

Government Laboratory Annual Report 2021

Cover

The Government of the Hong Kong Special Administrative Region, Government Laboratory Annual Report 2021

Page 1, VISION . MISSION . VALUES

Vision

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

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.

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 3 , FOREWORD

2021 further tested the Government Laboratory's resilience and persistence in providing a wide range of quality services to various bureaux and departments amidst the ongoing pandemic of coronavirus disease 2019 (COVID-19). In an endeavour to uphold our performance pledges while maintaining the required social-distancing measures, my colleagues devised flexible work plans and devoted extra efforts to minimize the impact of the pandemic on our work. Special work arrangements such as staggering working hours, on-line meetings and training, a mix of remote review and on-site accreditation assessments continued to be part of our routine in this year.

With my colleagues' relentless efforts, a tremendous volume of work was completed by the Laboratory in this pandemic year. There were 202,854 tests involving food safety, 134,215 tests on safety of drugs and Chinese medicines, 60,863 tests regarding consumer protection, 183,695 tests on environmental protection and 34,369 cases related to forensic testing. Aside from routine testing, we 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.

As one of the leading tobacco testing laboratories, we were invited by World Health Organization to participate in the inter-laboratory collaborative study to validate standard operating procedures for testing of smokeless tobacco products. To meet the increasingly complex service demands and to support the implementation of new regulations, new or improved testing methods were developed in various areas. These included the testing of specified harmful substances in food; identification of a wider range of genetically modified (GM) foods; enhanced detection of colour dyes in seepage water samples; determination of new Persistent Organic Pollutants in environmental samples; testing of impurities in drugs and Chinese medicines; and employing advanced techniques for the identification of a monoclonal antibody.

In November 2021, the Laboratory was invited to participate in a counter-terrorism exercise organised by the Inter-departmental Counter Terrorism Unit (ICTU). My colleagues provided full support and assistance to the six law enforcement agencies in conducting this exercise, which strengthened the HKSAR Government's overall counter-terrorism capability and to better prepare our role as investigators in response to different forms of terrorist attacks.

To stay atop in the dynamic scientific world during the pandemic, we continued to actively organize and participate in collaborative studies with other metrology institutes in the mainland and worldwide. Professional exchanges via webinars and virtual meetings

with other renowned institutions and online attendance to a wide range of international conferences and seminars were continued in this period. Government Laboratory, as the Designated Institute for Hong Kong, China, in the field of metrology in Chemistry, continued to dedicate our support to the local testing and certification industry through the provision of reference materials, arranging proficiency testing programmes and organising seminars and conferences.

It is my honour to have a team of competent colleagues with strong commitment to provide our community with world-class quality scientific services. Looking ahead, we will continue to make every effort to overcome any future challenges and to uphold our reputation as a reliable laboratory of excellence in providing quality services.

Dr. W O LEE

Government Chemist

October 2022

Page 4 , LOCATIONS

Ho Man Tin Government Offices has been the headquarters of the Government Laboratory (the GL) since 1992. The establishment expanded from 311 to 509 at the end of 2021.

With the continuous increase in the variety of services the GL provides and staff expansion, apart from Homantin headquarters, there are now six satellite laboratories at different locations in Hong Kong.

Headquarters

Homantin Government Offices, Homantin, Kowloon

6 Satellite laboratories

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.

Page 5, WORKFORCE

The Government Laboratory houses two operational divisions, namely the Forensic Science Division and the Analytical & Advisory Services 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.

Apart from an establishment of 509 staff members within the GL, which comprising 7 directorate staff, 150 professionals (116 with PhD degree), 291 technical staff (97 with Master's degree, 104 with Bachelor's degree) and 61 administrative and supporting staff. 60 staff were under secondment to other departments.

In 2021, 2 colleagues received the 40 Years' Long and Meritorious Service Award, 16 colleagues received the 30 Years' Long and Meritorious Service Award while 3 colleagues received the 20 Years' Long and Meritorious Service Award.

Page 6, ORGANISATION CHART

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 Analytical and Advisory Services Division consists of two functional groups namely Food Safety and Quality Group and Other Scientific Services Group. Each group comprises of a number of specialist sections.

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,
- Trace Elements Section.

The Other Scientific Services Group consists of the following 9 sections:

- Chemical Safety Section,
- Chinese Medicines Section,
- Chinese Materia Medica Chemistry Section,
- Pharmaceutical Chemistry Section,
- Pharmaceutical Quality and Investigation Section,
- Trade Descriptions Section,
- Product Testing and Dutiable Commodities Section,
- Environmental Chemistry A Section,
- Environmental Chemistry B Section.

The Forensic Science Division comprises two groups namely the Criminalistics and Quality Management Group and the Drugs, Toxicology and Documents Group.

The Criminalistics and Quality Management Group comprises 7 sections as follows:

- Biochemical Sciences A Section,
- Biochemical Sciences B Section,
- Chemical Sciences Section,
- DNA Database Section,
- Parentage Testing Section,
- Physical Sciences Section,
- 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,
- Questioned Documents Section.

Page 7, ANALYTICAL & ADVISORY SERVICES

Page 8, Food Safety And Environmental Hygiene

The GL has all along endeavoured to provide quality testing and investigative services to ensure food safety and environmental hygiene in Hong Kong. Comprehensive analytical services are provided to the Food and Environmental Hygiene Department (FEHD) and the Agriculture, Fisheries and Conservation Department (AFCD) 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. The scope of chemical analysis ranges from food composition & labelling to additives, contaminants, pesticide residues and veterinary drug residues.

Page 9, Food Safety And Environmental Hygiene

Food samples

The GL completed a total of 197,127 tests on a wide range of food samples, of which 186 tests pertained to food incidents that required urgent analytical services.

The average turnaround time and the percentage meeting target of the tests were 16 working days (target: 19 working days) and 99% (target: 95%) respectively.

Breakdown percentages of the number of tests conducted:

Pesticide and veterinary drug residues	55%
Food additives and composition	25%
Contaminants	20%

Urgent analytical services

In addition to routine monitoring work, the GL also rendered analytical support to the handling of various food incidents.

Urgent analytical services were provided for the analyses of mushroom toxins in mushroom samples, heavy metals in rice crackers and seafoods, tetrodotoxin in puffer fish, veterinary drug residues in seafoods and histamine in fish samples.

Page 10, Food Safety And Environmental Hygiene

Seepage and swimming pool water samples

Totally, 59,814 tests were performed for seepage and swimming pool samples.

All the tests were successfully completed within the target reporting time of 10 working days.

Food complaints

There were 5,727 tests performed for food deterioration and investigation cases under the food complaint category.

The average turnaround time was 18 working days (target: 25 working days). The average percentage meeting target of the tests were 98% (target: 88%).

Professional advice

Professional advice in response to a total of 6 requests on analytical methods and nomenclature in relation to the active ingredients of registered pesticide formulations was also provided in the year.

Page 11, Environmental Protection

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

Environmental samples such as air, water, sediment, biota and waste are submitted for analysis 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 the 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).

Page 12, Environmental Protection

Air samples

(including air samples and air pollution control samples, such as fuel oil and consumer goods containing volatile organic compounds)
61,818 tests were performed on monitoring samples, 460 on field investigation (air pollution) samples and 2,602 on litigation samples. All tests were completed within the pledged reporting time.

Environmental waste samples

(including wastewater, leachates, livestock waste, chemical wastes and miscellaneous solid wastes)
12,243 tests were performed on monitoring samples, with 99% of the tests completed within the pledged reporting times; 351 tests were performed on litigation samples, with 100% of the tests were completed within the pledged reporting time.

Water monitoring samples

(including river water, marine water, sediment and biota)
106,221 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 pledged reporting time.

Page 13, 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 legislation 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 toys and children's products, consumer goods, dutiable commodities and miscellaneous commodities. Besides, suspected counterfeit goods samples were also submitted for authenticity testing.

Page 14, Consumer Protection

Trade descriptions

The GL conducted 4,709 tests on a variety of commodities including disinfectant, prepackaged products, silver and metallic articles, Chinese medicines, seafood, and products of plant or animal origin for compliance assessment of the labelled claim or confirmation of their authenticity in support of the enforcement of the Trade Descriptions Ordinance (Cap. 362).

Toys and children's products

21,929 tests were conducted for phthalates contents and safety requirements as stipulated in the standards under relevant Ordinance. Items tested included festive toys, transportation toys, rattles, magnetic toys, wooden toys, bathing toys, push and pull toys, babies' dummies, carry cots, children's cots, children's paints and children's bath tubs, etc.

Consumer goods

A wide variety of samples including hair dyes, rubbing alcohol, foldable furniture, festival items for Lunar New Year and Christmas, clothing, hot water bottles, food containers and cosmetics such as whitening cream, lotions, sunscreens and body wash products, etc., were submitted for compliance testing under the provisions of the statutory general safety requirements. These accounted for a total of 12,600 tests in the year.

The GL worked closely with C&ED to follow up cases of public concern, for example baby lotions, hair dyes, plastic food containers and enamel pots published by the CHOICE Magazine.

Page 15, Consumer Protection

Dutiable commodities

1,528 and 1,576 tests were conducted for hydrocarbon oils and liquors, respectively. Besides, 94 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. In addition, the GL carried out 1,514 tests on other tobacco products.

Miscellaneous commodities

The GL carried out 143 tests to check the integrity of flexible gas tubing under the requirements of the Gas Safety Ordinance (Cap. 51). Besides, the GL received ad hoc samples on checking the identity of kerosene as well as the gaseous composition of liquefied petroleum gas. For evaluation of government tenders, 157 tests were carried out on various items including rice and soap.

Investigation samples

In addition, 2,446 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. Also, 42 tests were conducted for the investigation of suspected short weight of goods and for metrological verification of traders' weighing equipment.

Page 16, Drug Quality

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

The GL's professional services on pharmaceutical analyses mainly provide support to (1) the routine market surveillance programme for monitoring the quality of the 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 adulterants 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 C&ED. Furthermore, the GL offers 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 DH in the development of Hong Kong Chinese Materia Medica Standards (HKCMMS) through conducting method verification and trial run studies.

Page 17, Drug Quality

Pharmaceutical samples

The GL conducted 94 and 52,245 tests for urgent and other pharmaceutical samples respectively. All tests for urgent samples were completed within the pledged turnaround time while 99% of that for other samples met the pledged target.

Chinese medicine samples

The GL conducted 1,188 and 80,688 tests for urgent and other Chinese medicine samples respectively. All tests for urgent samples were completed within the pledged turnaround time while over 99% of other samples met the pledged target.

Page 18, 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; 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 FEHD in the surveillance of radioactive contamination of imported foodstuff; providing technical support to the Daya Bay Contingency Plan and the Nuclear Powered Vessel Contingency Plan for Public Safety Duty Visits of Nuclear Powered Warships in Hong Kong; provision of professional services for the implementation of the Chemical Weapons Convention and the control of import and export of strategic commodities by the Trade & Industry Department and the C&ED in the enforcement of the relevant legislations.

Page 19, Public Safety

Occupational safety and health

The GL completed 2,123 tests on 305 samples submitted by the Labour Department and the Hong Kong Police Force.

Dangerous goods

For the classification of dangerous goods under the Dangerous Goods Ordinance (Cap. 295) and its subsidiary regulations, the GL conducted 5,154 tests. All the tests were completed within the pledged target reporting time.

Page 20, Public Safety

Radioactivity measurement

The GL completed 4,062 sample pre-treatment tests for radioactivity measurement by the HKO and conducted 974 radioactive contamination tests 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 I-131, Cs-134 and Cs-137. All the tests were completed within the pledged reporting time.

Advisory services

Apart from testing services, the GL also provided advisory services to client departments in support of law enforcement. The GL offered over 300 pieces of professional advice relating to over 1,130 items for classification under the Dangerous Goods Ordinance (Cap. 295) while over 600 pieces of advice involving over 690 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 21, FORENSIC SCIENCE

Page 22, 24-hour Scene of Crime and Laboratory Examination Services

One of the prime aims of the Forensic Science Division (FSD) of the GL is to provide high quality crime scene investigation (CSI) services to law enforcement agencies in Hong Kong. A team of experienced Laboratory Specialist Services Officers (Scientific Evidence) and Chemists from different operational sections of FSD/GL provides a comprehensive range of 24-hour CSI services, including 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.

Apart from general CSI services, the GL's professional staff with specialist training supports four specialized 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 Analysis 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 law enforcement officers in crime investigations.

Page 23, 24-hour Scene of Crime and Laboratory Examination Services

Scene of crime officers attended a total of 475 crime scenes comprising 199 general crime scenes, 15 scenes with bloodstain pattern analysis, 21 fire scenes, 204 traffic accident or vehicle-related scenes and 36 illicit drug-related scenes. Compared to 2020, the overall scene attendance increased by around 37%.

The Laboratory provided round-the-clock services for law enforcement departments on 9 incidents.

Page 24, Forensic DNA Examination

There are four working sections in the GL providing quality forensic DNA examination services to Hong Kong Police Force and other law enforcement agencies. The two Biochemical Sciences Sections (BSS) routinely analyse twenty-six DNA characteristics plus sex determination on the DNA recovered from crime scene biological evidence materials with an aim to identify the person(s) related to the committed crime.

The Biochemical Sciences Sections acquired a 3D laser scanning system with a view to enhance the quality of bloodstain pattern analysis (BPA). The advanced technology of this new scanning system would facilitate a more efficient documentation and analysis of bloodstain patterns observed at crime scenes. Besides, the realistic visual images provided with 3D representation of different bloodstain patterns with respect to their surrounds could offer the court an easier way to visualise and understand the BPA analysis in the context of the scene.

The DNA Database Section (DDS) 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 comparison with the DNA data in the database 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 Section (PTS) provides genetic testing services mainly to the Immigration Department for the verification of parent-child relationships in connection with immigration-related cases since 2000.

Page 25, Forensic DNA Examination

Biochemical Sciences Sections

In 2021, 2,155 non-complicated and complicated cases were examined (increased by 6% compared to 2020); 91% non-complicated cases were completed within the target turnaround time of 60 working days; 80% complicated cases were completed within the target turnaround time of 130 working days.

There are total of 14,684 items were examined for biological evidence in relation to criminal cases (increased by 19% compared to 2020) and 6 times of “Round-the-clock testing service” with preliminary findings made available within three days.

Page 26, Forensic DNA Examination

DNA Database Section

The use of the database has resulted in 328 and 43 pairs of matches between data from crime scene exhibits with offenders or 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 2021, 3,290 cases were examined (increased significantly by 60% compared to 2020); 81% cases completed within the target turnaround time of 22 working days; 59,543 number of relevant DNA data were stored in the database; and 3 times of “Round-the-clock testing service” with preliminary findings made available within three days.

Parentage Testing Section

The Immigration Department continues to assist the Mainland authorities in processing the One Way Permit (OWP) applications of eligible Mainland “overage children”. Due to poor health of some Hong Kong parents of “overage children” who are unable to attend the Exit-Entry Administration of the Public Security Bureau to provide specimens, the Immigration Department assists these OWP applications by collecting specimens from the claimed parents in Hong Kong and submitting the specimens to the GL to conduct the genetic tests. In 2021, the GL has completed one case under this category.

In 2021, 685 reports issued in connection with the Certificate of Entitlement (CoE) applications pursuant to the Immigration (Amendment) Ordinance 2001 were issued (decreased by around 18% compared to 2020); 100% cases were completed within the target turnaround time of 22 working days and average positive parentage matching rate was around 98%.

Page 27, 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 crime investigation and subsequent legal proceedings.

Fire investigation and traffic accident investigation frequently require the GL's 24-hours services. The former is to determine the origin, cause, and development of a fire or explosion. The investigation involves multiple disciplines including fire chemistry, fire dynamic, knowledge of building systems, scene investigation techniques, chemical analysis and various analysis tools. The latter is to assist the police in the reconstruction of the traffic accident.

Physical examination services provide by the GL include traffic accident reconstruction (T A R), forensic video analysis (F V A), tyre examination, vehicle number restoration, forgery and counterfeit items and cases involving marks and impressions evidence. The latter can help to associate physical contact of objects such as tools and shoes with toolmarks and shoeprints recovered at scene of crime.

T A R involves the application of various scientific disciplines including mathematics, physics, automotive engineering, video analysis 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 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.

F V A involves the analysis of digital evidence pertaining to video footage or images related to a crime. It utilizes advanced video analysis and image processing software to extract or analyze 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.

Page 28, Criminalistics – Contact and Physical Evidence

Chemical Sciences Section

The GL examined a total of 675 cases involving 4,974 exhibit items in relation to trace evidence, fire investigation and miscellaneous chemical investigation in 2021. By the end of 2021, 160 active cases were still undergoing fire investigation, trace evidence and/or miscellaneous chemical investigation.

For fire investigation, 26 cases (increased by 160% compared to 2020) and 187 items (increased by 289% compared to 2020) were completed, 96% of the cases were completed within the targeted turnaround time of 88 working days.

For trace evidence investigation, 332 cases (increased by 24.8% compared to 2020) and 2,215 items (increased by 24.6% compared to 2020) were completed, 89% of the cases were completed within the targeted turnaround time of 66 working days.

For miscellaneous chemical investigation, 317 cases (increased by 22.8% compared to 2020) and 2,572 items (increased by 6.9% compared to 2020) were completed, 94% of the cases were completed within the targeted turnaround time of 22 working days.

Page 29, Criminalistics – Contact and Physical Evidence

Physical Sciences Section

For physical examination, the GL examined a total of 755 cases involving 1,512 exhibit items in 2021.

By the end of 2021, 175 active cases were still undergoing traffic accident related investigation, marks & impressions evidence examination, forensic video analysis and/or miscellaneous physical investigation.

For traffic accident reconstruction (T A R), 383 cases and 395 items were completed; 77% of the cases were completed within the targeted turnaround time of 66 working days.

For marks and impressions evidence examination, 134 cases and 487 items were completed; 84% of the cases were completed within the targeted turnaround time of 66 working days.

For forensic video analysis (F V A), 57 cases and 173 items were completed; 58% of the cases were completed within the targeted turnaround time of 88 working days.

For miscellaneous physical investigation, 181 cases and 457 items were completed; 92% of the cases were completed within the targeted turnaround time of 33 working days.

As compared with the figures in 2020, there was an increase of about 4% in the number of completed cases, but a slight decrease of about 6% in the number of exhibit items examined.

Page 30, Controlled Drugs

The GL strives to provide comprehensive chemical testing services for the Hong Kong Police Force and the Customs & Excise Department as well as other law enforcement departments in enforcing the control of substances (including drugs and chemical precursors) and related illicit activities involved in the contravention of the Dangerous Drugs Ordinance (Cap.134), the Pharmacy and Poisons Ordinance (Cap.138), the Antibiotics Ordinance (Cap. 137), and the Control of Chemicals Ordinance (Cap.145).

Page 31, Controlled Drugs

Drug cases analysed

In 2021, for illicit drug seizures cases, 88% cases were completed within the target turnaround time of 11 working days; for major illicit drug seizures and manufacturing, 64% cases were completed within the target turnaround time of 44 working days; for other illegal drug activities, 75% cases were completed within the target turnaround time of 120 working days.

There are 5,167 cases were completed (increased by 35% compared to 2020) and 26,845 items (increased by 55% compared to 2020) were examined.

Scene visits

In 2021, the GL attended 36 illicit drug manufacturing and cannabis scenes, representing an increase when compared to 27 scene attendance in 2020. Most of the scene visits in 2021 were related to cocaine manufacturing and cannabis cultivation.

Page 32, Controlled Drugs

Drug Abuse

The GL provided statistical figures compiled from analytical results 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 2021, cannabis was still the most common drug of abuse followed by cocaine, methamphetamine hydrochloride (“ICE”), ketamine and heroin. Comparing with 2020, the proportion of cases involving cocaine showed a significant increase while there was a slight decrease in the proportion of cases involving “ICE”, and ketamine. The proportion of case involving heroin remained the same.

In 2021, cannabis representing about 26% of the total cases, remained the same as that of 2020; cocaine, methamphetamine hydrochloride (“ICE”), ketamine and heroin which accounted for about 21%, 16%, 10% and 9%. As compared with the figures of 15%, 18%, 11% and 9% of the total cases respectively obtained for the same 4 drugs in 2020.

The monthly average purity of the controlled drugs, for cocaine was 69 to 87%; methamphetamine hydrochloride (“ICE”) was 95 to 99%; ketamine was 59 to 83% and heroin was 72 to 84%.

Development work and services to clients

In response to the trends of continual emergence of new abused drugs and the implementation of new legislative amendments in relation to drug control, the GL has always 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 legislation amendments for the control of abused drugs.

Page 33, 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 or crime scenes are examined for drugs and poisons so as to assist the Judiciary (including the Coroner's Court), the Forensic Pathology Service and the HKPF in death inquiries and criminal investigations.

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 of the Narcotics Division) in their respective drug use surveillance programmes.

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.

Page 34, Forensic Toxicology

Analytical Toxicology Service

In 2021, 2,325 cases (increased by 2% compared to 2020) were completed and 10,712 items (increased by 3% compared to 2020) were examined.

From the Forensic Pathology Service, 1,832 cases involving 8,819 samples, equivalent to 79% and 82% of the total cases and samples respectively.

From the HKPF, 326 cases involving 1,373 samples, equivalent to about 14% and 13% of the total cases and samples respectively.

Amongst these examined cases in 2021, about 61% were found to have drugs or poisons.

Page 35, Forensic Toxicology

Urinalysis Service

In 2021, 14,660 judicial confirmation cases (increased by 25% compared to 2020) and 4,243 methadone clinics cases (decreased by 14% compared to 2020) were completed.

For judicial confirmation (routine) cases, 90% cases were completed within the target turnaround time of 22 working days; for judicial confirmation (enhanced probation) cases, 100% cases were completed within the target turnaround time of 6 working days; for methadone clinics cases, 91% cases were completed within the target turnaround time of 11 working days.

Drink Driving Service

In 2021, 58 cases (increased by 14% compared to 2020) were completed and 98% cases were completed within the target turnaround time of 11 working days.

Drug Driving Service

In 2021, 110 cases (increased by 440% compared to 2020) were completed and 98% cases were completed within the target turnaround time of 33 working days.

The main reason for the significant increase of cases was due to the introduction of Rapid Oral Fluid Test as a preliminary on-site test for the suspected drug drivers from February 19, 2021.

Hair Drug Testing Service

In 2021, 1673 samples, mainly from the Healthy School Programme (increased by 46% compared to 2020) were completed.

Page 36, Questioned Documents

The GL provides services to law enforcement departments on the determination of the 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 37, Questioned Documents

In 2021, the GL handled a total of 246 document examination cases in which 204 cases were under handwriting and counterfeit or forgery categories and 42 cases were under express service category.

For counterfeit or forgery cases, 95% cases were completed within the target turnaround time of 30 working days; for handwriting cases, 91% cases were completed within the target turnaround time of 66 working days; for Express Service cases, 100% cases were completed within the target turnaround time of 1 working days.

The Hong Kong Police Force contributing to about 85% of the total cases and 15% from other government departments. For the Express Service cases, 81% of the express cases were submitted by Hong Kong Police Force and the remaining 19% of cases were received from other government departments.

The Hong Kong Smart Identity Card remained the most common type of items for the express service, amounting to 71% of the express cases received in 2021.

Apart from the regular service, the GL also offered technical advice and professional support to other government departments in relation to the quality of documents bearing security features such as the new generations Hong Kong Smart Identity Card and e-Passport of the Hong Kong Immigration Department as well as security paper and laminate of the Government Logistics Department.

Page 38, DEVELOPMENT

Page 39, Development in Food Safety And Environmental Hygiene

The Harmful Substances in Food (Amendment) Regulation 2021 will come into force in two phases in 2023. The GL has been actively undertaking the method development work on the testing of specified harmful substances and will provide the CFS with new testing services upon request.

On genetically modified (GM) food, the analytical capabilities have been extended to two new GM events, maize GM event “MON87460” and soybean GM event “FG72” using real-time PCR.

To enhance the effectiveness and detection capability to test seepage water samples, a new analytical method has been developed for the analysis of 14 colour dyes.

The 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.

Page 40, Development in Environmental Protection

To cope with the updating of the Stockholm Convention on Persistent Organic Pollutants (POPs), the GL keeps on carrying out method development and validation work for the analysis of new POPs in various environmental samples.

To facilitate the enforcement of the Mercury Control Ordinance, the GL has developed methods to accommodate the new testing need, and will continue the R&D efforts for the analysis of mercury in regulated products.

New equipment or facilities acquired in 2021

- Gas chromatograph with tandem mass spectrometer (GC-MS/MS) for analysis of organic compounds.
- Gas chromatograph with oxygen selective flame ionisation detector (O-FID) system for analysis of oxygenate compounds in unleaded petrol.

Page 41, Development in Consumer Protection

In 2021, the GL continued to develop and verify new test methods to broaden the scope of service provision concerning consumer protection, such as authentication of eel sample.

A bundle of instruments including real-time PCR system and next generation sequencer were acquired in supporting the Department of Health and Customs and Excise Department in the control of smoking products. To strengthen the analytical capability for determination of trace organic compounds content in consumer goods and toys and children's products, an integrated ultra-high pressure liquid chromatograph – Orbitrap mass spectrometer system was also acquired to replace the old testing equipment.

As a Testing Member of the World Health Organization Tobacco Laboratory Network (TobLabNet), the GL to participated in the inter-laboratory collaborative study to validate standard operating procedures for determination of nicotine, pH and moisture in smokeless tobacco products. The GL will continue our tobacco testing and research activities to contribute to the World Health Organization, such as training and developing test methods etc.

Page 42, Development in Drug Quality

The GL has continued to develop methods to accommodate the needs on testing of impurities such as nitrosamines and harmful elements in pharmaceutical products. In the realm of proteomics, we have employed peptide mapping and high resolution mass spectrometry for identifying atezolizumab which is a humanized monoclonal antibody.

To strengthen analytical capability in Chinese medicines testing, the GL modified the sample clean-up procedures for pesticide residues in Chms to improve analytical efficiency. Furthermore, the GL continued to develop qualitative methods for chemical markers using gas chromatograph - tandem mass spectrometers and liquid chromatograph - tandem mass spectrometers. To accommodate new service need, the GL developed methods for the determination of sulfur dioxide and aflatoxins in Chms with reference to the Pharmacopoeia of the People's Republic of China, and had them accredited by HOKLAS. The GL will continue the necessary development work of pesticide residues analysis.

New equipment

In 2021, one set of microwave digestion system was installed to enhance sample digestion of pharmaceutical products for the testing of elemental impurities. For enhancing pesticide residues analysis, the GL acquired three replacement systems including one set of gas chromatograph - tandem mass spectrometer, one set of gas chromatograph with tandem mass spectrometer and flame photometric detector, and one set of high performance liquid chromatograph - tandem mass spectrometer.

Page 43, Development in Metrology in Chemistry

The GL is the Designated Institute for metrology in chemistry in Hong Kong, China, and has the responsibility of establishing and disseminating traceability of related measurements to support the testing community in Hong Kong through the production of certified reference materials and provision of calibration services reference values when required. The latter is mainly via the organization of reference value assigned proficiency testing programmes.

The GL has actively participated in meetings, workshops, symposiums and comparison studies organized under the auspices of Asia Pacific Metrology Programme (APMP), International Bureau of Weights and Measures (BIPM) and other international and regional organisations. Through these regional and international activities and collaboration, the GL continues contributing to the development and prosperity of Hong Kong and to the international efforts in building a firm and harmonized scientific measurement infrastructure for international trade, commerce and regulatory affairs.

Page 44, Development in Metrology in Chemistry

Organisation of Comparison Studies and Proficiency Testing Programmes in:

1. the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology Key Comparison / Pilot Study includes:
 - Elements and Tributyltin in Seawater (CCQM-K155/P196)
 - Arsenic Speciation in Seafood (CCQM-P215)
2. Regional Metrology Organization Supplementary Comparison / Pilot Study includes:
 - Toxic Elements in Seafood (APMP.QM-S19/P40)
 - Trace Elements in Natural Water (Inter-American Metrology System QM-S12/APMP.QM-P41)
3. Asia Pacific Metrology Programme - the Asia Pacific Accreditation Cooperation Joint PT includes:
 - Benzoic Acid in Fish Sauce (APAC T113)
4. Local Proficiency Testing Programme includes:
 - Boric Acid in Food (GLHK PT 21-01)
 - Propionic Acid in Flour Confectionery (GLHK PT 21-02)
 - Chinese Medicine Testing – Assay of Chinese Materia Medica (GLHK PT 21-03)
 - Benzoic Acid in Fish Sauce (GLHK PT 21-04)
 - Chemical Markers in Chinese Medicinal Oil (GLHK PT 21-05)

Page 44, Development in Metrology in Chemistry

Participation in International Comparisons

- Peptide Purity: Hexapeptide of HbA0(VE) (CCQM-K115.2018)
- Elements in Lipstick Material (APMP.QM-S17)
- trans-Zearalenone in Maize Powder (CCQM-K168)
- Anions in Seawater (CCQM-K161)
- Elements and Inorganic Arsenic in Rice Flour (CCQM-K158)
- Quantification of genomic DNA extracted from a protein matrix (CCQM-K86.d)
- Event-specific quantitative analysis for genetically modified (GM) Maize Line MON87427 (APAC T111)

Categories and number of Calibration and Measurement Capability (CMC) claims obtained by the GL includes:

- 5 in Advanced materials
- 16 in Biological fluids and materials
- 2 in Fuels
- 38 in Food
- 9 in High purity chemical
- 3 in Inorganic solutions
- 6 in organics solutions
- 5 in other materials
- 1 in pH
- 13 in Sediments, soils, ores, and particulates
- 7 in water

Page 45, Development in Metrology in Chemistry

Professional Excellence

CIPM MRA	<ul style="list-style-type: none">• Designated Institute, in the field of metrology in chemistry for Hong Kong, China, under the Mutual Recognition Arrangement of the International Committee for Weights and Measures (CIPM MRA)• Official Observer of the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM)
APMP	<ul style="list-style-type: none">• Full member of Asia Pacific Metrology Programme (APMP)
CITAC	<ul style="list-style-type: none">• Founding member of Co-operation on International Traceability in Analytical Chemistry (CITAC)
Accreditation and Certification	<ul style="list-style-type: none">• ISO/IEC 17025:2017• ISO/IEC 17043:2010• ISO 17034:2016• ISO 14001:2015

Page 46, Training · Sharing · Exchange

Page 47, Training to Client Departments

Apart from forensic science and analytical & advisory services, the GL also provides training to different client departments in order to reinforce cooperation and strengthen the quality of services. In 2021, 1,683 participants from the Hong Kong Police Force, Custom & Excise Service, ICAC, Department of Justice, the Social Welfare Department and Immigration Department joined a total of 30 Lectures and/or visits organised by GL.

Number of trainees attended training arranged by the GL in 2021

- 1552 from Hong Kong Police Force
- 42 from Department of Justice
- 40 from ICAC
- 25 from Social Welfare Department
- 15 from Custom & Excise Service
- 9 from Immigration Department

Page 47, Training · Sharing · Exchange

Facilitation & Support to Local Testing Industry

In supporting the accreditation of the local testing laboratories under the Hong Kong Laboratory Accreditation Scheme (HOKLAS), the GL's professional staff have acted as assessors in HOKLAS assessments/reassessments of local testing laboratories since 2008. In 2021, 32 assessments were conducted, totaling 40 man-days.

Number of man-days of GL staff acted as HOKLAS assessors for HOKLAS assessments or reassessments in 2021:

- 10.5 man-days in Environmental Testing
- 19 man-days in Food
- 3.5 man-days in Chinese Medicine
- 2 man-days in Pharmaceutical Products
- 5 man-days in Chemical Testing

Page 48, Presentations

- FW LEE presented Authentication Analysis of Tonic Food Products in Hong Kong at Government Chemist Conference 2021: Safe Food for Tomorrow's World through webinar.
- HS CHU presented Analysis of Total Arsenic and Arsenic Species in Seafood at Asia Pacific Metrology Programme (APMP) Food Safety Focus Group (FSFG) Workshop - Inorganic Analysis of Toxic Elements in Seafood through web meeting.
- HS CHU presented Analysis of Inorganic Elements in Seafood at Asia Pacific Metrology Programme (APMP) Food Safety Focus Group (FSFG) Workshop - Inorganic Analysis of Toxic Elements in Seafood through web meeting.
- HS CHU presented Metrology Development -Measurement for Monitoring Water Quality of Rivers in Hong Kong SAR, China at Asia Pacific Metrology Programme (APMP) Clean Water Focus Group Webinar - Metrology Development in Water Measurement through web meeting.

Page 49, Presentations

- JPK LAU presented Chemical Metrology – Supporting the Quality of Life at Metrology Symposium 2021 through webinar.
- QKW CHAN presented Establishing the Traceability in Chemical Measurement at Metrology Workshop 2021 through webinar.
- WH FUNG presented Elemental Speciation Overview: Definitions and Measurement Principles at Asia Pacific Metrology Programme (APMP) Food Safety Focus Group (FSFG) Workshop through webinar.

Page 50, Publications

- Y K CHENG (GL staff), C H TAO (GL staff), C N TSANG (GL staff), K C POON (GL staff) and C N TAM (GL staff) published a paper entitled “Technical note: Calibration of frame intervals of video recorders using Global Positioning System (GPS) signal as time reference” in *Forensic Science International: Reports* 4 (2021) 100225.
- C Y IP (GL staff), E Y YU and C LI (GL staff) published a paper entitled “Blood DNA Preservation on Various Forensic Swab Devices” in *Journal of Forensic Identification*, 71 (1), 2021 page 21 to 34.
- G F WONG (GL staff), W M LEE (GL staff) and C K LI (GL staff) published a paper entitled “Rapid screening of amphetamine, methamphetamine and methylenedioxymethamphetamine in urine by liquid chromatography tandem mass spectrometry (LC-MS/MS)” in *Forensic Asia*, 11(2), page 11 to 14, 2021.

Page 51, Publications

- Steven Westwood, Gustavo Martos, Ralf Josephs, Tiphaine Choteau, Robert Wielgosz, Stephen Davies, Michael Moawad, Greg Tarrant, Benjamin Chan, Mahiuddin Alamgir, Eliane de Rego, Wagner Wollinger, Bruno Garrido, Jane Fernandes, Rodrigo de Sena, Rodrigo Oliveira, Jeremy Melanson, Jennifer Bates, Phuong Mai Le, Juris Meija, Can Quan, Ting Huang, Wei Zhang, Ruian Ma, Shaofeng Zhang, Yuan Hao, Yaiuan He, Shanjun Song, Haifeng Wang, Fuhai Su, Tianji Zhang, Hongmei Li, Wai-hing Lam (GL staff), Wai-fun Wong (GL staff), Wai-hong Fung (GL staff), Rosemarie Philipp, Ute Dorgerloh, Klas Meyer, Christian Piechotta, Juliane Riedel, Tanja Westphalen, P Giannikopoulou, Ch Alexopoulos, E Kakoulides, Yuko Kitamaki, Taichi Yamazaki, Yoshitaka Shimizu, Miho Kuroe, Masahiko Numata, Alejanro Pérez-Castorena, Miryan Balderas-Escamilla, Judith Garcia-Escalante, Anatoliy Krylov, Alena Mikheeva, Mikhail Beliakov, Marina Palagina, Irina Tkachenko, Sergey Spirin, Vadim Smirnov, Teo Tang Lin, Cheow Pui Sze, Wang Juan, Wong Lingkai, Lu Ting, Liu Qinde, Chen Yizhao, Sim Lay Peng, Maria Fernandes-Whaley, Des Prevoo-Franzsen, Laura Quinn, Nontete Nhlapo, Dennis Mkhize, Dominique Marajh, Sabelo Chamane, Seonghee Ahn, Kiwhan Choi, Sunyoung Lee, Jeessoo Han, Song-Yee Baek, Byungjoo Kim, Sornkrit Marbumrung, Pornnipa Jongmesuk, Kittiya Shearman, Cheerapa Boonyakong, Mine Bilsel, Simay Gündüz, Ilker Ün, Hasibe Yilmaz, Gökhan Bilsel, Taner Gökçen, Cailean Clarkson, John Warren and Eli Achtar published a paper entitled “Mass fraction assignment of Bisphenol-A high purity material (CCQM-K148.a)” in 2021 Metrologia 58 Technical Supplement 08015.

Page 52, Publications

- Toshiaki Asakai, Igor Maksimov, Sachiko Onuma, Frank Bastkowski, Beatrice Sander, José Luis Ortiz Aparicio, Judith Velina Lara Manzano, Samuel M F Lo (GL staff), Desmond K F Poon (GL staff), Mabel Delgado, Paola Avendaño, Ronald Cristancho Amaya, Henry Torres Quezada, Fabiano Barbieri Gonzaga, Leonardo da Silva Pardellas, S D I Dias, D Gunawardana, Xiu Hongyu, Wu Bing, Nongluck Tangpaisarnkul, Patumporn Rodruangthum, Vladimir V Gavrilkin, Anton V Petrenko, Sergey Prokunin, Darya Vengina and Vladimir Dobrovolskiy published a paper entitled “pH measurement of carbonate buffer (APMP.QM-K18.2016)” in 2021 Metrologia 58 Technical Supplement 08003.
- Jon W. Wong, Jian Wang, James S. Chang, Willis Chow, Roland Carlson, Łukasz Rajski, Amadeo R. Fernández-Alba, Randy Self, William K. Cooke, Christopher M. Lock, Gregory E. Mercer, Katerina Mastovska, John Schmitz, Lukas Vaclavik, Lingyun Li, Deepika Panawennage, Guo-Fang Pang, Heng Zhou, Shui Miao, Clare Ho (GL staff), Tony Chong-Ho Lam (GL staff), Yim-Bun Sze To (GL staff), Paul Zomer, Yu-Ching Hung, Shu-Wei Lin, Chia-Ding Liao, Danny Culberson, Tameka Taylor, Yuansheng Wu, Dingyi Yu, Poh Leong Lim, Qiong Wu, Jean-Paul X. Schirlé-Keller, Sheldon M. Williams, Yoko S. Johnson, Sara L. Nason, Michael Ammirata, Brian D. Eitzer, Michelle Willis, Shane Wyatt, SoYoung Kwon, Nayane Udawatte, Kandalama Priyasantha, Ping Wan, Michael S. Filigenzi, Erica L. Bakota, Mark W. Sumarah, Justin B. Renaud, Julien Parinet, Ronel Biré, Vincent Hort, Shristi Prakash, Michael Conway, James S. Pyke, Dan-Hui Dorothy Yang, Wei Jia, Kai Zhang, and Douglas G. Hayward published a paper entitled “Multilaboratory Collaborative Study of a Nontarget Data Acquisition for Target Analysis (nDATA) Workflow Using Liquid Chromatography-High-Resolution Accurate Mass Spectrometry for Pesticide Screening in Fruits and Vegetables” in Journal of Agricultural and Food Chemistry 2021, page 69, 44, 13200–13216.

Page 53, Involvements in External Committees

Statutory Boards

Pharmacy & Poisons Board of Hong Kong

Section 3 (2) of the Pharmacy and Poisons Ordinance (Cap. 138)

- Pharmacy & Poisons Board
- Poisons Committee
- Examination Committee
- Pharmacy Internship Training Committee
- Pharmacy and Poisons (Manufacturers Licensing) Committee
- Pharmacy and Poisons (Registration of Pharmaceutical Products and Substances: Certification of Clinical Trial/Medicinal Test) Committee

Chinese Medicine Council of Hong Kong

Part II of the Chinese Medicine Ordinance (Cap. 549)

- The Council
- Chinese Medicines Board
- Chinese Medicines Committee
- Working Group on Revising Residual Limits of Heavy Metals and Pesticides, and Establishing Limit of Mycotoxin in Chinese Herbal Medicines

Occupational Safety and Health Council

Part II of the Occupational Safety and Health Council Ordinance (Cap. 398)

- The Council
- Chemical Safety & Health Advisory Committee
- Finance & Administration Committee
- Research Committee

Page 54, Involvements in External Committees

Non-statutory Boards

Hong Kong Council for Testing and Certification (HKCTC)

- The Council

Hong Kong Chinese Materia Medica Standards (HKCMMS) Section

- International Advisory Board (IAB)
- Scientific Committee

Government Chinese Medicines Testing Institute

- Advisory Board

Innovation and Technology Commission (ITC)

- Accreditation Advisory Board (AAB)
- AAB Working Party on Proficiency Testing Providers & Reference Material Producers
- AAB Working Party for Biological & Chemical Testing
- AAB Working Party for Forensic Testing
- AAB Working Party for Accreditation of Inspection Bodies
- Task Force on Gemstone Testing
- Task Force on Crime Scene Investigation
- Customer Liaison Group (Standards and Calibration Laboratory)

Department of Health/Hospital Authority/Chinese University of Hong Kong

- Poison Control Network (PCN)

Fire Services Department

- Dangerous Goods Standing Committee

Page 54, Involvements in External Committees

Security Bureau

- Standing Chemical, Biological, Radiological and Nuclear Planning Group (SRPG)

Security Bureau

Narcotics Division

- Research Advisory Group (RAG)

Hong Kong Observatory

Science in the Public Service (SIPS)

- GL representative for all-partners meeting

Environmental Bureau

- Task Force on Emergency Response to Marine Environmental Incidents (TFER)

Food and Environmental Hygiene Department

Centre for Food Safety

- Working Group on Amendment to Harmful Substances in Food Regulations
- Task Force on Standard Setting for Veterinary Drug Residues in Food

Page 55, International Bodies

Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM)

- Working Group on Key Comparisons and CMC Quality
- Strategic Planning Working Group
- Working Group on Inorganic Analysis
- Working Group on Nucleic Acid Analysis
- Working Group on Organic Analysis
- Working Group on Protein Analysis

Asia Pacific Metrology Programme (APMP)

- APMP Developing Economies' Committee (DEC)
- APMP-APAC Joint Proficiency Testing Working Group
- APMP Technical Committee for Amount of Substance (TCQM)
- APMP Technical Committee for Quality Systems (TCQS)
- APMP Food Safety Focus Group (FSFG)

World Health Organization (WHO)

- Tobacco Laboratory Network (TobLabNet)

Page 55, International Bodies

International Organization for Standardization (ISO)

- 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
- ISO/TC334 Reference Materials Technical Committee

Asian Forensic Sciences Network

- Crime Scene Investigation Workgroup
- Digital Forensic Workgroup
- Questioned Document Workgroup

Interpol

- Interpol International Forensic Science Managers Symposium Organising Committee

Government Laboratory Annual Report 2021

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