Environmental Report 2023

Cover page.

Environmental Report 2023.

Government Laboratory.

The Government of the Hong Kong Special Administrative Region.

Page 3, Executive Summary.

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

As the GL's core services involve the use of chemicals and the operation of various types of instruments, we strive to fulfill our environmental obligations by establishing proper procedures for chemical handling and waste disposal to prevent pollution. Furthermore, in line with the Government's environmental policy of energy conservation and decarbonization, the GL put much effort into implementing energy saving and waste reduction measures.

Since 1998, the GL has established an environmental management system (EMS) in accordance with ISO 14001 standard to maintain a high standard of environmental performance for the sustainable development of our testing services.

The year 2023 marked the 110th anniversary of the GL, signifying a significant milestone. With our concerted efforts, this report summarises the GL's performance of environmental management in this special year. As always, we will continue to uphold our professionalism and seek opportunities to enhance our operation and laboratory facilities for further improvement of our environmental performance.

Dr. LEE Wai-on

Government Chemist

August 2024

Page 4, Profile of Key Responsibility.

The GL, headed by the Government Chemist, offers a comprehensive range of impartial and reliable forensic, analytical and advisory services to various government bureaux and 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 to support the sustainable development of Hong Kong Special Administrative Region (HKSAR). In addition, the GL provides essential forensic science services to support the criminal justice system in HKSAR.

As at December 2023, the GL had a staff establishment of 517. Services were provided by 27 specialist Sections. The organisation chart and the locations of the GL's laboratories are shown on the next two pages.

Page 5, Organisation Chart (as at December 2023).

The administration of the Government Laboratory is the responsibility of the Government Chemist who heads the agency. There are two operational divisions: the Analytical and Advisory Services Division and the Forensic Science Division. Administrative Support is provided by the Administration Division.

The Division presently consists of two functional Groups each comprising a number of specialist Sections. The two Groups are: Food Safety and Quality Group and Other Scientific Services Group. The Food Safety and Quality Group comprises the following 7 Sections: Additives, Contaminants and Composition Section, Food Complaints Section, Outsourcing Management Section, Quality Management Section, Residues Section, Strategic Development Section, and Trace Elements Section. The Other Scientific Services Group consists of the following 9 Sections: Chemical Safety Section, Chinese Materia Medica Chemistry Section, Chinese Medicines Section, Environmental Chemistry A Section, Environmental Chemistry B Section, Pharmaceutical Chemistry Section, Pharmaceutical Quality and Investigation Section, Product Testing and Dutiable Commodities Section, and Trade Descriptions Section.

The Forensic Science Division comprises two Groups viz. the Criminalistics and Quality Management Group and the Drugs, Toxicology and Documents Group. The Criminalistics and Quality Management Group comprises 6 operational sections as follows: Biochemical Sciences A Section, Biochemical Sciences B Section, Chemical Sciences Section, DNA Database and Parentage Testing Section, Physical Sciences Section and Scene of Crime and Quality Management Section.

The Drugs, Toxicology and Documents Group comprises 5 sections: Controlled Drugs A Section, Controlled Drugs B Section, Forensic Toxicology A Section, Forensic Toxicology B Section and Questioned Documents Section.

Page 6, Laboratory Locations.

Headquarters: Ho Man Tin Government Offices, Ho Man Tin, Kowloon.

Apart from the Ho Man Tin Headquarters, the Government Laboratory has seven satellite laboratories in various locations of Hong Kong:

1. Public Health Laboratory Centre, Shek Kip Mei, Kowloon,
2. Lai Chi Kok Government Offices, Lai Chi Kok, Kowloon,
3. Food Safety Laboratory, Pok Fu Lam, Hong Kong,
4. Hong Kong Science Park, Sha Tin, New Territories,
5. King's Park Meteorological Station, Ho Man Tin, Kowloon,
6. Public Works Central Laboratory Building, Kowloon Bay, Kowloon, and
7. Laboratory at Cheung Sha Wan, Kowloon.

Page 7, Environmental Policy.

The GL is committed to maintaining a sound environmental management system in its daily operation. It is our policy to ensure all operating processes and facilities of the GL complying with the 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:

Page 8, Environmental Policy.

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

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. 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. Promote Continual Improvement: We are determined to seek continual improvement to enhance our environmental performance on all fronts.

Staff Responsibility.

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

Section Heads and the Departmental Secretary are designated to be the Environment, Safety and Security Inspectors, who are responsible for supervising their staff to work under the established environmental policy, guidelines and measures.

Moreover, the Environmental Management System Working Group (EMSWG) under the Analytical & Advisory Services Division, led by the Environmental Manager (EM) and comprised of sectional representatives, assists the EM in overseeing the implementation of the EMS in the Environmental Chemistry A (ECA) Section, Environmental Chemistry B (ECB) Section, Residues (RE) Section, Trace Elements (TE) Section, Outsourcing Management (OM) Section and Quality Management (QM) Section according to ISO 14001 standard. In addition, the EMSWG also provides support to other Sections to prepare for the extension of ISO 14001 certification.

Education and Training.

Induction training on environmental management was given to all new recruits, introducing general laboratory safety practices and the GL's EMS. Furthermore, training and drills were organised regularly on the topics related to environmental emergencies, including spillage of mercury, gas leakage from gas cylinder and breakdown of fume cupboard, to prevent environmental pollution. In total, 36 drill sessions were conducted in 2023.

Besides, an EMS Introduction Training was arranged for colleagues with a view to enabling them to have a more in-depth understanding of the GL's EMS and its operating procedures according to ISO 14001 standard, as well as the Government's green policy. In addition, an Auditor Training was also arranged for colleagues who were responsible for EMS internal audit.

Page 12, Environmental Management System.

Environmental Monitoring and Audits

To evaluate the GL's environmental performance, and to demonstrate compliance with our obligations, a yearly environmental monitoring programme was conducted to check the levels of pollutants in the effluent and air discharge produced from the Sections implementing ISO 14001. The environmental monitoring programme for 2023 was completed, in which the results of all test parameters were found to comply with relevant regulatory limits.

The annual internal audit was carried out in December 2023. The findings of the internal audit indicated that the EMS adopted in the GL had been well implemented and met the goals of the environmental policy effectively.

Moreover, a surveillance visit conducted by the Hong Kong Quality Assurance Agency was carried out in January 2024. The audit team concluded that the GL's environmental management system and relevant operating procedures continued to fulfil the requirements of ISO 14001 standard. The ECA Section, ECB Section, TE Section, RE Section, OM Section and QM Section were granted continuity of certification status.

Page 13, Carbon Management.

Most premises housing the laboratories of the GL are shared with other government departments and hence co-managed by the respective building management office or the Government Property Agency. On the other hand, the Food Safety Laboratory (FSL) located at 800 Victoria Road, Pokfulam in the Hong Kong Island is a premise solely managed by the GL. Currently, the FSL houses the Residues Section which is responsible for testing 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 results indicated that the amount of greenhouse gas (GHG) emissions in the fiscal year 2022-23 was 1273 tonnes of CO2-equivalent, which was around 8 % reduction compared to that in the fiscal year 2021-22.

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

Page 14, Energy Saving and Green Buildings.

The Government formulated a five-year “Green Energy Target” in the 2019 Policy Address which set a 6% “Green Energy Target” for the period of 2020-21 to 2024-25 under comparable operating conditions using 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 the fiscal year 2022-23 was reduced by 5.1% compared with that of the baseline year in 2018-19.

Moreover, the installation of solar control window films in two office rooms and one conference room resulted in a room temperature decrease by an average of around 2℃, thereby saving air conditioning energy. The GL will continue to explore more energy-saving measures to achieve the established target.

Page 15, Resources Consumption.

The LESSC has prepared the environmental guidelines and frequently reminds colleagues to implement the green housekeeping measures stipulated therein. In this connection, the consumption of envelopes, photocopier paper and electricity was monitored as the indicators of annual environmental performance.

The resource consumption by the GL was relatively steady despite the continuous expansion of new analytical services offered to client departments, with the exception of an increase in photocopier paper consumption in 2023 due to the setup of new laboratories. The GL will keep making use of technology to minimize resource consumption as far as practicable.

Table, Annual Environmental Performance Indicators: In 2019, the GL used 5085 pieces of envelope and 2743 kg photocopier paper. The electrical consumption of the headquarters was 2403000 kWh. In 2020, the GL used 3324 pieces of envelope and 2041 kg photocopier paper. The electrical consumption of the headquarters was 2692000 kWh. In 2021, the GL used 4244 pieces of envelope and 2265 kg photocopier paper. The electrical consumption of the headquarters was 2690000 kWh. In 2022, the GL used 3380 pieces of envelope and 2875 kg photocopier paper. The electrical consumption of the headquarters was 2570000 kWh. In 2023, the GL used 4103 pieces of envelope and 3262 kg photocopier paper. The electrical consumption of the headquarters was 2351000 kWh.

Page 16, Waste Management.

Under the existing EMS, GL has implemented effective waste management to ensure compliance with relevant regulatory limits by regularly monitoring the level of pollutants in the effluent and air discharge generated in daily operations. 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 by authorised agents for treatment. The total amount of chemical wastes generated was reported to be 8629 L in 2023. The GL will continue to reduce the generation of chemical wastes through the enhancement of the environmental performance of testing methods.

Table, Amounts of Chemical Wastes Generated by Sections Implementing ISO 14001: In 2019, the GL generated 5274 Litre Acidic Waste, 109 Litre Alkali Waste, 1667 Litre Halogenated Waste and 2215 Litre Non-Halogenated Waste. In 2019, the GL generated a total of 9265 Litre chemical wastes. In 2020, the GL generated 4541 Litre Acidic Waste, 147 Litre Alkali Waste, 1541 Litre Halogenated Waste and 2282 Litre Non-Halogenated Waste. In 2020, the GL generated a total of 8511 Litre chemical wastes. In 2021, the GL generated 4859 Litre Acidic Waste, 202 Litre Alkali Waste, 1573 Litre Halogenated Waste and 2247 Litre Non-Halogenated Waste. In 2021, the GL generated a total of 8881 Litre chemical wastes. In 2022, the GL generated 4137 Litre Acidic Waste, 64 Litre Alkali Waste, 1482 Litre Halogenated Waste and 2526 Litre Non-Halogenated Waste. In 2022, the GL generated a total of 8209 Litre chemical wastes. In 2023, the GL generated 4077 Litre Acidic Waste, 52 Litre Alkali Waste, 1534 Litre Halogenated Waste and 2966 Litre Non-Halogenated Waste. In 2023, the GL generated a total of 8629 Litre chemical wastes.

Page 17, Indoor Air Quality.

The GL takes every opportunity to improve the quality 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, 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.

Page 18, Initiatives on Environmental Improvement.

After the QM Section and OM Section successfully obtained ISO 14001 certification in January 2023, the GL has totally 6 Sections that have been certified. The GL will continue to extend the certification scope progressively to cover other Sections through optimising existing resources. In this regard, the Strategic Development Section plans to seek ISO 14001 certification in the near future.

The GL continues to adopt a paper-free EMS, in which the environmental documents and records are maintained in electronic format. Furthermore, the GL will also prepare for the implementation of Electronic Recordkeeping System to further reduce paper usage.

In addition, the GL will continue to promote green procurement in accordance with the Government's environmental policy. Sections are encouraged to adopt the green specifications when procuring goods and services in the green procurement list stipulated in the relevant government circular. The GL will also explore the feasibility of upgrading its IT system to facilitate green procurement.

Page 19, Way Forward.

As always, in pursuit of continuous improvement in environmental performance, we will constantly review our operation. All Sections will continue to examine their analytical methods, streamline processes and explore alternatives for replacing non-environmental friendly chemicals to ensure that the established environmental guidelines and procedures are fully implemented. Meanwhile, we will continue to explore and adopt practicable energy saving and waste reduction measures to minimize carbon emissions.

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

Page 20, Feedback and Enquiries

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

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Government Laboratory, HKSAR