuing alerts to help the public, particularly those in vulnerable areas, take precautions and seek shelter during extreme weather events.

**15. In 2021, the government planned to allocate HKD240 billion over the next 15 to 20 years to support these mitigation and adaptation measures, indicating a robust financial commitment to achieving these targets.**

Additionally, significant efforts have been made to foster the growth of a green and sustainable finance ecosystem and to address climate-related financial stability risks. The Government Green Bond Programme (GGBP, which was renamed as the Government Sustainable Bond Programme in May 2024) was established in 2018 to fund government green projects. The inaugural bond was issued in May 2019, and, as of 2024Q3, the total value of green bonds issued under the GGBP has reached \$28 billion, supporting various green initiatives across Hong Kong SAR.



**16. The financial sector, a cornerstone of Hong Kong's economy, is also stepping up its efforts to manage climate-related risks due to their potential impact on financial stability.**

Increased climate-related physical risks could lead to higher insurance claims, increased lending defaults, and substantial asset devaluations. For instance, according to the Insurance Authority, total claims incurred by Typhoon Saola and black rainstorm in early September 2023 amounted to HK\$1.9 billion of which more than 80 percent were related to property damages. Similarly, physical

risks have been linked to adverse effects on Hong Kong SAR insurers' equity prices and housing prices.<sup>9</sup> These climate-related disruptions can undermine investor confidence and reduce capital inflows, potentially disrupting the economy. Furthermore, severe weather events can disrupt trade by affecting the flow of goods and services, causing supply chain interruptions, and increasing operational costs for businesses, thereby elevating operational and financial risks.

**17. Financial regulators have implemented a robust set of initiatives to address climate change and promote green finance, underscoring their commitment to the climate action plan.** Key initiatives include:

- The launch of Sustainable Finance Action Agenda in October 2024 which advances HKMA's efforts to facilitate sustainable fund flows and encourages banks to enhance transparency on climate-related risks and reach net-zero financed emissions by 2050 (Table 3).
- Other key initiatives include the Green and Sustainable Finance Grant Scheme and the launch of the Hong Kong Taxonomy for Sustainable Finance in May 2024 by HKMA, aimed at enabling informed decision-making and facilitating financial flows to scale up sustainable investments. The authorities also plan to expand the coverage of their Sustainable Finance Taxonomy to include more sectors and activities, including transition activities, which will further help to reduce risks of green or transition washing.
- In 2023, HKMA also enhanced its climate risk stress test, integrating it into regular supervisory stress tests to thoroughly evaluate banks' resilience and climate risk management capabilities.
- The authorities have also commenced preparatory work for implementing disclosure requirements of the ISSB Standards and Basel's Pillar 3 framework for climate-related financial risks. The HKMA is preparing to consult the industry on a new set of guidelines on transition planning and proposed changes to embed climate considerations into the supervisory review process.
- On the reserve management front, the Exchange Fund has set net-zero goals for the Investment Portfolio by 2050 and reduced the weighted average carbon intensity of the public equity holdings by 46 percent since 2017.

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<sup>9</sup> See Financial System Stability Assessment Report for Hong Kong SAR (IMF Country Report No. 21/102) and HKMA's Financial Stability Report 2024. In terms of physical risks, the HKMA has analyzed the impact of climate change on Hong Kong SAR's housing prices, focusing on physical risks such as temperature and typhoons. Their research echoes the international call for integrating climate-related risks into financial stability monitoring. For details, please see HKMA [Research Memorandum 2023/05](#).

- HKMA has also set up a physical risk assessment platform that allows banks to assess the impact of physical risk on residential and commercial buildings in Hong Kong SAR under different climate scenarios.

<b>Text Table 3. Hong Kong SAR: Sustainable Finance Action Agenda 2024 - Main Pillars</b>	
<b>Theme</b>	<b>Goals</b>
<b>1. Banking for Net-Zero</b>	All banks to strive to achieve net zero in their own operations by 2030 and in their financed emissions by 2050
	All banks to enhance transparency on climate-related risks and opportunities
<b>2. Investment in a Sustainable Future</b>	Achieve net-zero emissions for the Investment Portfolio of the Exchange Fund by 2050
	Support transition in the region through investment
<b>3. Financing Net-Zero</b>	Develop Hong Kong SAR into the go-to sustainable financing platform of the region and beyond
	Catalyze innovation in sustainable finance
<b>4. Making Sustainability More Inclusive</b>	Support high-quality and comprehensive sustainability disclosures
	Close talent and knowledge gaps in sustainable finance in the region
<i>Source: HKMA's Sustainable Finance Action Agenda. For additional details, please see <a href="#">here</a>.</i>	

**18. The Securities and Futures Commission (SFC) has also published its Agenda for Green and Sustainable Finance, which outlines its comprehensive strategy to support the transition to a greener economy.** Key initiatives include working with the Stock Exchange of Hong Kong Limited to introduce sustainability reporting requirements, including new climate requirements based on IFRS S2 Climate-related Disclosures which will take effect starting 1 January 2025. Other measures include setting supervisory expectations for fund managers to integrate climate risk into their processes and disclosures, developing a regulatory framework for ESG funds, and working with authorities to establish a regulatory framework for carbon market business models.

## D. Policy Discussion

**19. While significant progress has been made in reducing greenhouse gas (GHG) emissions over the past decade, climate mitigation and adaptation efforts face several challenges.**

Electricity generation remains the primary source of carbon emissions and although coal usage in the electricity fuel mix has declined over the last decade, renewable energy accounts for less than 1 percent of the electricity fuel mix, significantly lagging global benchmarks.<sup>10</sup> To transition towards a low-carbon future, it is crucial to increase the adoption of zero-carbon energy sources. Additionally, Hong Kong SAR is burdened with many aging, poorly maintained buildings, where

<sup>10</sup> Despite government efforts to promote renewable energy, Hong Kong SAR's realizable potential is likely to be modest due to geographical and environmental constraints.

improving energy efficiency is hindered by structural, financial, and legal obstacles, complicating the implementation of necessary upgrades.

**20. To mitigate the risk of falling short of emissions reduction targets, more proactive measures may be needed.** Prioritizing regional collaboration with Mainland China to increase the use of zero-carbon energy could help secure a reliable electricity supply while introducing additional carbon pricing mechanisms, such as mileage-based vehicle taxation scheme, could further incentivize the transition to a low carbon economy.<sup>11</sup> Given that Hong Kong SAR will probably face higher global carbon prices through imported goods over time, implementing supportive measures for low-income households could help mitigate the financial impact.

**21. In addition to mitigation efforts, it is crucial for Hong Kong SAR to continue enhancing adaptation measures to combat the physical risks posed by climate change.** Continued investments in robust infrastructure, coupled with regular reviews of infrastructure resilience and community preparedness, will help protect against rising sea levels and extreme weather events. A thorough assessment of investment needs for climate adaptation, coupled with its integration into the medium-term fiscal plan, would bolster the authorities' efforts to strengthen the economy's resilience against climate-related disasters.

**22. Continued efforts are essential to ensure that climate risks are fully integrated into both financial institutions' risk management practices and the authorities' systemic risk analyses.** Policy priorities include continued monitoring of climate-related risks, evaluating financial institutions' progress in managing these risks and adapting to the transition towards carbon neutrality, and enhancing systemic risk analysis. Moreover, further fostering collaboration between regulators and industry stakeholders to share best practices and develop robust frameworks for climate risk management will be crucial in strengthening overall financial stability.

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<sup>11</sup> Hong Kong SAR currently imposes duties on hydrocarbon oil, which is a form of carbon taxation, and also has progressive electricity tariffs in place.