

# 环保报告 2022

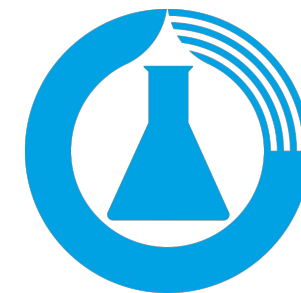
## *Environmental Report*

Government Laboratory

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香港特别行政区政府

The Government of the Hong Kong Special Administrative Region





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# 报告摘要 *Executive Summary*

政府化验所提供广泛的分析、调查和咨询服务，为香港特区政府决策局及相关部门在法治、食品安全、公众卫生、环境保护和消费者权益等方面的工作，提供支援。

由于政府化验所的核心服务涉及化学品使用和仪器操作，为履行维护环境的责任，我们在化学品储存和处理、样本测试、废料处置等方面，均制定妥善程序，务求减少耗用、防止污染及节约能源。

自 1998 年起，政府化验所根据 ISO 14001 标准建立了一套环境管理系统，以实施更有效管理及履行维持高水准环境绩效的承诺，确保化验服务的可持续发展。

本报告总结政府化验所于 2022 年的环保成效，涵盖部门在环境管理作出的努力。踏入2023年，欣逢政府化验所110周年纪念，我们会秉承精益求精的专业态度，继续探索机遇，务求提升日常运作和实验室设施方面的环境绩效。



政府化验师  
李伟安博士  
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



# 主要职责概述 *Profile of Key Responsibility*

**政**府化验所由政府化验师领导，为各政策局和政府部门提供广泛而公正及可靠的法证、分析和咨询服务。

为了保障公众健康及保护消费者，政府化验所恒常地为食物、药物、中药及商品等进行检测；同时，我们亦提供有关环境保护的检测及咨询服务，以支持香港的可持续发展。此外，政府化验所提供必要的法证服务，以支持香港的刑事司法制度。

截至 2022 年 12 月，政府化验所的员工编制共 515 人，由 27 个位于本港不同地点的专职组别负责提供服务。政府化验所的组织结构及实验室地点详见后两页。

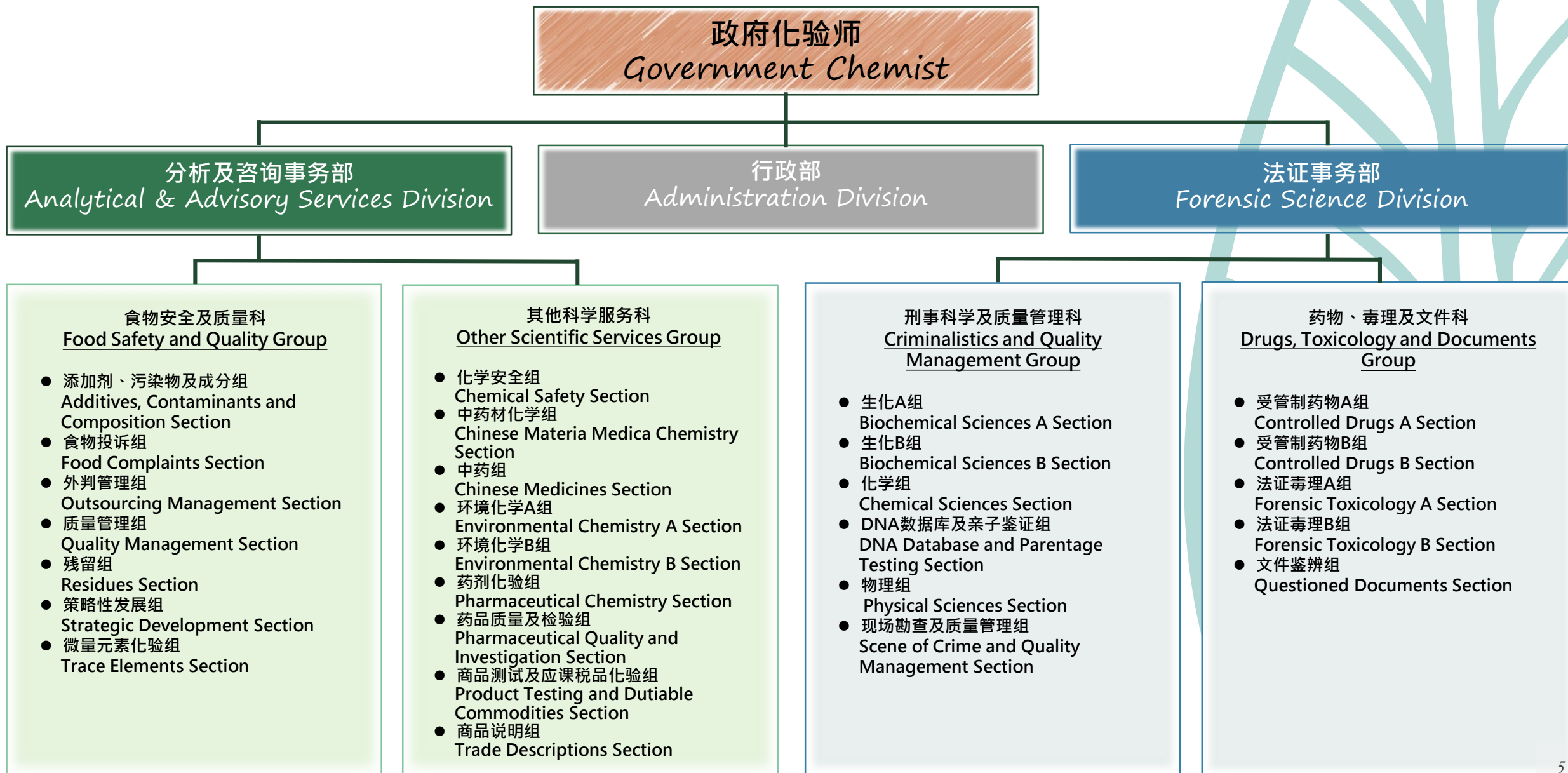
**T**he GL, headed by the Government Chemist, offers a comprehensive range of impartial and reliable forensic, analytical and advisory services to various bureaux and government departments.

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.



# 组织结构 Organisation Chart



# 实验室地点 Laboratory Locations

九龙石硤尾  
公共卫生检测中心  
Public Health  
Laboratory Centre  
Shek Kip Mei, Kowloon



九龙何文田  
何文田政府合署  
Ho Man Tin Government Offices  
Ho Man Tin, Kowloon



新界沙田  
香港科学园  
Hong Kong Science Park  
Sha Tin, New Territories

九龙荔枝角  
荔枝角政府合署  
Lai Chi Kok  
Government Offices  
Lai Chi Kok, Kowloon



九龙何文田  
京士柏气象站  
King's Park  
Meteorological Station  
Ho Man Tin, Kowloon

香港薄扶林  
食品安全检测所  
Food Safety Laboratory  
Pok Fu Lam, Hong Kong



九龙长沙湾实验室  
Laboratory at Cheung Sha Wan, Kowloon



九龙九龙湾  
工务中央试验所大楼  
Public Works Central  
Laboratory Building  
Kowloon Bay, Kowloon

# 环保政策 *Environmental Policy*

**政**府化验所承诺，致力执行有效的环保管理系统，作为日常工作的一个重要部分。我们的政策，是确保不论在何时何地，政府化验所的工作程序和设施都能完全符合环保要求。具体而言，我们会遵从后两页所列的六大环保政策的原则：

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:



# 环保政策

## Environmental Policy

### **(a) 防止污染**

政府化验所在提供服务的过程中，致力遏制释放污染物，并减轻其对环境的有害影响。

### **(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) 保护资源**

我们提倡绿色采购和管理，遵照“减少、重用、再造、及替代”原则，采取所有切实可行的措施节约能源，以及减少耗损净水、物料和自然资源。

### **(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) 履行合规义务**

我们确保运作过程完全符合相关的环保法例及其他适用要求。

### **(c) Fulfil Compliance Obligations**

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



# 环保政策

## Environmental Policy

### **(d) 加强沟通和意识**



- 我们透过发布年度报告汇报我们的环境表现，以提高对公众的透明度；
- 我们定期向所有员工提供培训及发放指引，培养绿色文化和增强员工的环保意识。

### **(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) 支持可持续发展**



我们致力透过可持续方式提供优质的化验服务，并在追求科技进步时，竭力降低对环境的影响。

### **(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) 追求持续改进**



我们决意持续不断改进，全方位追求环境表现的提升。

### **(f) Promote Continual Improvement**



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

# 环境管理系统 Environmental Management System

## 员工责任

政府化验所辖下的环境、安全及保安委员会负责制定及推行环保政策和指引，并监察环保表现。委员会由一位首长级人员领导，成员包括政府化验师委派的人员及各职级员工代表，并定期商讨环境管理的工作和跟进有关事项。

各组主管及部门主任秘书均获委派为「环境、安全及保安督察」，负责监督属下员工遵守环保政策、指引及措施。

另外，分析及咨询事务部辖下的环境管理系统工作小组，负责协助环境经理处理部内的环保事宜，以及协助四个已获得 ISO 14001 认证的组别（即环境化学A组、环境化学B组、残留组及微量元素化验组）推行环境管理。此外，为扩展 ISO 14001 认证范围，环境管理系统工作小组亦会为其余组别作认证准备及提供支持。现时，环境管理系统工作小组由环境经理领导，成员包括分析及咨询事务部辖下各组别的代表。

## 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.



# 环境管理系统 Environmental Management System

## 教育及培训

所有新聘用的员工必须参加环境管理入职培训，内容包括化学品处理、设备使用、化学品和废料泄漏处理及一般实验室安全措施。此外，政府化验所亦定期举行紧急事故处理的培训及演习，当中包括处理化学品泄漏，防止污染环境。

因应本地新冠肺炎疫情和政府雇员实施的特别上班安排，原定于2022年上半年进行的环境突发事故演习推迟至下半年进行。在2022年，我们举办了16次环境突发事故演习。

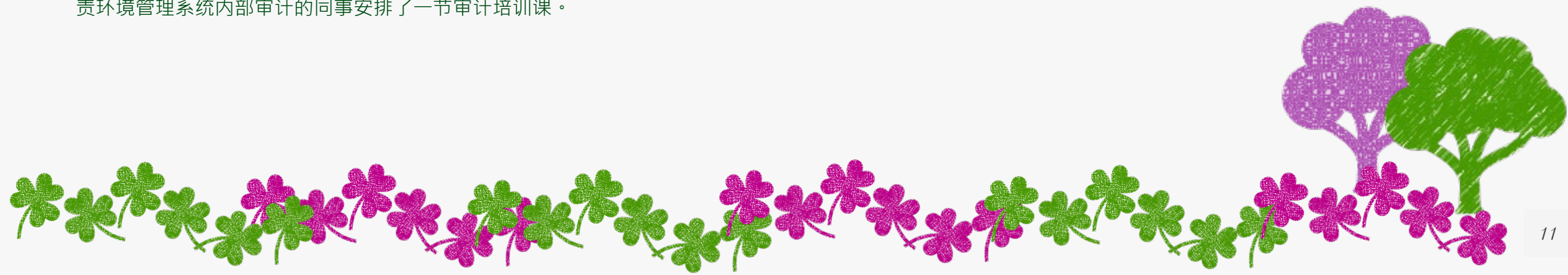
我们举办了一节EMS培训课，让同事们对化验所的环境管理系统及其操作程序、ISO14001标准和政府绿色政策有概括的认识。此外，我们还为负责环境管理系统内部审计的同事安排了一节审计培训课。

## 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.



# 环境管理系统 Environmental Management System

## 环境管理系统监测及评审

为了监测、量度、分析和评估环境绩效及表明我们履行合规义务，政府化验所制定及实施一套环境监测计划，检测已获 ISO 14001 认证相关组别的排放物水平。2022 年的环境监测计划已经顺利完成，所有监测数据均符合相关法例规定。

香港质量保证局于 2023 年 1 月为化验所的环境管理系统进行审核，并确认化验所的环境管理系统及有关运作程序持续符合 ISO 14001 的认证要求并能达到预期结果，因此推荐环境化学A组、环境化学B组、微量元素化验组和残留组维持原有认证。另外，外判管理组及质量管理组亦获得审核小组推荐，成功取得ISO14001的认证。

此外，在 2022 年 12 月，化验所亦进行了该年度的环境管理系统内部审核。结果显示，化验所的环境管理系统运作良好，能有效地达到环境政策的各项目标。

## 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.



# 环境管理系统 Environmental Management System

## 环境管理改善措施

早前，政府化验所有四个组别已经获取 ISO 14001 认证。于 2022 年，政府化验所透过持续优化资源，准备逐步扩大认证范围以涵盖其他组别。经内部评估后，质量管理组和外判管理组已被纳入化验所的环境管理系统，并于2023年1月的 ISO 14001 认证外部审核中成功取得认证。

政府化验所现时采用无纸化的环境管理系统，系统内的文件及记录均为电子版本，有效加强绿色管理。

此外，政府化验所根据政府的环境政策，推广切实可行的绿色采购，鼓励各组别人员在采购指定物品和服务时，引用相关通函订定的绿色规格。化验所亦会探讨提升信息科技系统的可行性，以促进绿色采购。

在 2022 年，政府化验所就用于包装外判样品的塑料袋提出了一项新的环境因素，务求在塑料袋的使用量和尺寸两方面均保持在最低量值，尽力减少产生塑料废物。

## 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.



# 资源耗用 Resources Consumption

政府化验所环境安全及保安小组不仅制订环保指引，更不时提醒员工遵守相关指引和守则。就此，我们按时监察信封、复印机纸张和电力的耗用量，作为年度环保成效的指标。

政府化验所在不断为客户部门扩展化验服务之余，各项资源的耗用量大致保持平稳。在 2020 年至 2022 期间，因应 2019 冠状病毒病疫情严峻，政府实施了特别上班安排，相信因此导致信封和复印机纸张耗用量出现一些波动的情况。日后，我们会继续透过运用科技，尽可能减少资源耗用。

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.

年度环保成效指标  
Annual Environmental Performance Indicators

	2018	2019	2020	2021	2022
信封 (个) Envelope (No.)	5043	5085	3324	4244	3380
复印机纸张 (千克) Photocopier paper (kg)	2349	2743	2041	2265	2875
电力* (10 <sup>3</sup> kWh) Electricity (10 <sup>3</sup> kWh)	2610	2403	2692	2690	2570

\*政府化验所总部的用电量

\*Electrical consumption of the Government Laboratory Headquarters

# 废物管理 Waste Management

根据 ISO 14001 环境管理系统的要求，政府化验所实施有效的废物管理，定期监测日常运作所产生的污水与废气，确保其化学物质含量符合有关法规规定。此外，所有员工必须接受培训，并定期予以提醒需按照既定的环境指引妥善处理各种废料。

政府化验所产生的化学废料全部由专责机构收集和处理。在 2022 年，化学废料的产生总量比过往几年显著减少。我们会继续透过提升化验方法的环境绩效，务求持续减少化学废料的产生量。

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 认证组别所产生的化学废料量  
Amounts of Chemical Wastes Generated by Sections Implementing ISO 14001

	2018	2019	2020	2021	2022
酸性化学废料 (升) Acidic Waste (L)	5817	5274	4541	4859	4137
非卤化有机化学废料 (升) Non-Halogenated Waste (L)	2407	2215	2282	2247	2526
卤化有机化学废料 (升) Halogenated Waste (L)	1937	1667	1541	1573	1482
碱性化学废料 (升) Alkali Waste (L)	127	109	147	202	64
总量 (升) Total (L)	10288	9265	8511	8881	8209

# 室内空气质素 *Indoor Air Quality*

**政**府化验所一向致力在多方面加强工作环境的管理。现时，我们有六个实验室处所参与「室内空气质素认证计划」，包括何文田政府合署的政府化验所总部、荔枝角政府合署、工务中央试验所大楼、食物安全检测所、香港科学园及公共卫生检测中心，并获得「卓越级」或「良好级」的认证。

**T**he 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*

政府化验所大部份实验室，均与其他政府部门共享建筑物空间，并由各有关管理办事处或政府产业署管理。而位于香港岛薄扶林域多利道 800 号的食物安全检测所，则由政府化验所独立管理。目前，检测所设有残留组，负责食品中的兽药残留和农药残留的检测工作。

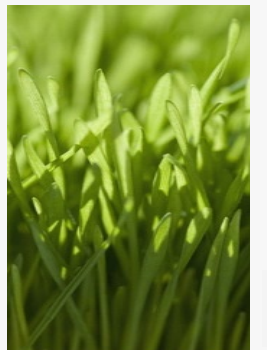
政府化验所根据由环境保护署及机电工程署联合出版的「香港楼宇(商业、住宅或机构)温室气体排放及减除分析和报告指引」为食物安全检测所进行碳审计评估，结果显示其在 2021-22 财政年度的温室气体排放量为 1385 公吨二氧化碳当量。

香港特别行政区政府承诺与国际社会紧密合作，一同致力减少温室气体的排放。在未来日子，政府化验所会继续寻求并采取有效可行的环保措施，致力为温室气体的减排工作上作出贡献。

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 CO<sub>2</sub>-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.



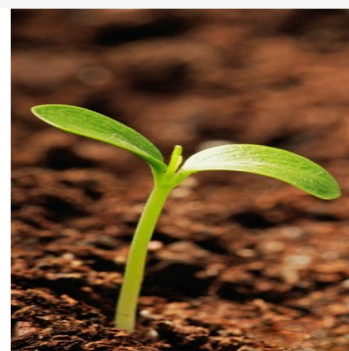
# 能源管理 Energy Management

政府早前定下目标，在2019-20 年度把政府建筑物的用电量减少 5 % 。在各相关政策局和部门的共同努力下，目标于2018-19年度提前一年达成。在此成功的基础上，《2019 年施政报告》制定了下一个五年「绿色能源目标」，期望在2020-21至2024-25 年间，以 2018-19 年为基准年，在运作环境相若的基础上，能达致 6% 的「绿色能源目标」。

为响应政府节约用电的政策，食物安全检测所已完成了三项能源管理机会项目。食物安全检测所在 2021-22 财政年度的用电量与2018-19基准年的水平相约。政府化验所将继续贯彻政府政策，探讨更多可行方案以达到节能目标。

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

政府化验所一向致力维护健全的环境管理系统，视之为日常运作的重要部分。我们的方针是无论在何时何地，通过检讨所有流程和设施来获致服务的可持续发展。2022 年的环境审核结果和环境监测数据均表明，化验所的环境管理系统运作良好，能有效地达到环境政策的各项目标。

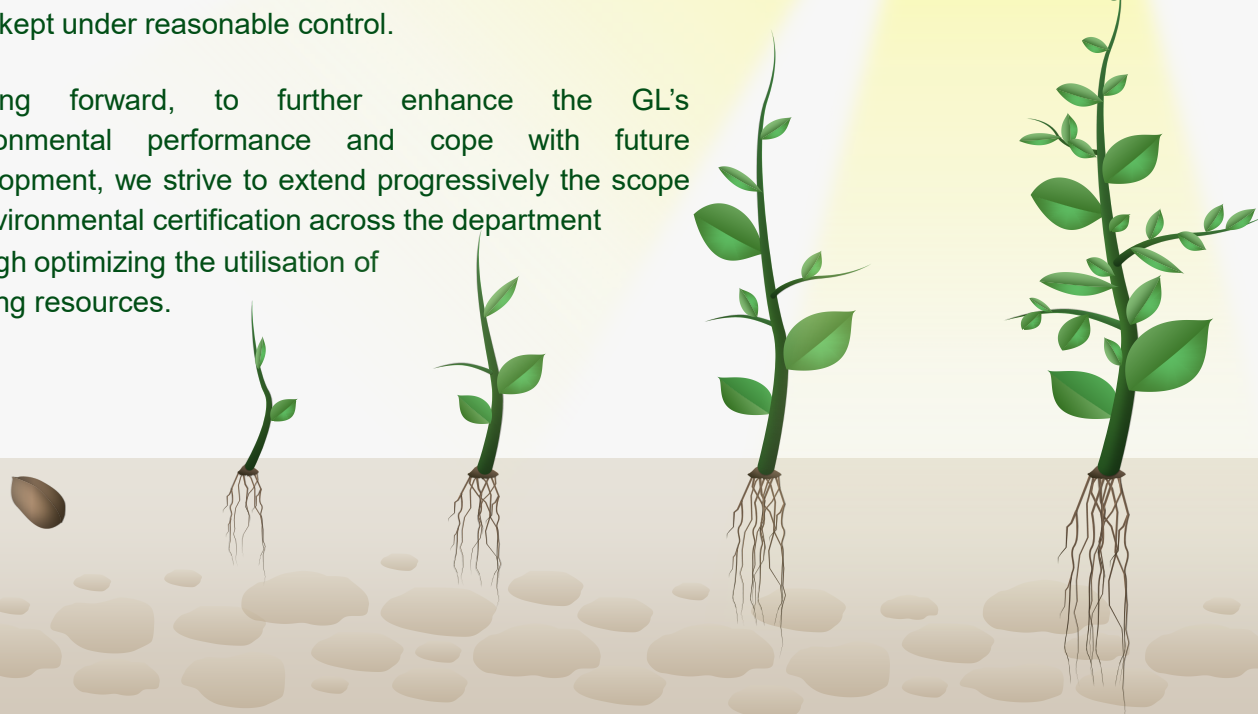
一如既往，化验所为了不断提升环境绩效，会持续审视其运作。所有组别将继续检讨其分析方法，精简工作流程，及找寻非环境友善化学品的替代物，确保既定的环境指引和程序得以有效地实施。此外，透过同事的不断努力，我们过去几年的资源耗用及化学废料产生量得以合理地控制。

展望未来，为进一步提高政府化验所的环境绩效及配合未来发展，我们会努力优化现有资源的使用，逐步扩大环境认证范围以涵盖整个部门。

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.



## 意见及查询 *Feedback and Enquiries*

如对本报告有任何意见及查询，请联络政府化验所部门主任秘书。

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



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Government Laboratory, HKSAR

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