Green Jobs in Hong Kong:
Utilizing Environmental, Social and Governance (ESG) Reporting and Certification Services as an Example[1]

Research Report

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October 2023

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[1] This research report details one of the two Hong Kong case studies contributing to the APEC project "Research Report on Promoting Green Jobs for a Resilient Economic Recovery from COVID-19" of the APEC Human Resources Development Working Group, Feb-2024, please click here to read the report. For any comments on this report, please email to sushkhub@cityu.edu.hk.

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Acknowledgement

The Research Centre for Sustainable Hong Kong (CSHK) would like to thank the Chinese Academy of Personnel Sciences for inviting it to participate in the Hong Kong case study of the APEC project "Promoting Resilient Economic Recovery after the Epidemic through Green Jobs". This research report on ESG reporting and certification services is one of the two CSHK Hong Kong cases. We would also like to thank the institutional respondents interviewed, and the research assistants - Wang Zhipeng, Cai Qianyun, Chow Wing Tung and Chan Wing Chung - for their assistance in collecting and collating the data.

Established in June 2017, the Research Centre for Sustainable Hong Kong (CSHK) is an interdisciplinary research platform aimed at promoting and strengthening the collaboration between academics, business and government in Hong Kong and the Asia-Pacific region to contribute to applied research with real-life sustainability impacts. Some ongoing research areas include the role of Hong Kong in the Belt and Road Initiative, emission reduction and sustainable economy, artificial intelligence and ethics, Guangdong-Hong Kong-Macau Greater Bay Area, diverse workforce, and legal reform and governance in pandemic context. More information and a full list of its policy papers are available at http://www.cityu.edu.hk/cshk.

Please cite this report as follows:

Linda Chelan Li, Kin On Li, and Bo Wen. 2023. *Green Jobs in Hong Kong: Utilizing Environmental, Social and Governance (ESG) Reporting and Certification Services as an Example*. A Research Report prepared for the APEC Project on 'Promoting Resilient Economic Recovery after the Epidemic through Green Jobs', Chinese Academy of Personnel Science. Hong Kong: Research Centre for Sustainable Hong Kong, City University of Hong Kong.

Executive Summary

1. Green Jobs, encompassing a wide array of roles, are those that bear a positive imprint on the environment. They contribute not only to reduced energy consumption but also to diminished carbon emissions and the preservation of species diversity, among other ecological benefits.
2. This study employs ESG Reporting and Green Certification in Hong Kong as exemplars to illuminate the progression of three particularly pertinent green jobs within the Hong Kong landscape. These include: a.) professional third-party ESG consultants; b.) certifiers from certification bodies; and c.) professionals in the in-house ESG/sustainability departments within listed companies.
3. The research scrutinizes five cases – encompassing two accounting firms, one certification body, and two listed companies – and unveils the existence of approximately 147 directly linked green jobs. Extrapolating from this sample, it is estimated that over 7,500 analogous green jobs thrive within similar enterprises and organizations across Hong Kong. Factoring in a 50% margin of variation, the range of related positions extends from 3,791 to 11,000.
4. Green jobs branch into two distinct trajectories – the "Mandate-Driven" and "Value-Driven" paths. The "Mandate-Driven" pathway signifies roles engendered by listed companies in adherence to Listing Code prerequisites, while the "Value-Driven" route alludes to positions instigated by corporate management to explore potential opportunities, devoid of rigid regulatory mandates.
5. By scrutinizing the "Mandate-Driven" avenue, we discern a direct correlation between the granularity of HKEX's ESG report requirements and the requisite investment of resources by listed companies. Thus, the ongoing refinement of the ESG reporting framework – contemplating the bestowal of an "Essential Review Certificate" for ESG reporting and the appointment of overseers for ESG reports – all hold the potential to augment the gamut of green jobs.
6. Adopting the "Value-Driven" perspective, we realize that the augmentation of ESG's societal recognition and the elevation of Hong Kong's financial market appeal emerge as catalysts for fostering additional green jobs. This is premised on the fact that if the public considers a company's ESG performance as a deciding factor of patronage or investment, organizations will inevitably channel more human resources into fortifying their ESG credentials.
7. Fundamentally, the core tenet of green jobs revolves around the advocacy of environmental protection and sustainability values. Individuals engaged in these roles necessitate not only superlative professional acumen but also an unwavering commitment to serving the public interest. Consequently, prioritizing the intrinsic motivation for public service (i.e., public service motivation) among stakeholders and participants, as well as instituting a more robust green talent development framework, becomes an imperative endeavor.

Introduction

According to the definition of the United Nations Environment Programme (UNEP), Green Jobs refer to a wide range of jobs that have a positive impact on the environment through reducing energy consumption and carbon emissions and maintaining species diversification.[2] This research takes the environmental, social and governance (ESG) reporting and green certification services in Hong Kong as an example to review the development of the three groups of green jobs in Hong Kong, and to put forward suggestions for fostering the sustainable development of such jobs. The three groups of green jobs are: (1) third-party ESG consultancies, which mainly assist companies listed in Hong Kong to prepare ESG reports to comply with regulatory requirements; (2) green financial certification services, which enable commercial companies, upon securing the certification, to acquire financing at lower cost; and (3) staff of in-house ESG/sustainability departments or teams of listed companies. These green jobs contribute to the implementation of environmental, social and governance responsibilities of enterprises.

The research adopts the methods of literature review and in-depth interview. We reviewed the literature of major institutions, deconstructed the development context of ESG reports and green financial certification services in Hong Kong, and focused on the changing process of regulatory requirements of HKEX. Through in-depth interviews, we learned about the above three types of green jobs, including job contents and entry and promotion requirements, and estimated the total number of similar green jobs in the market. Interviewees cover accounting firms and certification bodies of different sizes, as well as listed companies with different market capitalization.

This research finds that many listed companies in Hong Kong implement ESG reports mainly to meet the regulatory needs of the listing code --- the "Mandate-Driven" pathway; while others peruse potential development opportunities and have applied for various certifications voluntarily in advance of any mandatory requirement --- the "Value-Driven". As the institutional regulatory requirements develop and enterprises' understanding of ESG deepens, more green jobs will be created. In this connection it is crucial to remind that green jobs by their nature pursue sustainability objectives broader than profit generation and the development of an enterprise. Studies have suggested intrinsic motivation plays a pivotal role in advancing the objectives of environmental preservation and sustainable development (Rainey and Steinbauer, 1999; Fu, Hsieh, and Wang, 2019), so that it is imperative to consider the concept of Public Service Motivation (PSM) when selecting and training individuals for roles in the green sector --- to provide a metric for assessing an individual's motivation to contribute to the public good through their work (Perry and Wise, 1990). To prioritize the cultivation and retention of professionals who exhibit a strong sense of PSM, corporate managers may need to adopt transformational management approaches to foster the development of a distinctive internal culture in favour of PSM. Such strategic shifts will facilitate compliance with evolving regulatory mandates but, more importantly, also foster endogenous, sustained practices for better ESG performance. Based on the findings of this study, this report will offer recommendations to bolster the sustainable development of green jobs in Hong Kong.

[2] Source: “Emissions Gap Report 2021”, United Nations Environment Programme, UNEP, UNEP Copenhagen Climate Centre (UNEP-CCC), 2022 (https://www.unep.org/resources/emissions-gap-report-2021).

1. The Changes in ESG Reporting Rules of Listed Companies in Hong Kong and the Scale of Green Financing

Hong Kong is an international financial centre and an ideal place for many enterprises to go public and raise funds. The Hong Kong Exchanges and Clearing Limited (HKEX) is the only recognized securities market and futures market in Hong Kong. Companies registered in Hong Kong or overseas which intend to be listed and traded on the HKEX must abide by the HKEX *Listing Rules*.[3]

HKEX has long been committed to promoting sustainable development. Establishing and improving the ESG reporting system of the listed companies is an important means for HKEX to enhance the implementation of corporate social responsibilities. HKEX's regulation of the ESG reporting system has progressed in four phases, as of to date, from voluntary reporting, semi-mandatory reporting, mandatory reporting, to further improvements of mandatory reporting.

Table 1 HKEX on ESG Reporting

Time	Major Features and Phases
December 2012	Encourage voluntary disclosure of ESG reports
December 2015	Semi-mandatory reporting
July 2020	Mandatory disclosure of corporate governance and climate-related reports
July 2022	Improvements: Mandatory simultaneous publication of annual report and ESG report

As early as 2012, HKEX issued the *ESG Reporting Guide*, which provides template suggestions for listed companies to voluntarily disclose aspects of their ESG performance. Since 2016, a number of suggestions in the *Reporting Guide* are raised to the level of semi-mandatory disclosure, including the "complete or explain" requirement. Listed companies are required to list the equivalent of greenhouse gases they emit and provide energy consumption indicators. In September 2018, the *Green Finance Strategy Framework* was published, further raising the standards of environmental information disclosure of listed companies, especially on climate-related information. In 2019, HKEX proposed to revise the *Reporting Guide* according to the *Framework*.

Execution of the elevated requirements started from July 1, 2020. The time limit for publishing ESG reports is also shortened to five months after the end of the financial year, and from July 2022, shortened again to synchronize with the publication of the corporate annual report, as an effort to improve transparency and dissemination.

According to the *Listing Rules*, as of the time of writing of this report, the provisions regulating how companies are listed on the Main Board implement ESG reports are mainly contained in Appendix 27 of the Rules, while the disclosure requirements for Growth Enterprise Market

[3] For details, please refer to the "Listing Supervision" page of the HKEX: (https://www.HKEX.com.hk/Listing/How-We-Regulate/Overview? sc_lang=zh-HK).

(GEM) are contained in Appendix 20 of the Rules. The requirements of the two appendices are not much different. For the purposes of Appendix 27 to the *Listing Rules* of the Main Board, the disclosures cover 4 major areas and 12 aspects.

Table 2 Appendix 27 of the Rules of Main Board

Major Areas, Aspects, General Disclosures and KPIs	
Environmental	Aspect A1: Emissions
	Aspect A2: Use of Resources
	Aspect A3: The Environment and Natural Resources
	Aspect A4: Climate Change
Employment and Labour Practices	Aspect B1: Employment
	Aspect B2: Health and Safety
	Aspect B3: Development and Training
	Aspect B4: Labour Standards
Operating Practices	Aspect B5: Supply Chain Management
	Aspect B6: Product Responsibility
	Aspect B7: Anti-corruption
Community	Aspect B8: Community Investment

Source: HKEX (2023 a), *HKEX Listing Rules and Guidance: Appendix 27 Environmental, Social and Governance Reporting Guide*.

ESG reporting is a global trend. In 2015, the Financial Stability Board (FSB) set up the Task Force on Climate-related Financial Disclosure (TCFD) which unleashes a process via the work of national regulators requiring enterprises across the world to strengthen the reporting of climate-related financial information. The Hong Kong Green and Sustainable Finance Cross-Agency Steering Group, a joint initiative of the Hong Kong Monetary Authority (HKMA) and the Securities & Futures Commission of Hong Kong (SFC), proposed in 2020 to mandate enterprises to disclose climate-related information according to TCFD' recommendations by 2025 or earlier.[4] In 2021, HKEX issued the Climate Information Disclosure Guide according to TCFD recommendations, a significant step-up in Hong Kong's regulatory development on ESG reporting. As of July 2023, there were 2,606 companies listed on HKEX.

[4] Please refer to the website "ESG in Practice" of HKEX:
(https://www.HKEX.com.hk/Listing/Sustainability/ESG-Academy/ESG-in-Practice/Climate-Change?sc_lang=en

Table 3 Number of Listed Companies (Main Board and GEM)

	Jul 2022	End 2022	Jul 2023
Listed company	2,579	2,597	2,606
H shares	304	316	323
Red chips	174	174	276
No. of Mainland private enterprises	906	919	933
Newly listed companies	16	90	6
Total market value ($1 billion)	35,888.6	35,666.8	36,045.1

Source: HKEX (2023 b), *Market Profile-"Monthly Market Information"*

In addition to equity financing through listing, enterprises in Hong Kong can also obtain debt financing through financial institutions approved by the HKMA and the SFC. The main channels include borrowing from banks and issuing bonds to institutional or individual retail investors. Since 2010s, Hong Kong has been determined to become a green financial centre in Asia. By 2022, the accumulated total value of green bonds issued and green loans facilitated in Hong Kong has exceeded US$ 80 billion. There were also 177 ESG funds authorized by SFC, with Asset under Management (AUM) exceeding US$ 140 billion.

Table 4 Scale of Green Debt Financing in Hong Kong

	As of 2022
Green bonds and loans	$80.5 billion
Size of assets under management of ESG funds	$142 billion

Source: Hong Kong Monetary Authority (2023). *Sustainability Report 2022*

The green bonds are generally fixed-rate products issued by the government, banks and enterprises, and the holders who buy such green bonds can get regular interest returns. The funds raised by green bonds will be specially used for the development of green projects, such as renewable energy, sewage treatment and forest protection. As for green loans, the funds borrowed by enterprises from financial institutions are also limited to the application in green projects. The interest rates of green bonds and green loans are generally lower than those of traditional bonds and loans due to the limitations to their application.

As for delineating which institutions are eligible to issue green bonds or borrow green loans, and distinguishing green vs. non-green projects, third-party certification plays an instrumental role. Through the issuance of green and sustainable financial certificates and assessment of independent third-party institutions, institutions will be able to attract more investors and lenders. The certification process also generates public promotion impact and dissemination of knowledge on green and sustainable finance to benefit the industry and society in the long run.

2. Greens Jobs Arisen from ESG Reporting and Green Finance Certification

"Financial Services" and "Professional Services and Other Producer services" are amongst the Four Key Industries in Hong Kong, with a total employment of over 840,000, accounting for more than one-fifth of the total employment in Hong Kong (Table 5). However, there are currently no official statistics on green jobs.

Table 5 Employment in Financial and Professional Services in Hong Kong

	2020	2021
1. Financial Services	276,000	277,000
2. Professional Services and Other Producer Services	565,000	569,000
	841,000	846,000
Total Employment in Hong Kong	3.89 million (21.6%)	3.87 million (21.9%)

Source: Census and Statistics Department (2023), *Statistics-Four Key Industries and Other Selected Industries*

This research focuses on three types of green jobs most directly related to ESG Reporting and Green Finance Certification: a.) professional third-party ESG consultancies; b.) certification staff of certification institutions; and c.) staff of in-house ESG and sustainability departments in listed companies. Through interviews with five relevant organizations (Table 6), we estimated the number of these jobs in the market, and examined the job contents, and entry and promotion requirements.

Table 6 ESG Green Jobs across Different Organization Types

ESG Green Job Types	Organization Types
a.) Professional third-party ESG consultants	1. Large-sized accounting firm (one of the global top four) 2. Medium-sized accounting firms
b.) Certification staff of certification institutions	3. Leading non-profit professional certification institutions
c.) Staff of department of ESG/sustainability in listed companies	4. Large-sized and medium-sized listed companies 5. Small and medium-sized listed companies

2.1 Professional third-party ESG consultancies

The third-party ESG consultancies here refer to the professionals who draft ESG reports and advise ESG implementation strategies for the listed companies. There are many private and non-profit institutions, including accounting firms, that provide third-party ESG consultancy services. Amongst these, accounting firms have a relatively high market share. Since accounting firms have been providing professional services such as auditing to listed companies, when listed companies encounter difficulties in ESG reporting, many have turned to accounting firms for guidance and assistance. Two accounting firms of different sizes (hereinafter Firm A and Firm B) are selected in this study to trace the development of their ESG teams.

Table 7 ESG Consulting Teams in Two Accounting Firms

	(Firm A) Large-sized Accounting Firm	(Firm B) Medium-sized Accounting Firm
Year of commencing the services	2021	2020
Number of staff in ESG Team	50 employees (Still expanding)	10 to 15 employees (Depending on staff mobility)
Clientele	Mainly large-sized listed enterprises (Retail, manufacturing, energy and auto industries)	Small and medium-sized listed companies (Retail, manufacturing, energy and auto industries)

Source: Interviews, July - August 2023.

As one of the four major accounting firms (the ‘Global Big-4’), Firm A possesses a dedicated ESG team established in 2021 with 50 professional staffs (as of 2023), and the number is still expanding. This team mainly serves large-sized listed companies. Apart from drafting ESG reports, it also provides other ESG-related consulting services, such as formulating energy saving or emission reduction strategies and planning community care activities.

The ESG team of the medium-sized Firm B is considerably smaller with 10 to 15 members. In addition to advising on ESG reporting, this team also provides other traditional accounting consulting businesses, such as risk management and forensic accounting. The ESG services of Firm B are mainly geared to assist its clients – which are predominately small- and medium-sized listed companies - in drafting the ESG reports.

Although the team sizes are different, the personnel promotion structures of Firm A and Firm B are similar. New staff members normally start as at the rank of assistants or senior assistants, and after accumulating several years of experience, they will be promoted to manager level according to performance. Promotion from manager to director or partner requires considerable seniority and demonstrated outstanding contributions.

Table 8 Personnel Structure

	Posts
Management	Partner
	Director
Middle layer	Senior Manager
	Manager
Junior position	Senior Associate
	Associate

Source: Interviews, July - August 2023.

As for joining an accounting firm to become an ESG consultant, there is no clear requirement. Both accounting firms said that anyone with a bachelor degree can apply. ESG team managers of Firm A pointed out that in the early stage of ESG regulatory development, they would prefer to hire people with scientific background because of the complicated formula calculation of carbon emissions. But up to now, the enterprises served by the team cover all walks of life, so they need talents with more diversified backgrounds instead.

Whether the team is large-sized or small-sized, as a third-party consultant, the preparation of ESG reports for clients usually proceeds in three stages (Table 9). The first stage is for the team to collect client information such as business classification, operating costs, energy consumption, corporate governance structure, and number of employees. In the process, team members need to ensure (1) the completeness of the data (completeness), such as whether the months covered are complete; (2) whether the information submitted is sufficient and accurate (accuracy), whether there are signs of false reporting of numbers; and (3) ensure the rationality of the data (rationality): whether the data is logical, for example, the company's turnover this year is higher than last year, but its energy consumption is less, which needs further explanation.

The second stage involves the drafting of the ESG reports according to the requirements listed by HKEX, which involves many checklists, forms and templates. ESG consultants need to calculate carbon emission values with different formulas for different industries. The consultant team should also prepare a checklist list to cross-check the report against the HKEX requirements to ensure compliance. Close communications with staff of the listed companies are especially important at this stage to gather additional information, especially in the event of discrepancy of corporate performance data and regulatory requirements. However, unlike in auditing work, ESG consultants have no authority to express "reservations" on the corporate ESG reports.

Table 9 Work Process of ESG Consultants

	Responsibilities
1. Collecting information	The data is provided by the clients, and the consultants need to ensure its completeness, accuracy and rationality
2. Drafting reports	Draft ESG reports in accordance with Main Board Appendix 27 and GEM Appendix 20 of the *Listing Rules* of HKEX
3. Giving advice (Optional)	Recommendations on energy conservation, emission reduction or other improvements (e.g. management and data collection) may be provided upon request by clients.

Source: Interviews, July - August 2023.

After completing the drafting of the ESG report, the consultant teams may also provide suggestions for improving future ESG performance or reporting. However, the executives of Firm A and Firm B admitted to this research team that the recommendations are provided only upon request by the client, which also enjoy total discretion on implementation of the recommendations.

2.2 Certification staff of green finance certification institutions

ESG green finance certification services offered in the Hong Kong market comprise two categories. The first involves Debt Financing. Certified enterprises will be able to obtain funds from financial institutions or investors by issuing green bonds or borrowing green loans at a lower interest cost; the other category involves Equity Financing, in which certified enterprises can attract more investors and obtain more financial support through some methods such as increase of capital. Some certification schemes fall between these two categories, which can be used to facilitate both debt financing and equity financing.

Table 10 lists the green and sustainable finance certification schemes offered by two large-sized non-profit institutions in Hong Kong. After screening, we select Institution H as the object of in-depth research. Institution H is the earliest non-profit institution providing comprehensive certification services in Hong Kong, and it is also the pioneer of green finance certification, commencing relevant work in 2016. The green certification service of Institution H has won popular recognition in industry, and many large-sized banks have entered green finance collaboration agreements with it. Hang Seng Index Services Limited, which is responsible for compiling the Hang Seng Index in Hong Kong, has also commissioned Institution H to assist in compiling ESG-related indexes.

Table 10 Green and Sustainable Finance Certification Scheme

	Institution H	Institution C
Certification category I (Debt Financing)	• Evaluation of green loans for small and medium-sized enterprises	• Green loan • Sustainable development performance is linked with loans
	• Green and Sustainable Finance Certification	• Sustainable development performance is linked with financial instruments • Other green financial instruments
Certification Category II (Equity Financing)	• Green finance certification. ESG fund • Green finance certification. Green fund	

Source: Interviews, July-August 2023

Institution H, established in the late 1980s, was funded by the government to assist Hong Kong's industrial and commercial sectors in improving product quality, promoting environmental safety and hygiene, improving management systems and providing comprehensive compliance assessment services for the market. At the beginning of its establishment, it was mainly responsible for the audit of quality measurement system (ISO9000). With a strength of 20-30 professional staff, in those early years, government departments constituted their major clients.

Over the years, its services have become increasingly diverse. In 2016, it started a research on green finance certification scheme, and launched the certification for debt financing two years later. This new certification service was quickly endorsed by a number of large-sized banks and other major firms. In 2022, when small- and medium-sized enterprises (SME) were hit hard by the pandemic, Institution H started a green assessment service for SME loans to better bridge SMEs and banks, enabling qualified SMEs to secure loans at a cheaper cost.

The number of auditing staffs of Institution H has now exceeded 100, of which the certification team accounts for about half. To join as a junior staff in the certification team, the basic requirement is deceptively simple: a degree from university (graduates from environmental science, engineering, finance and business will have an advantage). In-service training and assessments are available to new and existing staff. The promotion ladder of the certification team is also very clear, while many staff have exited mid-career as they are often courted by their clients.

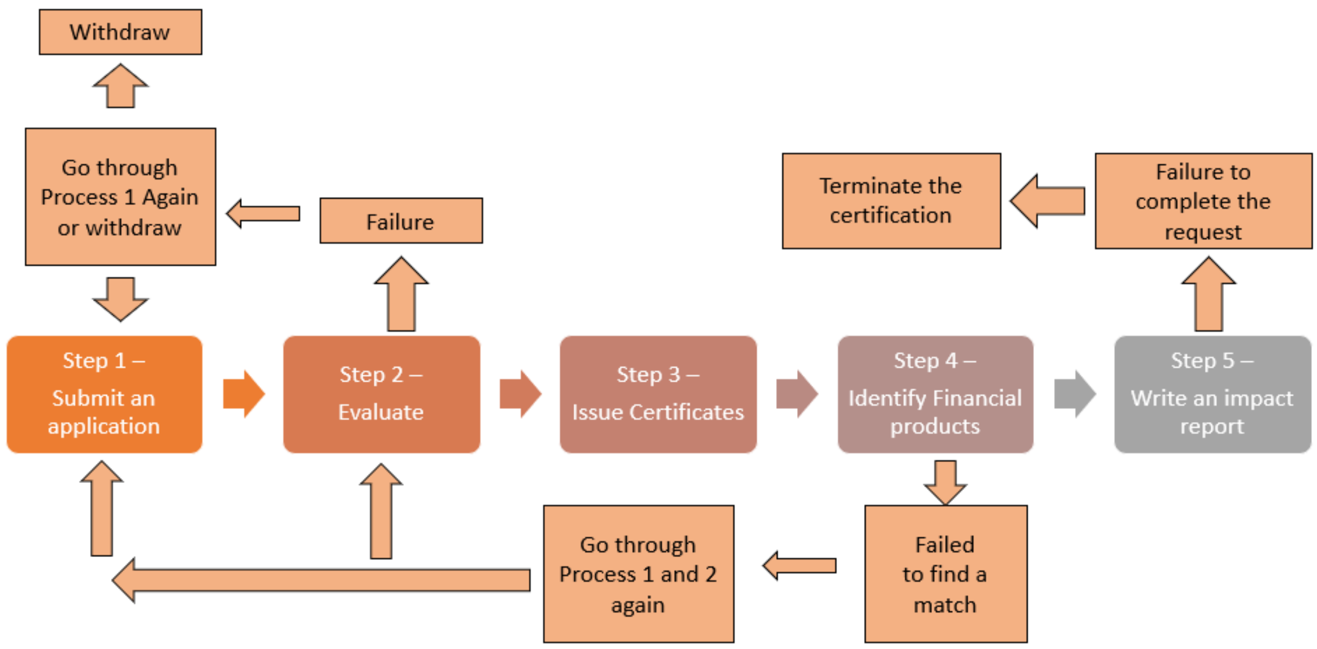
Table 11 Personnel Structure in the Certification Institutions

Management	Controller
Middle layer	Project Manager Assistant Project Manager
Junior Staff	Auditor Project Officer Assistant Project Officer

Source: Interviews, July-August 2023

The certification team approves the green finance certification according to a number of international standards and principles, including proposals for the International Capital Markets Association (ICMA), the Loan Market Association (LMA), the Asia-Pacific Loan Market Association (APLMA), Loan Syndications and Trading Association (LSTA), the European Union Green Bond Standard, and the announcements and guidelines of the People's Bank of China and the China Securities Regulatory Commission. After the certification team issues the certification to the enterprises, it will also determine the approved financial products according to the requirements of clients and financial institutions, and write an impact report after the project is implemented for a certain period to examine whether the certified enterprise has acted according to the original terms.

Fig. 1 Flow Chart of ESG Finance Certification



Source: Interviews, July-August 2023

Although Institution H is a non-profit institution, it will also charge fees according to market prices, and its revenue has exceeded HKD 100 million in 2022. This development model of continuous expanding services not only enriches the staffing establishment of Institution H, but also benefits other private certification institutions which form part of the certification service supply chain, since Institution H outsources a good number of certification processes to the market.

2.3 Staff of the ESG/sustainability department in listed companies

The in-house ESG/sustainability department or team in an enterprise are the people communicating with the aforementioned third-party ESG consultants and green certification staff, and thus play a core and essential role in the ESG reporting work of an enterprise. We studied two listed companies with different market capitalization in order to understand the operation of their in-house ESG teams.

Table 12 In-house ESG Teams of Two Listed Companies

	Enterprise D (Listed companies with medium and large-sized market capitalization)	Enterprise E (Listed companies with small and medium-sized market capitalization)
Market capitalization (As of August, 2023)	HKD 26 billion	HKD 1.4 billion
Turnover (Last fiscal year)	HKD 78.5 billion	HKD 3.7 billion
Industry	Catering and retail industries	Manufacturing industry
ESG dedicated team	About 20 employees	1-2 employees (Served concurrently by supervisors of human resources and administrative departments)

Source: Interviews, July-August 2023

Enterprise D, a publicly-listed company, boasts a substantial market capitalization of HKD 26.1 billion, categorizing it within the medium and large-sized market capitalization segment, as delineated by Hang Seng Index Service Company. Impressively, the company achieves an annual turnover surpassing HKD 78.5 billion and maintains a workforce exceeding 10,000 employees. Notably, the headquarters of Enterprise D houses a specialized ESG team, comprising approximately 20 dedicated professionals. For enterprises of such notable stature, the creation of an ESG report, which is merely one facet of the multifaceted responsibilities borne by the ESG team, occupies a pivotal role in crafting the organization's public image and augmenting its intrinsic value. Moreover, the performance indicators incorporated within the report act as potent catalysts, propelling the enterprise's ESG endeavors forward.

For example, when the ESG report requires the disclosure of community work, the team will also organize some community activities for this purpose, and remind colleagues to pay attention to the source of raw materials, product packaging and publicity statements in daily work, so as to avoid "walking straight into the tap" in terms of gender, race and politics.

Unlike large-sized listed company D, Enterprise E has a relatively small scale, with a market capitalization of only HKD 1.4 billion and an annual turnover of HKD 3.7 billion, which is less than one-twentieth of that of Enterprise A. In addition, the enterprise mainly manufactures and sells hardware and plastic products; as well as adopts OEM for electronic instruments, which belongs to the highly labour-intensive industry and its gross profit margin is not high.

Enterprise E possesses more than 1,000 employees, but there is no dedicated ESG team, which is served concurrently by supervisors and employees of human resources and administrative departments. According to the supervisor of the relevant department of Enterprise E, the Human Resources and Administration Department was renamed as the Sustainable Development Department in 2020, because HKEX forced all listed companies to submit ESG reports in that year, and the management of the company assigned the Human Resources and Administration Department to complete it together. In order to be "justified", the department name was changed. However, after the department changed its name, employees were not increased accordingly. In the absence of sufficient resources, the annual preparation of ESG reports was "outsourced" to a third-party ESG consultant. As for the other ESG-related work that is found in the ESG team of Enterprise D, no similar activities took place in Enterprise E. In other words, in relation to ESG reporting work, Enterprise E simply outsourced the entire task of preparing its ESG reporting, which is mandated under HKEX rules, to an external third-party ESG consultant, and did nothing else.

From the comparison between the two listed companies, it can be seen that the resources invested in ESG work by enterprises of different sizes vary greatly. The focus of the enterprise’s ESG team is largely on meeting the requirements of listing regulation. The ESG team of Enterprise D has a clear staffing structure, and a complete career path: from joining to be a project director to being promoted to manager and department supervisor. In Enterprise E, the ESG team exists in name only.

2.4 Estimation of the number of ESG green Jobs

According to our sampled cases (two accounting firms, one certification institution and two listed companies), there are about 147 green jobs directly related to ESG reporting and green finance certification services. Multiplying this number by the number of similar institutions in the population, we can roughly estimate a total of 7,500-plus green jobs of this genre in Hong Kong. With a 50% deviation rate on both ends (plus and minus), the estimate ranges from 3,791 to 11,000.

Table 13 Estimating the Number of Green Jobs on ESG reporting and Green Finance Certification in Hong Kong

	Sampled Objects	Number of Green Jobs	Similar Institutions	Estimating the Number of Green Jobs	Plus-and-Minus 50% Deviation
a.) Third-party ESG consultancies	1. Firm A 2. Firm B	50 10-15	4 8	200 employees 120 employees	100-300 employees 60-180 employees
b.) Certification services	3. Institution H	50-60	2	120 employees	60-180 employees
c.) Staff in the in-house ESG-sustainability teams	4. Enterprise D 5. Enterprise E	20 1-2	317 * 401 **	6,340 employees 802 employees	3,170-9,510 employees 401-1,203 employees
		147		7,582 employees	3,791-11,373 employees

Note: * There are 317 Hang Seng Composite LargeCap & MidCap Indexes; and 401 Hang Seng Composite MidCap & SmallCap Indexes

Several observations are pertinent. First, this is a rough estimate based on our sampled cases. In the absence of relevant official statistics, the current estimation is a starting point to provide a good basis for future study.

Second, the 147 green jobs calculated from the sampled cases are directly related to ESG reporting and green finance certification. We observe, however, some jobs involve multi-faceted roles and do not focus solely on ESG reporting.

Third, in addition to the three types of green jobs discussed in this study, there are other green jobs that contribute to ESG performance of enterprises, such as engineering jobs to design and implement emission reduction measures, and jobs to help enterprises promote community services and labour welfare. Whilst this study has not covered these jobs we have no intention to slight their existence or importance, which a future study with adequate resources should extend to.

3. "Mandate-Driven" VS "Value-Creation-Driven"

According to the discussion in previous sections, green jobs may be created from "Mandate-Driven" or "Value-Driven" pathways. The "Mandate-Driven" pathway refers to the implementation of the ESG reporting by listed companies mainly to cope with the Listing Code; while the "Value-Driven" pathway suggests that the management of companies actively implements the ESG tasks to fulfil endogenous goals, despite or regardless the regulatory requirements.

In the cases we investigated, Firm A, Firm B and Enterprise E are all inclined towards the "Mandate-Driven" pathway. In the case of Enterprise E - a medium-small size listed company, the head of its in-house sustainability unit concurred that they worked on the ESG reporting largely in order to cope with the regulations. With limited in-house resources, they had to outsource the work of writing reports to third-party consultants. A third-party ESG consulting team undertaking the "outsourced" report pointed out to us that this practice of "outsourcing" of small and medium-sized listed enterprises is a reasonable, rational choice for the smaller listed firms, as the immediate cost of outsourcing is much lower than in-house production.

In addition, the head of Firm A pointed out that whenever HKEX extends the scope of the ESG reporting, new demand for services will emerge. For example, the ESG reporting requirement in the current Listing Code Appendix 27 prescribes the disclosure of four aspects of “climate” indicators, namely Emissions, Use of Resource, Environment and Natural Resources, and Climate Change. For the time being, these four levels only need to be disclosed according to the standards of Scope 1 and Scope 2, namely energy consumption in relation to enterprises themselves and the resulting gas emissions. At present, many Western countries have extended the disclosure level to Scope 3, that is, the emissions of upstream and downstream industrial supply chains related to enterprises should be disclosed together.[5]

When Scope 3 is included in the disclosure requirements, expecting to start in 2024 except for those enjoying a grace period, a garment enterprise will have to disclose the gas emissions of upstream raw material suppliers and downstream garment retail stores at the same time, which will greatly increase the difficulty of compiling ESG reports. However, because of this, the ESG team of the enterprise will need to be expanded, and the third-party ESG consultants will get more job opportunities.

Compared to the ESG reporting jobs, the value-driven pathway is more relevant to the development of green financial certification services. There is no mandatory requirement in Hong Kong for enterprises to obtain green certification before they attempt debt or equity financing. Financial institutions and investors are also not mandated to lend money to certified enterprises at lower interest rates. However, the scale of green finance in Hong Kong is increasing every year. This reflects that market participants are affecting the behaviours of enterprises through voluntary actions.

In addition, the ESG team of Enterprise D has also done a lot of work beyond the scope of mandatory disclosure required by the Listing Code, including environmental conservation, volunteer services and food safety promotion. In their view, ESG-related work can enhance the company's image. When a company encounters a crisis, which is not uncommon these days, the positive image resultant from ESG-related work, especially for those work precipitated and accumulated from the past, can be instrumental to mitigate the crisis, or at least buy time and help bring resources to enable mitigation and ensure survival at difficult times.

The manner in which companies implement their ESG objectives often undergoes rigorous examination by regulatory bodies to ensure compliance with environmental regulations and standards. While regulatory oversight is a crucial mechanism to guarantee adherence to environmental laws, it is important to recognize that the essence of green jobs transcends mere regulatory compliance (Peloza and Shang, 2011). At its core, green employment embodies a deeper motivation, which is the aforementioned concept of Public Service Motivation (PSM).

[5] In April 2023, the HKEX launched a consultation on the optimization of climate information disclosure under the ESG framework, which is expected to be implemented in fiscal year 2024 with a two-year transition period. For details, see the HKEX (2023 d).

In efforts to promote the sustainable development of green jobs, it is essential to acknowledge that individuals in these roles require a vital attribute beyond their professional skills: an intrinsic motivation to genuinely serve the public interest (Brewer and Selden, 1998). This intrinsic motivation is the central tenet emphasized by PSM. Practitioners of green jobs do not merely labor for a paycheck or career advancement; their driving force extends to loftier societal objectives - environmental preservation and sustainable development (Aguinis and Glavas, 2012). Therefore, when selecting candidates for green roles, it becomes paramount to assess their level of PSM. Measurement of PSM assists in identifying individuals who possess a sincere internal commitment and a strong sense of public interest, making them more inclined to wholeheartedly pursue goals of environmental protection.

Beyond emphasizing PSM during the selection process, we must also implement innovative strategies within daily work design to stimulate PSM among existing employees (Perry, Hondeghem, and Wise, 2010; Moynihan and Pandey, 2007; Andersen and Pedersen, 2013). This could encompass providing employees with opportunities to engage in environmental conservation projects or developing incentive schemes that foster PSM. Through these measures, employees can cultivate a heightened sense of PSM, enabling them to allocate greater attention to environmental and social responsibility within their work, as opposed to solely pursuing financial interests (Bouckaert and Van de Walle, 2003). Ultimately, behind green jobs lies an encompassing societal aspiration: the promotion of sustainable development and the safeguarding of our planet. While regulatory oversight ensures compliance, it alone is insufficient to achieving the objective of sustainability (Schwartz, 1977). Only through the cultivation and attraction of individuals with a robust sense of PSM can we genuinely advance and tangibly achieve ESG objectives in a sustainable manner (Den Hond and de Bakker, 2007).

To sum up, green jobs in Hong Kong are not, and should not be, designed solely to fulfill regulatory mandates. They need also to actively pursue broader societal goals encompassing sustainable development and environmental conservation. The introduction and cultivation of PSM emerge as critical elements and intermediary steps in achieving these objectives, thereby ensuring that our actions align not only with laws and regulations but also with the pressing imperatives of public interest and environmental preservation. By identifying and nurturing green practitioners with PSM, we can make substantial contributions to the sustainable future of Hong Kong and the global community.

4. Summary and Recommendations

From the above discussion, it can be seen that ESG reporting and green financial certification services are creating green jobs for Hong Kong in "Mandate-Driven" and "Value-Driven" pathways. The key to a sustainable development of the green jobs and the sustainability work involved lies in efforts on both pathways. On this, and building on the initial findings from our sampled objects, we have the following suggestions with a view to foster the sustained growth of green jobs and by inference contribute to sustainable development in Hong Kong.

4.1 Continuously improving the ESG reporting system

As the HKEX formulates more detailed requirements on ESG reporting, the listed institutions will need to invest more resources in improving their ESG performance and reporting, which will lead to an increase in the number of green jobs. For example, the climate disclosure reform being proposed by HKEX requires companies to disclose the impact of their own and ancillary businesses on the climate in more details.

The driving force behind the promotion of ESG reporting extends beyond the mere creation of jobs. It is rooted in the belief that ESG reporting fundamentally contributes to the sustainable development of enterprises and society, ultimately fostering a virtuous cycle. A case in point is Fidelity, a renowned international investment firm, which, citing a survey by *Friede, Busch & Bassen*, analyzed 157 major global corporations. The findings underscore that positive ESG screening not only enhances returns but also reduces overall market volatility.

Furthermore, research conducted by CICC Global Institute has shed light on the intricacies of ESG during times of adversity. Notably, it highlights a correlation between the extent of decline in A-share listed companies' risk on the day of a crisis outbreak and their overall ESG ratings. These compelling studies, from both positive and negative perspectives, serve as poignant reminders that investing additional resources in the promotion of ESG is, in essence, an investment in the future of sustainable development.

4.2 Mandating assurance review

Currently the authenticity of the ESG reports in Hong Kong is not subject to compulsory review. Through the introduction of mandatory assurance requirement, the persons in charge of the report need to bear greater responsibility and be held accountable, so as to improve the quality of ESG reports and prevent the practice of "going through the motions".

However, the following risks need to be considered: a.) impact and possible risks to involved staffs in the case of mandatory verification/assurance; b.) wide variations of reference standards across jurisdictions, creating difficulties in delineation of verification standards and requirements; c.) additional costs incurred, which can be a disincentive for small and medium-sized listed companies; d.) qualification benchmarking for production of verification/ assurance reports, and related training of professional personnel.

4.3 Appointing designated executors with responsibility

During this research we have been repeatedly reminded of the importance of leadership in ensuring implementation of ESG plans. We hence recommend that the company's Chief Financial Officer (CFO) be uniformly appointed as the designated executor of ESG reports. Whilst setting ESG goals and targets is itself important, achieving the set goals hinges upon whether there is a principal responsible person in charge of both ESG reporting *and* follow up. Currently, HKEX has mandated that the Board of Directors appoints a specific person in charge. However, the appointed person in some listed companies may not have the adequate responsibilities and access to resources to ensure adequate follow up to ensure progress of ESG performance. It has been well acknowledged in industry that incorporating ESG reporting as part of the CFO's portfolio will assist in ensuring resource allocation for improved ESG work. If ESG is not an indicator for assessing the performance of CFO, any investment to reduce carbon emissions, for an example, will tend to be perceived as a cost factor rather than benefit for the company, thus reducing the support within the corporate leadership team for the investment.

4.4 Setting ESG reporting templates by industry and company size

The performance of ESG reporting in Hong Kong has fallen behind other comparable capital markets, and many listed companies realized that ESG reporting has not substantially improved the level of corporate governance.[6] HKEX pointed out that most listed companies did not carefully examine the relationship between their operating conditions and ESG, which led to the failure to give full play to the role of ESG reporting in promoting enterprise growth and social sustainable development.

Therefore, we suggest that HKEX consider proposing different reporting focus areas based on the business nature and scale of listed companies, making it easier for listed companies to adapt. At the same time, in order to increase the comparability of ESG information, regulators should formulate clear and standardized performance indicators, so that listed companies need not worry about different interpretations and calculation methods, and investors can better distinguish the performance of different companies in the same industry.

4.5 Improving the acceptance of ESG in society

The higher the acceptance of ESG in the society, the more resources enterprises will invest in ESG reporting and using certification services. For example, the more banks value ESG to set lending rates, the better ESG will be done by enterprises for lower borrowing costs. Government financial regulators can do its part too, for example, through including the evaluation guidelines for green loans when formulating leading indicators, so as to encourage financial institutions to give loans to enterprises with ESG certification and recognition.

In addition, if consumers consistently take a company's ESG level as the patronage index, the company will be encouraged to invest more resources to improve its environment, community engagement and governance.

4.6 Enhancing the attractiveness of Hong Kong's financial market

Hong Kong is an international financial centre with a thriving stock market. The more listed companies coming to Hong Kong, the greater the demand for ESG reporting, consultancy and certification, and hence more green jobs will be created.

ESG has been receiving increasing attention from international investors, and the concept of responsible investment has been highly valued in advanced markets. Commitment to raising the standards of ESG reporting and performance will assist Hong Kong to attract more investors, which will consolidate the market's capacity and demand to raise further ESG performance, thus entering a virtuous cycle of sustainable development.

4.7 Establishing a better Green Talent Training system

The training of ESG-related talents in Hong Kong is still relatively unfocused. We suggest the government work with academic institutions to introduce a qualification certification framework, so that those who intend to join the industry can acquire sufficient knowledge and skills.

In the long run, ESG consultants, auditors and certification practitioners should be professionalized, or a licensing system might be established to ensure the quality of relevant personnel.

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[6] Phyllis Mo, Linda Li et al. (2021) Thoughts on Improving ESG Reporting Practice in Hong Kong, *CSHK Policy Paper 19*.

Generally speaking, the respondents in our study agreed that Hong Kong is still at a relatively early stage in ESG reporting and certification services compared with advanced countries. We need to increase investment in policy and resources, and these efforts will bring greater economic and social returns.

4.8 Consolidating the public service motivation of green job holders

An important part of improving the training and certification framework (4.7 above) is the incorporation of the public service motivation (PSM) factor. The fundamental essence of green jobs lies in a dedication to promoting environmental protection and sustainable development, which transgresses corporate and societal boundaries. Individuals engaged in these roles require professional skills as well as a strong commitment to serving the public interest.

Quantifying and incorporating PSM in the training of green talents plays a vital role in the process of identifying individuals who are dedicated to serving the public interest, and in further fostering and consolidating such important qualities. Empirical studies (Vandenabeele and van de Walle, 2008) finds that Individuals with a strong PSM exhibit a greater propensity for excelling in green careers, as they are driven by not only financial compensation but also by a deep-seated passion and responsibility for environmental preservation. Consequently, the recruitment and training procedures can benefit from the introduction of specially designed evaluation tools to gauge the PSM levels of candidates. These tools may encompass interview prompts, case studies, and behavioral assessments geared toward gauging motivations related to public welfare.

The day-to-day design of work processes should also be reviewed with a PSM perspective. For example, an inclusive work culture to encourage staff ideas and participation in work-related decisions will foster sense of ownership and commitment of staff, and increase the capacity of ongoing improvements in the implementation of ESG practices within enterprises.

In the ultimate analysis, PSM being a pivotal factor for successful ESG performance, publicly listed companies will more effectively realize their ESG objectives by integrating PSM considerations into the job design, personnel recruitment, and training process of the green jobs in their companies. This effort ensures that green jobs play an integral force in the pursuit of sustainable development benefitting the corporates as well as society, whilst offering employees gratifying career prospects.

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