

HSBC GBA ESG Index Report

April 2024



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Opening up a world of opportunity

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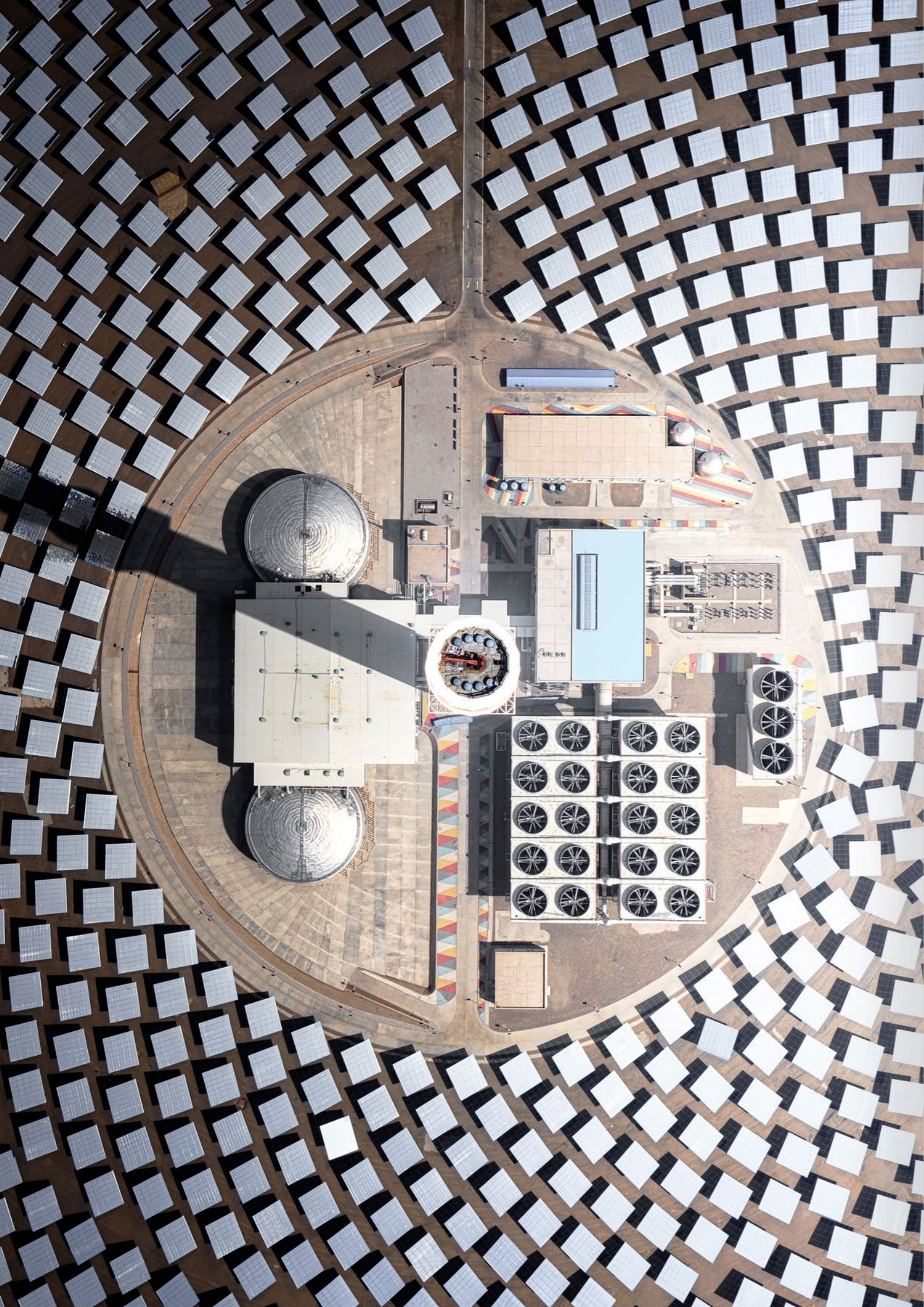


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Executive Summary



Executive Summary




This report is the quarterly update on the HSBC GBA ESG Index (the Index), which analyses the ESG and sustainable development performance of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) in Q1 2024.


1  **Its performance in the area of policy remained high in Q1 2024, with several policies launched to support the development of New Quality Productive Forces (新质生产力).**

In Q1 2024, the GBA promoted the development of developing New Quality Productive Forces, and local governments set out policies in line with national strategies to cultivate innovative talents, promote the transition of traditional industries using innovative techniques, and develop strategic emerging and future industries.

This strong policy support coupled with increasing investment in high-tech industries has allowed the GBA to experience significant growth in high-tech industries. In the first two months of 2024, new energy vehicles (NEVs), new-generation information, and other high-tech industries in Guangzhou experienced rapid growth. In Hong Kong, the government also announced measures to support the development of green shipping and aviation industries.


2  **The GBA made remarkable progress in environmental management in Q1 2024, primarily driven by better climate disclosure and actions.**

According to our latest data, 12 GBA companies achieved top CDP climate change scores of A and A- in 2023, doubling the figure in 2022. Additionally, in Q1, 28 GBA companies set their first carbon emission reduction targets or made commitments via the Science Based Targets initiative (SBTi)ⁱ, up 33% from last quarter, largely driven by Hong Kong companies which show greater ambition in target setting.


3  **Mainland China and Hong Kong perfected the ESG ecosystem in Q1 2024. In February, three stock exchangesⁱⁱ in Mainland China published separate mandatory sustainability reporting requirements for listed companies open for comment, representing a key milestone for ESG development in China.**

Our latest data shows that the ESG disclosure ratesⁱⁱⁱ of companies listed on the Shenzhen Stock Exchange (SZSE), Shanghai Stock Exchange (SSE), and Beijing Stock Exchange (BSE) were lower than the overall rate of all GBA listed companies. The sustainability disclosure guidelines published by three stock exchanges will gradually lead listed companies to establish their own internal ESG management systems and disclose their ESG information via sustainability reports. In Q1 2024, Hong Kong issued a vision statement setting out the approach of the government and financial regulators to developing a comprehensive ecosystem for sustainability disclosure in the city.

Mainland China and Hong Kong both released the finalised versions of their latest ESG and sustainability reporting requirements in April. We will do a deep-dive analysis of these requirements in our next quarterly report.

4  **Though the sustainable finance and investment market was not very active in Q1 2024, it is worth noting that GBA cities launched a number of innovative solutions to encourage the long-term development of the market.**

Our study found that the national issuance volume of GSSS bonds^{iv} decreased in Q1 2024, with the GBA experiencing a similar trend. With regard to the sustainable investment market, in Q1 2024 there were only two new signatories^v to the UN Principles for Responsible Investment (PRI)^{vi} and seven new ESG mutual funds launched by fund management companies from the GBA, the same number as in Q4 2023. At the same time, our study observed that in Q1 2024, GBA cities launched several initiatives and tools to support green and sustainable growth, including transitional finance, carbon finance, and green fintech.

5  **The consumer discretionary and communication services sectors both saw a significant improvement in Q1 2024, primarily due to better management of climate change issues.**

While it is true to say that the communication services sector is gradually reducing its carbon footprint and enabling the sustainability of other industries, it is also true that two types of green projects for communication services sectors, data processing and data-driven solutions for GHG emission reductions, could benefit from increasing support from green financing tools.

The food and beverage industry, a subsector of the consumer staples sector, is accelerating sustainable development by innovating plant-based foods, adopting animal welfare, and transforming packaging, amid the increasing health consciousness and sustainability awareness of those consumers who are embracing sustainable lifestyles.

In Q1 2024, the average of the GBA ESG Industry Sub-indices recorded a year-on-year increase of

20%
reaching a value of
186.05

ii. The three stock exchanges are the Shenzhen Stock Exchange (SZSE), Shanghai Stock Exchange (SSE), and Beijing Stock Exchange (BSE), respectively.
iii. ESG disclosure rate of the GBA's listed companies = Number of GBA's listed companies disclosed their ESG, corporate social responsibility (CSR), sustainability or other non-financial reports / Total number of GBA's listed companies
iv. GSSS bonds include green bonds, social bonds, sustainability bonds and sustainability-linked bonds.
v. Our study only covers the signatory categories of investment manager and asset owner. The signatory category of service provider is excluded.
vi. PRI is an international organisation that works to promote the incorporation of environmental, social, and corporate governance factors into investment decision-making.

i. The SBTi is a partnership between CDP, the United Nations Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF).

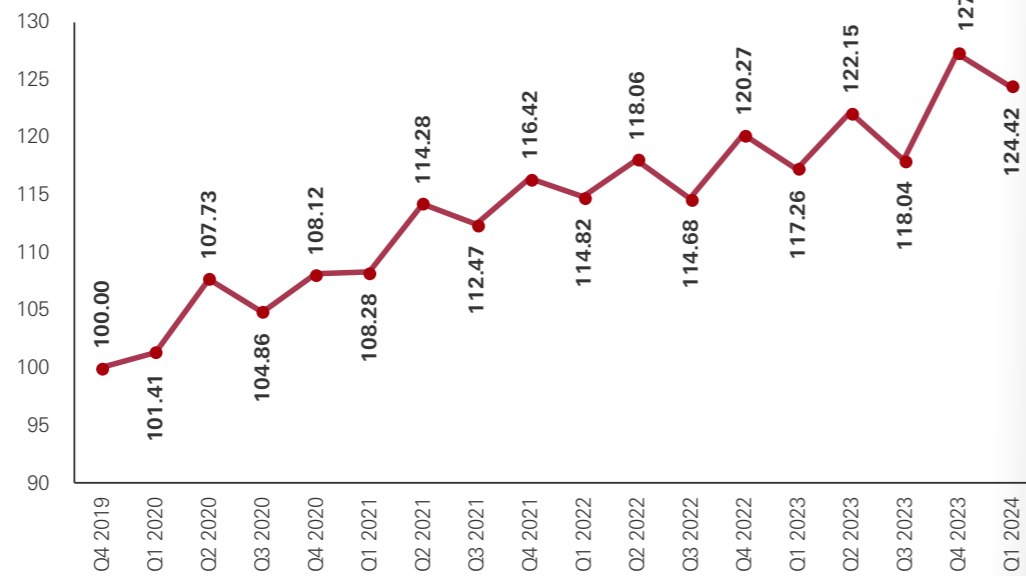
GBA ESG Regional Index



GBA ESG Regional Index

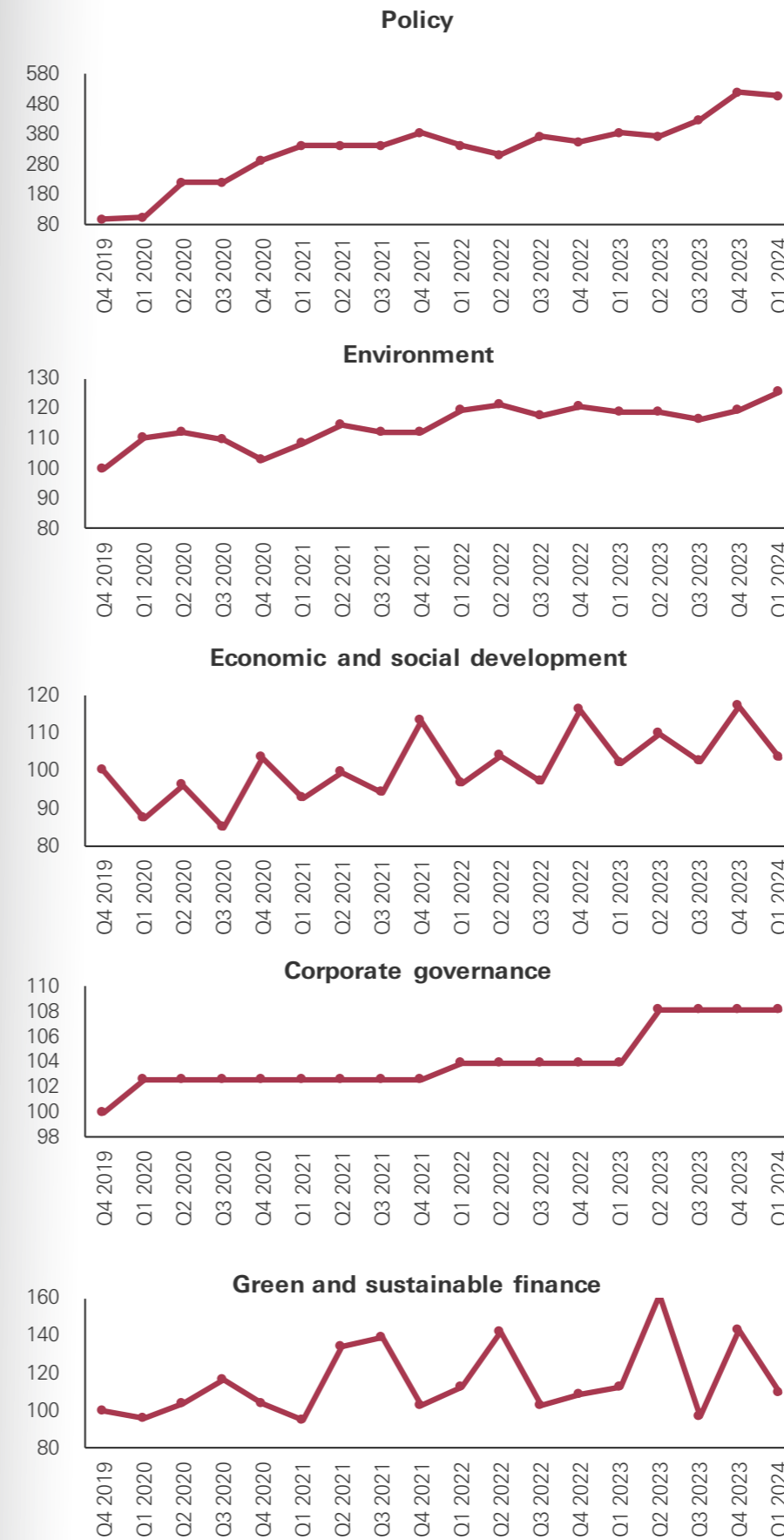
Figure 1. The GBA ESG Regional Index

The GBA ESG Regional Index recorded a year-on-year increase of **6%** in Q1 2024, reaching a value of **124.42**



Source: China's official statistical database, public disclosure of listed companies, public information from relevant third-party databases, other public sources, CECEPEC

Figure 2. Breakdown of the GBA's performance in the five areas



Note: The values are normalised. The base values were 100.00 for Q4 2019 (base period). Source: China's official statistical database, public disclosures of listed companies, other public sources, CECEPEC





Our study found that the GBA's performance in the area of policy remained high in Q1 2024, with a number of policies launched to support the development of New Quality Productive Forces. Over the same period, the GBA improved in the area of environment, primarily due to better environmental management.

Economic and social development continued its cyclical behaviour, reaching its highest value for any Q1 since the study began. Performance in the area of corporate governance was stable.

Our study shows that due to less activity in the sustainable finance and investment market in Q1 2024, the GBA experienced a decline in the area of green and sustainable finance. According to our data, the volume of green bonds issued by Hong Kong declined significantly in Q1 2024, down 62% from Q4 2023.

Policy

The concept of New Quality Productive Forces emerged from China's 2024 Two Sessions. As a leading innovative hub, the GBA has promoted the development of New Quality Productive Forces and set out policies in line with national strategies to cultivate innovative talents, promote the transition of traditional industries using innovative techniques, and develop strategic emerging and future industries.

The strategy of developing New Quality Productive Forces is regarded as key to maintaining and enhancing China's high-quality and sustainable growth.

New Quality Productive Force

- ♦ Marked by innovation, New Quality Productive Forces refer to advanced productivity freed from traditional economic growth models and productivity development paths.
- ♦ It features high technology, high efficiency, and high quality, and is in line with China's new development philosophy, which prioritises innovation and sustainability.



Our study shows that policymakers within the GBA set out a number of policies to accelerate the development of New Quality Productive Forces via several key strategies.

Key strategies and policies

- ♦ The new talent team, including top-class **innovative talents** and high-quality technical personnel, is one of the most critical components of the development strategy of New Quality Productive Forces. In Q1 2024, Zhongshan proposed 15 measures to promote the city's innovation and technology one of which was attracting and cultivating innovative and technological talents.¹
- ♦ In Q1, Dongguan issued guidelines to accelerate the development of new-type industrialisation (新型工业化), emphasising the high-end, intelligent and green transformation of traditional industries by applying **low-carbon and other advanced techniques**.²
- ♦ **The trade-in of consumer goods** can stimulate the development of New Quality Productive Forces from the consumer end. Consumers are encouraged to trade-in old consumer goods for those with intelligent and environmental features. Guangdong has stated that it will formulate and publish a series of policies to support part-exchange.³
- ♦ **Strategic emerging and future industries**, such as new energy vehicles and photovoltaics, play a leading role in advanced productivity. Shenzhen has issued guidelines to promote the high-quality development of strategic emerging and future industries. Specifically, Shenzhen has set a target for the added value of strategic emerging industries to total over RMB160 million in 2025.⁴ The digital economy stimulates the development of emerging industries. In its 2024-25 Budget, the Hong Kong government set out a number of key measures to develop the digital economy.



Environment

In Q1 2024, governments within the GBA set out their priorities for environmental areas with a focus on green shipping, green aviation, and other green and low-carbon industries.

In February 2024, Hong Kong, a leader in the GBA's green transition, published its 2024-25 Budget setting out the Hong Kong government's proposal to support the development of green shipping, green aviation, and photovoltaic technology. At the same time, our study observes that in Q1 2024, the international market highlighted the urgency of decarbonising the shipping and aviation industries with new regulations either being launched or coming on stream. These regulations influence international shipping and aviation, exerting increasing pressure on both industries to address their impact on climate change and move towards a cleaner future. Challenges for both industries include technological and operational shifts, the adoption of low-carbon fuels, and potential cost increases.

The latest international decarbonisation regulations on the shipping and aviation industries

Shipping industry

- In March 2024, the International Maritime Organisation (IMO) agreed to impose a fee on every tonne of shipping emissions from oceangoing cargo vessels from 2027. The fee could raise a significant amount of money and lead to sweeping changes in the shipping industry. It would also be a first step toward imposing a tax on emissions that is not limited to a particular country.
- In Q4 2022, the EU decided to include the shipping industry in the EU Emissions Trading System (ETS) beginning in 2024. The EU ETS encapsulates a vast array of maritime activities, influencing voyages within EU ports, as well as journeys between EU and non-EU ports.



Aviation industry

In October 2016, the member states of the International Civil Aviation Organization (ICAO) started to adopt the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)^{vii} to mitigate aviation emissions. CORSIA started its First Phase on 1 January 2024, which only applies to international flights between member states that volunteered to participate. China has not participated in CORSIA thus far; however, the country's aviation industry will face pressure to make long-term reductions in CO₂ if the country does decide to participate in the future.

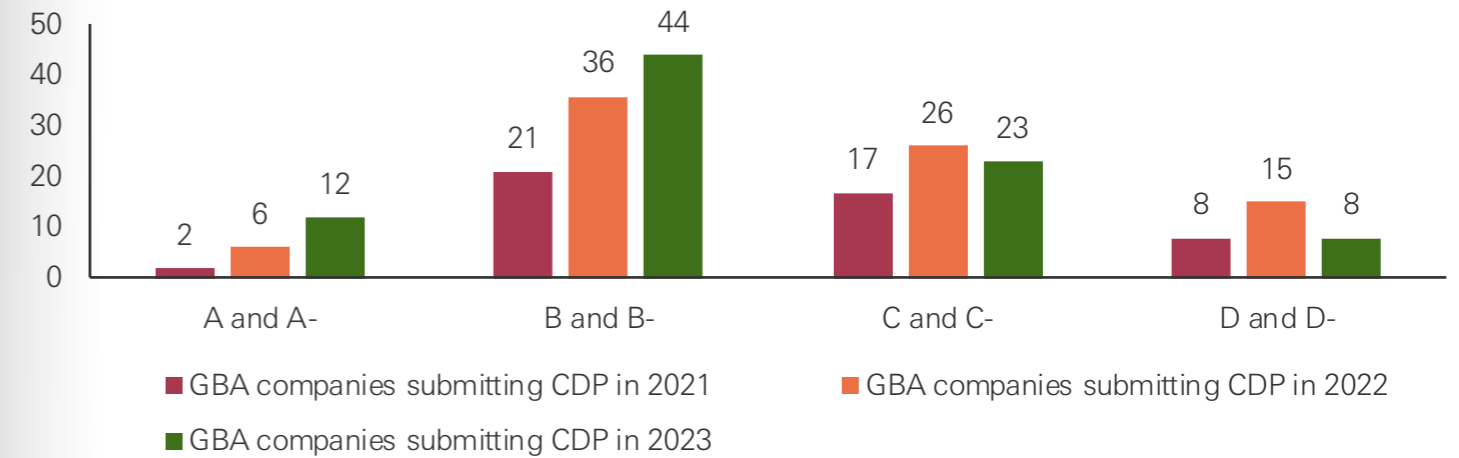


In February 2024, Guangdong Province issued Regulations on the Promotion of the High-Quality Development of the Manufacturing Industry. With these regulations Guangdong Province emphasised an acceleration of the green and low-carbon transition of the manufacturing industry, specifically the promotion of low-carbon, zero-carbon, or carbon-negative technology; resource recycling; and the adoption of renewable energy. With regard to green transportation, Shenzhen recently announced a subsidy for the purchase of new energy tourism buses to encourage related business operators to adopt NEVs; the subsidy totalling up to 50 thousand RMB per vehicle purchased.

Moreover, GBA companies have shown remarkable progress in climate-related disclosure, as evidenced by the improved results of the CDP climate change questionnaire. According to our latest data, 12 GBA companies achieved the top scores of A and A- in the 2023 CDP climate change questionnaire, double the corresponding figure for 2022. Additionally, the number of GBA companies scoring B and B- increased slightly from 36 in 2022 to 44 in 2023, indicating better management of environmental issues. As a consequence of the improved ratings, the number of GBA companies scoring C or below decreased in 2023.

Our study also looked at the performance of GBA companies in the subcategories included in the CDP climate change questionnaire. Of the 11 subcategories, we noted that GBA companies performed best in "emissions reduction initiatives and low carbon products". There was still significant room for improvement in the subcategory "Scope 3 emissions". Figure 4 shows the scores for these two subcategories.

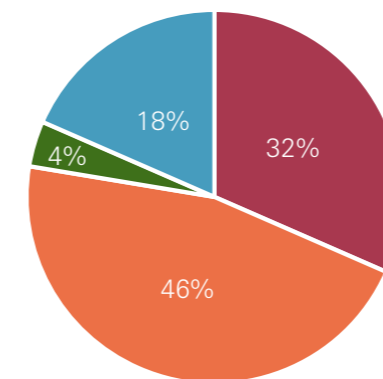
Figure 3. CDP scores of the GBA companies that submitted the climate change questionnaire: overall performance



Note: the figures represent the number of GBA companies with the specific score.
Source: CDP, CECEPHK

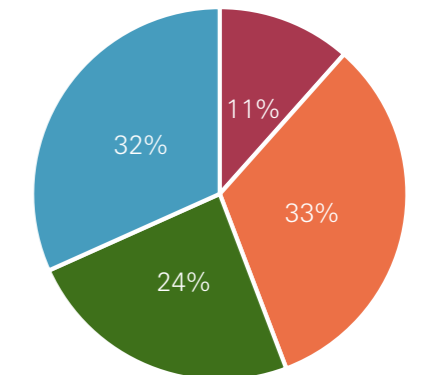
Figure 4. CDP scores of the GBA companies that submitted the climate change questionnaire: two of the subcategories

Emissions reduction initiatives and low carbon products



■ A and A- ■ B and B- ■ C and C- ■ D and D-

Scope 3 emissions (incl. verification)



■ A and A- ■ B and B- ■ C and C- ■ D and D-

Note: the figures represent the proportion of GBA companies with the specific score under these two subcategories. Proportion = Number of GBA companies with the specific score / Total number of GBA companies scored by the CDP
Source: CDP, CECEPHK

vii. CORSIA is a global offsetting scheme, whereby airlines and other aircraft operators will offset any growth in CO₂ emissions above 2020 levels (Source).



Economic and Social Development

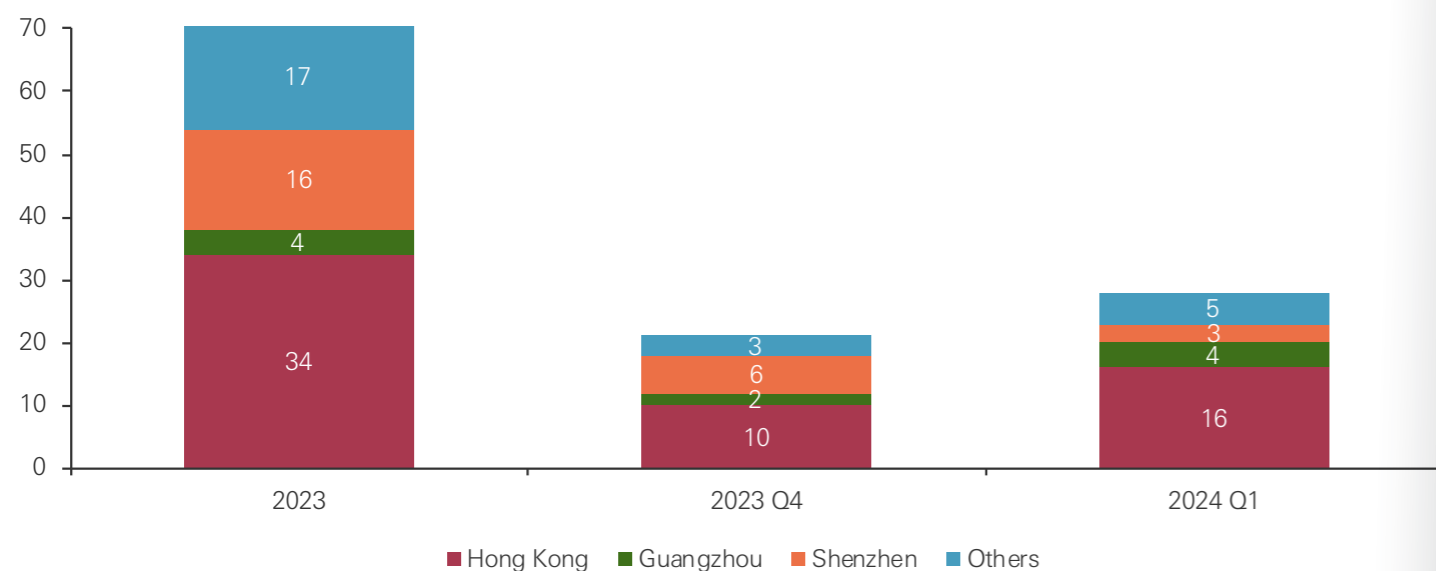
Guangdong Province is actively positioning itself as a global centre for industrial and scientific-technological innovation while fostering the growth of new high-quality productive forces. In Q1 2024, Guangdong Province initiated multiple key projects associated with economic and social development, such as basic infrastructure projects, livelihood projects, and emerging industries. These projects highlight the synergy between industry and sci-tech.

- ◆ **Guangzhou** aims to accelerate its new industrialisation and the development of emerging and future industries, including new energy vehicles, biopharmaceuticals, and humanoid robots. The city initiated over 300 critical projects in Q1 2024.⁵ Most of the projects focus on the key industries previously mentioned.
- ◆ In January 2024, **Shenzhen** initiated the first of almost 200 projects covering sci-tech and key industries, basic infrastructure, and livelihood.
- ◆ **Foshan** has also promoted new industrialisation and industrial transformation. In Q1 2024, the city initiated 123 key projects, 31 of which are focussed on the sci-tech development of high-tech industries.⁵

In Q1 2024, 28 GBA companies (34% of the national total) set their first carbon emission reduction targets or made commitments via the Science Based Targets initiative (SBTi)^{viii}. This represented a quarter-on-quarter increase of 33%. Specifically, 11 companies set targets and the remaining 17 made commitments. Our study also found that Hong Kong companies are more ambitious when it comes to setting targets. Of the 11 companies that set net zero emission targets in Q1 2024, seven were from Hong Kong and two from PRD cities.

Within the GBA, companies from Hong Kong are still in the lead, with 16 Hong Kong companies (57% of total for the entire GBA) setting or committing to carbon reduction targets via SBTi in Q1 2024. Over the same period, four Guangzhou companies set or committed to carbon reduction targets, double the figure for Q4 2023 and the same as the total figure for 2023.

Figure 5. Number of companies by city that set their first carbon emission reduction targets or made commitments via SBTi



Source: SBTi, CECEPEC

viii. The SBTi is a partnership between CDP, the United Nations Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF).

Public data on investment in fixed assets within the GBA reveals increasing support for high-tech industries. In the first two months of 2024, investment in fixed assets in Guangzhou's electronic information manufacturing and pharmaceutical manufacturing increased year-on-year by 13.6% and 20.6%, respectively.⁶ In Shenzhen, investment in fixed assets within the high-tech manufacturing sector experienced a year-on-year increase of 150.7% while, at the same time, investment in electronic and communication equipment manufacturing saw a year-on-year increase of 157.4%.⁷

The GBA also implemented measures to facilitate the expansion into overseas markets of enterprises from emerging industries. For example, the Hong Kong-Zhuhai-Macao Bridge (HZMB) now provides a variety of services to facilitate export, such as preferential tariffs, for enterprises from the "new trio", i.e., electric vehicles, lithium batteries, and photovoltaic products. In the first two months of 2024, the import and export volume of electric vehicles through the Zhuhai Highway Port of the HZMB amounted to approximately RMB90 million; a year-on-year increase of 139.3%.⁸

The GBA's increased support for emerging and future industries meant that certain products representing New Quality Productive Forces experienced rapid growth. According to official data, in the first two months of 2024, Guangzhou's production of NEVs, lithium-ion batteries for vehicles, and charging piles grew by 29.5%, 31.1%, and 230% year-on-year, respectively. Over the same period, the output of new-generation information technology products such as industrial robots, service robots, and analogue chips grew by over 70%.⁶ In Shenzhen, over the same two months, the output of high-tech products continued to grow rapidly. Specifically, the production of 3D printing equipment, electronic components, and charging piles increased by 68.7%, 66.0%, and 47.1%, respectively.⁷

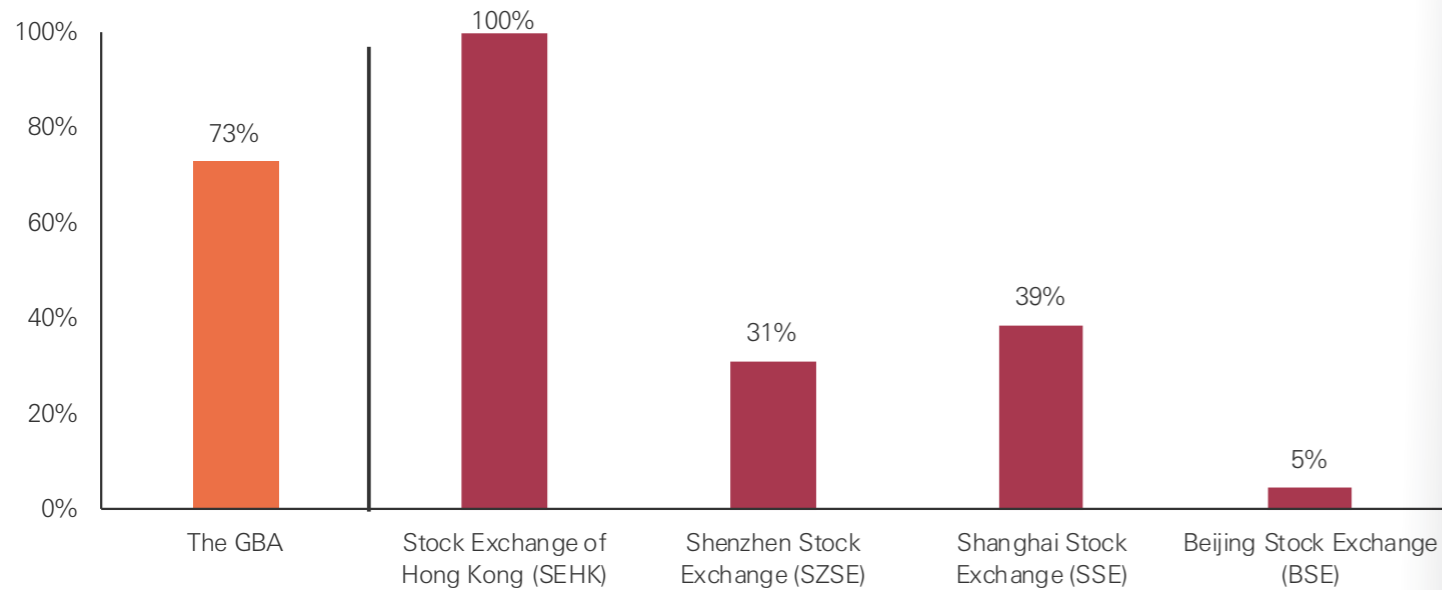




Corporate Governance

Mainland China and Hong Kong are continuing to perfect the ESG ecosystem. In February, China's three stock exchanges, i.e., Shenzhen Stock Exchange (SZSE), Shanghai Stock Exchange (SSE), and Beijing Stock Exchange (BSE), published separate mandatory sustainability reporting requirements for listed companies open for comment. These guidelines are a huge milestone in developing ESG within mainland China and will further focus the listed companies' attention on ESG and sustainability.

Figure 6. ESG disclosure rate^{ix} of GBA listed companies by stock market



Note: In Q2 2023, we conducted a study on more than 2,000 listed companies within the GBA to ascertain which had published ESG and other related non-financial reports for FY2022.
Source: Public sources, CECEPEC

According to our latest data, within the context of mandatory disclosure of ESG reporting in Hong Kong, the ESG disclosure rate of GBA companies listed on the Stock Exchange of Hong Kong (SEHK) was recorded at 100%. However, due to the previous lack of both mandatory ESG reporting requirements and unified local ESG guidelines, the ESG disclosure rates of those listed on SZSE, SSE, and BSE were lower than the overall rate for all GBA listed companies, as can be seen in Figure 6. The sustainability disclosure guidelines published by the three stock exchanges will encourage the listed companies to

establish their own internal ESG management systems and disclose ESG information via sustainability reports.

In addition to placing more emphasis on climate change issues, in Q1 2024, Hong Kong issued a vision statement on further developing its sustainability disclosure ecosystem. The vision statement sets out the vision and approach of the government and financial regulators in developing a comprehensive ecosystem for sustainability disclosure in Hong Kong.⁹

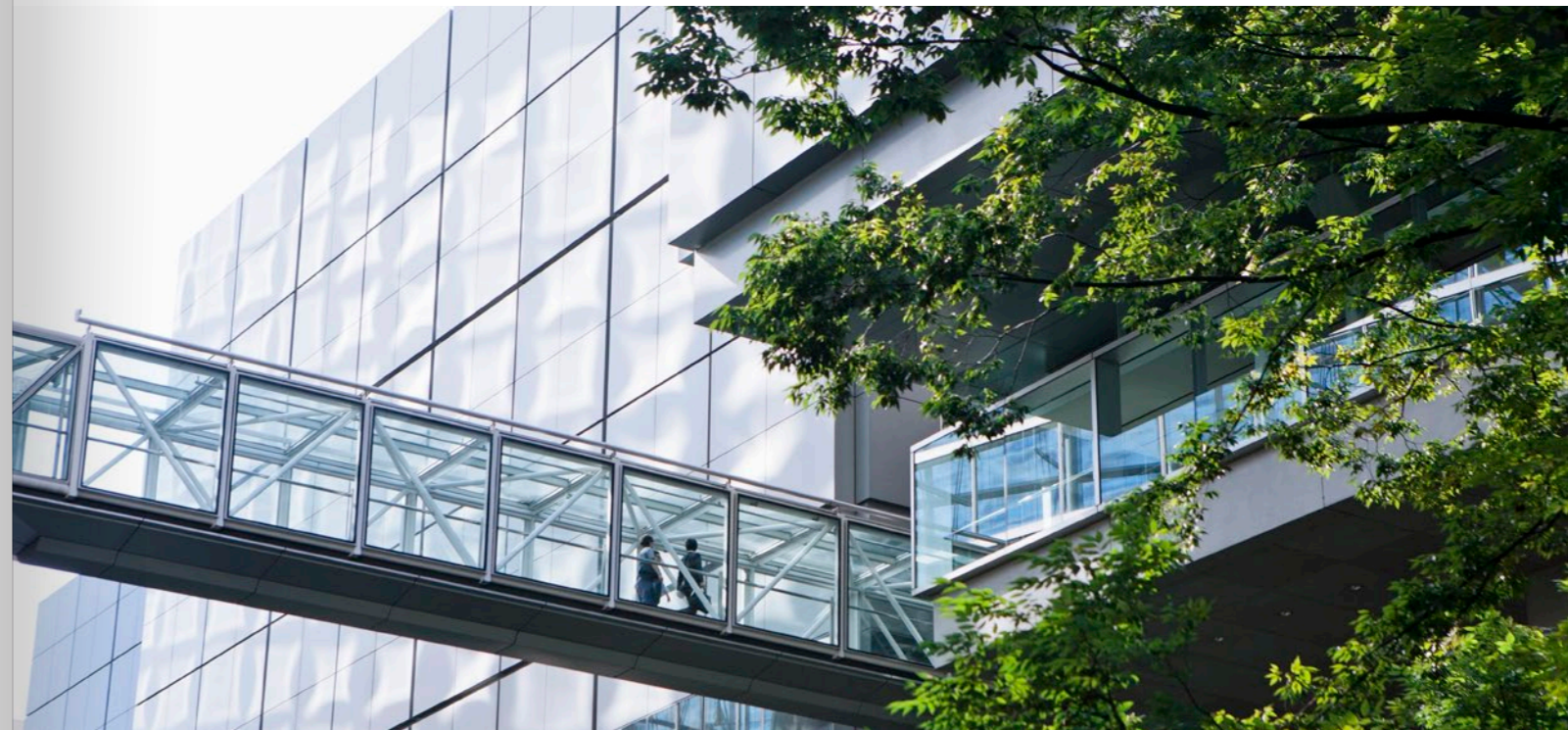
Key points of the vision statement:

- ◆ Hong Kong aims to be among the first jurisdictions to align the local sustainability disclosure requirements with the **International Financial Reporting Standards - Sustainability Disclosure Standards (ISSB Standards)**.
- ◆ The city will develop the local sustainability reporting standards (Hong Kong Standards) aligned with the **ISSB Standards** as well as the complementary application and implementation guidance.
- ◆ Hong Kong will promote sustainability assurance, enhance capacity building and facilitate the use of technological solutions.
- ◆ The Hong Kong Standards are intended for cross-sectoral observance, including listed companies and regulated financial institutions, such as banks, fund managers, and insurance companies, etc.
- ◆ The government will work with financial regulators and stakeholders to develop a roadmap on the appropriate adoption of the **ISSB Standards** and aim to launch the roadmap within 2024.

The ISSB Standards include two IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosure.

- ◆ IFRS S1 and S2 will apply to annual reporting periods **beginning on or after 1 January 2024**, with the first set of reports published in 2025.
- ◆ **In the first year** of reporting using the ISSB standards, companies will be incentivised to prioritise putting in place reporting practices and structures to provide information about climate-related risks and opportunities.
- ◆ **In the second year**, companies will be required to provide full reporting on other sustainability-related risks and opportunities beyond climate.

Mainland China and Hong Kong both released the finalised versions of their latest ESG and sustainability reporting requirements in April. We will do a deep-dive analysis of these requirements in our next quarterly report.



ix. ESG disclosure rate of the GBA listed companies = Number of GBA listed companies that disclosed their ESG, corporate social responsibility (CSR), sustainability or other non-financial reports / Total number of GBA listed companies



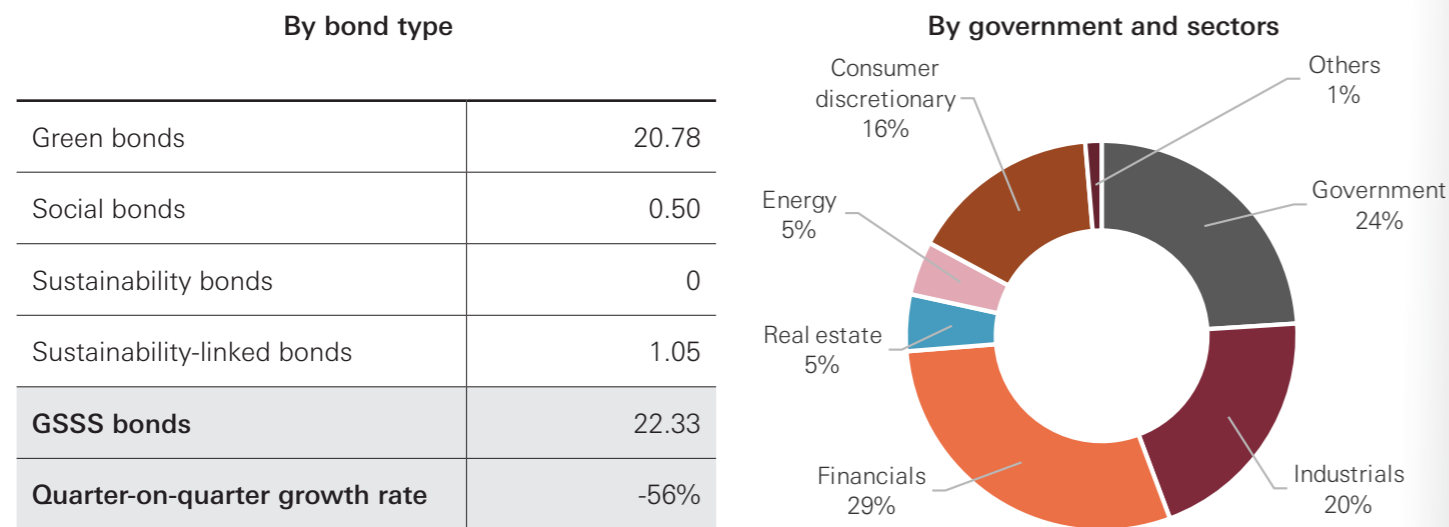
Green and Sustainable Finance

The sustainable finance and investment market was not very active in Q1 2024. However, it is worth noting that GBA cities launched a number of innovative solutions this quarter to boost the long-term development of the market.

Our study found that the national issuance volume of GSSS bonds decreased in Q1 2024, down 17% from Q4 2023, and that the GBA experienced a similar trend. In Q1 2024, the volume of GSSS bonds issued by the GBA^x was RMB22.33 billion, down 56% from Q4 2023. Furthermore, according to our data, the volume of green bonds issued by Hong Kong declined significantly in Q1 2024, down 62% from Q4 2023.

As always, the green bond market was the most active in the GSSS bond market. According to our data, in Q1 2024, the financials sector was the most significant source of GSSS bonds, followed by the government and the industrials sectors. Three types of issuers, i.e., financials, government and industrials, accounted for over 70% of the total issuance volume within the GBA.

Figure 7. Issuance volume of GSSS bonds within the GBA in Q1 2024(RMB billions)



Note: GSSS bonds issued within the GBA refer to both onshore and offshore GSSS bonds issued by entities registered or primarily operating within the GBA
 Source: Wind, CECEPEC



x. GSSS bonds issued by issuers in the GBA or a specific GBA city in this report refer to both onshore and offshore GSSS bonds issued by entities registered or primarily operating in the GBA or a specific GBA city.

Innovative green bonds within the GBA

In February 2024, the Hong Kong government issued around HKD6 billion worth of digital green bonds (Digital Green Bonds) denominated in HKD, RMB, USD and EUR under the Government Green Bond Programme.

This is the second digital bond issuance following the Hong Kong government's inaugural tokenised green bond issued in February 2023. The issuance of the Digital Green Bonds incorporated a number of technological innovations and achieved several breakthroughs, demonstrating Hong Kong's strengths and leadership position in combining the bond market, green and sustainable finance, and fintech.¹⁰

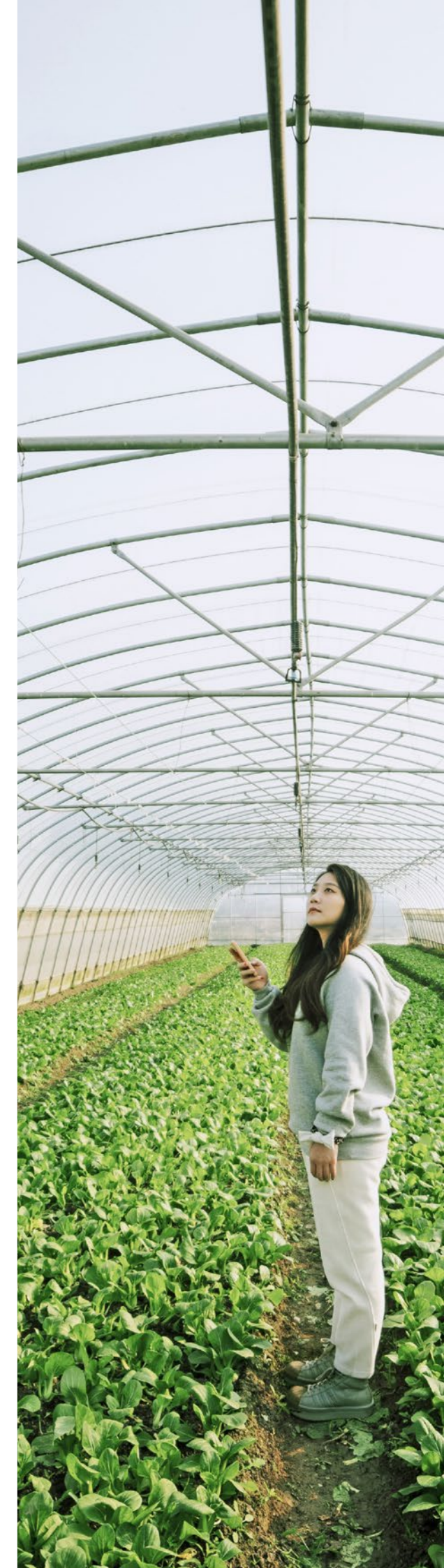
Key Breakthroughs

- ♦ Streamlining the issuance process by issuing in a digitally native format
- ♦ Integrating green bond disclosures with the digital assets platform. Key green bond documentation, such as the issuer's Green Bond Framework, can be viewed on the digital assets platform, enhancing transparency and accessibility of information.

Our study observed that the sustainable investment market was lukewarm in Q1 2024. According to our data, there were only two new signatories to the UN PRI this quarter, and both were investment managers from Hong Kong. Additionally, our data saw that over the same period seven new ESG mutual funds were launched by fund management companies from the GBA, the same number as in Q4 2023. Among the seven new launches in Q1, six were environmental themed funds^{xi}, while one was a pure ESG fund^{xii}.

In Q1 2024, the GBA cities announced certain measures and released a number of tools related to green and sustainable issues.

xi. Environmental themed fund: Incorporate the environmental dimension into the investment strategies (Source).
 xii. Pure ESG mutual fund: Incorporate all three dimensions, i.e., environmental, social and governance, into their investment strategies (Source).





Hong Kong

- ◆ The Hong Kong government proposed extending the Green and Sustainable Finance Grant Scheme (the “Scheme”), expiring in mid-2024, to 2027 and expanding the scope of its subsidies to include transition bonds and loans.¹¹ The extension of the Scheme and the expansion of the scope will increase companies’ enthusiasm for sustainable financing and support enterprises in their low-carbon transformation.
- ◆ Hong Kong’s Green and Sustainable Finance Cross-Agency Steering Group (Steering Group) identified transition finance as a priority for 2024. The Steering Group plans to broaden the development of its local taxonomy to cover transition activities.
- ◆ Hong Kong launched the Prototype Hong Kong Green Fintech Map in March 2024, which can help enterprises and financial firms identify green and sustainable financial technology (Green Fintech) solutions that meet their business needs.¹²

Under the Scheme, the Hong Kong government agreed to provide subsidies totalling US\$100 billion for issuing more than 340 green and sustainable debt instruments.¹¹

Keywords:
Transition finance, Green fintech

Guangzhou

- ◆ Guangzhou issued a policy to support the development of green and energy-saving buildings in January 2024. The Guangzhou government encourages financial institutions to provide green financing channels and develop new financial products for green and energy-saving projects.¹³

Keywords:
Green and energy-saving buildings



Zhaoqing

- ◆ In March 2024, Zhaoqing launched an innovative carbon financial system, which incorporates three functions, i.e., carbon account, carbon credit, and carbon financing. Under the system, the carbon emissions data of an increasing number of enterprises will be automatically collected by a big data platform; financial institutions will be able to access an enterprises’ carbon emissions performance and enhance their green financial support for green and low-carbon enterprises.¹⁴

Keywords:
Carbon finance

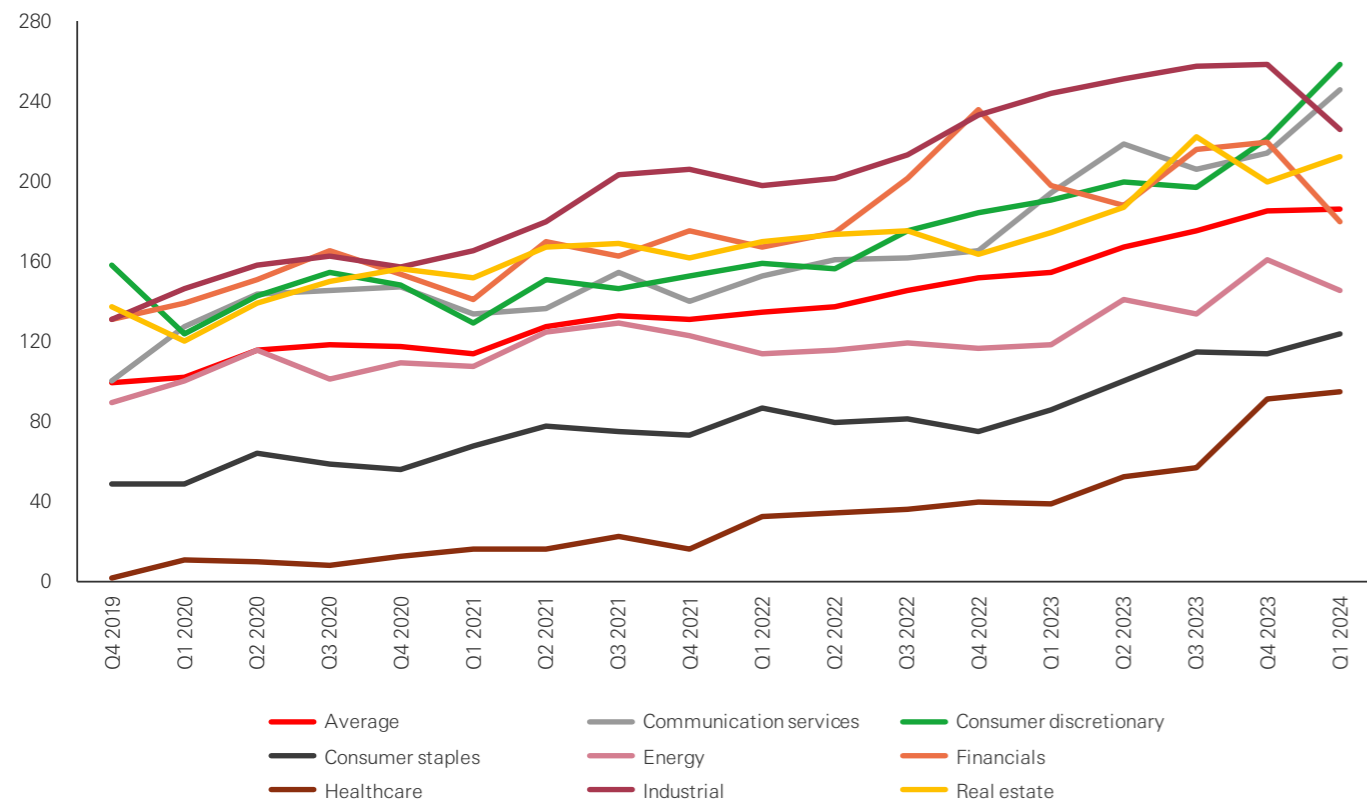


GBA ESG Industry Sub-indices



GBA ESG Industry Sub-indices

Figure 8. Relative ESG performance evolution of the eight sectors



Note: The average value of the GBA ESG Industry Sub-indices was set at 100.00 for Q4 2019 (base period), as a benchmark with which to compare each key sector's individual ESG performances as well as their average performance.
Source: China's official statistical database, public sources, CECEPEC

Our study found that, in Q1 2024, **the average of the GBA ESG Industry Sub-indices recorded a year-on-year increase of 20% reaching a value of 186.05.**

It is worth noting that both the consumer discretionary and communication services sectors saw a significant improvement in Q1, primarily due to better management of climate change issues and the publication of a number of policies supporting the development of the two sectors. As mentioned in the Policy section, policymakers within the GBA issued a series of policies to support the

development of New Quality Productive Forces. The aim of these policies was, among other things, to stimulate the digital economy and the trade-in of consumer goods, both of which are closely related to the consumer discretionary and communication services sectors.

With regard to industrials and financials, both sectors experienced a significant decline compared with Q4 2023, mainly due to a decrease in the issuance of GSSS bonds and a poorer performance in climate change-related disclosure.

Case Study:

Communication Services

Within the overall context of emissions, the communication services sector is redoubling its efforts to reduce its carbon footprint. At the same time, the communication services sector is also stepping into its role as an enabler for sustainability across other sectors.

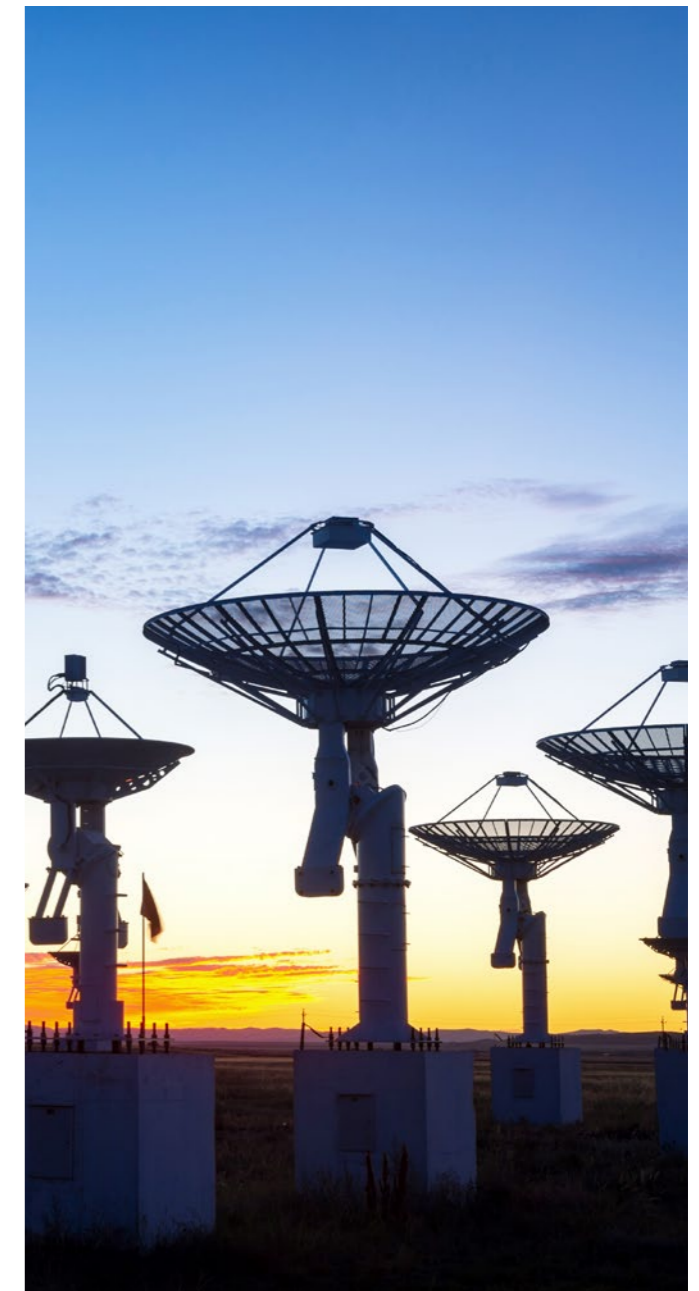
In our study, the communication services sector includes the electronic component manufacturing industry, computer and electronic product manufacturing industry, and telecommunication services. The communication services sector is one of the pillar industries in the GBA. Thanks to the vigorous rise of the Internet and communication technology, the communication services sector has flourished in recent decades. According to the latest data, in 2023 the added value of the computer, communication and other electronic products manufacturing industry in Guangdong Province saw a year-on-year increase of 3.6%.¹⁵ Additionally, we noted that, in the first two months of 2024, Guangdong Province experienced 23.2% growth in the added value of the electronic information manufacturing industry; 8.6 per cent above the national level.¹⁶

The communication services sector is typically much less associated with sustainability than many other so-called "heavy" industries, such as electricity generation and gas production.¹⁸ However, this view is partial as "Sustainability" is a much broader concept than "Green". It comprises not only environmental concerns but also social and governance issues. On the one hand, the communication services sector involves material social issues, such as human capital development^{xiii}, privacy and data security. However, on the other hand, the communication sector can also help other sectors cope with sustainability challenges. As such, sustainability is highly relevant for the communication services sector.

According to the Global e-Sustainability Initiative (GeSI), the information and communication technology industry has the potential to slash global greenhouse gas (GHG) emissions by

20% by 2030

by helping companies and consumers to more intelligently use and save energy.¹⁷

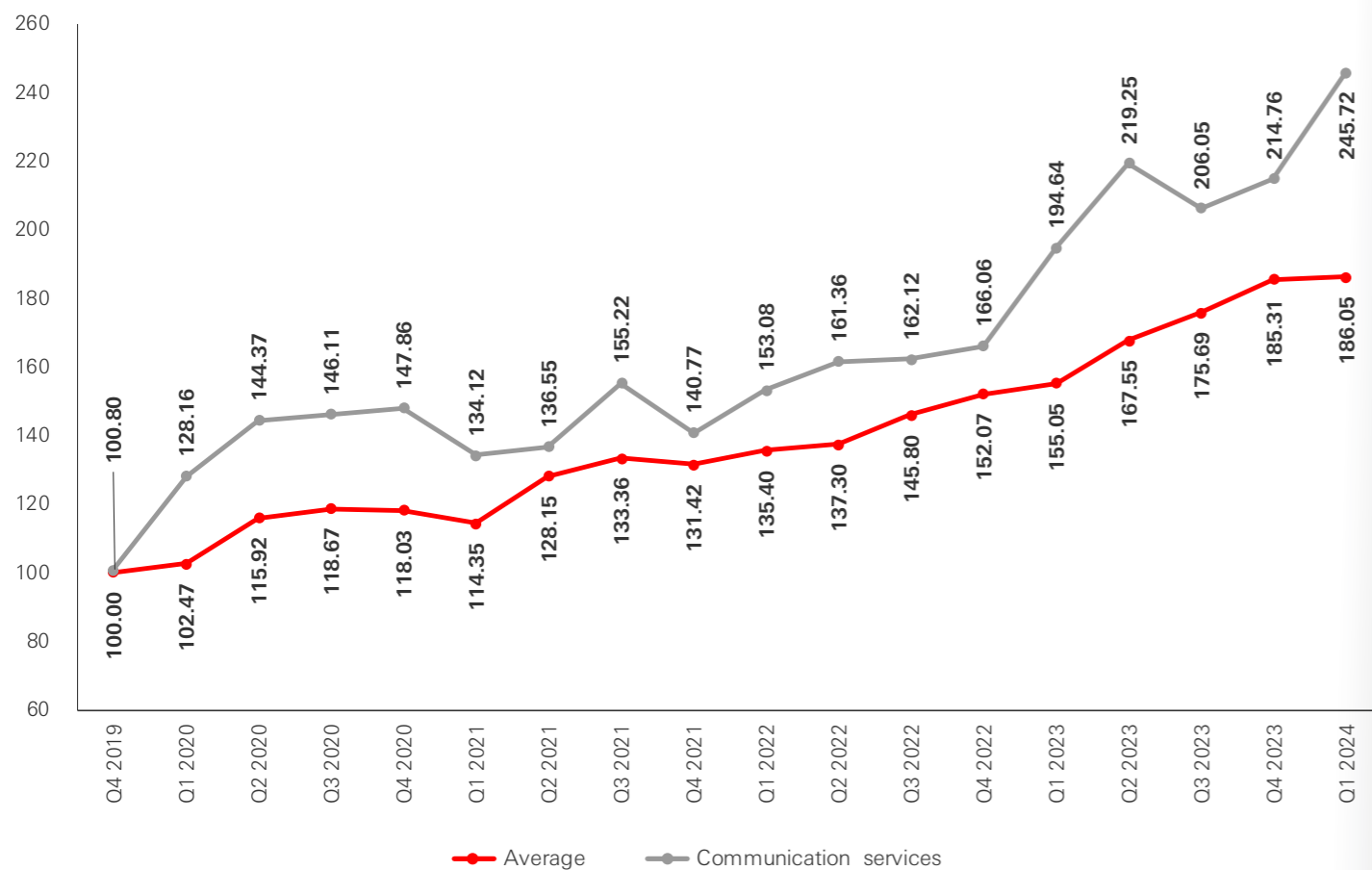


xiii. The human capital development issue is defined by MSCI as the company's workforce talent requirements and its ability to attract, retain, and develop a highly skilled workforce ([Source](#)).



Our study found that within the GBA the communication services sector has seen an improvement in ESG and sustainable development over the period in question, with a better than average performance with respect to the eight key sectors (as shown in Figure 9). The rapid growth in ESG since 2023 has primarily been driven by a significant improvement in the area of climate change, i.e., the sector has become more active in managing climate-related issues. In this report, we analyse the communication services sector's management of climate-related issues. At the same time, this report focuses on the communication services sector's role in promoting sustainability in other industries.

Figure 9. GBA ESG Sub-index – Communication Services



Note: The line chart shows the ESG performance evolution of the communication services sector. The average value of the GBA ESG Industry Sub-indices was set at 100.00 for Q4 2019 (base period).
 Source: China's official statistical database, Wind, public sources, public disclosures of listed companies, CECEPEC

The communication services sector directly contributes around 2% of the total global emissions of greenhouse gases every year.¹⁹ These carbon emissions primarily relate to manufacturing activities and the electricity needed to run infrastructure, such as data centres, data networks, and so on. Given the rapid development of the Internet and communication technology the energy usage and carbon footprints of the communication services sector may be expected to grow.

Policymakers within China have published policies to guide the green and low-carbon development of the communication services sector.

China published the **Action Plan for The Green and Low-Carbon Development of the Information and Communication Industry (2022-2025)** to:

- ◆ Promote the green development of the industry by developing green technology, using green electricity, etc.
- ◆ Promote collaboration with the upstream and downstream to develop a green supply chain.
- ◆ Help other industries mitigate the impact of their activities on the environment.

August

2022

China published the **2023 Guidelines on the Development of Green and Low-Carbon Standards for The Telecommunication Industry** to:

- ◆ Focus on setting standards in six areas, including green manufacturing, thereby enabling green development in other industries.

November

2023

Guangdong published **Opinions on Promoting the High-Quality Development of Guangdong Province's Information and Communication Technology Industry** to:

- ◆ Promote the green development of information infrastructure.

December

2023

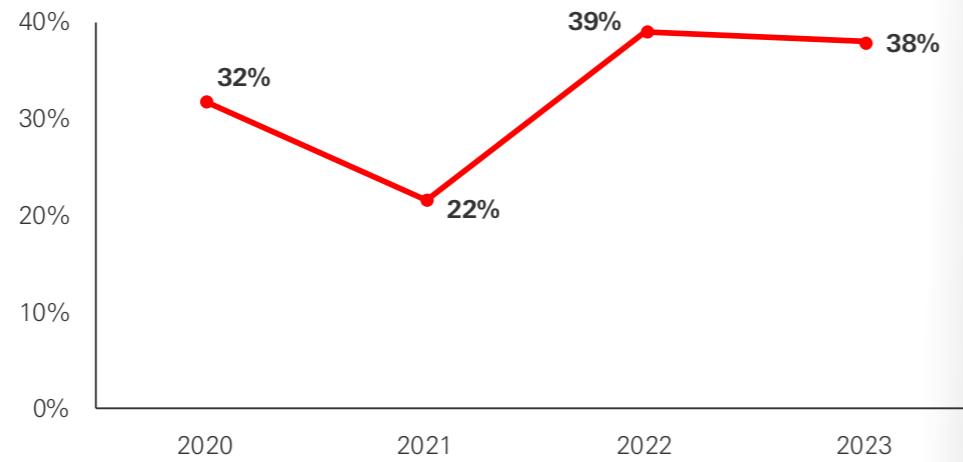


The supply chain of the communication services sector is a globally interconnected ecosystem. The GBA communication services sector is under increasing pressure from investors, clients, and end consumers at home and abroad to manage climate-related issues.

Our study found that a growing number of GBA companies from the communication services sector have been invited by investors and clients to fill in the CDP climate change questionnaires over the period studied. Especially in 2023, the number of companies that were invited to fill in the 2023 CDP climate change questionnaire increased significantly to 58, with a year-on-year increase of 41%. As can be seen in Figure 10, the disclosure rate of GBA's communication services companies vis-à-vis the CDP climate change questionnaire has remained at around 40% over the past two years. At the same time, our study observed a significant improvement with regard to the CDP climate change scores. The number of companies achieving a B- or above increased by 71% in 2023.

Of the 58 companies invited to fill the 2023 CDP climate change questionnaire, around 40% were from the electronic components and equipment industry. The disclosure rate of the electronic components and equipment industry was **54% in 2023, higher than the rate of 38% for the sector as a whole.**

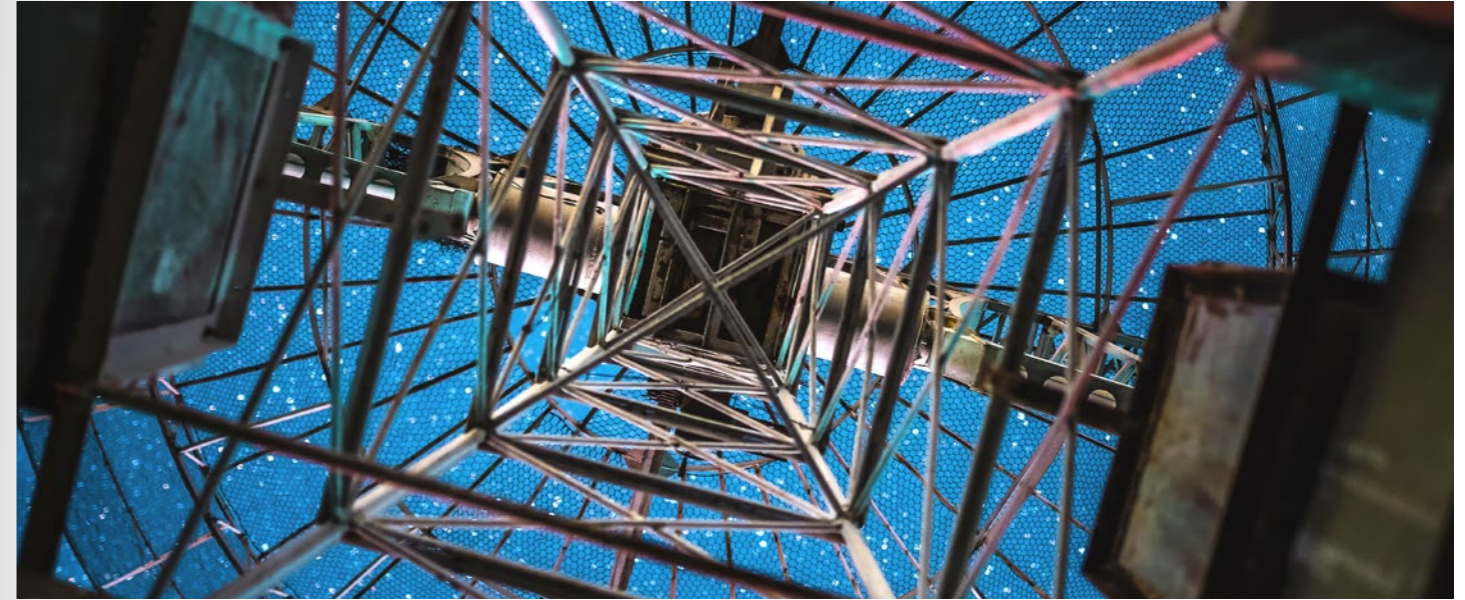
Figure 10. Disclosure rate of GBA's communication services companies vis-à-vis the CDP climate change questionnaire



Note: Disclosure rate = no. of companies disclosed/no. of companies invited to disclose via CDP's climate change questionnaire
Source: CDP, CECEPHK

Leading global brands are committed to improving the sustainability of their supply chain, which brings challenges to manufacturers from the communication services sector, especially those from the electronic components and equipment industry. For example, in 2020, Apple announced its ambitious goal to become carbon neutral for the entire life cycle of its products by 2030. To reach this target, Apple aimed to transition its entire manufacturing supply chain, including component manufacturing, to 100% renewable electricity.²⁰ Manufacturing partners from the GBA have taken significant steps within the context of Apple's Supplier Clean Energy Program to decarbonise their Apple-related operations.

According to the supplier list published by Apple in 2022, we noted that around 17% of suppliers engaging in Apple's Supplier Clean Energy Program were from the GBA, out of which about 50% were from the electronic component and equipment manufacturing industry. These GBA suppliers are committed to using 100% renewable electricity for Apple production.



The communication services sector aims to establish a comprehensive carbon management system and focus on the key areas of product manufacturing and the operation of infrastructure.

Our study found that since 2023 companies from the communication services sector have attached greater importance to the carbon emissions generated by their daily operations and the value chain. According to our data, in 2023, 20 companies from the communication services sector set their first carbon emission reduction targets or made commitments via SBTi, compared to only two companies in 2021 and 2022. Furthermore,

in 2023, five GBA manufacturers in communication services sector set their first short-term science-based targets. Our study observed that leading GBA companies have included the carbon emissions data of their supply chain in their carbon investigation and incorporated the carbon emissions of suppliers in their overall carbon emissions reduction goals.

Case Study

- ◆ A leading Shenzhen-based manufacturer from the electronic components industry has established a management system for carbon emission classification. Suppliers are subject to different requirements for carbon emissions management based on the amount of their carbon emissions or electricity consumption. For example, those suppliers with significant carbon emissions are required to set out their annual reduction targets.²¹
- ◆ A leading Shenzhen-based company from the communication equipment industry has collaborated with its logistics partners to develop programs and initiatives for carbon reduction in green logistics, such as carbon emission measurement, new technologies of green logistics, the application of green transportation tools, etc.²²



Manufacturers are increasingly making their products more sustainable to satisfy the end consumers' preferences for sustainable consumption and to meet their clients' requirements on product carbon footprint assessment. Our study found that some leading GBA companies specialising in electronic and communication equipment manufacturing have established plans or targets to promote carbon footprint assessment for their products.

Case Study

- ◆ In 2022, a leading Shenzhen-based company from the electronic equipment industry set out internal standards for conducting product Life Cycle Assessment(LCA) carbon footprint assessment to strengthen product lifecycle management. Additionally, in 2023, the company planned to establish a database for the carbon footprint of products to respond to client's requirements in a timely manner.²²
- ◆ A Huizhou-based electronic equipment manufacturer understands its European consumers' strong awareness of sustainability and is constantly exploring ways of developing environmentally friendly electronic products. In November 2022, the company developed a mobile phone whose exterior was made using 100% eco-friendly materials.²³



The operation of infrastructure, such as data centres and data networks, is one of the primary sources of carbon emissions in the communication services sector. GBA companies are committed to establishing greener data centres and networks to reduce carbon emissions.

Case Study

- ◆ In Shenzhen, a leading global provider of information and communications technology infrastructure and smart devices has made intelligent improvements to increase the energy-efficiency of its data centres. For example, the company has diagnosed the energy consumption distribution of digital operations to detect and rectify abnormal energy consumption in real time.²⁴
- ◆ A Hong Kong solutions provider from the telecommunication services industry detected that the use of HVAC (heating, ventilation, and air conditioning) systems is a significant contributor to its energy consumption. The company has improved the chiller systems in its major data centres and is currently experimenting with an innovative chiller coating technology that could increase cooling efficiency by up to 5%.²⁵



Given the importance of communication in our society, the communication services sector is uniquely placed to promote and enhance the sustainability of other industries. Our study observed that a number of GBA companies in communication services sector aim to help other industries mitigate the impact of their activities on the environment and society by providing innovative products and services or innovatively using existing ones.

Examples of communication services-driven solutions that enable and enhance the sustainability of other industries

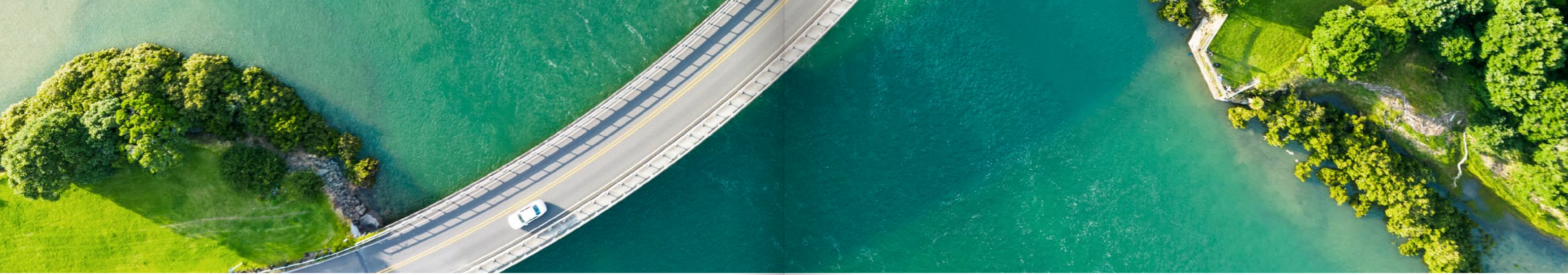
- ◆ **Electric Vehicles**
A Shenzhen manufacturer from the electronic components industry plans to build a digital factory to support the lightweight and power-saving development of new energy vehicles (NEVs). The company focuses on electric drive and electronic control of new energy vehicles, and intelligent vehicle and vehicle Internet technology innovation, with the aim of reducing energy loss during vehicle driving and improving battery conversion efficiency.²¹
- ◆ **Photovoltaic**
A Huizhou manufacturer from the electronic equipment industry has entered the photovoltaic field. The company has applied an intelligent platform to manage its photovoltaic equipment around the country. The platform provides safe and reliable connection and communication capabilities for photovoltaic equipment, helping ensure the stable power generation of the power stations and the safe operation of the equipment.²³
- ◆ **Communication infrastructure**
A leading company in Shenzhen has teamed up with China Mobile Guangdong to build all-optical city cluster communications networks in the GBA. The project introduced the company's advancing pioneering optical cross-connect (OXC) technology and innovative optical transport network (OTN) equipment to retire over 5,000 sets of power-intensive and inefficient synchronous digital hierarchy (SDH) equipment. The project helps local communications networks save more than 10 million kWh of electricity annually.²⁴
- ◆ **Telecommunication services**
A Hong Kong solutions provider from the telecommunication services industry has developed an ESG solution named Smart Connect: Energy Monitoring in the Financial Year 2023, which helps businesses track their energy usage in real time. Customers can access their energy data and use it for intelligent analysis. This allows businesses to establish their long-term energy management strategies, deployment of IoT controllers and sensors, etc., which empower them to create a more cost-efficient and sustainable operation.²⁵

Overall, the communication services sector has become greener and more sustainable and, at the same time, it has helped shape the sustainability trends of other industries. **With that in mind, the sector could use green financing tools, such as green bonds and loans, to support sustainability, though our study found that the sector has not been active in the green and sustainable finance market.** Below are two internationally recognised green project types which green financing tools could support.

Figure 11. Potential green project types for the communication services sector

Project type	Description
Data processing, hosting and related activities	Data centres which implement a comprehensive set of energy efficiency practices make a substantial contribution to climate change mitigation.
Data-driven solutions for GHG emission reductions	Data-driven solutions for GHG emission reductions make a substantial contribution to climate change mitigation due to their role in enabling emissions reductions.

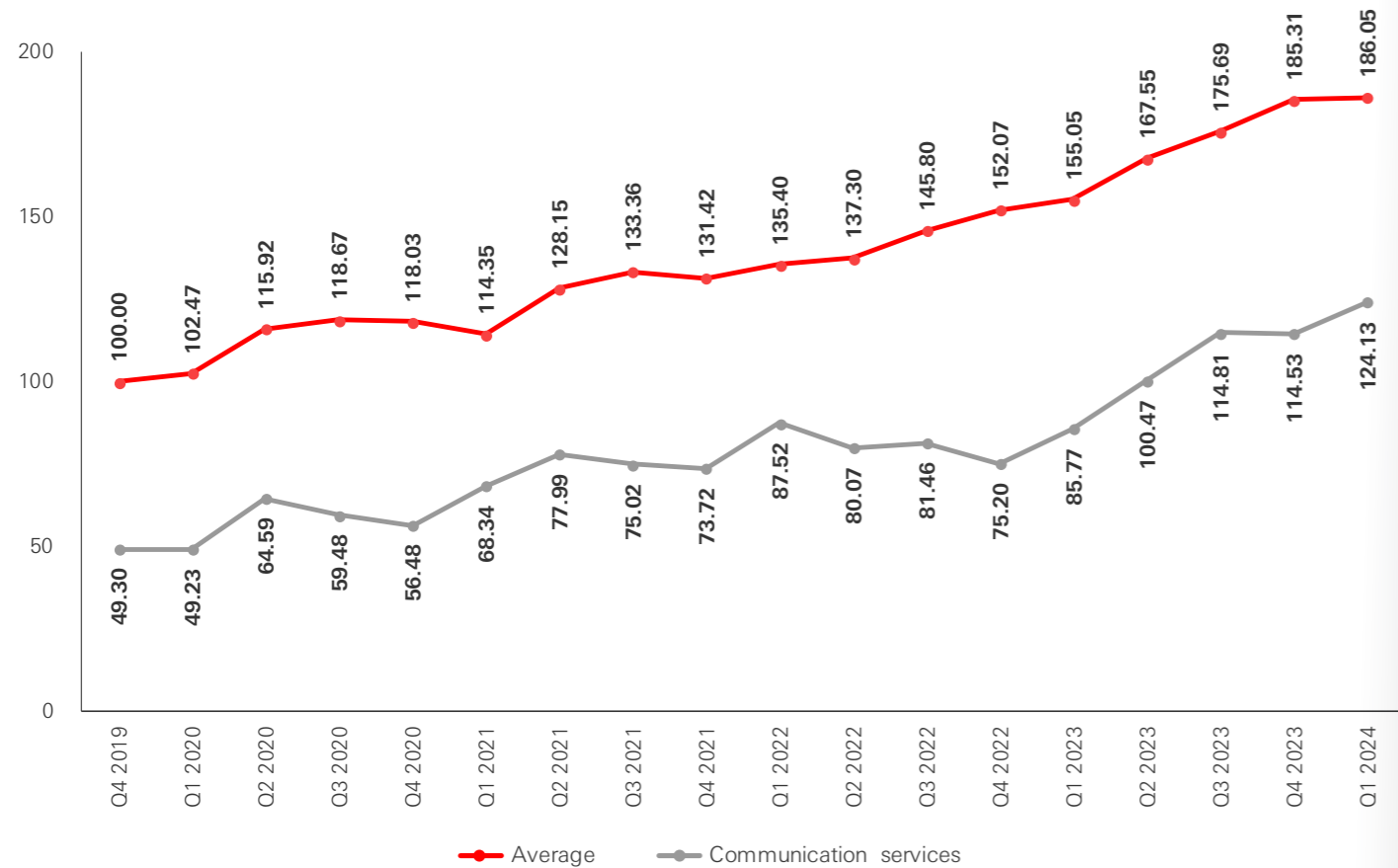
Source: EU Taxonomy



Case Study: Consumer Staples

The consumer staples sector is integral to our daily lives by providing essential goods and services. With increasing health consciousness and awareness of sustainability issues, a growing number of people are pursuing sustainable lifestyles with the aim of reducing their carbon footprint and conserving the Earth's resources. Our study analyses the sustainable development of the consumer staples sector (as shown in Figure 12). Furthermore, this report focuses on the food and beverage sub-sector and looks at the GBA's practices and solutions within the context of a sustainable lifestyle.

Figure 12. GBA ESG Sub-index – Consumer Staples



Note: The line chart shows the ESG performance evolution of the consumer staples sector. The average value of the GBA ESG Industry Sub-indices was set at 100.00 for Q4 2019 (base period).
Source: China's official statistical database, Wind, public sources, public disclosures of listed companies, CECEPEC

Figure 12 shows that the ESG performance of the consumer staples sector improved over the period studied, and the gap between consumer staples and the overall average has remained stable. According to our study, the consumer staples sector improved in climate-related issues and has a high ESG disclosure rate^{xiv}.

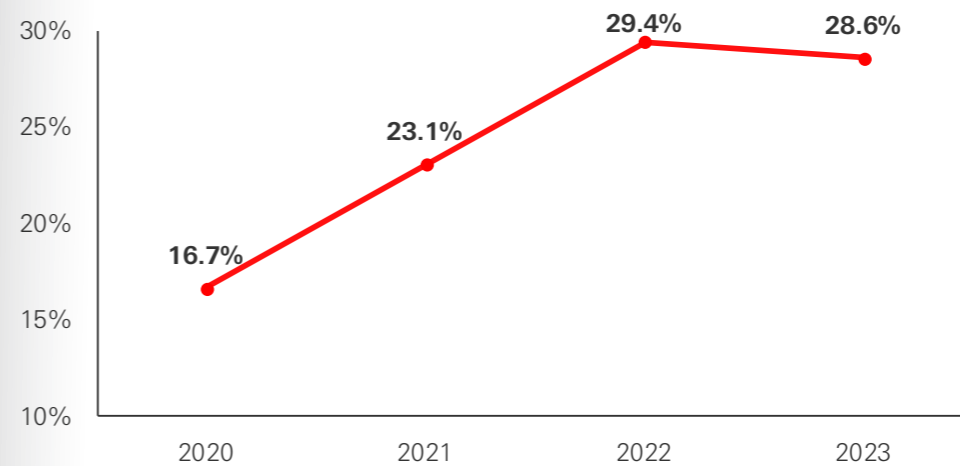
Our study found the disclosure rate of GBA's consumer staples companies vis-à-vis the CDP climate change questionnaire increased from 17% in 2020 to 30% over the past two years (Figure 13). The food and beverage sub-sector has responded more actively to stakeholders' concerns on climate-related issues via the CDP climate change questionnaire. Of those companies from the consumer staples sector that filled out the questionnaire, over 80% were from the food and beverage sub-sector.

According to our latest data, around

90%

of the GBA's listed companies from the consumer staples sector disclosed their ESG information via ESG reports or other non-financial reports.

Figure 13. Disclosure rate of GBA's consumer staples companies vis-à-vis the CDP climate change questionnaire



Note: Disclosure rate = no. of companies disclosed/no. of companies invited to disclose via CDP's climate change questionnaire
Source: CDP, CECEPHK

xiv. ^{xiv} ESG disclosure rate of the consumer staples sector = the number of GBA's listed companies from the sector disclosed their ESG, corporate social responsibility (CSR), sustainability or other non-financial reports / the total number of GBA's listed companies from the consumer staples sector

Consumer Staples Sector Close-up: Food and Beverage Industry

Sustainability has emerged as a key topic in the food and beverage industry. The industry has increasingly adopted eco-friendly practices to satisfy consumers' demands and mitigate impacts on the environment and society.

In recent years, the food and beverage industry has witnessed significant shifts driven by evolving consumer preferences and changing market dynamics. Consumers have a growing interest in sustainable diets, which have a low impact on the environment and society and contribute to food and nutrition security and a healthy lifestyle.

Carbon emissions are often in the spotlight when looking at the environmental impact of the food and beverage industry. According to research conducted by the University of Hong Kong and the City University of Hong Kong, meat, especially beef and pork, contributes a lot to the greenhouse gas emissions of our food (as shown in Figure 14). Additionally, food production practices also harm animals. For instance, dairy cows frequently endure a range of mental and physical health issues.

Beverage production generates an inordinate amount of packaging waste and is water-intensive. According to Water Footprint Network, it takes at least 70 litres of water to produce 0.5 litres of soda, and 74 litres of water to produce a 0.25 litre glass of beer.²⁷

The food and beverage industry in the GBA

Guangdong Province is the major producer and exporter of food and beverages in China. According to public information, Guangdong Province had over 16,000 food enterprises as of the end of 2022, ranking second in the country.²⁶ The food and beverage production and processing industry is also active in Hong Kong.



Figure 14. Carbon emissions for some types of food

Project type	g CO2eq/kg
Beef	26,672.6
Pork	23,839.2
Fish	6,040.0
Rice	2,927.0
Chicken	2,788.9
Eggs	1,758.0
Milk	366.6
Vegetable	50.4



Consumer tastes and preferences are evolving, particularly towards foods that offer health benefits. With increasing awareness of health and wellness, consumers are seeking products that align with their dietary goals. For example, people are increasingly looking for plant-based alternatives, including soy, oats, almonds, etc., which have significantly smaller impacts than meat and dairy products. This shift has prompted companies to invest in research and development, introducing new products that cater to these changing consumer demands.

Source: The University of Hong Kong, City University of Hong Kong (Source)

The following report takes a detailed look at some of the advanced practices that GBA companies have adopted to mitigate their impact and cater for consumers' preferences.

Case Study: Mitigation of greenhouse gas emissions

- ♦ Methane is released by cattle during the digestion of high-fibre diets. A leading Guangzhou-based dairy company has improved feed efficiency and performance by leveraging information systems with the aim of reducing cattle methane emissions. Cow manure is another source of emissions. This company applied solid-liquid separation techniques and found applications for each part. Specifically, the solid part will be used as bedding material after fermentation; and, following biochemical treatment, the liquid part can generate biogas, which will be used to generate electricity.²⁸



Case Study: Animal welfare

- ♦ Animal welfare has attracted increasing attention in the food industry. A global health and nutrition company headquartered in Hong Kong has taken this issue into consideration. Its largest supplier and dairy partner is committed to promoting the use of the BoviWell assessment, which is articulated around the internationally recognised Five Freedoms of Animal Welfare.²⁹

Five Freedoms of Animal Welfare:

- ♦ Freedom from hunger and thirst
- ♦ Freedom from discomfort
- ♦ Freedom from pain, injury, and disease
- ♦ Freedom to express normal and natural behaviour
- ♦ Freedom from fear and distress.



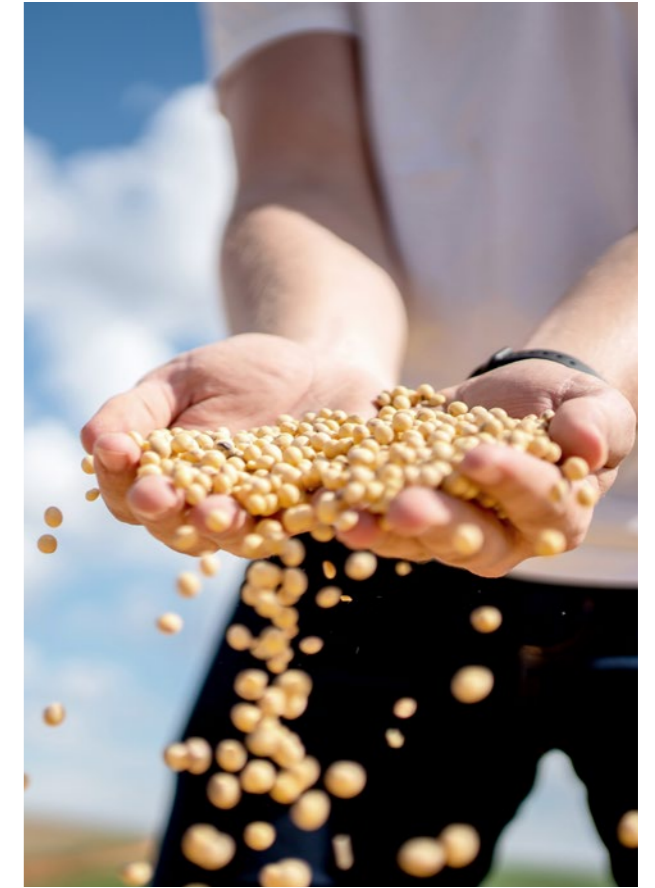
Case Study: Sustainable transformation of packaging

- ◆ A Hong Kong company from the non-acholic beverage industry aims to transform packaging sustainably. The production and packaging of the company's products consumed over 40,000 tonnes of packaging materials, comprising paper, glass, plastics and metal. Paper accounts for over 50% of the packaging material used. According to the company's sustainability report, 100% of its beverage carton packs were made of paper from sustainable sources certified by the Forest Stewardship Council (FSC). In addition, in the market of mainland China, the company introduced lighter-weight corrugated cartons without compromising the load-bearing capacity. This will reduce consumption of kraft paper material by more than 400 tonnes a year and reduce annual carbon emissions by 150 tonnes.³⁰
- ◆ A leading beverage company headquartered in Shenzhen assessed the carbon footprint of its **packaging** and found that the carbon footprint of glass bottle products was 80% higher than that of similarly sized aluminium cans. With that in mind, the company has adjusted its use of **packaging** of by gradually increasing the proportion of aluminium cans and reducing the use of glass bottles.³¹



Case Study: Development of innovative products to cater to consumers' preferences

- ◆ A Hong Kong company specialising in soy-based nutrition has focused on innovations to make it easier for its consumers to shift to a diet with more **plant-based foods**. The company aims to improve product experience, affordability and nutrition through the use of sustainable plant-based ingredients, as well as the adoption of new food and process technologies.³⁰
- ◆ Another innovative practice is the application of **electronic beverage labels**. In 2022, a Shenzhen non-alcoholic beverage company launched the first functional drink with an electronic label in China. Using electronic labels helps reduce packaging consumption. Moreover, the bottle of the innovative product is made of 100% recyclable PET.³²



Appendices

Glossary

Term/Acronym/Abbreviation	Interpretation
BSE	Beijing Stock Exchange
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
EU ETS	EU Emissions Trading System
FSC	Forest Stewardship Council
GBA	Guangdong-Hong Kong-Macao Greater Bay Area
GeSI	Global e-Sustainability Initiative
GHG	Greenhouse gas
GSSS bonds	Green, social, sustainability and sustainability-linked bonds
HZMB	Hong Kong-Zhuhai-Macao Bridge
LCA	Life Cycle Assessment
IMO	International Maritime Organisation
ISSB	International Sustainability Standards Board
NEVs	new energy vehicles
OTN	optical transport network
OXC	optical cross-connect
PRD	Pearl River Delta
PRI	Principles for Responsible Investment
SBTi	Science-Based Targets initiative
SDH	synchronous digital hierarchy
SEHK	Stock Exchange of Hong Kong
SSE	Shanghai Stock Exchange
SZSE	Shenzhen Stock Exchange
The Index	United Nations Environment Programme Finance Initiative

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Table of Indicators

First-level Indicator	Second-level Indicator
Environment	Corporate CDP disclosure performance
	Corporate science-based climate commitments
	Air quality
	Energy use efficiency
	Water use efficiency
	Electricity use efficiency
	Public sector's contribution to environmental protection
Economic and Social Development	Economic development
	Economic contribution of tertiary industry
	Employment situation
	Public sector's contribution to education
	Innovation and technological advancement
Corporate Governance	Activeness of market players
	Corporate ESG disclosure performance
Green and Sustainable Finance	Activeness of market players
	Investor commitment to sustainable investing
	Volume of sustainable debt instruments
Policy	Number of ESG mutual funds
	Policies related to sustainable development in the GBA

Source: CECEPEC

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