

環保報告 2022

Environmental Report

Government Laboratory

香港特別行政區政府

The Government of the Hong Kong Special Administrative Region





目錄 *Table of Contents*

報告摘要 Executive Summary.....	3
主要職責概述 Profile of Key Responsibility.....	4
組織圖 Organisation Chart.....	5
實驗室地點 Laboratory Locations.....	6
環保政策 Environmental Policy.....	7
環境管理系統 Environmental Management System.....	10
資源耗用 Resources Consumption.....	14
廢物管理 Waste Management.....	15
室內空氣質素 Indoor Air Quality	16
碳管理 Carbon Management.....	17
能源管理 Energy Management.....	18
展望 Way Forward.....	19
意見及查詢 Feedback and Enquiries.....	20

報告摘要 *Executive Summary*

政府化驗所提供廣泛的分析、調查和諮詢服務，為香港特區政府決策局及相關部門在法治、食品安全、公眾衛生、環境保護和消費者權益等各方面的的工作，提供支援。

由於政府化驗所的核心服務涉及化學品使用和儀器操作，為履行維護環境的責任，我們在化學品儲存和處理、樣本測試、廢料處置等方面，均制定妥善程序，務求減少耗用、防止污染及節約能源。

自 1998 年起，政府化驗所根據 ISO 14001 標準建立了一套環境管理系統，以實施更有效管理及履行維持高水準環境績效的承諾，確保化驗服務的可持續發展。

本報告總結政府化驗所於 2022 年的環保成效，涵蓋部門在環境管理作出的努力。踏入2023年，欣逢政府化驗所110周年紀念，我們會秉承精益求精的專業態度，繼續探索機遇，務求提升日常運作和實驗室設施方面的環境績效。



政府化驗師
李偉安博士
二零二三年八月

The Government Laboratory (GL) provides a wide range of analytical, investigatory and advisory services and support to enable bureaux and departments of the Government of the Hong Kong Special Administrative Region (HKSAR) to meet their responsibilities for law and order, food safety, public health, environmental protection, consumer protection and implementation of government policies.

As the core services of the GL involve chemical usage and instrumental operation, we strive to fulfil our environmental obligations by establishing proper procedures on chemical storage and handling, sample analysis, as well as waste disposal to minimise material use, prevent pollution and save energy.

Since 1998, the GL has established an environmental management system (EMS) in accordance with ISO 14001 standard to better manage and achieve our commitment to maintaining a high standard of environmental performance for ensuring sustainable development of our laboratory services.

This report summarises the GL's performance pertaining to environmental management through our various efforts in the year of 2022. In celebrating the 110th anniversary of the GL in 2023, we will continue to uphold our professionalism and to seek opportunities to enhance our operation and laboratory facilities for further improvement of our environmental performance.

Dr. LEE Wai-on
Government Chemist
August 2023



主要職責概述 *Profile of Key Responsibility*

政府化驗所由政府化驗師領導，為各政策局和政府部門提供廣泛而公正及可靠的法證、分析和諮詢服務。

為了保障公眾健康及保護消費者，政府化驗所恆常地為食物、藥物、中藥及商品等進行檢測；同時，我們亦提供有關環境保護的檢測及諮詢服務，以支持香港的可持續發展。此外，政府化驗所提供必要的法證服務，以支持香港的刑事司法制度。

截至 2022 年 12 月，政府化驗所的員工編制共 515 人，由 27 個位於本港不同地點的專職組別負責提供服務。政府化驗所的組織圖及實驗室地點詳見後兩頁。

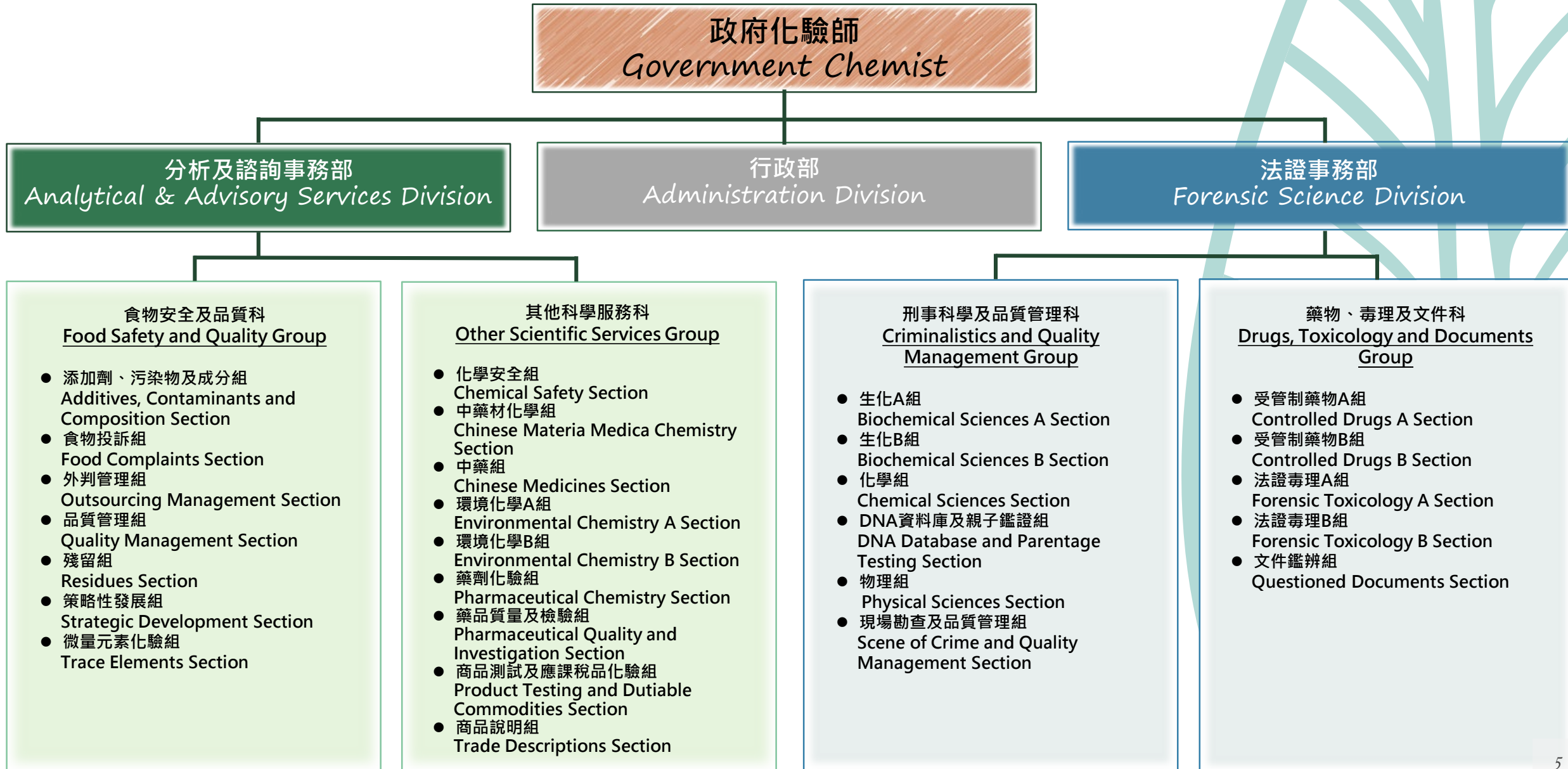
The GL, headed by the Government Chemist, offers a comprehensive range of impartial and reliable forensic, analytical and advisory services to various bureaux and government departments.

Analytical and advisory services are provided for surveillance programmes on food, drugs, Chinese medicines and commodities, etc. to safeguard public health and protect consumers. We also provide testing and advisory services related to environmental protection in order to support the sustainable development of Hong Kong. In addition, the GL provides essential forensic science services to support the criminal justice system in Hong Kong.

As at December 2022, the GL had a staff establishment of 515. Services were delivered by 27 specialist Sections situated at various locations in Hong Kong. The organisation chart and the laboratory locations of the GL are shown on the next two pages.



組織圖 Organisation Chart



實驗室地點 Laboratory Locations

九龍石硤尾
公共衛生檢測中心
Public Health
Laboratory Centre
Shek Kip Mei, Kowloon



總部

Headquarters

九龍何文田
何文田政府合署
Ho Man Tin Government Offices
Ho Man Tin, Kowloon



新界沙田
香港科學園
Hong Kong Science Park
Sha Tin, New Territories

九龍荔枝角
荔枝角政府合署
Lai Chi Kok
Government Offices
Lai Chi Kok, Kowloon



九龍何文田
京士柏氣象站
King's Park
Meteorological Station
Ho Man Tin, Kowloon

香港薄扶林
食物安全檢測所
Food Safety Laboratory
Pok Fu Lam, Hong Kong



九龍長沙灣實驗室
Laboratory at Cheung Sha Wan, Kowloon



九龍九龍灣
工務中央試驗所大樓
Public Works Central
Laboratory Building
Kowloon Bay, Kowloon

環保政策 *Environmental Policy*

政府化驗所承諾，致力執行有效的環保管理系統，作為日常工作的一個重要部分。我們的政策，是確保不論在何時何地，政府化驗所的工作程序和設施都能完全符合環保要求。具體而言，我們會遵從後兩頁所列的六大環保政策的原則：

The GL is committed to maintaining a sound environmental management system as an integral part of its daily operation. It is our policy to ensure all processes and facilities of the GL fully comply with environmental requirements, at all times and in all places. Specifically, we adhere to the six principles of our environmental policy shown on the next two pages:



環保政策

Environmental Policy

(a) 防止污染

政府化驗所在提供服務的過程中，致力遏制釋放污染物，並減輕其對環境的有害影響。

(a) Prevent Pollution

We strive to prevent the release of pollutants that the Laboratory may cause during service delivery, and to mitigate their detrimental effects to the environment.

(b) 保護資源

我們提倡綠色採購和管理，遵照“減少、重用、再造、及替代”原則，採取所有切實可行的措施節約能源，以及減少耗損淨水、物料和自然資源。

(b) Preserve Resources

We promote green procurement and management, and take all practicable measures to conserve energy, water, materials and natural resources by adopting the principle of “reduce, reuse, recycle and replace”.

(c) 履行合規義務

我們確保運作過程完全符合相關的環保法例及其他適用要求。

(c) Fulfil Compliance Obligations

We fulfil the obligations to comply with all relevant regulatory and other applicable requirements on environmental performance in our operation.

環保政策

Environmental Policy

(d) 加強溝通和意識



- 我們透過發布年度報告匯報我們的環境表現，以提高對公眾的透明度；
- 我們定期向所有員工提供培訓及發放指引，培養綠色文化和增強員工的環保意識。

(d) Enhance Communication and Awareness



- We facilitate transparency to the public through annual reporting of our environmental performance;
- We foster green culture and staff awareness through providing regular training and guidelines to all staff.

(e) 支持可持續發展



我們致力透過可持續方式提供優質的化驗服務，並在追求科技進步時，竭力降低對環境的影響。

(e) Support Sustainable Development



We are committed to providing quality laboratory services in a sustainable manner with due consideration for minimising environmental impacts while achieving technology advancement.

(f) 追求持續改進



我們決意持續不斷改進，全方位追求環境表現的提升。

(f) Promote Continual Improvement



We are determined to seek continual improvement to enhance our environmental performance on all fronts.

環境管理系統 Environmental Management System

員工責任

政府化驗所轄下的環境、安全及保安委員會負責制定及推行環保政策和指引，並監察環保表現。委員會由一位首長級人員領導，成員包括政府化驗師委派的人員及各職級員工代表，並定期商討環境管理的工作和跟進有關事項。

各組主管及部門主任秘書均獲委派為「環境、安全及保安督察」，負責監督屬下員工遵守環保政策、指引及措施。

另外，分析及諮詢事務部轄下的環境管理系統工作小組，負責協助環境經理處理部內的環保事宜，以及協助四個已獲得 ISO 14001 認證的組別 (即環境化學A組、環境化學B組、殘留組及微量元素化驗組) 推行環境管理。此外，為擴展 ISO 14001 認證範圍，環境管理系統工作小組亦會為其餘組別作認證準備及提供支援。現時，環境管理系統工作小組由環境經理領導，成員包括分析及諮詢事務部轄下各組別的代表。

Staff Responsibility

The Laboratory Environment, Safety and Security Committee (LESSC) is responsible for formulating our environmental policy and guidelines, overseeing their implementation and monitoring environmental performance. Chaired by a directorate-grade officer and comprised of officers appointed by the Government Chemist and staff representatives of different ranks, the Committee meets regularly for discussing EMS related matters.

Section Heads and the Departmental Secretary are designated to be the GL's Environment, Safety and Security Inspectors, who are responsible for ensuring compliance with the established environmental policy, guidelines and measures on environmental matters by their staff.

Moreover, an Environmental Management System Working Group (EMSWG) under the Analytical & Advisory Services Division (A&ASD) is established to assist the Environmental Manager (EM) in overseeing the implementation of the EMS in the Environmental Chemistry A & B Sections, Residues Section and Trace Elements Section according to ISO 14001. In addition, the EMSWG also provides support to the remaining Sections in preparing for the extension of ISO 14001 certification. Currently, the EMSWG is led by the EM and comprises sectional representatives in the A&ASD.



環境管理系統 Environmental Management System

教育及培訓

所有新聘用的員工必須參加環境管理入職培訓，內容包括化學品處理、設備使用、化學品和廢料洩漏處理及一般實驗室安全措施。此外，政府化驗所亦定期舉行緊急事故處理的培訓及演習，當中包括處理化學品洩漏，防止污染環境。

因應本地新冠肺炎疫情和政府僱員實施的特別上班安排，原定於2022年上半年進行的環境突發事故演習推遲至下半年進行。在2022年，我們舉辦了16次環境突發事故演習。

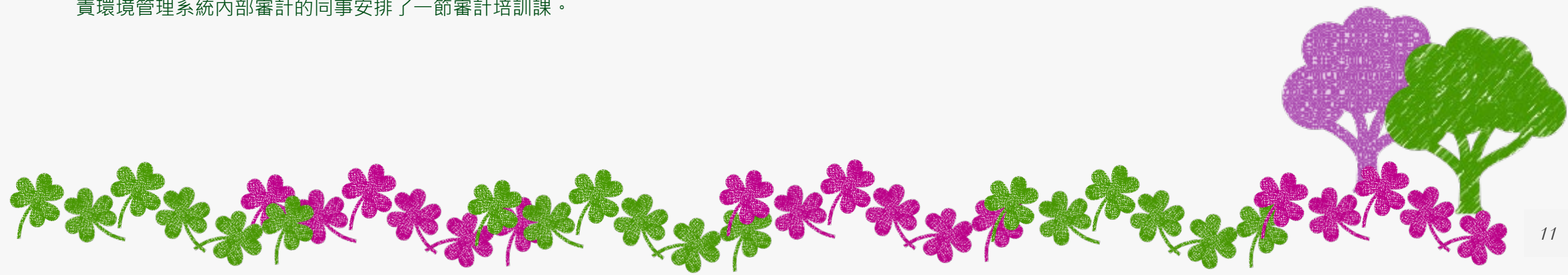
我們舉辦了一節EMS培訓課，讓同事們對化驗所的環境管理系統及其操作程序、ISO14001標準和政府綠色政策有概括的認識。此外，我們還為負責環境管理系統內部審計的同事安排了一節審計培訓課。

Education and Training

Induction training on environmental management is given to all new recruits, covering handling of chemicals and use of relevant equipment, procedures for handling spillage of chemicals and wastes, and general laboratory safety practices. Furthermore, training and drills are regularly organised on topics related to environmental emergency including handling of chemical spillage so as to prevent environmental contamination.

In view of the severity of the local COVID-19 epidemic situation and the special work arrangements for government employees, the scheduled environmental emergency drills for the period of January to June 2022 were postponed to second half of the year. In total, 16 drill sessions were conducted in 2022.

An EMS Introduction Training was arranged for colleagues with a view to enabling them to have a general understanding on the GL's EMS and its operating procedure, ISO14001 standard and Government green policy. In addition, an Auditor Training was also arranged for colleagues who were responsible for EMS internal audit.



環境管理系統 Environmental Management System

環境管理系統監測及評審

為了監測、量度、分析和評估環境績效及表明我們履行合規義務，政府化驗所制定及實施一套環境監測計劃，檢測已獲 ISO 14001 認證相關組別的排放物水平。2022 年的環境監測計劃已經順利完成，所有監測數據均符合相關法例規定。

香港品質保證局於 2023 年 1 月為化驗所的環境管理系統進行審核，並確認化驗所的環境管理系統及有關運作程序持續符合 ISO 14001 的認證要求並能達到預期結果，因此推薦環境化學A組、環境化學B組、微量元素化驗組和殘留組維持原有認證。另外，外判管理組及品質管理組亦獲得審核小組推薦，成功取得ISO14001的認證。

此外，在 2022 年 12 月，化驗所亦進行了該年度的環境管理系統內部審核。結果顯示，化驗所的環境管理系統運作良好，能有效地達到環境政策的各項目標。

Environmental Monitoring and Audits

To monitor, measure, analyse and evaluate the GL's environmental performance, and to demonstrate compliance with our obligations, an environmental monitoring programme is formulated and conducted annually for checking level of discharges from relevant Sections undertaking ISO 14001 certification. The environmental monitoring programme for 2022 was successfully completed. The results of all test parameters were found to comply with relevant regulatory limits.

An external recertification with extension audit by the Hong Kong Quality Assurance Agency was carried out in January 2023. The audit team concluded that the GL's environmental management system and relevant operating procedures continually fulfilled the ISO 14001 certification requirements and met the expected outcomes, therefore, certification was recommended to the Environmental Chemistry A & B Sections, Trace Elements Section, and Residues Section with extension to additional two sections, viz., Outsourcing Management Section and Quality Management Section.

Moreover, the annual internal audit was carried out in December 2022. The findings of internal audit indicated that the EMS adopted in the GL had been well implemented and met effectively the goals of the environmental policy.



環境管理系統 Environmental Management System

環境管理改善措施

早前，政府化驗所有四個組別已經獲取 ISO 14001 認證。於 2022 年，政府化驗所透過持續優化資源，準備逐步擴大認證範圍以涵蓋其他組別。經內部評估後，品質管理組和外判管理組已被納入化驗所的環境管理系統，並於 2023 年 1 月的 ISO 14001 認證外部審核中成功取得認證。

政府化驗所現時採用無紙化的環境管理系統，系統內的文件及記錄均為電子版本，有效加強綠色管理。

此外，政府化驗所根據政府的環境政策，推廣切實可行的綠色採購，鼓勵各組別人員在採購指定物品和服務時，引用相關通函訂定的綠色規格。化驗所亦會探討提升資訊科技系統的可行性，以促進綠色採購。

在 2022 年，政府化驗所就用於包裝外判樣品的塑料袋提出了一項新的環境因素，務求在塑料袋的使用量和尺寸兩方面均保持在最低量值，盡力減少產生塑料廢物。

Initiatives on Environmental Improvement

Previously, four Sections of the GL have obtained ISO 14001 certification. In 2022, the GL continue to prepare for extending the certification scope progressively to cover other Sections through optimising existing resources. After internal evaluation, two additional Sections, namely the Quality Management Section and the Outsourcing Management Section, were incorporated into the EMS and acquired ISO 14001 certification during the external assessment exercise in January 2023.

The GL continued to adopt a paper-free EMS. Environmental documents and records were in electronic format to enhance green management practice.

In addition, the GL would promote green procurement in accordance with the Government's environmental policy as far as practicable. Sections are encouraged to adopt the green specifications featured in relevant government circulars when procuring designated goods and services. The GL would also explore the feasibility of upgrading its IT system to facilitate green procurement.

In 2022, a new Environmental Factor was raised to address the usage of plastic bags for packaging of outsourcing samples. Both the quantity and size of plastic bags for packaging purpose would be kept to a minimum so as to minimize the amount of plastic waste generated.



資源耗用 Resources Consumption

政府化驗所環境安全及保安小組不僅制訂環保指引，更不時提醒員工遵守相關指引和守則。就此，我們按時監察信封、影印機紙張和電力的耗用量，作為年度環保成效的指標。

政府化驗所在不斷為客戶部門擴展化驗服務之餘，各項資源的耗用量大致保持平穩。在 2020 年至 2022 期間，因應 2019 冠狀病毒病疫情嚴峻，政府實施了特別上班安排，相信因此導致信封和影印機紙張耗用量出現一些波動的情況。日後，我們會繼續透過運用科技，盡可能減少資源耗用。

The LESSC had prepared the environmental guidelines and frequently reminds colleagues to observe the green housekeeping measures stipulated therein. In this connection, the consumption of electricity, photocopier paper and envelopes were monitored annually as environmental performance indicators.

The resources consumption by the GL were relatively steady despite the continuous expanding of new analytical services offered to client departments. The fluctuation in envelope and photocopier paper consumption during 2020 – 2022 was likely due to the implementation of governmentwide special work arrangement for addressing the severity of the COVID-19 epidemic situation. The GL will keep making use of technology to minimise resources consumption as far as practicable.

年度環保成效指標
Annual Environmental Performance Indicators

	2018	2019	2020	2021	2022
信封 (個) Envelope (No.)	5043	5085	3324	4244	3380
影印機紙張 (千克) Photocopier paper (kg)	2349	2743	2041	2265	2875
電力* (10 ³ kWh) Electricity (10 ³ kWh)	2610	2403	2692	2690	2570

*政府化驗所總部的用電量

*Electrical consumption of the Government Laboratory Headquarters

廢物管理 Waste Management

根據 ISO 14001 環境管理系統的要求，政府化驗所實施有效的廢物管理，定期監測日常運作所產生的污水與廢氣，確保其化學物質含量符合有關法例規定。此外，所有員工必須接受培訓，並定期予以提醒需按照既定的環境指引妥善處理各種廢料。

政府化驗所產生的化學廢料全部由專責機構收集和處理。在 2022 年，化學廢料的產生總量比過往幾年顯著減少。我們會繼續透過提升化驗方法的環境績效，務求持續減少化學廢料的產生量。

Under ISO 14001 EMS, the GL has implemented effective waste management to ensure compliance with relevant regulatory limits by regular monitoring of effluent and air discharge on the level of chemicals generated in daily operation. Moreover, all staff members are trained and constantly reminded to dispose of different kinds of wastes properly in accordance with the established environmental guidelines.

All chemical wastes generated in the GL are collected for treatment by authorised agent. In 2022, the total amount of chemical wastes generated showed a significant decrease in the past few years. The GL will continue to reduce generation of chemical wastes through enhancement of the environmental performance of testing methods.

ISO 14001 認證組別所產生的化學廢料量
Amounts of Chemical Wastes Generated by Sections Implementing ISO 14001

	2018	2019	2020	2021	2022
酸性化學廢料 (升) Acidic Waste (L)	5817	5274	4541	4859	4137
非鹵化有機化學廢料 (升) Non-Halogenated Waste (L)	2407	2215	2282	2247	2526
鹵化有機化學廢料 (升) Halogenated Waste (L)	1937	1667	1541	1573	1482
鹼性化學廢料 (升) Alkali Waste (L)	127	109	147	202	64
總量 (升) Total (L)	10288	9265	8511	8881	8209

室內空氣質素 *Indoor Air Quality*

政府化驗所一向致力在多方面加強工作環境的管理。現時，我們有六個實驗室處所參與「室內空氣質素認證計劃」，包括何文田政府合署的政府化驗所總部、荔枝角政府合署、工務中央試驗所大樓、食物安全檢測所、香港科學園及公共衛生檢測中心，並獲得「卓越級」或「良好級」的認證。

The GL takes every opportunity to enhance the management of our working environment. Regarding Indoor Air Quality, our laboratories in six locations including the Headquarters at the Ho Man Tin Government Offices, Lai Chi Kok Government Offices, Food Safety Laboratory (FSL), Public Works Central Laboratory Building, Hong Kong Science Park and Public Health Laboratory Centre have attained the "Excellent" or "Good" Class in the Indoor Air Quality Certification Scheme.



碳管理 *Carbon Management*

政府化驗所大部份實驗室，均與其他政府部門共用建築物空間，並由各有關管理辦事處或政府產業署管理。而位於香港島薄扶林域多利道 800 號的食物安全檢測所，則由政府化驗所獨立管理。目前，檢測所設有殘留組，負責食品中的獸藥殘留和農藥殘留的檢測工作。

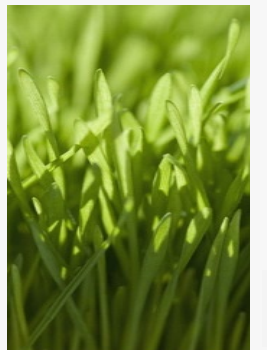
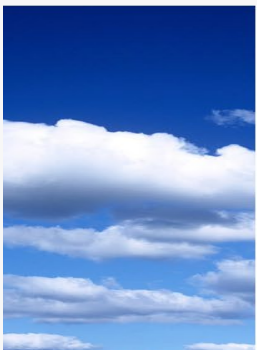
政府化驗所根據由環境保護署及機電工程署聯合出版的「香港樓宇(商業、住宅或機構)溫室氣體排放及減除分析和報告指引」為食物安全檢測所進行碳審計評估，結果顯示其在 2021-22 財政年度的溫室氣體排放量為 1385 公噸二氧化碳當量。

香港特別行政區政府承諾與國際社會緊密合作，一同致力減少溫室氣體的排放。在未來日子，政府化驗所會繼續尋求並採取有效可行的環保措施，致力為溫室氣體的減排工作上作出貢獻。

Most laboratories of the GL are sharing building space with other Government departments and hence co-managed by the respective building management office or the Government Property Agency. The FSL situated at 800 Victoria Road, Pokfulam on the Hong Kong Island, on the other hand, is a premises solely managed by the GL. Currently, the FSL houses the Residues Section which is responsible for testing of residues of veterinary drugs and pesticides in food.

The GL has conducted a “Paper Approach” carbon audit on the FSL in accordance with the “Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purpose) in Hong Kong” compiled by the Environmental Protection Department (EPD) and the Electrical and Mechanical Services Department (EMSD). The audit result indicated that the amount of greenhouse gas (GHG) emissions in fiscal year 2021-22 was 1385 tonnes of CO₂-equivalent.

It is the commitment of the Government of HKSAR to work closely with the international community to reduce GHG emissions. In the future, the GL will continue to explore and adopt practicable green measures to reduce GHG emissions.



能源管理 Energy Management

政府早前定下目標，在2019-20 年度把政府建築物的用電量減少 5 %。在各相關政策局和部門的共同努力下，目標於2018-19年度提前一年達成。在此成功的基礎上，《2019 年施政報告》制定了下一個五年「綠色能源目標」，期望在2020-21至2024-25 年間，以 2018-19 年為基準年，在運作環境相若的基礎上，能達致 6% 的「綠色能源目標」。

為響應政府節約用電的政策，食物安全檢測所已完成了三項能源管理機會項目。食物安全檢測所在 2021-22 財政年度的用電量與2018-19基準年的水平相約。政府化驗所將繼續貫徹政府政策，探討更多可行方案以達到節能目標。

The Government has set a previous target to reduce electricity consumption in government buildings by 5% by 2019-2020. With concerted efforts from all bureaux and departments concerned, the target was achieved in 2018-19, one year ahead of schedule. Building on this success, the Government had formulated the next five-year “Green Energy Target” in the 2019 Policy Address which set another 6% “Green Energy Target” for the period 2020-21 to 2024-25 under comparable operating conditions in 2018-19 as the baseline.

In order to support the government policy on electricity saving, the FSL had completed three items of Energy Management Opportunities. The electricity consumption of the FSL in fiscal year 2021-22 was found to be similar to the baseline year of 2018-19. The GL will continue to implement government policies by exploring more feasible solutions to achieve the established energy saving target.



展望 Way Forward

政府化驗所一向致力維護健全的環境管理系統，視之為日常運作的重要部分。我們的方針是無論在何時何地，通過檢討所有流程和設施來獲致服務的可持續發展。2022 年的環境審核結果和環境監測數據均表明，化驗所的環境管理系統運作良好，能有效地達到環境政策的各項目標。

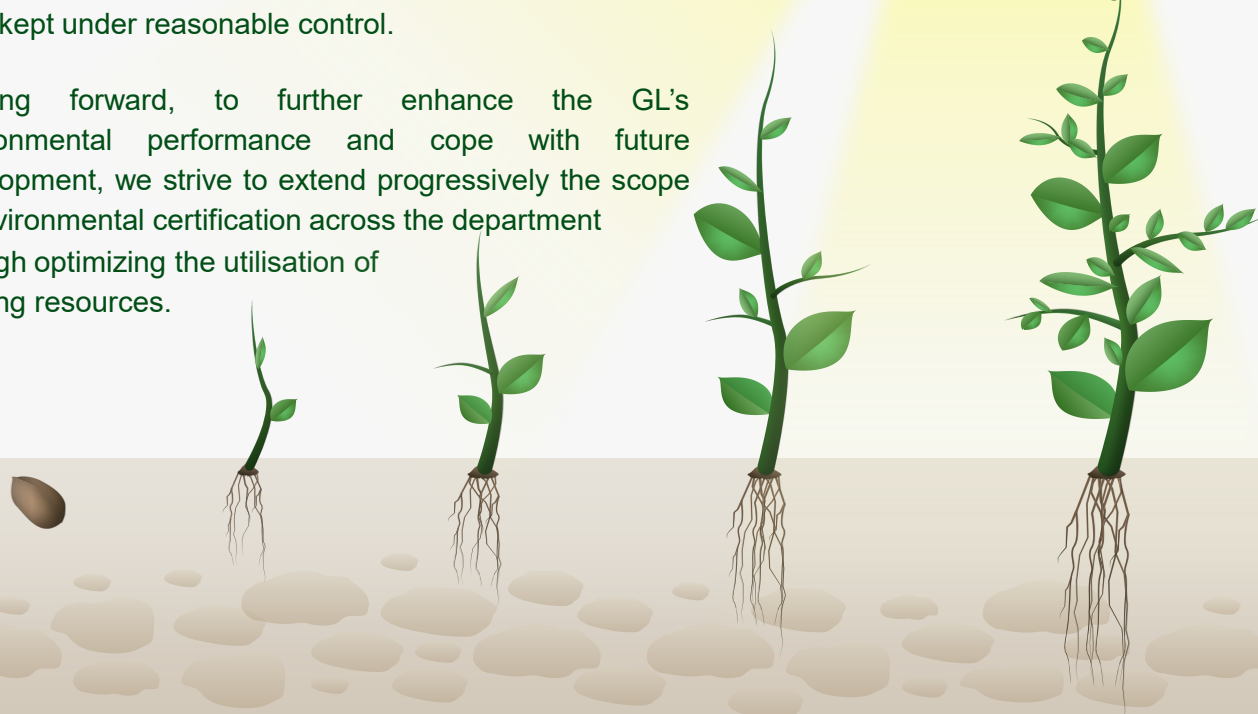
一如既往，化驗所為了不斷提升環境績效，會持續審視其運作。所有組別將繼續檢討其分析方法，精簡工作流程，及找尋非環境友善化學品的替代物，確保既定的環境指引和程序得以有效地實施。此外，透過同事的不斷努力，我們過去幾年的資源耗用及化學廢料產生量得以合理地控制。

展望未來，為進一步提高政府化驗所的環境績效及配合未來發展，我們會努力優化現有資源的使用，逐步擴大環境認證範圍以涵蓋整個部門。

The GL is committed to maintaining a sound environmental management system as an integral part of our activities. It is our objective to achieve sustainable service development by reviewing all processes and facilities at all times and in all places. The findings of environmental audits as well as environmental monitoring data in 2022 indicated that the EMS adopted in the GL had been well implemented and met effectively the goals of the environmental policy.

As always, in pursuit of continuous improvement in environmental performance, the GL constantly reviews our operation. All Sections will continue to examine their analytical methods, streamline processes and explore alternatives for replacing non-environmental friendly chemicals so as to ensure that the established environmental guidelines and procedures are fully implemented. With the efforts of all staff members, our resource consumption and amounts of chemical wastes generated were kept under reasonable control.

Looking forward, to further enhance the GL's environmental performance and cope with future development, we strive to extend progressively the scope of environmental certification across the department through optimizing the utilisation of existing resources.



意見及查詢 *Feedback and Enquiries*

如對本報告有任何意見及查詢，請聯絡政府化驗所部門主任秘書。

Please direct all feedback and enquiries concerning this report to the Departmental Secretary of the GL.



2762 3700



2714 4083



glabinfo@govtlab.gov.hk



www.govtlab.gov.hk



香港九龍何文田忠孝街 88 號何文田政府合署7樓

7/F, Ho Man Tin Government Offices,

88 Chung Hau Street, Ho Man Tin, Kowloon, Hong Kong





Government Laboratory

香港特別行政區 政府化驗所

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