

# **Annual Report 2022**

Cover Page.

Annual Report 2022.

Government Laboratory.

The Government of the Hong Kong Special Administrative Region.

## **Page 2, Vision · Mission · Values**

### **Our vision**

To be recognised internationally as a laboratory providing world-class scientific services.

### **Our mission**

To provide our community with quality analytical, forensic, and advisory services, achieved through advancing measurement science and standards by a proud and committed work force.

### **Our values**

Integrity, we act honestly, ethically and impartially at all times.

Professionalism, we encourage self-improvement and aim for scientific excellence.

Quality Assurance, we ensure that all our work is carried out in accordance with recognised standards.

Teamwork, we recognise the participation, initiative and cooperation of all our staff as being essential to our success.

Client Focus, we strive to recognise and anticipate the needs of clients, working openly and cooperatively in setting work schedules and meeting targets.

Environmental Consciousness, we are committed to conducting all our work within the established guidelines for protection of the environment.

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## Page 4, Foreword

Year 2022 continued to be very challenging for the Government Laboratory (GL) with the COVID-19 Omicron variant affecting Hong Kong. Despite the pandemic, the GL always stays devoted to providing quality and impartial analytical, forensic and advisory services to various government departments. With our colleagues' implacable contributions, the GL had completed 195,422 tests on food safety, 134,765 tests on drug safety, 61,135 tests on consumer protection, 199,432 tests on environmental protection and 32,919 cases on forensic testing. Apart from regular laboratory testing, the GL had also provided round-the-clock emergency services to support crime scene investigations and to provide professional advices on the handling of urgent incidents with public health or safety concerns.

To meet the growing service demands and to support the implementation of new regulations, new or improved testing methods were developed in various areas. These included testing of radionuclides in food in response to the discharge plan for the nuclear-contaminated water of Fukushima Nuclear Power Station; testing of new additives and specified harmful substances in food; identification of a wider range of genetically modified foods; determination of more Persistent Organic Pollutants and organochlorine pesticides in environmental samples; selective determination of some major capsid proteins in human papillomavirus vaccine; determination of new drugs of abuse; and many more.

As the Designated Institute responsible for metrology in chemistry, we are dedicated to support the testing community in Hong Kong through arranging proficiency testing programmes, providing reference materials and organising seminars and conferences. The GL had also availed itself for collaborations and professional exchanges with other relevant government laboratories, metrology institutions and forensic laboratories of various countries and regions, via webinars and virtual meetings while social distancing measures and travel restrictions were in place.

This year, 2023, we are celebrating our 110th anniversary. With the easing of the pandemic and public emergency officially over, I am confident that the GL will continue to strive for scientific excellence and be a leading laboratory in the region for years to come.

Dr LEE Wai-on  
Government Chemist  
October 2023

## Page 5, Locations

The Government Laboratory (GL) is headquartered in Ho Man Tin since 1992. With continuous increase in our staff establishment and the variety of services provided, several satellite laboratories have been added since. In 2022, the GL has relocated some activities to a new satellite location in Cheung Sha Wan. With this new addition, the GL currently has seven satellite laboratories at different locations in Hong Kong.

Laboratory locations are as follows:

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

Satellite laboratories include:

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

## **Page 6, Workforce**

The GL houses two operational divisions, namely the Analytical & Advisory Services Division and the Forensic Science Division. These two divisions are further divided into different groups of sections according to the services they provide to client departments.

The Administration Division provides administrative and clerical support to the laboratory.

As at December 2022, the GL had an establishment of 515 staff members, comprising 7 directorate staff, 151 professional staff (114 with PhD degree), 296 technical staff (92 with Master's degree and 105 with Bachelor's degree) and 61 administrative and supporting staff. In addition, 60 staff members were under secondment to other departments.

## Page 7, Organisation Chart

There are two operational divisions of the GL: the Analytical & Advisory Services Division and the Forensic Science Division. Administrative Support is provided by the Administration Division.

The Analytical & Advisory Services 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: 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 8, Analytical & Advisory Services**

The Government Laboratory (GL) has major scientific and statutory commitments in food safety, environmental pollution and waste discharge monitoring, pharmaceuticals and Chinese medicines examination for public health protection, commodities testing for safety evaluation, as well as protection of revenue and consumer interests. The work involved frequently requires special investigations, or could be purely consultative for which no laboratory examination is needed. Equipped with a well-qualified and competent workforce, the GL is able to consistently provide quality scientific services to support bureaux and departments of the Hong Kong Special Administrative Region (HKSAR) Government.

## **Page 9, Food Safety and Environmental Hygiene**

The GL has all along endeavored to provide quality testing and investigation services to ensure food safety and environmental hygiene in Hong Kong. Comprehensive analytical services are provided to the Agriculture, Fisheries and Conservation Department (AFCD) and the Food and Environmental Hygiene Department (FEHD) in support of the enforcement of various pertinent regulations under the Public Health and Municipal Services Ordinance (Cap. 132), the Pesticides Ordinance (Cap. 133) and the Public Health (Animals and Birds) Ordinance (Cap. 139).

The GL also provides testing services to support the Centre for Food Safety (CFS) of the FEHD in implementing the food surveillance programme, as well as handling food incidents. The scope of chemical analyses ranges from food composition and labelling to additives, contaminants, pesticides and veterinary drug residues.

**Food samples**

- The GL completed a total of 190,238 tests on a wide range of food samples.
- The average turnaround time (TAT) and the percentage meeting target of the tests were 16 working days and 99% (target: 95%), respectively.

Breakdown percentages of the number of tests conducted are as follows:

- 56% on Pesticide and veterinary drug residues;
- 25% on Food additives and composition; and
- 19% on Contaminants.

**Urgent analytical services**

- In addition to routine monitoring work, the GL also rendered analytical support to the handling of various food incidents. In 2022, 183 tests were conducted under this category.
- Urgent analytical services were provided for the analyses of histamine in tuna, mushroom toxins in mushroom sample, tetrodotoxin in puffer fish, methyl mercury in fish products, grayanotoxin III in honey samples, as well as examination of food samples in relation to the 25th Anniversary of the Establishment of the HKSAR (25A) and examination of legible food labels on prepackaged food samples.

**Food complaints**

- There were 5,001 tests performed for food deterioration and investigation cases under the food complaint category.
- The average TAT and the percentage meeting target of the tests were 18 working days (target: 25 working days) and 99% (target: 90%), respectively.

**Seepage and swimming pool water samples**

- A total of 55,653 tests were performed for seepage and swimming pool samples.
- The average TAT and the percentage meeting target of the tests were 10 working days (target: 10 working days) and 99% (target: 96%), respectively.

**Professional advice**

- Professional advice to a total of 3 requests on analytical methods and nomenclature in relation to the active ingredients of registered pesticide formulations was also provided in the year.

## **Page 12, Environmental Protection**

The GL provides comprehensive analytical and advisory services to the Environmental Protection Department in improving the environmental quality and in enforcing various pollution control-related legislations such as the Air Pollution Control Ordinance (Cap. 311), the Waste Disposal Ordinance (Cap. 354), the Water Pollution Control Ordinance (Cap. 358), the Ozone Layer Protection Ordinance (Cap. 403), and the Hazardous Chemicals Control Ordinance (Cap. 595).

Environmental samples such as air, water, sediment, biota and waste are submitted for analyses pertaining to various environmental programmes including the toxic air pollutants monitoring programme, the river and marine water quality monitoring programmes, the biological indicator monitoring programme, the toxic substances monitoring programme and illegal discharge investigations. Testing of materials for presence of asbestos, as well as analyses of diesel, biodiesel, unleaded petrol and marine fuel are also part of GL's statutory functions.

Analytical services relating to environmental monitoring were also provided to the Agriculture, Fisheries and Conservation Department, the Electrical and Mechanical Services Department, the Food and Environmental Hygiene Department, and the Leisure and Cultural Services Department. Technical support was rendered to the Marine Department in the identification of the sources of oil spills in the enforcement of the Shipping and Port Control Ordinance (Cap. 313).

**Air samples**

*(including air samples and air pollution control samples, such as fuel oil and consumer goods containing volatile organic compounds (VOCs))*

- 63,090 and 2,355 tests were performed on monitoring and litigation samples, respectively. 99% of the tests were completed within the target reporting times.
- 455 tests were performed on field investigation (air pollution) samples. 100% of the tests were completed within the target reporting times.

**Environmental waste samples**

*(including wastewater, leachates, livestock waste, chemical wastes and miscellaneous solid wastes)*

- 11,609 tests were performed on monitoring samples. 99% of the tests were completed within the target reporting times.
- 452 tests were performed on litigation samples. 100% of the tests were completed within the target reporting times.

**Water monitoring samples**

*(including river water, marine water, sediment and biota)*

- 121,471 tests covering more than 100 different pollutants including various nutrients, trace metals and organic compounds were conducted. 99% of the tests were completed within the target reporting times.

**Urgent analytical services**

- To cope with the upsurge in demand for cremation services during the fifth wave of COVID-19 pandemic in Hong Kong, Architectural Services Department ad hoc requested the GL for dioxins testing of stack emission samples on two newly constructed cremators located at Wo Hop Shek (WHS) Crematorium.
- With GL's timely and speedy analytical services, the required analyses were completed within a few days, which facilitated the commencement of services of the two new cremators at the WHS Crematorium for increasing the daily cremation sessions to the public.

## **Page 15, Consumer Protection**

The GL provides analytical and advisory support to the Customs and Excise Department (C&ED) and other government departments in the enforcement of legislations concerning consumer protection. Analytical services are provided to support their statutory functions under various regulations and ordinances such as the Weights and Measures Ordinance (Cap. 68), the Dutiable Commodities Ordinance (Cap. 109), the Trade Descriptions Ordinance (Cap. 362), the Toys and Children's Products Safety Ordinance (Cap. 424), and the Consumer Goods Safety Ordinance (Cap. 456).

The scientific services provided by the GL covered a large variety of products including cigarettes, toys and children's products, consumer goods, dutiable commodities and miscellaneous commodities. Besides, suspected counterfeit goods samples were submitted for authenticity testing.

**Trade descriptions**

- 5,100 tests were conducted on a variety of commodities for compliance assessment of the labelled claim or confirmation of their authenticity in support of the enforcement of the Trade Descriptions Ordinance (Cap. 362).
- Samples of consumer goods submitted for assessment of labelled claim included disinfectant, prepackaged products, silver and metallic articles.
- Testing on authenticity covered a wide variety of trading goods including Chinese medicines, seafood, and products of plant or animal origin.

**Toys and children's products**

- 22,553 tests were conducted for phthalates contents and safety requirements as stipulated in the standards under relevant Ordinances.
- Items tested included festive toys, poppit, squeeze toys, puzzle mats, magnetic toys, projectile toys, flying toys, soft-filled toys, balance bikes, jewellery and cosmetic toys, modelling clay, strollers, children's cots, children's paints, children's high chairs, bottle teats, bunk beds, mattresses for children's cot, children's feeding utensils and children's bath tubs, etc.

**Consumer goods**

- 12,530 tests were conducted for a wide variety of samples including foldable furniture, festive items for Lunar New Year and Christmas, clothing, hot water bottles, food containers and cosmetics such as hand cream, lotions, facial masks, perfumes and body wash products, etc., for compliance testing under the provisions of the statutory general safety requirements.
- The GL worked closely with the C&ED to follow up cases of public concern, for example, poppit, squeeze toys, play mats, balance bikes, strollers, rinse-off hair masks and toothpastes published by the CHOICE Magazine.

**Dutiable commodities**

- 1,567 tests were conducted for hydrocarbon oils.
- 1,445 tests were conducted for liquors.

**Cigarettes**

- 91 brands of best-selling cigarettes on sale in the local market were examined and their tar and nicotine yields were published on the website of the GL for public browsing.
- 5,951 tests were carried out on other tobacco products.

**Miscellaneous commodities**

- 104 tests were conducted to check the integrity of flexible gas tubings under the requirements of the Gas Safety Ordinance (Cap. 51).
- The GL examined ad hoc samples for the gaseous composition of liquefied petroleum gas.
- For evaluation of government tenders, 76 tests were carried out on various items including rice and gold medals.

**Investigation samples**

- 2,884 tests were carried out in relation to investigation cases under the Import and Export Ordinance (Cap. 60). The majority of goods tested included pesticide formulations and valuable articles such as gold and diamond.
- 29 tests were conducted for the investigation of suspected short weight of goods.

## **Page 18, Drug Quality**

The GL works closely with the Department of Health (DH), the Hospital Authority and the Customs and Excise Department (C&ED) with a view to safeguarding public health and supporting the enforcement of the Import and Export Ordinance (Cap. 60), the Antibiotics Ordinance (Cap. 137), the Pharmacy and Poisons Ordinance (Cap. 138), and the Chinese Medicine Ordinance (Cap. 549).

GL's professional services on pharmaceutical analyses mainly provide support to (1) the routine market surveillance programme for monitoring the quality of local registered pharmaceutical products; (2) the investigatory programme for complaint cases, illegal sales (including via internet) and possession of suspected controlled drugs; (3) the general quality control programme for facilitating government procurement exercises on pharmaceutical products; and (4) the routine surveillance programme for testing drug adulteration in health products.

Routine analyses for Chinese medicines include the testing of Chinese herbal medicines (Chms) and proprietary Chinese medicines (pCms) for contamination of heavy metals, toxic elements and pesticide residues, as well as drug adulteration in pCms. Analytical support in the chemical markers identification testing for suspected unregistered pCms is also provided to the DH and the C&ED. Furthermore, the GL offers full support to the DH for urgent investigatory analyses of samples relating to cases of adverse reaction arising from the consumption of pCms containing undeclared drug ingredients, and poisoning incidents related to erroneous substitution or contamination of Chinese medicines.

In addition, the GL continues to provide analytical and advisory support to the DH in the development of Hong Kong Chinese Materia Medica Standards (HKCMMS) through conducting method verification and trial run studies.

**Pharmaceutical samples**

- The GL conducted 10 and 52,099 tests for urgent and other pharmaceutical samples, respectively. All tests for urgent samples were completed within the pledged turnaround time (TAT) while 98% of that for other samples met the pledged target.

**Chinese medicine samples**

- The GL conducted 44 and 82,612 tests for urgent and other Chinese medicine samples, respectively. All tests for urgent samples were completed within the pledged TAT while over 99% of other samples met the pledged target.

## **Page 20, Public Safety**

To support the Government in ensuring public safety, the GL is entrusted with the statutory role to provide analytical and advisory services. The scope of service includes providing analytical and advisory services for the Fire Services Department and other government departments in the classification of dangerous goods and on matters relating to occupational safety and health; providing 24-hour emergency response service to support the Fire Services Department in handling of chemical incidents; collaborating with the Hong Kong Observatory (HKO) in monitoring radiation levels of environmental samples; rendering analytical support to the Food and Environmental Hygiene Department (FEHD) in the surveillance of radioactive contamination of imported foodstuff; providing technical support to the Daya Bay Contingency Plan (DBCP) and the Nuclear Powered Vessel Contingency Plan for Public Safety During Visits of Nuclear Powered Warships "PORTSAFE" in Hong Kong; provision of technical support for the implementation of the Chemical Weapons Convention in the Hong Kong Special Administrative Region and the control of import and export of strategic commodities through the provision of professional services to the Trade and Industry Department and the Customs and Excise Department in the enforcement of the relevant legislations.

**Occupational safety and health**

- 2,284 tests were completed on 276 samples taken by the Labour Department and the Hong Kong Police Force.

**Radioactivity measurement**

- 3,751 tests on sample analysis related to radioactivity measurement by the HKO and 862 radioactive contamination tests were conducted on imported food samples under the FEHD food surveillance programme.
- None of the food samples tested was found to exceed the guideline levels stipulated in the Codex Alimentarius Commission for cross-border trade of foodstuffs in respect of 3 major gamma-emitting radionuclides, namely iodine-131, cesium-134 and cesium-137.
- All the tests were completed within the target reporting time with the average reporting time of 7 working days.

**Dangerous goods**

- 6,503 tests were conducted for the classification of dangerous goods under Dangerous Goods Ordinance (Cap. 295) and its subsidiary regulations.
- All classification tests were completed within the target reporting time and the average reporting time was 14 working days.

**Advisory services**

- Apart from testing services, the GL also provides advisory services to client departments in support of law enforcement.
- Over 120 pieces of professional advice were offered relating to over 320 items for classification under the Dangerous Goods Ordinance (Cap. 295).
- Over 380 pieces of advice involving over 470 items were provided pertaining to the implementation of the Import and Export (Strategic Commodities) Regulations (Cap. 60G) and the Chemical Weapons (Convention) Ordinance (Cap. 578).

## **Page 23, Forensic Science Services**

The Government Laboratory (GL) provides comprehensive forensic scientific services to the Criminal Justice System in Hong Kong. To continue our endeavor in delivering impartial, accurate and efficient service, the GL complements a wide range of specialist analytical tasks and the provision of scientific opinion on the significance of examination results.

The GL provides professional analytical service to government departments concerned with law and order on articles submitted for examination. Besides, the GL offers round-the-clock crime scene examination service, which aims to lend expert assistance to the identification and retrieval of relevant scientific evidence materials for examination. The myriad of scenes requiring attendance ranges from relatively simple burglaries to serious ones in homicides, rapes, etc. There are also officers specially trained for more specialised investigations, such as the causes of fires, re-constructing traffic accidents, interpreting bloodstain patterns and investigating suspected illicit drug manufacturing and cultivation activities.

## **Page 24, 24-Hour Scene of Crime and Laboratory Examination Services**

Providing high quality crime scene investigation (CSI) services to law enforcement agencies (LEAs) in Hong Kong is one of the prime aims of the Forensic Science Division (FSD) of the GL. A comprehensive range of 24-hour CSI services is provided by a team of experienced Laboratory Specialist Services Officers (Scientific Evidence Officers) and chemists from different operational sections. Scene investigative services include but not limited to the identification, preservation and retrieval of relevant scientific evidence materials for examination, conducting professional evaluation of the gathered forensic evidence, reconstructing the sequence of events at the scene and presenting the evidence in court.

In addition to general CSI services, GL professional staff with specialist training supports four specialised scene investigation services, which include fire investigation to determine the cause and course of suspicious fires; traffic accident reconstruction to assist in deciphering the possible cause of road traffic accidents; bloodstain pattern analyses of serious crime scenes such as murder and serious wounding cases to assist in reconstructing possible events that had occurred at the crime scene; and investigation of illicit drug manufacturing and cultivation activities. Where necessary, a comprehensive team with scene officers for general crime scenes and professional specialists will conduct the scene investigation together.

The GL also provides round-the-clock laboratory examination services to client departments for cases requiring immediate attention to provide imperative forensic evidence for criminal investigation and preliminary court proceedings. Such round-the-clock service also encompasses provision of verbal expert advice to assist LEAs in crime investigations. In 2022, the GL provided 4 times of round-the-clock services for law enforcement departments.

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The GL attended a total of 403 crime scenes comprising

- 199 traffic accident and vehicle-related scenes;
- 155 general crime scenes;
- 26 illicit drug-related scenes;
- 14 fire scenes; and
- 9 scenes with bloodstain pattern analysis.

## **Page 26, Forensic DNA Examination**

To enhance the overall operational efficiency of the forensic DNA testing services, the previous DNA Database Section and Parentage Testing Section were combined to establish the DNA Database and Parentage Testing Section (DPS) with effect from 27 June 2022. There are now three working Sections in the GL providing quality forensic DNA examination services to the Hong Kong Police Force and other law enforcement agencies: DPS and the Biochemical Sciences A and B Sections. All three sections conduct routine analyses on twenty-seven DNA characteristics including sex determination.

The two Biochemical Sciences Sections analyse DNA recovered from crime scene biological evidence materials with an aim to identify the person or persons related to the committed crime.

The DNA Database Unit (DDU) of DPS maintains and updates a DNA database on behalf of the Commissioner of Police for DNA data of convicted offenders and suspects of serious criminal offences. Outstanding DNA profiles from evidence materials are uploaded to the DNA database for regular data comparison with a view to locating any potential culprits involved. Since the setup of the database in 2000, a large number of outstanding crime scene DNA profiles have been matched and subsequently led to further investigations by law enforcement officers in otherwise unsolved crime cases.

The Parentage Testing Unit (PTU) of DPS provides genetic testing services mainly to the Immigration Department for the verification of parent and child relationships in connection with immigration-related cases since 2000.

**Biochemical sciences**

In 2022, 2,045 non-complicated and complicated cases were examined, which was comparable with the 2021 statistics. 94% of the non-complicated cases were completed within the target turnaround time (TAT) of 60 working days and 82% of the complicated cases were completed within the target TAT of 130 working days. There were 14,294 exhibit items examined for biological evidence, which was comparable with the 2021 statistics. In addition, the GL also provided 2 times of round-the-clock testing service for law enforcement departments with preliminary findings within 3 days.

**DNA database**

- The use of the database has resulted in 299 and 33 pairs of matches between data from crime scene exhibits with offenders and suspects and amongst crime scene exhibits, respectively.
- These matching results have provided important clues for the law enforcement agencies to further investigate unsolved crime cases.

In 2022, the GL examined 2,839 cases with 87% of them were completed within the TAT of 22 working days. In comparison with the figures in 2021, the number of cases examined was decreased by 14%.

By the end of 2022, the number of relevant DNA data stored in the database had increased to 60,987. In addition, the GL also provided 2 times of round-the-clock testing service for law enforcement departments with preliminary findings within 3 days.

**Parentage testing**

- The GL provided DNA testing services in connection with the Certificate of Entitlement (CoE) applications pursuant to the Immigration (Amendment) Ordinance 2001.

In 2022, the GL examined 283 cases with 99% of them were completed within the TAT of 22 working days. In comparison with the figures in 2021, the number of cases examined was decreased by about 59%.

The average positive parentage matching rate was about 99%, increased by 1% as compared with the rate in 2021.

## **Page 29, Criminalistics – Contact and Physical Evidence**

The GL provides services on the examination of trace evidence, such as textile fibres, paint, glass, flammable and explosive residues, and miscellaneous chemical investigation. Trace evidence examination and miscellaneous chemical investigation frequently play an important part in the evidence produced in crime investigation and subsequent legal proceedings.

Fire investigation and traffic accident investigation are currently included under GL's 24-hour services. The former is to determine the origin, cause, and development of fire or explosion. It involves multiple disciplines including fire chemistry, fire dynamic, knowledge of building systems, scene investigation techniques, chemical analyses and various analyses tools. The latter is to assist the police in the reconstruction of traffic accidents.

Physical examination services provided by the GL include traffic accident reconstruction (TAR), forensic video analyses (FVA), tyre examination, vehicle number restoration, forgery and counterfeit items and cases involving mark and impression evidence. The latter can help associate physical contact of objects such as tools and shoes with toolmarks and shoeprints recovered at scene of crime.

TAR involves the application of various scientific disciplines including mathematics, physics, automotive engineering, video analyses and scene investigation techniques in deciphering possible cause of road traffic accidents. Examination of failed tyres often provides useful information in determining whether their deflation causes the accident or it is a consequence of the accident. Vehicle number restoration entails the discovery and retrieval of numbers unique to the vehicles concerned as a means of detecting unauthorized vehicle-taking or modification.

FVA involves the analyses of digital evidence pertaining to video footage or images having captured events related to a crime. It utilizes advanced video analyses and image processing software to extract and analyse relevant information from the digital evidence. Subsequent image comparison between the image of an object in the footage and the control images of the corresponding seized exhibits could serve as valuable evidence for criminal investigation or court proceeding purposes.

**Chemical sciences**

- In 2022, the GL examined a total of 614 cases involving 4,159 exhibit items in relation to fire investigation, trace evidence and miscellaneous chemical investigation.
  - For fire investigation, 16 cases involving 112 items were examined. 88% of the cases were completed within the target turnaround time (TAT) of 88 working days.
  - For trace evidence investigation, 316 cases involving 2,075 items were examined. 94% of the cases were completed within the target TAT of 66 working days.
  - For miscellaneous chemical investigation, 282 cases involving 1,972 items were examined. 96% of the cases were completed within the target TAT of 33 working days.
- As compared with the figures in 2021, there was a decrease of about 9% in the total number of completed cases and about 16% decrease in the total number of exhibit items examined.
- By the end of 2022, there were 112 active cases still undergoing investigation.

**Physical sciences**

- In 2022, the GL examined a total of 756 cases involving 1,444 exhibit items in relation to traffic accident related investigation, mark and impression evidence examination, forensic video analyses and miscellaneous physical investigation.
  - For traffic accident reconstruction, 364 cases involving 318 items were examined. 87% of the cases were completed within the target TAT of 66 working days.
  - For mark and impression evidence examination, 142 cases involving 520 items were examined. 83% of the cases were completed within the target TAT of 66 working days.
  - For forensic video analyses, 73 cases involving 304 items were examined. 78% of the cases were completed within the target TAT of 88 working days.
  - For miscellaneous physical investigation, 177 cases involving 302 items were examined. 96% of the cases were completed within the target TAT of 33 working days.
  
- As compared with the figures in 2021, there was insignificant change in the total number of completed cases and a slight decrease of about 4% in the total number of exhibit items examined.
  
- By the end of 2022, there were 120 active cases still undergoing investigation.

## **Page 32, Controlled Drugs**

The GL strives to provide comprehensive analytical services for enforcing the control of drugs and their chemical precursors involved in the contravention of the Dangerous Drugs Ordinance (Cap.134), the Antibiotics Ordinance (Cap. 137), the Pharmacy and Poisons Ordinance (Cap.138), and the Control of Chemicals Ordinance (Cap.145). These services are mainly provided to the Hong Kong Police Force and the Customs and Excise Department as well as other law enforcement departments.

**Scene visits**

- The GL attended 26 illicit drug manufacturing and cannabis scenes, representing a decrease when compared to 36 scene attendance in 2021.
- Most of the scene visits in 2022 were related to cocaine manufacturing and cannabis cultivation.

**Drug cases analysed**

- In 2022, the GL examined 4,706 drug cases involving 23,854 items, representing about 9% decrease in number of cases and about 11% decrease in exhibit items examined in 2021.
  - For illicit drug seizures, 91% of the cases were completed within the target turnaround time (TAT) of 11 working days.
  - For major illicit drug seizures and manufacturing, 78% of the cases were completed within the target TAT of 44 working days.
  - For other illegal drug activities, 87% of the cases were completed within the target TAT of 120 working days.

**Drug abuse**

The GL provided statistical figures from the results of examined case exhibits to relevant policy bureau and law enforcement departments for reference when monitoring trends of drug abuse in Hong Kong.

Among the number of cases examined in 2022, cannabis was still the most common drug of abuse, representing about 27% of the total cases, which was slightly higher when compared to 26% in 2021. Cocaine, methamphetamine hydrochloride (“Ice”), ketamine and heroin accounted for about 20%, 16%, 11% and 9% of the total cases, respectively. Compared with the respective figures of 21%, 16%, 10% and 9% of the total cases for these 4 drugs in 2021, the proportion of cases involving cocaine showed a slight decrease while that of ketamine showed a slight increase. As for “Ice” and heroin, the proportion of cases involved remained the same.

According to examination results, the monthly average purity of the controlled drugs in 2022 were comparable to 2021. The average purity ranged from

- 72% to 85% for cocaine;
- 95% to 99% for “Ice”;
- 51% to 83% for ketamine; and
- 73% to 85% for heroin.

## **Page 35, Forensic Toxicology**

Forensic toxicology services provided by the GL encompass five operational areas:

### **Analytical toxicology service**

Biological specimens from the deceased, suspects or victims as well as relevant exhibits seized at death and crime scenes are examined for drugs and poisons so as to assist the judiciary, coroners, pathologists and the Hong Kong Police Force (HKPF) in death inquiries and criminal investigations.

### **Drink driving service**

Alcohol concentrations in blood or urine of drivers are determined so as to assist the HKPF to take enforcement action in accordance to the drink driving provisions in the Road Traffic Ordinance (Cap. 374).

### **Drug driving service**

Blood and urine samples of drivers are examined for the presence of drugs including the six "specified illicit drugs" of zero-tolerance so as to assist the HKPF to take enforcement action in accordance to the Road Traffic Ordinance (Cap. 374).

### **Hair drug testing service**

Drugs of abuse are examined in hair samples collected by non-government organisations in collaboration with schools under the Healthy School Programme of the Narcotics Division, Security Bureau.

### **Urinalysis service**

Drugs of abuse are examined in urine samples collected by the Social Welfare Department, the Correctional Services Department, the Methadone Clinics of the Department of Health and the HKPF (under the Superintendent Discretion Scheme), as well as the non-government organisations and schools (under the Healthy School Programme) in their respective drug use surveillance programmes.

**Analytical toxicology service**

In 2022, a total of 2,340 cases involving 10,992 samples were examined for analytical toxicology, representing an increase of about 1% and 3% in the number of cases and samples respectively as compared to those in previous year.

The majority of the cases were from the Forensic Pathology Service with 1,939 cases involving 9,178 samples, equivalent to 83% of both the total cases and samples.

Other cases were mainly from the HKPF, with 228 cases involving 1,224 samples, equivalent to about 10% and 11% of the total cases and samples, respectively.

Amongst these examined cases in 2022, about 60% were found to have drugs or poisons.

**Drink driving service**

The GL examined 62 drink driving cases in 2022, representing an increase of 7% as compared to those in the previous year. About 96% of the cases for alcohol determinations were completed within the target turnaround time (TAT) of 11 working days.

**Drug driving service**

The GL examined 62 drug driving cases in 2022, representing a decrease of 44% as compared to those in the previous year. The drug driving cases were all completed within the target TAT of 33 working days.

**Hair drug testing service**

The GL examined 1,551 hair samples (mainly from the Healthy School Programme) in 2022, representing a decrease of about 7% as compared to those in the previous year.

**Urinalysis service**

The GL examined 15,223 judicial confirmation and 3,808 methadone clinic cases in 2022, representing an increase of 4% and a decrease of 10% respectively as compared to those in the previous year.

There were 88% judicial confirmation (routine), 99% judicial confirmation (enhanced probation) and 92% methadone clinic cases completed within the target TAT of 22, 6 and 11 working days, respectively.

## **Page 39, Questioned Documents**

The GL provides services to law enforcement departments on the determination of authorship of questioned handwriting and signatures and the authenticity and (or) alteration of questioned documents. Besides, the GL offers express service for urgent examination of the authenticity of travel and identity documents.

## **Page 40**

A total of 170 handwriting, counterfeit and forgery and 11 express service cases were completed in 2022.

The Hong Kong Police Force remained the major client, accounted for about 86% of the total cases and all express service cases submitted. The Hong Kong Smart Identity Card remained the most prominent type of items for the express service, amounting to 82% of the express cases received in 2022.

All pledged performance targets were achieved in 2022. 97% of the counterfeit and forgery cases were completed within the target turnaround time (TAT) of 30 working days. All handwriting and express service cases were completed within the target TAT of 66 and 1 working day, respectively.

The GL continues to offer technical advice, professional support and testing to other government departments with regard to documents with security features such as the new generation Hong Kong Smart Identity Card from the Immigration Department and security papers and laminates from the Government Logistics Department.

## **Page 41, Development**

### **Page 42, Development in Food Safety**

The Government Laboratory (GL) continued to outsource certain routine food testing work covering the testing of residues of pesticides and veterinary drugs, preservatives, metallic contaminants and other contaminants to commercial testing laboratories. The released resources were deployed to meet the demand of the work arising from the amendments of food legislation, development of new testing methods and other duties which included managing outsourcing activities, promoting chemical metrology work and enhancing the testing capabilities of local laboratories.

The GL has been actively conducting the development work for testing of radionuclides in food in response to the discharge plan for the nuclear-contaminated water of Fukushima Nuclear Power Station.

One of the initiatives set out in the Policy Measures of the Chief's Executive's 2022 Policy Address was to review and update by phases the food safety legislation relating to food additives in food to further enhance food safety. In this regard, the GL was developing methods for testing of these new additives.

The Harmful Substances in Food (Amendment) Regulation 2021 regarding mycotoxins and other contaminants such as benzo[a]pyrene will come into force in 2023. As such, the GL has completed the method development work on the amendments and will provide the Centre for Food Safety (CFS) with new testing services upon request. On the other hand, in light of the review on the regulation of veterinary drug residues under the Harmful Substances in Food Regulation (Cap. 132AF), the GL has been actively undertaking method development and procurement of all necessary reference materials, with a view to expanding the scope of testing service to cope with the anticipated new testing demand from the CFS.

On genetically modified (GM) food, the analytical capabilities have been extended to two new GM events, soybean GM event "A5547-127" and maize GM event "5307" using real-time polymerase chain reaction (PCR).

New equipment and facilities were acquired in 2022. They were

- Instrument for radiation testing; and
- Liquid chromatograph-mass spectrometer for veterinary drug residues testing.

## Page 44, Development in Environmental Protection

To cope with the updating of the Stockholm Convention on Persistent Organic Pollutants (POPs), the GL continued with method development and validation work for the analyses of more POPs in various environmental samples.

To enhance and benchmark the analyses of organochlorine pesticides (OCPs) in sediment and soil samples, the GL developed a test method for the quantification of 25 OCPs using isotope dilution gas chromatograph-tandem mass spectrometry by dispersive solid phase extraction technique. The method has been accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) in August 2022.

To facilitate the enforcement of the Mercury Control Ordinance (Cap. 640), the GL has developed test methods for the determination of mercury content in regulated products.

New equipment and facilities were acquired in 2022. They were

- Gas chromatograph-tandem mass spectrometer (GC-MS/MS), automatic solid phase extraction system, and vertical shaker for the determination of polychlorinated biphenyls in environmental samples;
- Ultra-high performance liquid chromatograph-tandem mass spectrometer (UPLC-MS/MS) for the analyses of perfluorooctanesulfonate (PFOS) and perfluorooctanoic acid (PFOA) in ambient air samples; and
- Inductively coupled plasma-quadrupole mass spectrometer for the determination of elements in samples.

## **Page 45, Development in Consumer Protection**

In 2022, the GL continued to develop and verify new test methods to broaden the scope of service provision concerning consumer protection, such as detection of cuttlefish in meat ball samples.

As a Testing Member of the World Health Organization (WHO) Tobacco Laboratory Network (TobLabNet), the GL was invited to participate in the inter-laboratory collaborative study to validate standard operating procedures for determination of nicotine, glycerol and propylene glycol in heated tobacco products in 2022. As one of the leading tobacco testing laboratories in the region, the GL will continue our tobacco testing and research activities to contribute to the WHO, such as training and developing test methods etc.

In 2022, one set of inductively coupled plasma-tandem mass spectrometer was acquired for the determination of trace heavy metal contents in consumer goods.

## Page 46, Development in Drug Quality

The GL continued to develop methods to accommodate the needs on the testing of new pharmaceutical products. In the realm of proteomics, high resolution mass spectrometry was employed for the selective determination of some major capsid proteins in human papillomavirus (HPV) vaccine.

To strengthen analytical capability in Chinese medicines testing, the GL has modified the sample clean-up procedures for pesticide residues in Chinese herbal medicines (Chms) and completed validation to improve analytical efficiency. Furthermore, the GL continued to develop qualitative methods for chemical markers using gas chromatography-tandem mass spectrometry and liquid chromatography-tandem mass spectrometry.

On the provision of new testing services, two new testing parameters, namely sulphur dioxide and aflatoxins in Chms, would be included in the routine surveillance monitoring programme starting from the financial year of 2023. The corresponding methods have been accredited under the HOKLAS. In addition, the GL would continue to prepare for the implementation of new requirements for the extended scope of pesticide residues and total heavy metals.

New equipment and facilities were acquired in 2022. They were:

- High performance liquid chromatograph-high resolution mass spectrometer for the enhancement of analytical capabilities of macromolecules of biologics such as protein drugs; and
- One set of mixer mill to enhance the efficiency of sample preparation of pharmaceutical products and ensure the homogeneity of samples for analyses.

## **Page 47, Development in Controlled Drugs**

In response to the trends of continual emergence of new abused drugs and the implementation of new ordinance amendments in relation to drug control, the GL has long been striving to develop new analytical methods for new drugs identification as well as quantification.

In addition, the GL will continue to offer technical advice to the policy bureau in relation to the ordinance amendments for the control of abused drugs.

## **Page 48, Development in Metrology in Chemistry**

The GL is the Designated Institute responsible for metrology in chemistry in Hong Kong, China under the International Committee of Weights and Measures (CIPM) Mutual Recognition Arrangement (MRA). Our role is to establish and disseminate traceability of related measurements to support the testing community in Hong Kong. We accomplish this through the production of certified reference materials and provision of reference measurements. Our proficiency testing schemes with metrologically traceable reference values are especially helpful in carrying out this mandate.

Actively participating in meetings, workshops, symposiums and comparison studies organised by international and regional metrology organisations such as the Asia-Pacific Metrology Programme (APMP) and the International Bureau of Weights and Measures (BIPM), the GL contributes to Hong Kong's development and prosperity as well as international efforts in building a robust and harmonised scientific measurement infrastructure for global trade, commerce and regulatory affairs.

In 2022, the GL co-organised three workshops and events. We collaborated with the Standards and Calibration Laboratory (SCL) of the Innovative and Technology Commission to organise two online metrology workshops, one in January on Measurement Uncertainty, and the other in November on the Fundamentals of Metrology. In August, the GL partnered with the SCL, the Hong Kong Council for Testing and Certification and the School of Science and Technology of the Hong Kong Metropolitan University to organise the Metrology Symposium 2022, with a theme of Metrology and Everyday Life.

As a designated metrology institute, the GL possesses a notable capability and competence required to establish traceability in chemical measurements and to disseminate that traceability, which is regularly reviewed according to the policies and requirements of CIPM MRA. In May 2022, a team of three international metrology experts conducted the fourth-peer review, meticulously evaluated the laboratory's facility and the staff's technical and scientific competence in the discharge of metrology activities. As such, the laboratory received highly satisfactory comments from the review team.

### **Organisation of comparison studies and Proficiency Testing (PT) schemes**

1. Local PT schemes
  - Boric acid in food (GLHK PT 22-01);
  - Propionic acid in flour confectionery (GLHK PT 22-02);
  - Inorganic arsenic in aquatic product (GLHK PT 22-03); and
  - Assay of Chinese Materia Medica (GLHK PT 22-04).
2. Interregional PT schemes
  - APMP-APAC: Benzoic acid in fish sauce (APAC T113); and
  - APEC: Trace elements in natural water (APEC PT 2022).
3. CCQM key comparisons and pilot studies
  - Elements and tributyltin in seawater (CCQM-K155/P196); and
  - Arsenic speciation in seafood (CCQM-P215).
4. RMO supplementary comparisons and pilot studies
  - Toxic elements in seafood (APMP.QM-S19/P40); and
  - Trace elements in natural water (SIM.QM-S12/APMP.QM-P41).

### **Participation in international comparisons**

- Mass fraction of non-polar pesticides in acetonitrile (CCQM-K78.b);
- DNA ratio in high protein matrix (CCQM-K86.d/P113.5);
- Mass fraction of oxytetracycline in oxytetracycline hydrochloride material (CCQM-K148.b);
- Elements and inorganic arsenic in rice flour (CCQM-K158);
- Anions in seawater (CCQM-K161);
- Trans-zearalenone in maize (CCQM-K168);
- Human growth hormone in serum (CCQM-K177);
- Mass fraction of oxytetracycline hydrochloride salt (CCQM-K179); and
- Polar analyte in high protein food matrix – metronidazole in porcine muscle food matrix (CCQM-K180).

**Calibration and Measurement Capability (CMC) claims**

According to the BIPM Key Comparison Database, the GL obtained 105 CMC claims as at the end of December 2022.

Categories and number of CMC claims obtained by the GL are as follows:

- 5 in Advanced materials;
- 16 in Biological fluids and materials;
- 38 in Food;
- 2 in Fuels;
- 9 in High purity chemicals;
- 3 in Inorganic solutions;
- 6 in Organic solutions;
- 1 in pH;
- 13 in Sediments, soils, ores and particulates;
- 7 in Water; and
- 5 in Other materials.

**Professional Excellence**

The GL is one of the founding members of the Co-operation on International Traceability in Analytical Chemistry (CITAC) and a full member of the Asia-Pacific Metrology Programme (APMP).

Under the International Committee for Weights and Measures (CIPM) Mutual Recognition Arrangement (MRA), the GL is the Designated Institute in the field of metrology in chemistry for Hong Kong, China; and the official observer of the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM).

In addition, the GL is accredited and certified to the ISO/IEC 17025:2017, ISO/IEC 17043:2010, ISO 17034:2016 and ISO 14001:2015.

## Page 53, Training · Sharing · Exchange

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#### **Training to client departments**

Apart from analytical and advisory and forensic science services, the Government Laboratory (GL) also provides training to different client departments in order to reinforce cooperation and strengthen service quality. In 2022, 1,448 participants from the Hong Kong Police Force, Customs and Excise Department, ICAC, Department of Justice, Fire Services Department, Social Welfare Department and the Food and Environmental Hygiene Department joined a total of 30 lectures and (or) visits organised by the GL.

Number of trainees attended training arranged by the GL in 2022 are as follows:

- 1,184 from Hong Kong Police Force;
- 145 from Food and Environmental Hygiene Department;
- 37 from Department of Justice;
- 29 from ICAC;
- 20 from Customs and Excise Department;
- 20 from Fire Services Department; and
- 13 from Social Welfare Department.

#### **Facilitation and support to local testing industry**

In supporting the accreditation of local testing laboratories under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) in 2022, GL professional staff have acted as technical assessors in 16 assessments, totalling 33.5 man-days.

Number of man-days of GL staff acted as HOKLAS assessors in 2022 are as follows:

- 10 in Chemical testing;
- 1 in Chinese medicine;
- 5 in Environmental testing;
- 15.5 in Food; and
- 2 in Toys and children's products.

**Presentations**

- MF Lo presented Laboratory Preparation for the Implementation of the Harmful Substances in Food (Amendment) Regulation 2021 (Cap. 132AF) and Testing of Mycotoxins at the Experience Sharing Seminar for Food Testing Laboratories (co-organised with the Hong Kong Accreditation Service) through webinar;
- LS Choi presented Testing of Other Harmful Substances listed in the Harmful Substances in Food (Amendment) Regulation 2021 (Cap. 132AF) at the Experience Sharing Seminar for Food Testing Laboratories (co-organised with the Hong Kong Accreditation Service) through webinar;
- CW Tse presented The Role of Government Laboratory in Supporting the Testing Industry through Provision of Proficiency Testing Schemes and Production of Reference Materials at the Experience Sharing Seminar for Food Testing Laboratories (co-organised with the Hong Kong Accreditation Service) through webinar;
- LS Cheng presented Experience Sharing on Analytical Techniques in Gold Testing at the Hong Kong Accreditation Service Experience Sharing Seminar through webinar; and
- YM Cheung, CN Tam and WK Wai presented Latest Developments on Forensic Investigation at the Kowloon West and Kowloon East Police Crime Unit Roadshow at the Kowloon East Police Headquarters.

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- MF Lo presented Evaluation of Measurement Uncertainties in Chemical Measurements at the Measurement Uncertainty Metrology Workshop through webinar;
- SOT Curreem presented Evaluation of Measurement Uncertainties in DNA Measurements at the Measurement Uncertainty Metrology Workshop through webinar;
- YT Wong presented Chemical Metrology and Our Daily Life at the Metrology Symposium 2022: Metrology and Everyday Life through webinar;
- JPK Lau presented Metrology in Chemical Measurement at the Metrology Workshop 2022 through webinar; and
- YK Cheng presented Interpol Review of Toxicology 2019 to 2022 at the 20th Interpol International Forensic Science Managers Symposium in Lyon, France.

### Publications

- RD Josephs, Q Liu, G Martos, M Bedu, A Daireaux, T Choteau, S Westwood, RI Wielgosz, J Nammoonnoy, W Zhang, S Yong, H Liu, Y Chen, CY Ng, T Lu, J Wang, HW Leung, TL Teo, X Gong, X Dai, W Xia, L Feng, J Xie, T Peng, X Fang, L Wu, C Li, J Song, M Li, H Li, PJ Beltrão, SM Naressi Scapin, Y Bacila Sade, A Bahadoor, BB Stocks, MP Thibeault, JE Melanson, C Giangrande, V Delatour, A Boeuf, H Vaneeckhoutte, R Ohlendorf, G O'Connor, A Henrion, WH Fung (GL staff), YT Wong (GL staff), K Saikusa, T Yamasaki, T Kinumi, M Öztug, E Saban, M Akgöz, M Quaglia, K Groves, C Clarkson, G Drinkwater and D Rupérez Cebolla published a paper entitled Key Comparison Study on Peptide Purity-Hexapeptide of HbA0 in *Metrologia*, 59, (2022), 08013.
- GF Wong (GL staff), WM Lee (GL staff) and CK Li (GL staff) published a paper entitled Qualitative Screening of Amphetamine- and Ketamine-Type Abuse Drugs in Urine Employing Dual Mode Extraction Column by Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) in *Journal of Analytical Toxicology*, 46, (2022), pages 1045 to 1052.
- Z Guo, XJ Li, XQ Li, QH Zhang, HM Li, C Ho (GL staff), TCH Lam (GL staff), TL Teo, PS Cheow, EM Gui, J Wang, M Dabrio, P Shegunova, K Shearman, T Chaiphet, TJ Fortune, P Tangtrirat, M Bilsel and B Binici published a paper entitled Supplementary Comparison Study - Fipronil-Sulfone in Chicken Egg Powder (APMP.QM-S16) in *Metrologia*, 59, (2022), 08009.

**Involvements in External Committees**

**Statutory Bodies**

1. Pharmacy and Poisons Board; Examination Committee; Pharmacy and Poisons (Manufacturers Licensing) Committee; Pharmacy and Poisons (Registration of Pharmaceutical Products and Substances: Certification of Clinical Trial and Medicinal Test) Committee; Pharmacy Internship Training Committee; and Poisons Committee of the Pharmacy and Poisons Board of Hong Kong.
2. Occupational Safety and Health Council; Chemical Safety and Health Advisory Committee; Finance and Administration Committee; and Research Committee of the Occupational Safety and Health Council.
3. Chinese Medicine Council; Chinese Medicines Board; Chinese Medicines Committee; and Working Group on Revising Residual Limits of Heavy Metals and Pesticides and Establishing Limit of Mycotoxin in Chinese Herbal Medicines of the Chinese Medicine Council of Hong Kong.

**Non-statutory Bodies**

1. Task Force on Standard Setting for Veterinary Drug Residues in Food; and Working Group on Amendment to Harmful Substances in Food Regulations of the the Centre for Food Safety of the Food and Environmental Hygiene Department.
2. Member of the Hong Kong Council for Testing and Certification (HKCTC).
3. Research Advisory Group (RAG) under the Narcotics Division; and Standing Chemical, Biological, Radiological and Nuclear Planning Group (SRPG) of the Security Bureau.
4. Accreditation Advisory Board (AAB); AAB Working Party for Accreditation of Inspection Bodies; AAB Working Party for Biological and Chemical Testing; AAB Working Party for Forensic Testing; AAB Working Party on Proficiency Testing Providers and Reference Material Producers; Customer Liaison Group (Standards and Calibration Laboratory); Task Force on Crime Scene Investigation; and Task Force on Gemstone Testing of the Innovation and Technology Commission (ITC).

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5. The Hong Kong Poison Control Network (PCN) of the Department of Health, Hospital Authority and Chinese University of Hong Kong.
6. Inter-departmental Task Force on Phasing Down the Use of Hydrofluorocarbons; and Task Force on Emergency Response to Marine Environmental Incidents (TFER) of the Environment and Ecology Bureau.
7. Dangerous Goods Standing Committee of the Fire Services Department.
8. Advisory Board of the Government Chinese Medicines Testing Institute.
9. International Advisory Board (IAB); and Scientific Committee of the Hong Kong Chinese Materia Medica Standards (HKCMMS) Section.
10. GL representatives attended the All-partners meeting for Science in the Public Service (SIPS) of the Hong Kong Observatory.

**International Bodies**

1. APMP-APAC Joint Proficiency Testing Working Group; APMP Developing Economies' Committee (DEC); APMP Food Safety Focus Group (FSFG); APMP Technical Committee for Amount of Substance (TCQM); and APMP Technical Committee for Quality Systems (TCQS) of the Asia-Pacific Metrology Programme (APMP).
2. Crime Scene Investigation Workgroup; Digital Forensic Workgroup; and Questioned Document Workgroup of the Asian Forensic Sciences Network.
3. Strategic Planning Working Group; Working Group on Inorganic Analysis (IAWG); Working Group on Key Comparisons and CMC Quality (KCWG); Working Group on Nucleic Acid Analysis (NAWG); Working Group on Organic Analysis (OAWG); and Working Group on Protein Analysis (PAWG) of the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM).
4. ISO/TC34 Food Products Technical Committee; ISO/TC61 Plastics Technical Committee; ISO/TC147 Water Quality Technical Committee; ISO/TC181 Safety of Toys Technical Committee; ISO/TC249 Traditional Chinese Medicine Technical Committee; ISO/TC276 Biotechnology Technical Committee; and ISO/TC334 Reference Materials Technical Committee of the International Organization for Standardization (ISO).
5. Interpol International Forensic Science Managers Symposium Organising Committee of the Interpol.
6. Tobacco Laboratory Network (TobLabNet) of the World Health Organization (WHO).

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### **Our Visitors**

The Permanent Secretary for Environment and Ecology (Food), Miss Vivian LAU Lee-kwan, J.P., visited the GL on 11 July 2022.

## **Page 63**

The Secretary for Environment and Ecology, Mr. TSE Chin-wan, B.B.S., J.P., visited the GL on 26 August 2022.

## **Page 64**

The Secretary for Environment and Ecology, Mr. TSE Chin-wan, B.B.S., J.P., visited the GL on 29 November 2022.

## **Page 65**

The Under Secretary for Environment and Ecology, Miss Diane WONG Shuk-han, J.P., visited the GL on 29 December 2022.

## **Page 66, GL & the Community**

### **Page 67**

#### **Joint packaging operation of anti-epidemic service bags**

In supporting the operation on anti-epidemic service bag packaging for the community, some Government Laboratory (GL) colleagues joined the packaging work at Kwong Yuen Community Hall in Shatin on 30 March 2022. With the concerted actions among other departments under the Food and Health Bureau, the whole packaging exercise concluded with over ten thousand service bags prepared that day.

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#### **Junior detective 2.0**

The “Junior Detectives 2.0” Event was held at the Hong Kong Science Museum on 24 August 2022. Over 100 participants attended the event.

### **Page 69**

#### **Science in the public service – “Government Laboratory and Everyday Life” seminar**

The “Government Laboratory and Everyday Life” seminar was held at the Hong Kong Science Museum on 29 October 2022. Over 110 and 250 participants attended the lectures at the Science Museum and watched simultaneous webcast, respectively.

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