Environmental Report 2022

Cover page.

Environmental Report 2022.

Government Laboratory.

The Government of the Hong Kong Special Administrative Region.

Page 3, Executive Summary.

The Government Laboratory 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 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

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 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.

Page 5, Organisation Chart (as at December 2022).

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 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:

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.

Page 9, Environmental Policy.

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.

Page 10, Environmental Management System.

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.

Page 11, Environmental Management System.

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.

Page 12, Environmental Management System.

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.

Page 13, Environmental Management System.

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.

Page 14, Resources Consumption.

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.

Table, Annual Environmental Performance Indicators: In 2018, the GL used 5043 pieces of envelope and 2349 kg photocopier paper. The electrical consumption of the headquarters was 2610000 kWh. 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,

Page 15, Waste Management.

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.

Table, Amounts of Chemical Wastes Generated by Sections Implementing ISO 14001: In 2018, the GL generated 5817 Litre Acidic Waste, 2407 Litre Non-Halogenated Waste, 1937 Litre Halogenated Waste and 127 Litre Alkali Waste. In 2018, the GL generated a total of 10288 Litre chemical wastes. In 2019, the GL generated 5274 Litre Acidic Waste, 2215 Litre Non-Halogenated Waste, 1667 Litre Halogenated Waste and 109 Litre Alkali Waste. In 2019, the GL generated a total of 9265 Litre chemical wastes. In 2020, the GL generated 4541 Litre Acidic Waste, 2282 Litre Non-Halogenated Waste, 1541 Litre Halogenated Waste and 147 Litre Alkali Waste. In 2020, the GL generated a total of 8511 Litre chemical wastes. In 2021, the GL generated 4859 Litre Acidic Waste, 2247 Litre Non-Halogenated Waste, 1573 Litre Halogenated Waste and 202 Litre Alkali Waste. In 2021, the GL generated a total of 8881 Litre chemical wastes. In 2022, the GL generated 4137 Litre Acidic Waste,

2526 Litre Non-Halogenated Waste, 1482 Litre Halogenated Waste and 64 Litre Alkali Waste. In 2022, the GL generated a total of 8209 Litre chemical wastes.

Page 16, Indoor Air Quality.

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.

Page 17, Carbon Management.

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_2-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.

Page 18, Energy Management.

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.

Page 19, Way Forward.

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.

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