

Barriers and Opportunities in Using Sustainable Finance to Accelerate Decarbonisation in Greater Bay Area

Professor Elvis WK Au, BBS

BSc(Eng) MSc(UrbPlan) MSc(Finance)

FHKIE, FHKIP, FHKIEIA, FHKIQEP, FHKIOA, MRTPI, MCIWEM

Adjunct Professor of Department of Urban Planning and Design and Department of Geography of the University of Hong Kong

Former Deputy Director of Environmental Protection Department, HKSAR Government

Former President of International Association for Impact Assessment

Former Chairman of Environmental Division of Hong Kong Institution of Engineers

One of the Authors of Hong Kong Chronicle Environmental Chapters

Co-founder of IESG Technologies Ltd

April 2024

Outline of the Talk

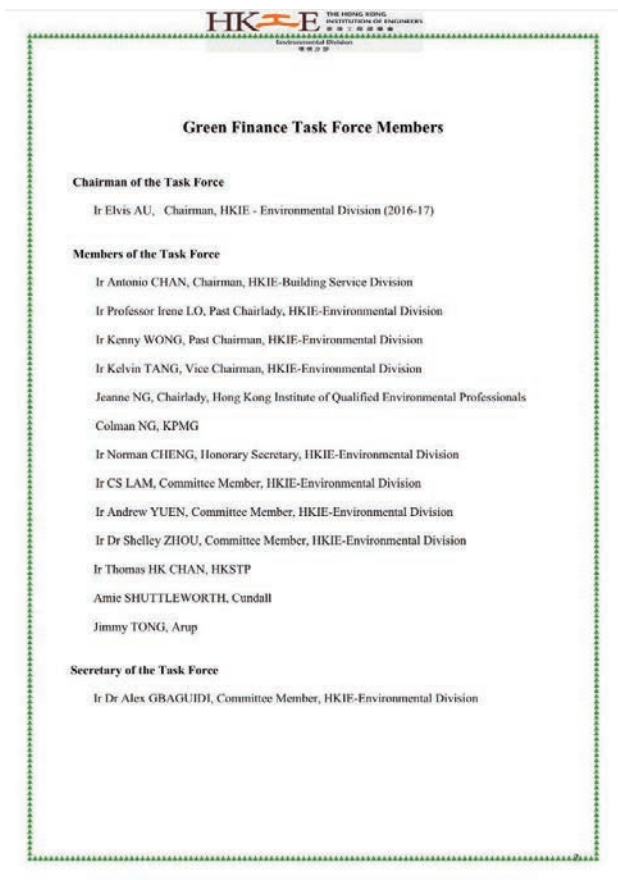
- brief overview of sustainable finance and major drivers for sustainable finance
- insights from the 2023 China White Paper on Green Development in the New Era
- the barriers and challenges in using sustainable finance to accelerate decarbonisation in the Greater Bay Area
- suggested actions to overcome the challenges in using sustainable finance for decarbonisation acceleration
- the opportunities for professionals in the Greater Bay Area in riding on the global and national sustainability and decarbonisation waves



Green Finance Task Force of Hong Kong Institution of Engineers Professional Report on Green Finance in Hong Kong, April 2017

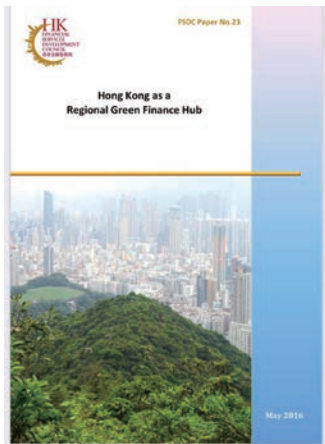
- **Why environmental engineers:** green finance and green industry go hand in hand; mission to pursue environmental sustainability through holistic and synergistic approach; well placed because of multi-disciplinary strengths, expertise and experiences on classifying and management green projects and project finance,
- **Aspire to show environmental leadership, nurture expertise, and build capacity**

“Green Finance: represents a shift in the global economy’s transition to sustainability through the financing of public and private green investments and policies that support sustainable development.”



Examples of Recommendations in HKIE Green Finance Taskforce Report April 2017	Green Finance Development in Hong Kong during 2017-2022
Need specific policy reform on green finance	Government’s green finance policy and green bond grant etc
Clear policy signals and enabling framework	Government green bond and strategic plan
Banks to enhance their green finance instruments	Banks and financial institutions taking an active role in enabling green finance
Capacity building needs of green finance professionals	Various institutions issuing guidelines and providing training courses
Promote social benefits of green finance	Government’s retail green bond to enable citizens to participate

Hong Kong's Journey on Green and Sustainable Finance



Landmark trip by a delegation of FSTB/EPD/SFC/HKMA to Shenzhen to discuss green finance in mid 2017



2015 Paris Agreement with Climate Finance & 2016 G20 Summit with Green Finance Focus

2016
FSDC's Report on Green Finance

April 2017
HKIE's Green Finance Task Force Report



Oct 2017 Policy Address's Commitment on Making Hong Kong a Green Finance Centre



2017-2022

- Issuance of First Government Green Bond
- Green Bond Grant Scheme
- Setting up Cross-Agency Steering Group
- Issuance of retail green bond
- Launch of Core Climate – voluntary carbon trading platform
-



The Hong Kong Monetary Authority (HKMA) and the Securities and Futures Commission (SFC) co-hosted a press conference today (17 December) on the launching of Strategic Plan by the Green and Sustainable Finance Cross-Agency Steering Group. The press conference was co-hosted by Mr Eddie Yue, Chief Executive of the HKMA (second from left) and Mr Ashley Alder, Chief Executive Officer of the SFC (second from right); and was joined by Mr Daryl Ho, Executive Director (Banking Policy) of the HKMA (first from left) and Ms Julia Leung, Deputy Chief Executive Officer and Executive Director, Intermediaries of the SFC (first from right).





The State of ESG in Hong Kong



18.0002

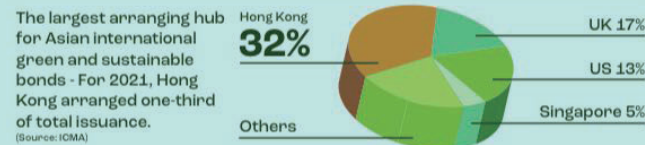
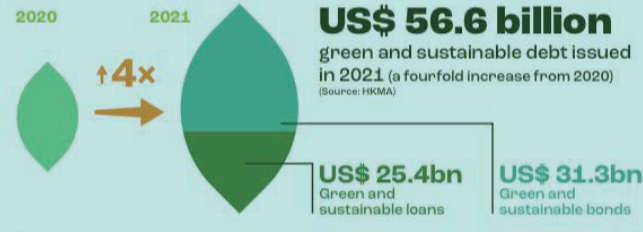
Hong Kong's Green and Sustainable Finance Strategic Plan and Five Near-Term Action Points



Hong Kong – Hot spot for green and sustainable finance

Hong Kong is an established market for a diversified set of green and sustainable finance products

A rapidly growing green and sustainable debt market – The location of choice for Asian issuances



Strong demonstration effect by the Government Green Bond Programme

Since 2019 Institutional green bond issuance **> US\$ 7 billion**
(as at end July 2022)

First **30**-year USD green bond issued by an Asian government

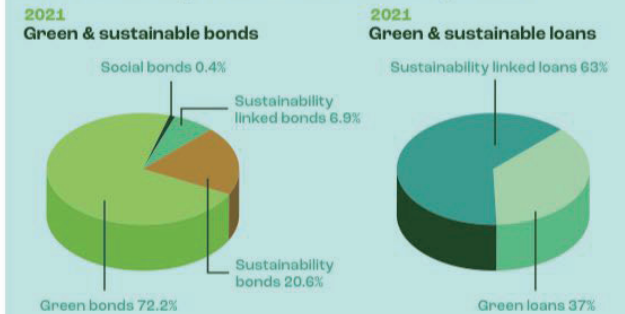
Comprising USD, EUR, RMB denominated bonds

(Source: HKMA)

May 2022 **HK\$ 20 billion** (US\$ 2.6 billion) Inaugural retail green bonds launched

LARGEST RETAIL GREEN BONDS (AT ISSUANCE)

A diversified range of sustainable investment products



2020 **US\$ 4.2 billion** → 2021 **US\$ 16 billion** **↑4x**



Nos. of SFC-authorized ESG funds



The AUM of SFC-authorized ESG funds reached US\$126 billion in Jun 2022
(Source: SFC)



Hong Kong's Green and Sustainable Debt Market Overview

Agenda for Green and Sustainable Finance

The SFC supports the development of sustainable finance and the transition to a greener economy with a focus on three main areas of priority.



Corporate sustainability disclosures

- Consider adoption of the ISSB climate standard as part of a reporting framework for companies in Hong Kong
- Based on a proportionate approach, align Hong Kong's disclosure requirements with the TCFD recommendations and the ISSB climate standard
- Support global consistency in the adoption of the ISSB climate standard
- Participate in the work of international standard setters, including IOSCO
- Address data gaps



Monitor implementation of sustainable finance measures

Promote and monitor measures to support and enhance green and sustainable development in:

- Asset management
- Environmental, social and governance (ESG) funds
- Green taxonomy
- Education and training
- Technology and innovation



Regulatory framework for carbon markets

Work with the CASG's Carbon Market Work Stream on identifying a regulatory framework for appropriate business models

Green and sustainable debt market

- Hong Kong's green and sustainable debt market has been expanding rapidly over the past few years.
- Green and sustainable bonds and loans issued in Hong Kong reached **US\$ 80.5 billion in 2022**, which increased by over 40% from 2021.
- The Government has been leading by example with around **US\$ 25 billion** worth of institutional and retail green bonds issued under the Government Green Bond Programme as of February 2024 to support government green projects.
- The Government also successfully issued two batches of digital green bonds, including the **world's first tokenised government green bond in February 2023** and the **world's first first multi-currency digital bond in February 2024**, marking an important milestone for Hong Kong in combining green finance and fintech.
- The **largest** hub for arranging green and sustainable bonds from from Asia, capturing more than **one-third** of the market: **219 authorised ESG funds with AUM US\$169.6 billion**

(Source: <https://www.sustainablefinance.org.hk/en/markets-regulation>
<https://www.sustainablefinance.org.hk/en/markets-regulation>, accessed on 10 April 2024)

Green Finance in GBA: Opportunities for Hong Kong



Green finance

developments in the Greater Bay Area and opportunities for Hong Kong

Green bond issuance in the GBA has now reached RMB **1.5** trillion.



Hong Kong has the largest issuance volume in the region: In 2019, Hong Kong arranged and issued green bonds worth a total of USD **10** billion.



Hong Kong



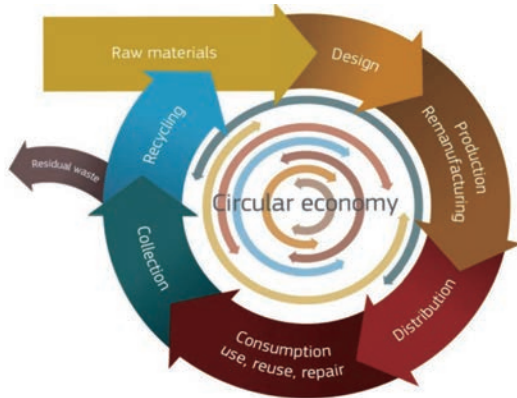
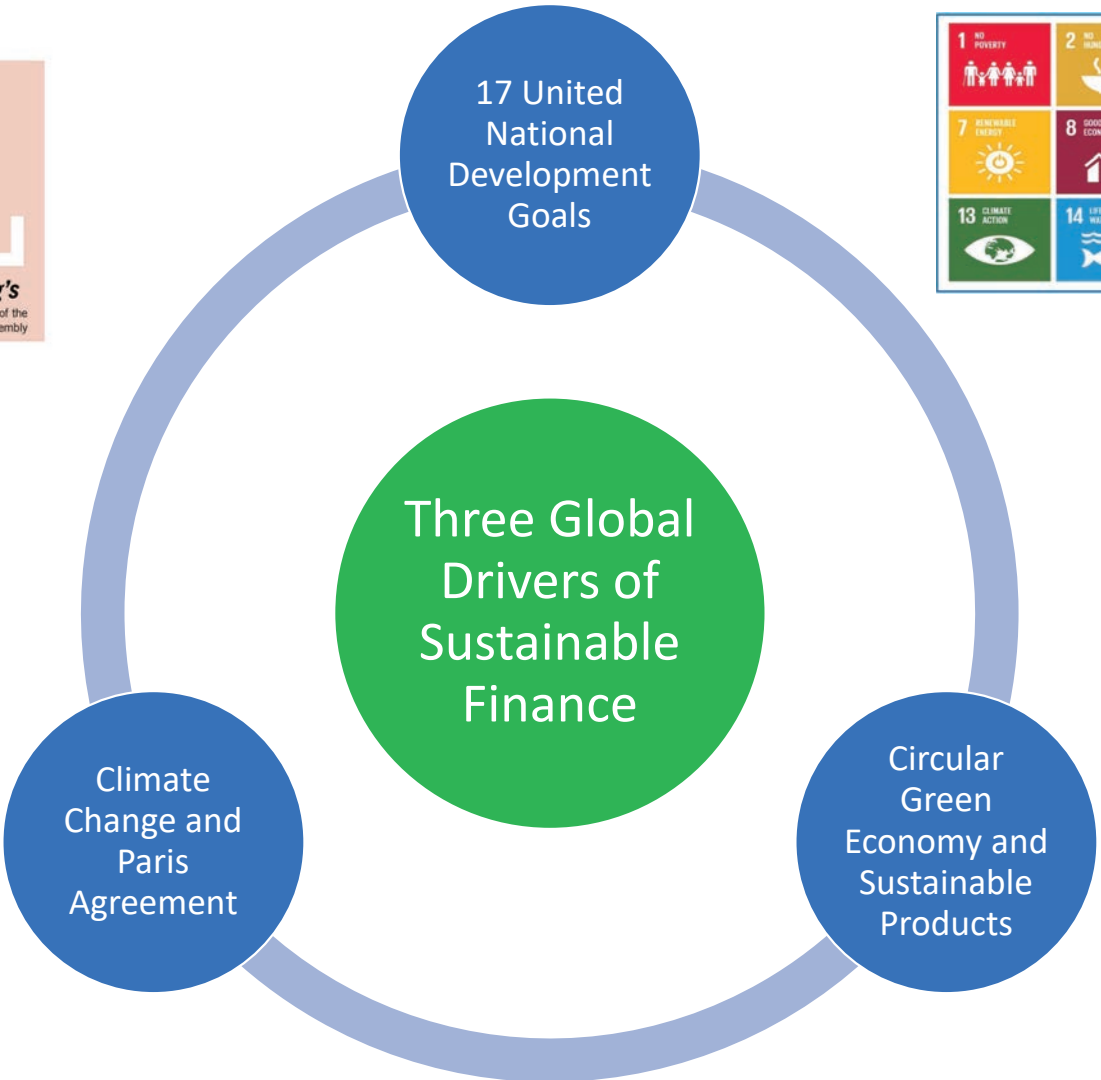
Establishing a leading role in green finance

As of April 2019, green assets owned by Hong Kong banks reached over USD7.8 billion, including USD2.6 billion in green loans.

Global Drivers of Sustainable Finance

China will scale up its Intended Nationally Determined Contributions by adopting more vigorous policies and measures. We aim to have CO2 emissions peak before 2030 and achieve carbon neutrality before 2060.

Extracted from **President Xi Jinping's** statement at the General Debate of the 75th Session of the United Nations General Assembly





Climate Change Challenge: Can the curves be bent by ALL?

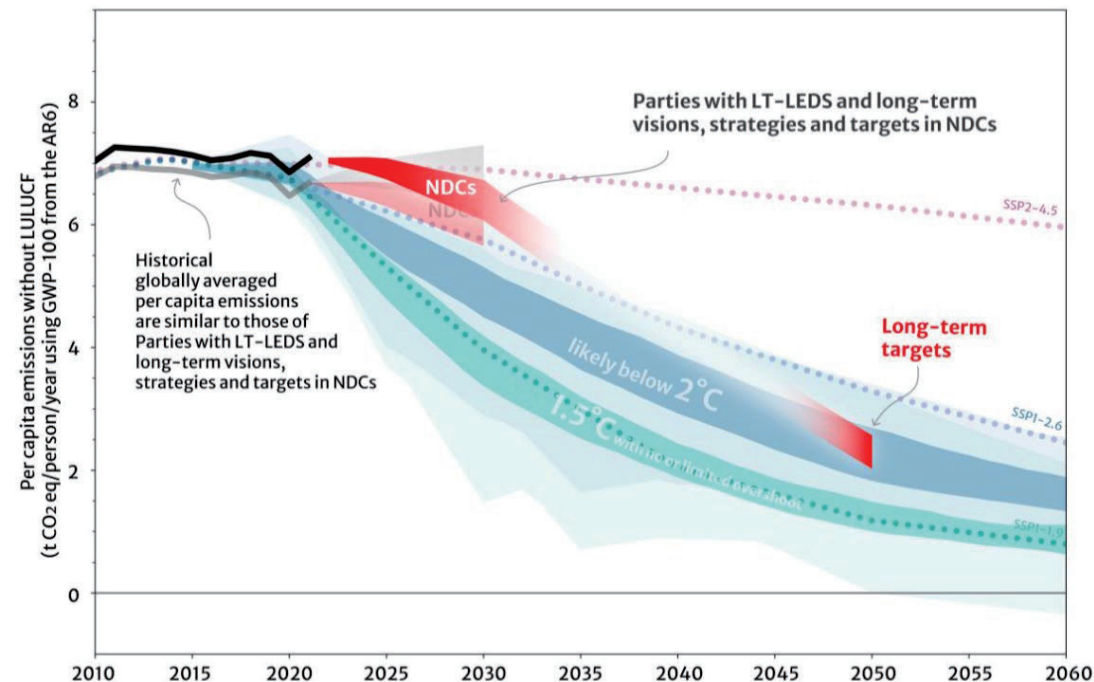
“From Vision to Reality: NDCs 3.0 – bending the curve”

MESSAGE TO PARTIES AND OBSERVER STATES

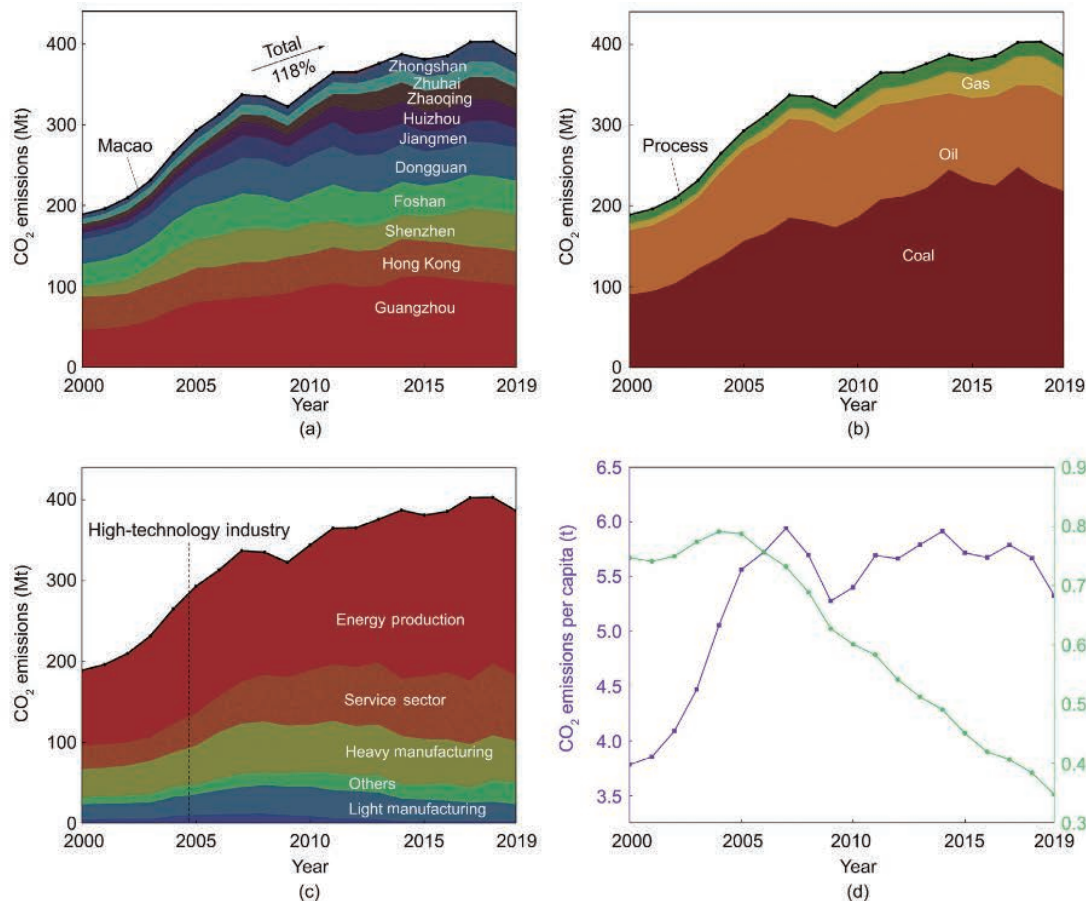
By Simon Stiell, Secretary General UNFCCC, 14 March 2024

“Accordingly, and in keeping with the agreement adopted by all Parties at the COP 28 United Nations Climate Change Conference, I urge you to accelerate your efforts to produce **ambitious, economy-wide emission reduction targets**, covering all greenhouse gases, sectors, and categories and aligned with limiting global heating to 1.5 as informed by the latest science, in the light of different national circumstances. NDCs 3.0 should also help to **accelerate implementation of existing commitments and help unlock finance at scale.**”

Comparison of **per capita global greenhouse gas emissions** based on long-term low-emission development strategies and nationally determined contributions with long-term mitigation strategies and targets and emission in IPCC scenarios (Source : UNFCCC,2023)



Carbon Dioxide Emission Trends in GBA



- The results showed that CO₂ emissions in GBA slowed significantly after 2017 and have already been **decoupled from gross domestic product (GDP) growth**.
- Economic growth and energy intensity are the major factors driving and inhibiting the increase in GBA's CO₂ emissions, respectively. The energy production and heavy manufacturing sectors have reduced their roles in driving the growth of GBA's CO₂ emissions.
- GBA achieved remarkable results in low-carbon development through industrial restructuring and upgrading. Industrial upgrades in Shenzhen and Hong Kong and technological advances in Shenzhen, Guangzhou, and Foshan have significantly curbed the growth in the GBA's CO₂ emissions.
- The **heterogeneity of cities** in the GBA greatly increases the complexity of formalizing the allocation of emission reduction tasks and developing a roadmap for regional carbon neutrality.

Fig. 1. CO₂ emissions trends in the GBA: (a) CO₂ emissions of GBA cities; (b) CO₂ emissions by energy types; (c) CO₂ emissions by sectors; and (d) CO₂ emission per capita and emission intensity of the GBA.

"Trends, Drivers, and Mitigation of CO₂ Emissions in the Guangdong-Hong Kong-Macao Greater Bay Area", Ya Zhou, Kejun Li?, Sheng Liang^, Xuelian Zeng", Yanpeng Cai", Jing Meng", Yuli Shan', Dabo Guan", Zhifeng Yanga, Engineering, (23) 2023

Climate Finance in Paris Agreement

Article 2

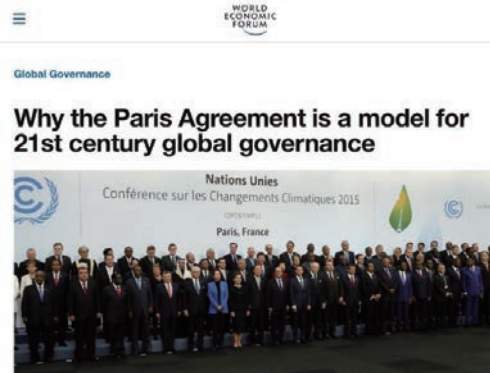
1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.



Article 6

4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim:

(a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development;

(b) To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party;

(c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its nationally determined contribution; and

(d) To deliver an overall mitigation in global emissions.

Climate Finance Flows



Unsettled issues and uncertainties

- Nuclear ?
- Natural gas (still fossil fuel) as a transition ?
- Brown, grey and green hydrogen
- Technical and economic viability of large scale carbon capture and storage

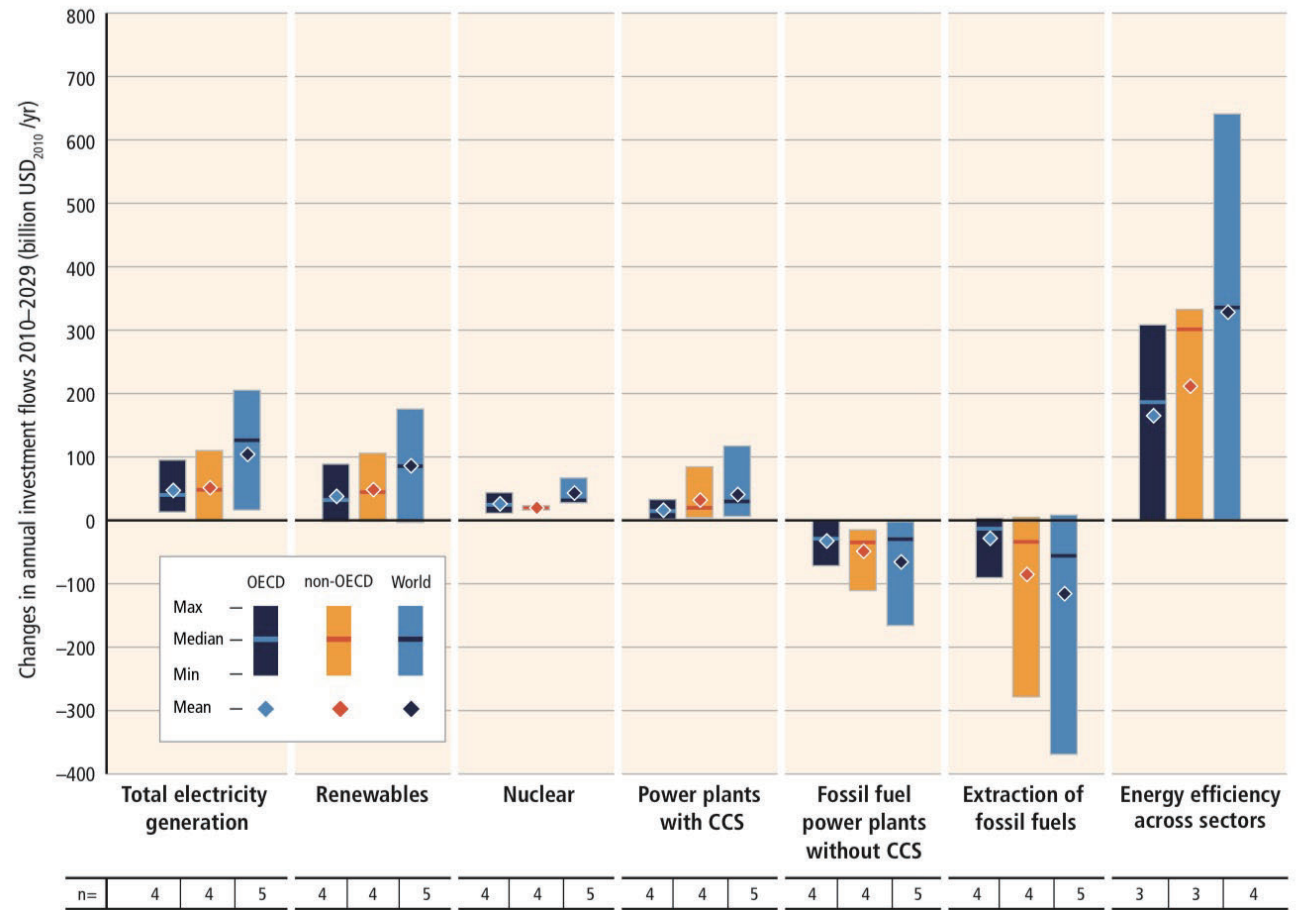


Figure 4.4 | Change in annual investment flows from the average baseline level over the next two decades (2010 to 2029) for mitigation scenarios that stabilize concentrations (without overshoot) within the range of approximately 430 to 530 ppm CO₂-eq by 2100. Total electricity generation (leftmost column) is the sum of renewable and nuclear energy, power plants with CCS, and fossil-fuel power plants without CCS. The vertical bars indicate the range between the minimum and maximum estimate; the horizontal bar indicates the median. The numbers in the bottom row show the total number of studies in the literature used in the assessment. Individual technologies shown are found to be used in different model scenarios in either a complementary or a synergistic way, depending largely on technology-specific assumptions and the timing and ambition level of the phase-in of global climate policies. (WGI Figure SPM.9)

Decarbonisation Acceleration in GBA: Challenges and Opportunities

DECARBONISATION PATHWAYS AND HOW FINANCE CAN ACCELERATE THE BUSINESS TRANSITION TO A LOW-CARBON ECONOMY IN THE GUANGDONG-HONG KONG-MACAO GREATER BAY AREA

ZHONGGUO HUANGJIANG CHAYANG ZHUYANG XIAODONGHU LI XINSHIJI WANGJIANG YINGDUO
YONGSHENG DUTY FREE ZHANG LAIYUAN LIU BO YU LIANG HONG KONG
HONGKONG ZHONGGUO HUANGJIANG CHAYANG ZHUYANG XIAODONGHU LI XINSHIJI WANGJIANG YINGDUO

WRI CHINA

- The Guangdong–Hong Kong–Macao Greater Bay Area (GBA) is expected to **lead by example in peaking carbon emissions and achieving carbon neutrality**, as well as in creating a regional benchmark for green and low- carbon development.
- **Clean electricity** will contribute to the largest emissions reductions in the long-term for the key energy- consumption sectors of manufacturing, road transport, and buildings. In the medium term, energy efficiency improvement and cleaner energies in manufacturing and buildings, as well as a mode shift in transport, will be the key to decarbonisation.
- GBA needs approximately **US\$1.84 trillion** to achieve carbon neutrality by 2060, equivalent to around 1 percent of cumulative gross domestic product (GDP) during the 2020–60 period. We also estimate that \$200 billion to \$700 billion will be needed for road transport, with \$150 billion to \$300 billion required for the buildings sector.
- Actions required: (1)financial practices to accelerate the transition: establishing a **cross-regional agency coordination** mechanism in the GBA; (2)facilitating interoperability of **transition finance taxonomies** and information disclosure standards on the Chinese mainland and in Hong Kong, as well as internationally; (3)encouraging financial institutes and enterprises to set **net-zero targets**; (4)facilitating development of **regional carbon markets**; (5)developing a transition-related **financial toolbox to scale up financing**; and developing sector-specific financial solutions.

Figure ES-3 | Contribution of decarbonisation pathways in industries in the GBA

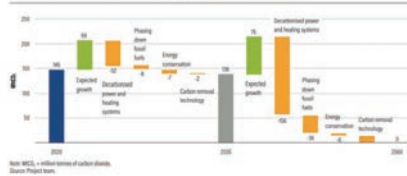


Table ES-1 | Estimates on the investment needed for the GBA

PATHWAYS	INVESTMENT AREA	ESTIMATED AMOUNT UNDER ZERO-EMISSION SCENARIO (BILLION USD)
Road transport	Promotion of new-energy vehicles	368
Increase EV and Fuel Cell Vehicles	New chargers and charge stations	34
	New hydrogen refueling stations	4
Mode shift	Road transport to railway and water transport	300
Buildings sector		214
Green buildings	New green buildings	78
	Ultra-low and near-zero buildings	1
Improved energy efficiency	Renovating existing buildings	209
Distributed renewable energy	Install solar thermal Install photovoltaics Install heat pumps	26
Manufacturing and other energy-intensive industries		602
Total investment needs		1840

Note: EV = electric vehicles.
Source: Authors.

China's Green Development in the New Era Climate Governance & Low Carbon Development



《新时代的中国绿色发展》白皮书

新时代中国绿色发展理念、实践与成效

《新时代的中国绿色发展》

(2023年1月)

中华人民共和国
国务院新闻办公室

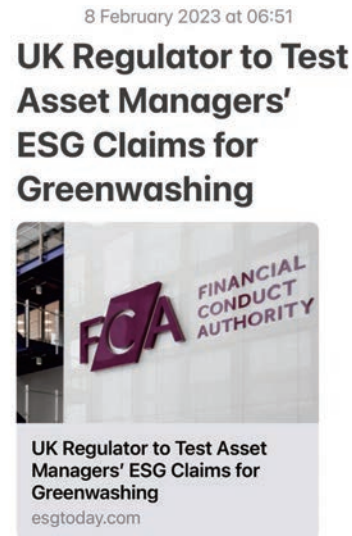


国新办举行《新时代的中国绿色发展》白皮书新闻发布会

- The concept of “**harmony between humanity and nature**” is a distinct characteristic of Chinese civilization.
- As the world's largest developing country, China is committed to the idea of a global community of shared future. It has offered unwavering support to multilateralism, proposed the Global Development Initiative and the Global Security Initiative, expanded practical cooperation, and actively participated in global environment and **climate governance**.
- It has contributed Chinese wisdom and strength to implementing the **UN 2030 Agenda for Sustainable Development**, creating a community of life for humanity and nature, and building a clean, beautiful and prosperous world of sustainable development.
- Applying systems thinking and a coordinated approach Green development is an all-round revolutionary change in our values, and in how we work, live, and think. promoted a sound economic structure that facilitates **green, low-carbon, and circular development**.

Barriers and Challenges in Using Sustainable Finance to Scale Up and Accelerate Decarbonisation

1. the challenge of Green Washing and Green Taxonomy



What is greenwashing?

Greenwashing is a term that emerged alongside the rise of ESG investing. It means marketing a stock or fund as 'green' in order to sell it to investors or meet certain criteria, when in fact the assets in question do not help mitigate climate change or offer other environmental benefits.

What is considered a green investment?

- Environmentalist **Jay Westerveld** coined the term “greenwashing” in 1986, in a critical essay inspired by the irony of the “save the towel” movement in hotels that had little impact beyond saving hotels money in laundry costs.
- The idea emerged in a period when most consumers received their news primarily from television, radio, and print media, so they couldn't fact-check the way they could today.
- A green investment is one which helps to tackle climate change either directly or indirectly, or has other environmental benefits, such as the conservation of endangered species, for example. (Source: Alex Sebastian)

Barriers and Challenges in Using Sustainable Finance to Scale Up and Accelerate Decarbonisation

2. the challenge of mastering rapidly evolving and multi-faceted requirements



20 August 2021

Circular

Circular to licensed corporations

Management and disclosure of climate-related risks by fund managers

The FMCC: To provide high-level principle requirements
The Circular: To set out expected standards for complying with the FMCC

At initial stage, (i) focus on climate-related risks; (ii) cover CISs*;
(iii) make reference to TCFD; and (iv) adopt a two-tier approach:

ALL fund managers

Large Fund Managers (LFM, ≥ AUM HK\$8 billion)

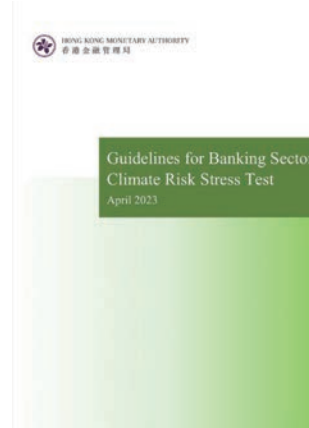
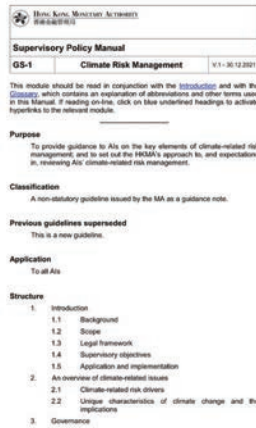
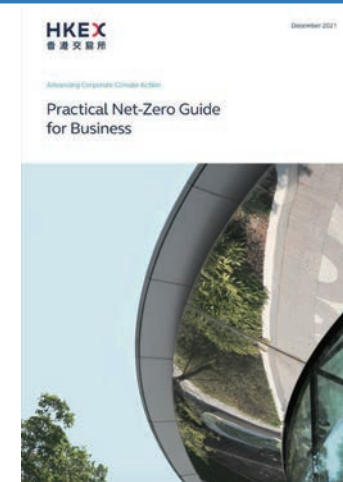
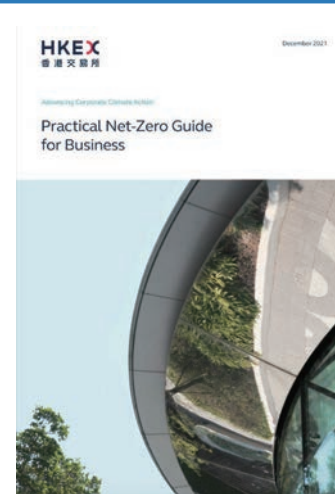
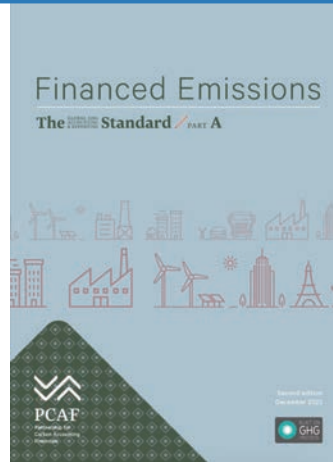
Baseline Requirements

Enhanced Standards

Governance	Investment Management
Risk Management	Disclosures (if ROOF**)

Risk Management	Disclosures (if ROOF**)
<ul style="list-style-type: none"> Implementation plan on scenario analysis Assess portfolio carbon footprint 	<ul style="list-style-type: none"> Engagement policy Portfolio carbon footprint

* CISs – Collective Investment Schemes
** ROOF – Responsible for overall operation of the fund



Appendix 27 Part B: Mandatory Disclosure Requirements Governance Structure

13. A statement from the board containing the following elements:

- (i) a disclosure of the board's oversight of ESG issues;
- (ii) the board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); and
- (iii) how the board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses.

Barriers and Challenges in Using Sustainable Finance to Scale Up and Accelerate Decarbonisation

3. the challenge of life cycle and Scope 3 emission

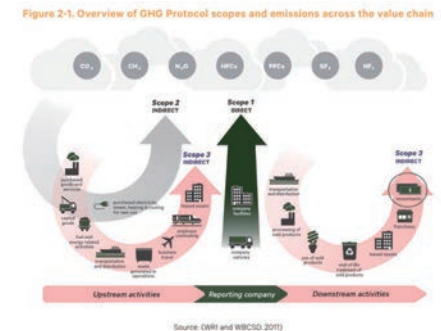
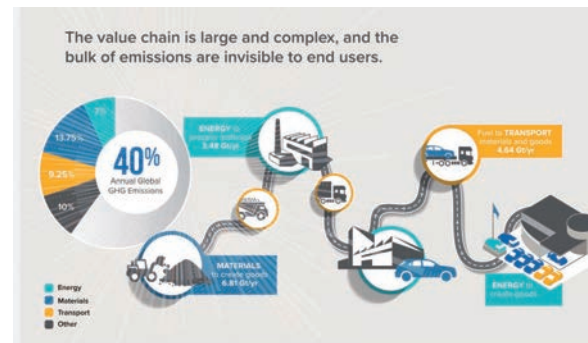
Scope 3 emission has a very significant share of the total !

“Rigorous greenhouse gas accounting is the bedrock for achieving bold climate action. Simply put, you cannot cut what you don't count. SB 253’ s requirement to disclose scope 3 emissions is critical as on average more than 70 percent of a company’ s GHG emissions take place along the value chain. We applaud California for taking this important step to better position businesses to decarbonize their operations, supply chains, and products.” **Pankaj Bhatia, Director of Greenhouse Gas Protocol**

“In aggregate, industrial supply chains are responsible for over **40 percent** of all GHG emissions.” Source: RMI

- The Rocky Mountain Institute reports that the average company’ s supply-chain greenhouse gas (GHG) emissions are **5.5 times higher than the direct emissions** from its own assets and operations.
- Any effective system of GHG accounting, therefore, needs to measure accurately each company’ s **supply-chain carbon impacts, providing visibility and incentives** for it to make more climate-friendly product-specification and purchasing decisions.

Source: Harvard Business Review 2021

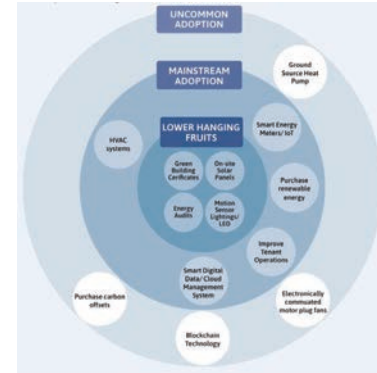


Barriers and Challenges in Using Sustainable Finance to Scale Up and Accelerate Decarbonisation

4. the challenge of effective following up, tracking and measuring the actual results and outcomes of multi-disciplinary decarbonisation and sustainable finance



Credit: UN Climate Change

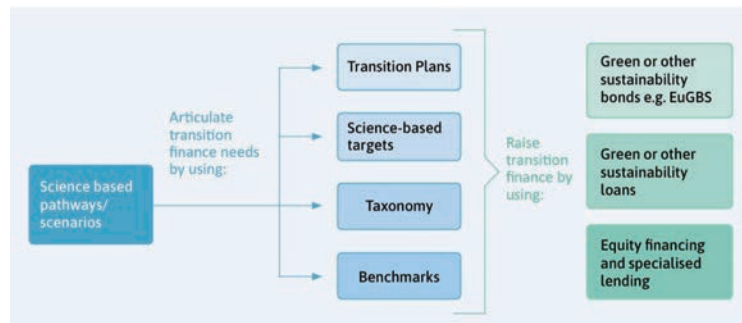


Final Report on draft Regulatory Technical Standards

on the review of PAI and financial product disclosures in the SFDR Delegated Regulation

Table 1
Statement on principal adverse impacts of investment decisions on sustainability factors

<p>Financial market participant [Name and, where available, LEI]</p> <p>Summary</p> <p>[Name and, where available, LEI] considers principal adverse impacts of its investment decisions on sustainability factors. The present statement is the consolidated statement on principal adverse impacts on sustainability factors of [name of the financial market participant] [where applicable, insert “and its subsidiaries, namely [list the subsidiaries included]”].</p> <p>This statement on principal adverse impacts on sustainability factors covers the reference period from [insert “1 January” or the date on which principal adverse impacts were first considered] to 31 December [year n].</p> <p>[Summary referred to in Article 5 provided in the languages referred to in paragraph 1 thereof]</p> <p>Description of the principal adverse impacts on sustainability factors</p>
--



Suggested Actions to Accelerate Decarbonisation through Sustainable Finance



Banking & Finance

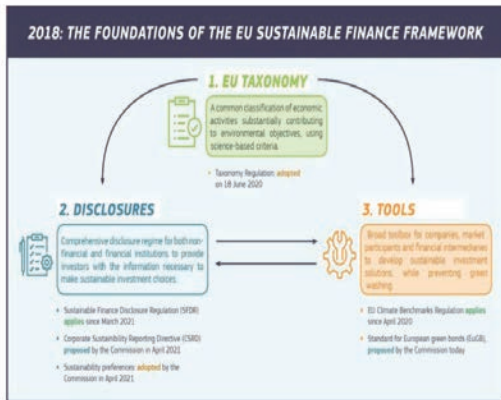
China's Greater Bay Area to lead sustainable finance, meet capital demands of decarbonisation with green bonds, loans

- The Greater Bay Area leads in issuing green bonds and loans nationwide, according to speakers at a GBA forum



- (1) accelerate the flow of finance to truly green investment by aligning funds with EU and Asia Green Taxonomy;
- (2) adopt a holistic life cycle management approach to manage funds or projects to track and manage life cycle carbon footprint, without compromising other UNSDGs;
- (3) genuinely address and manage the value chain/Scope 3 carbon footprint to the lowest extent possible;
- (4) harness cutting-edge technologies (ie generative AI and advanced digital technologies) to track and optimise performance effectively and efficiently.
- (5) Capacity Building for Sustainable Finance Implementation

Suggested Actions to Accelerate Decarbonisation through Sustainable Finance



(1) accelerate the flow of finance to truly green investment by aligning funds with EU and Asia Green Taxonomy;

➤ Require all existing major ESG funds, Bonds etc in GBA to align with EU, Asia and/or HKSAR Green Taxonomy 3 years; starting in 2027, all new major sustainable finance be Green aligned

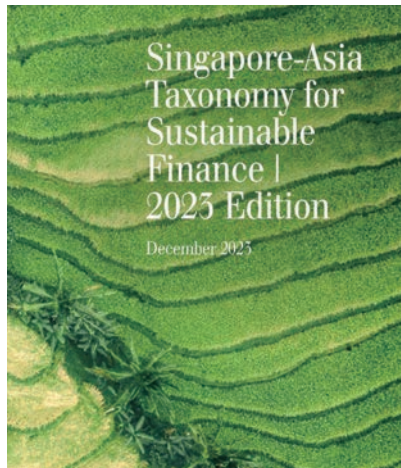
This table is pending further analysis and may be complemented with additional activities and/or clarifications. The table is a reference tool for the identified common ground within the scope of the instruction report.

Disclaimer

The present table represents a technical work between the EU and China taxonomies within the scope of the instruction report with no legal effect and is not formally endorsed by IPSF member jurisdictions. The result does not create either a 'common' or 'single' taxonomy or a standard that is mandatory for IPSF member jurisdictions. It takes due note of the fact that the EU Taxonomy Climate Delegated Act is still subject to scrutiny at EU co-legislator level, and does not pre-empt any discussion or decision that could be made in this context.

The present table is published for open feedback from 4 November 2021 until 14 January 2022.

The Common Ground Taxonomy is...	The Common Ground Taxonomy is not...
<ul style="list-style-type: none"> An analysis on approaches of the EU taxonomy and China taxonomy, and the methodology for comparing and identifying commonalities and differences between some features of the two taxonomies 	<ul style="list-style-type: none"> A legal documentation by the EU and China which entails requirement/obligation for either jurisdiction to change their taxonomy.
<ul style="list-style-type: none"> An evolving tool that may help different actors to understand the types of activities that could be covered under the respective taxonomies within the scope of the comparison exercise 	<ul style="list-style-type: none"> A single taxonomy or exclusive definition of environmentally sustainable economic activities covering all environmental objectives, such as biodiversity, pollution prevention, etc.
<ul style="list-style-type: none"> A technical document for voluntary reference by interested parties within the limits of the scope of the comparison exercise 	<ul style="list-style-type: none"> Covering all eligibility features or all activities in the EU and China taxonomies as explained in the instruction report.
<ul style="list-style-type: none"> An analytical tool or reference for other jurisdictions to consider when developing their own taxonomies. 	<ul style="list-style-type: none"> A proposal for international standards or legal document that imposes any global standard on other jurisdiction.



Suggested Actions to Accelerate Decarbonisation through Sustainable Finance

EU: Production of Electricity from Gas (not exclusive to natural gas)

Mitigation criteria	Do no significant harm assessment
<p>Principles</p> <ul style="list-style-type: none"> Support a transition to a net-zero emissions economy Avoidance of lock-in to technologies which do not support the transition to a net-zero emissions economy Ensure that economic activities meet best practice standards 	<p>Adaptation Refer to the screening criteria for DNSH to climate change adaptation.</p> <p>Water Identify and manage risks related to water quality and/or water consumption at the appropriate level.</p> <p>Circular Economy: nil</p> <p>Pollution Ensure emissions to air, water and soil are prevented / minimized by employing the techniques included in the reference documents for the Best Available Techniques (BAT)</p>
<p>Criteria and Metrics using an ISO 14067 or a GHG Protocol Product Lifecycle Standard compliant Product Carbon Footprint (PCF) assessment, that the life cycle impacts for producing 1 kWh of electricity are below the declining threshold: Declining threshold: Facilities operating at life cycle emissions lower than 100gCO₂e/kWh, declining to 0gCO₂e/kWh by 2050, are eligible.</p>	<p>Ecosystems Ensure an Environmental Impact Assessment (EIA) has been completed in accordance with the EU Directives on Environmental Impact Assessment (2014/52/EU) and Strategic Environmental Assessment (2001/42/EC)</p>

(2) adopt a holistic life cycle management approach to manage funds or projects to track and manage life cycle carbon footprint, without compromising other UNSDGs;

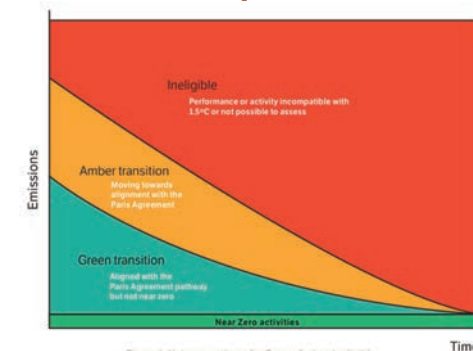
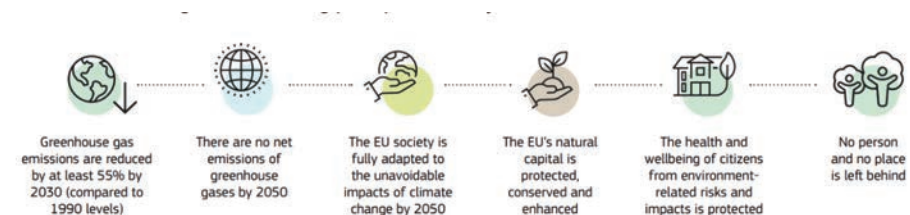
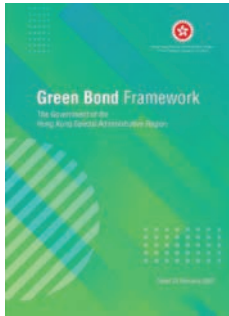


Figure 1: Net-zero pathway for Green, Amber, Ineligible



Hong Kong Government Green Bond Environmental Performance Management Requirements Strong Need for Sustained, Continuous and Real Time Performance Management (As at 2023, 72 projects, 5-30 years)



Eligible Categories	Impact Indicators ²⁰
Renewable energy	<ul style="list-style-type: none"> Installed capacity (kW) and renewable energy generated (kWh) Carbon dioxide (CO2) and other GHG avoided, in CO2-equivalent (CO2e) where appropriate (in tonnes)
Energy efficiency and conservation	<ul style="list-style-type: none"> Annual reduction of energy consumption (% or MWh) CO2 and other GHG avoided, in CO2e where appropriate (in tonnes)
Pollution prevention and control	<ul style="list-style-type: none"> Reduction in NOx, PM10 and PM2.5 emissions (in tonnes)

Eligible Categories	Impact Indicators ²⁰
Waste management/ source recovery	<ul style="list-style-type: none"> Waste that is reused, recycled, or otherwise treated (in tonnes) Share of waste reused, recycled or otherwise treated (in % of total tonnes per year) Waste diverted from landfills (in tonnes) Reduction of waste sent to landfill (%) CO2 and other GHG avoided, in CO2e where appropriate (in tonnes) Renewable energy generated (MWh) Waste-to-Energy efficiency (%)
Water and wastewater management	<ul style="list-style-type: none"> Water and wastewater treated (in cubic metres) Volume of leakage prevented Annual volume (or population equivalence) of sewage / wastewater collected, conveyed, treated, reused and avoided (in cubic metres) Population (number of people) with access to improved sanitation facilities
Nature conservation/ biodiversity	<ul style="list-style-type: none"> Area conserved/restored/sustainably managed (in hectare) Number of nature conservation/biodiversity facilities constructed
Clean transportation	<ul style="list-style-type: none"> CO2 and other GHG avoided, in CO2e where appropriate (in tonnes) Tracks built/repaired/modernised (in km) Number of rolling stock, carriages/ locomotives bought or repaired Number of passengers carried
Green buildings	<ul style="list-style-type: none"> Number and types of green building certifications obtained Rating level of certifications obtained Total floor area of buildings concerned (in metre square) Amount of energy saved (MWh) CO2 and other GHG avoided, in CO2e where appropriate (in tonnes)
Climate change adaptation	<ul style="list-style-type: none"> Number and type of adaptation and resilience measures or systems installed



The Green Bond Framework and the associated Environmental Method Statement create the need for dedicated professionals and effort

Suggested Actions to Accelerate Decarbonisation through Sustainable Finance



(3) genuinely address and manage the value chain/Scope 3 carbon footprint to the lowest extent possible;

➤ Require the *mandatory* disclosure of carbon footprint (including Scope 3) of major ESG funds, green bonds etc in GBA *starting in 2026*;

➤ Establish GBA **Net Zero Investment Framework (GBANZIF)** similar to IIGCC's NZIF2.0

➤ Incentivise through investors' stated net-zero or low carbon preferences (eg 2007 California State Teachers' Retirement System)

➤ Promote credible carbon trading with transparent and reliable carbon reduction outcomes

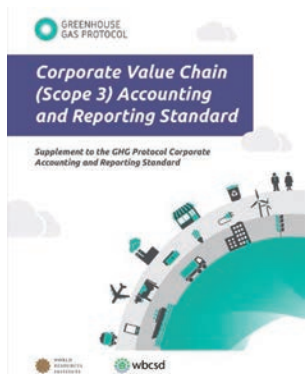
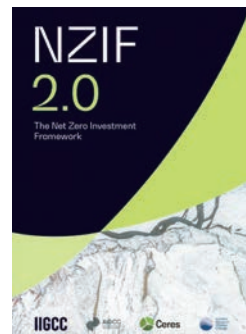
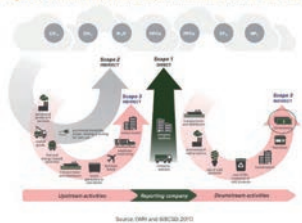


Figure 2-1. Overview of GHG Protocol scopes and emissions across the value chain



Why does Scope 3 emission matter ? Why 2026 ?

EU Corporate Sustainability Reporting Directive (January 2023) & California Climate Corporate Data Accountability Act (2023): World First Mandatory Requirements for Scope 3 Carbon Footprint Disclosure

EU Corporate Sustainability Reporting Directive



❑ **EU** law requires all large companies and all listed companies (except listed micro-enterprises) to disclose climate related information, including mandate the disclosure of significant scope 3 greenhouse gas emissions.

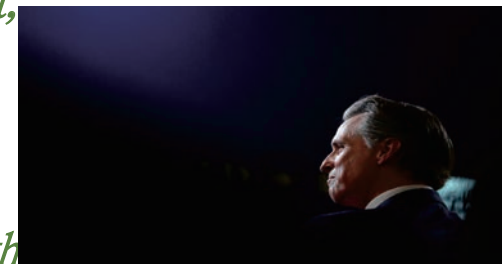
❑ On 5 January 2023, the [Corporate Sustainability Reporting Directive \(CSRD\)](#) entered into force. The first companies will have to apply the new rules for the first time in the **2024** financial year, for reports published in **2025**.



Singapore: listed companies required to report on Scope 1 and 2 emissions in 2025, and on Scope 3, or value chain emissions, in **2026**,

California Climate Corporate Data Accountability Act

- *“if you can’ t measure it, you can’ t manage it.”*
- *“Yet again, California is ahead of the rest.”*
- *“Where California goes, the world follows.”*



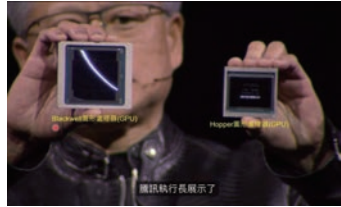
- **California:** “Democratic Gov. Gavin Newsom signed two bills Saturday (7 October 2023) that would require large corporations operating in the state to disclose both their carbon footprints and their climate-related financial risks **starting in 2026**.
- **In 2027**, companies will have to report on their **scope 3 emissions**—their indirect [supply chain-oriented emissions](#)—for the previous year.”

Suggested Actions to Accelerate Decarbonisation through Sustainable Finance

Technology is key to executive confidence.

Business leaders who are currently using *technology* for integrated financial and ESG reporting express more confidence in their company's ability to comply with ESG regulations in the U.S. and Europe.

They also report feeling more confident in the accuracy and clarity of data in their financial and ESG reporting as well as the reliability of internal controls over both types of reporting.



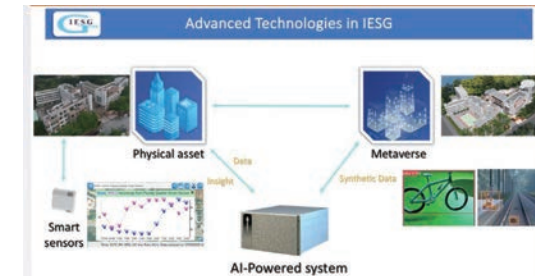
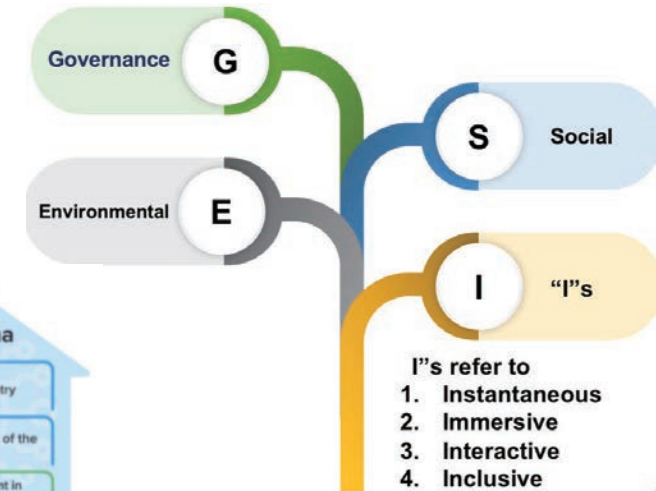
(4) harness cutting-edge technologies (ie generative AI and advanced digital technologies) to track and optimise ESG performance effectively and efficiently.

83%



of executives believe generative AI will help companies comply with regulatory reporting requirements.

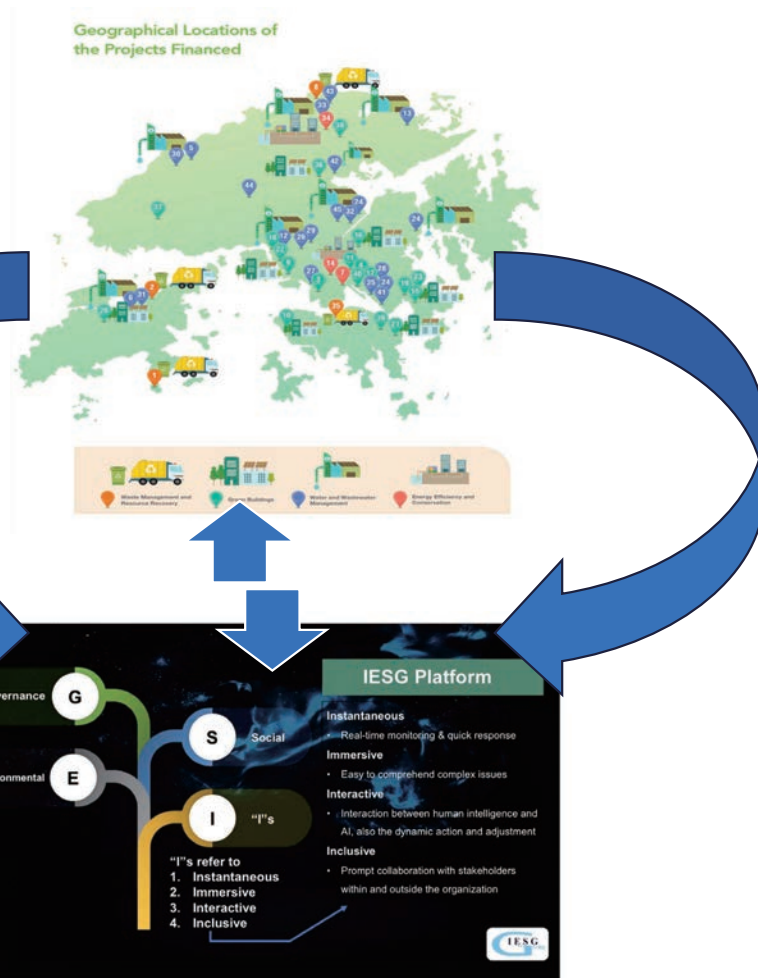
More than half of institutional investors use generative AI to evaluate a company's financial performance and ESG performance.



Source: Workivia, 2024, “Executive Benchmark on Integrated Reporting”, based on a survey of 103 investors and 894 executive leaders



Sustainable VALUE CHAIN and ESG METAVERSE (or Interconnected Twins) for Sustainable/Green Finance portfolio or a Company's Portfolio For Meeting SFC's, HKMA's and HKEx's Requirements/Expectations



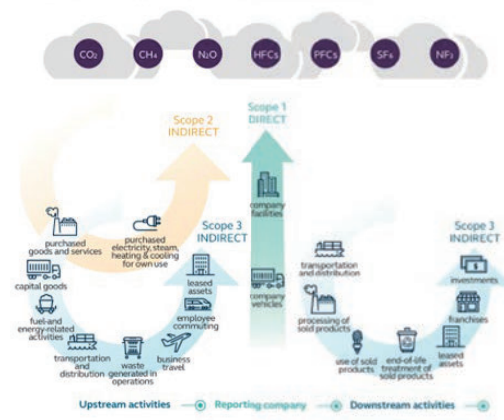
- Create a **digital metaverse platform** for all businesses and projects under the company's portfolio and all sustainable finance projects for prompt management at a glance, efficient oversight and effective follow through
- Enable efficient monitoring, reporting and feedback from all relevant divisions and external stakeholders, including **real-time feedback and knowledge and Scope 3 emission data**
- Use **adaptive AI** to scan, analyse, benchmark etc the monitoring and feedback from divisions/ subsidiaries to **check actual performance against ESG factors** set by the company, identify key gaps, and suggest possible improvements/solutions, including alignment with Green Taxonomy
- Develop an **AI-Assisted value chain and ESG knowledge management system** to assist company staff and stakeholders in planning for, executing and following through sustainability plans in line with best international and local practices

Recent Breakthrough: Patent on Ai-enabled Value Chain and Carbon Emission Scope 3 Management Tool For Sustainability and Decarbonisation Acceleration



AI-enabled “Climate Change Copilot” for “Value Chain Management Green Revolution”

Figure 5. Overview of GHG Protocol scopes and emissions across the value chain



Source: GHG Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard, WBCSD & WRI

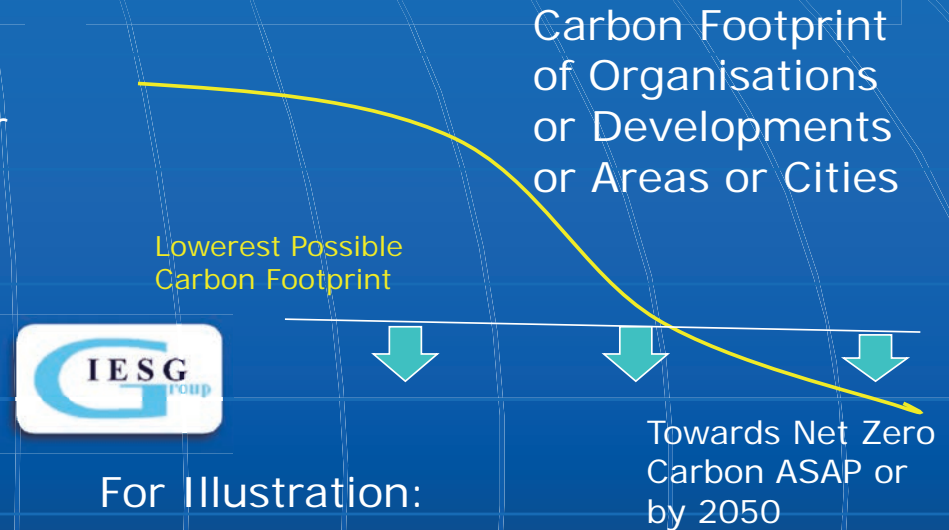


- Promptly calculate carbon footprint and resource usage in the entire value chains locally and globally
- Clearly visualize the logistics of materials/products across value chain
- Easier to optimize the workflow and emission factors, carbon footprints, the costs and decarbonisation options

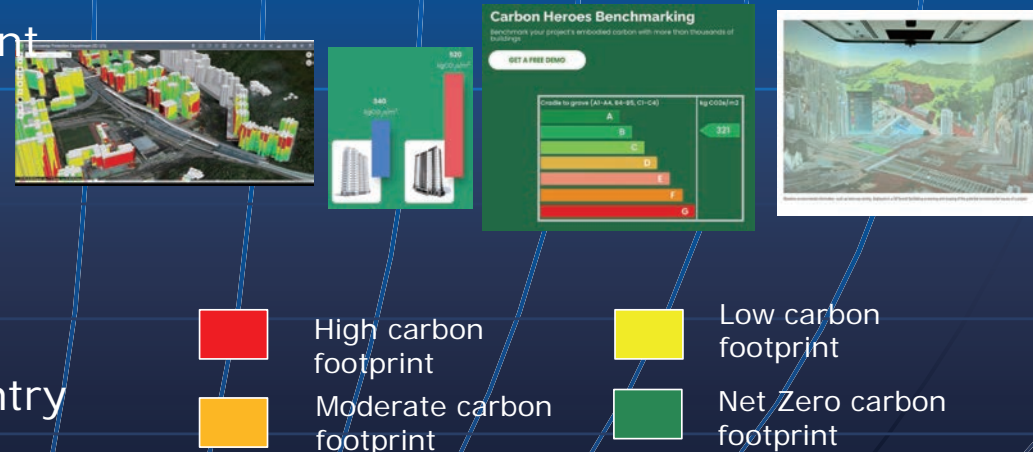
World's first application in HK (10/4/2024)

Carbon Footprint (including Scope 3) Benchmarking and Management via IESG AI-enabled *Climate Change Real-time Co-Pilot* for Organisations & Portfolios

- Spatial Analysis and Tracking (on Smart and Digital Twin Platform, ie IESG) of Carbon or Environmental Footprint of Land Use Zones or Development Areas or Projects or Buildings or Organisation's Portfolio/Supply Chains on different spatial scales
- Benchmarking and Comparative analysis (per unit area or per unit gross floor area or per unit production output) of Carbon or Environmental Footprint and Strategy
- Best Practicable Lowerest Possible Carbon Footprint Option (BPLPCFO) or Practice Guide (Scope 1&2, Scope 1&2&3 **including embodied carbon**)
- Lowerest Possible Carbon Footprint Strategy, Yardsticks or standards
 - Voluntary disclosure reference standards
 - Pre-requisite or basic standards for market entry
 - Incentive options
 - Mandatory requirements



For Illustration:

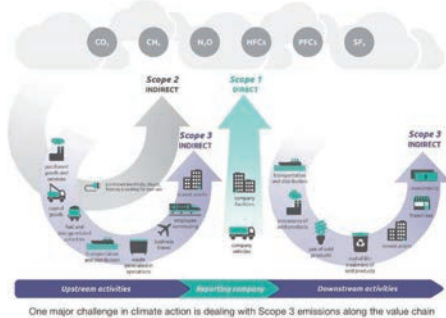


Suggested Actions to Accelerate Decarbonisation through Sustainable Finance



More recently, the European Union (EU)'s Corporate Sustainability Reporting Directive has mandated Scope 3 carbon footprint disclosure by listed and large unlisted companies starting in the 2024 financial year, while its Ecodesign for Sustainable Products Regulation aims to ensure that products on the EU market are more energy-efficient, durable, reusable, repairable, recyclable, and increasingly made of recycled materials.

"Net-zero carbon actions mean real green business opportunities and real green growth."



Decarbonisation solutions

- Renewable energy, including renewable energy certificates
- Electric vehicles
- Waste-to-energy infrastructure
- Energy saving and green building regulations
- Green hydrogen city
- Carbon capture and storage
- De-investment in fossil fuel extraction and plants without carbon change solutions

Did you know?

Environmentalist Jay Westerveld coined the term "greenwashing" in 1986, in a critical essay inspired by the irony of the "save the towel" movement in hotels that had little impact beyond 'saving hotels' money in laundry costs.



(5) Capacity building for sustainable finance implementation

Nurturing sustainable finance talent

To familiarise young people with regulatory and market developments in sustainable finance, we organised a training module, *Hong Kong's Global Approach to Sustainable Finance*, for more than 100 university students in January 2023. The training introduced participants to local and global regulatory initiatives for asset management, corporate disclosures, investment products, stress testing and taxonomies, and featured keynote addresses from Professor Elvis Au, former Deputy Director at the Environmental Protection Department, and Ms Teresa Ko, Vice Chair of the Trustees of the IFRS Foundation.

In December 2022, we introduced our Sustainable Finance Internship Programme to contribute towards Hong Kong's overall ESG capacity building and professional skills development efforts. This

structured programme provides university students with exposure to setting and implementing sustainable finance policies during a 3-8 week internship.



Hong Kong's Global Approach to Sustainable Finance training module

Decarbonisation & Sustainable Finance from a Holistic Perspective

Professional and Capacity Building Needs in Greater Bay Area



- the development of “Sustainable Finance Performance Managers” (SFPM) for GBA with holistic technical and managerial competencies
- HKIE to join hand with HKICPA to set up a joint Professional Panel to develop training programmes, organise training and certify SFPM

*“**Environmental professionals** in partnership with Government, investors, regulators and other key stakeholders, have to play a preponderant and pivotal role in printing the concept of green in business transactions, and **implementing mandatory disclosure of sustainability information along the whole life cycle of projects.** Sustainability standards and rules for disclosure would promote developing green finance assets. Therefore, boosting **diversified and quality environmental expertise** is crucial for supporting stakeholders to identify, understand and determine the risks and opportunities of green investments. The Task Force recommends the definition of green finance and green concept to be widely vulgarized as well.”*

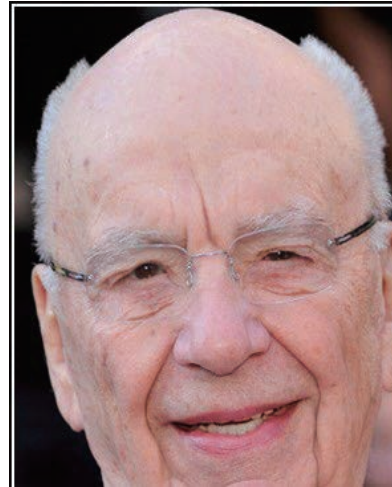
HKIE Green Finance Taskforce 4/2017

Relevance and Importance of Climate Risk to Businesses and Institutions

“Every company, investor, & bank that screens new & existing investments for climate risk is simply being pragmatic”



Jim Yong Kim president of the World Bank



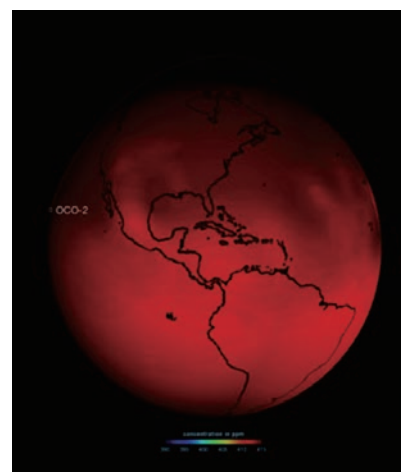
Climate change poses clear, catastrophic threats. We may not agree on the extent, but we certainly can't afford the risk of inaction.

— *Rupert Murdoch* —

“Climate change is spawning a host of long-term and short-term effects that affect businesses broadly and fundamentally. The World Economic Forum ranks climate risks among the top five business risks, saying “climate change is striking **harder and more rapidly than many expected.**” (TCFD)



Joining Hands for Fast-tracking Decarbonisation in Greater Bay Area 在大灣區下同坐一條船 共同面對挑戰及 合力作出貢獻



謝謝！ Thank you！

謝謝！ Thank you！



Barriers and Opportunities of Using Sustainable Finance in Accelerating Decarbonisation in Greater Bay Area

Prof Elvis Au, BBS

Adjunct Professor of the University of Hong Kong

Former President of International Association for Impact Assessment

Former Deputy Director of EPD of HKSAR Government

Former Chairman of HKIE Environmental Division

and HKIE's Green Finance Taskforce

Co-founder of IESG Technologies Ltd



