



**Controlling Officer's  
Environmental Report**

**2003**



Government Laboratory

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### **Executive Summary**

The Government Laboratory provides a wide range of scientific services to various government departments concerned with the maintenance of law and order and the implementation of government policies on public health and safety, environmental protection, protection of consumer interests and revenue. The Laboratory is committed to achieving a high standard of environmental performance in its operation to minimize the impact of its operation on the environment, and to contribute to the sustainable development of Hong Kong. Efforts have been made to establish and maintain procedures to prevent the release of harmful pollutants to the atmosphere, land or water; and to minimise the amount and toxicity of the waste generated. To ensure the safe treatment and disposal of waste is mandatory in the operation of the Laboratory.

The Laboratory is fully aware of the fact that it is accountable to the public and the Government for the testing activities undertaken. To maintain a clean environment and be responsible for all the stakeholders of the Laboratory is fundamental in the service provision of the Laboratory.

As a sequel to the reports of the previous years, this report reviews the Laboratory's environmental performance in the year 2003 and presents the environmental issues that require special attention in the future. The Laboratory will continue to seek opportunities for improvement and to maintain a high standard of environmental performance in its operation.

### **Controlling Officer's Profile of Key Responsibilities**

The Government Chemist discharges statutory duties as referee analyst under various ordinances and regulations. The Government Laboratory provides comprehensive forensic, analytical and advisory services to government departments, including the provision of services for environmental protection, and for surveillance programmes on food, drugs, and Chinese medicine to safeguard the health of the public. The Laboratory also provides testing and advisory services related to commodities for health and safety evaluation, and for the protection of government revenue and consumer interests. The forensic science service provided by the Laboratory seeks to be impartial, accurate and efficient. The service is essential for the Criminal Justice System of Hong Kong. Where appropriate and necessary, the Laboratory will also provide services to public institutions and international organisations.

The actual expenditure of the Government Laboratory for 2003-2004 was \$257.8m. As at December 2003, there were 6 directorate-grade, 380 non-directorate-grade and 50 non-Civil Service contract staff members in the Government Laboratory. The programmes for which the Government Chemist is responsible and the associated policy areas are listed in Table 1.

The Government Laboratory is composed of the following three divisions:

- Analytical and Advisory Services Division (A&ASD)
- Forensic Science Division (FSD)
- Administration Division (AD)

In addition to the Laboratory headquarters located at Ho Man Tin Government Offices, testing facilities of the Laboratory are also located at the following addresses:

- i) Lai Chi Kok Government Offices, Lai Chi Kok;
- ii) Public Works Central Laboratory Building, Kowloon Bay;
- iii) The Public Health Laboratory Centre, Shek Kip Mei;
- iv) King's Park Meteorological Station, Homantin; and
- v) 2/F, 323 Java Road, North Point.

**Table 1: Programmes for Which the Government Chemist is Responsible and the Associated Policy Areas**

**Programme (1) Statutory Testing**

This programme contributes to Policy Area 2: Agriculture, Fisheries and Food Safety (Secretary for Health, Welfare and Food) and Policy Area 15: Health (Secretary for Health, Welfare and Food).

**Programme (2) Advisory and Investigative Services**

This programme contributes to Policy Area 9: Internal Security (Secretary for Security), Policy Area 15: Health (Secretary for Health, Welfare and Food), Policy Area 23: Environmental Protection and Conservation (Secretary for the Environment, Transport and Works) and Policy Area 32: Environmental Hygiene (Secretary for Health, Welfare and Food).

**Programme (3) Forensic Science Service**

This programme contributes to Policy Area 9: Internal Security (Secretary for Security).

## **The Environmental Goal and Policy**

The Government Laboratory is committed to achieving a high standard of environmental performance as an ongoing contribution to the sustainable development of Hong Kong. All the operations of the laboratory comply with the regulations and established guidelines on environmental protection. The Laboratory will minimise the environmental impact of its services on the public and seek continual improvement in its environmental performance. The Government Laboratory first introduced and published the Laboratory's Environmental Policy in late 1998. Since then the Laboratory has launched various programmes to meet the principles of the policy and to fulfil its objectives.

### **ENVIRONMENTAL POLICY STATEMENT**

**The Government Laboratory is committed to managing environmental matters as an integral part of its activities. It is our policy to assure environmental integrity of all processes and facilities at all times and at all places. We do so by adhering to the following principles:**

#### **1. Compliance**

- We comply with all applicable environmental laws and regulations.
- We implement programmes and procedures to assure compliance.
- Where existing laws and regulations are not adequate to ensure protection of the environment, we establish and meet our own environmental quality standards.
- Strict compliance with environmental standards is a key ingredient in the training, performance reviews and incentives of all our staff working in the Laboratory.

#### **2. Prevention**

- We implement management systems and procedures designed to prevent activities and / or conditions that pose a threat to the environment.
- We strive to prevent releases of harmful pollutants to the atmosphere, land or water.
- We minimise the amount and toxicity of waste generated and ensure the safe treatment and disposal of waste.

#### **3. Continual Improvement**

- We continually seek opportunities to improve our adherence to these principles, and periodically report progress to our clients in the Laboratory's annual report.

#### **4. Communication**

- We communicate in the Laboratory's annual report our commitment to environmental quality to our staff and clients.
- We solicit their input in meeting our environmental goals and in turn offer assistance to meet their goals.

### **Environmental Objectives, Targets and Milestones**

The activities of the Government Laboratory may have impacts on the environment if they are not properly controlled, for example, release of harmful pollutants to the atmosphere through chimneys; discharge of chemical wastes through drainage systems; and improper disposal of solid wastes. To ensure that the waste generated is in compliance with regulatory requirements, the Laboratory has implemented a programme to monitor the level of pollutants in the air emitted and effluent discharged from the Laboratory. The Laboratory also monitors the consumption of resources and the generation of various types of wastes. To ensure the safe treatment and disposal of waste, and to prevent the accidental release of pollutants to the environment, there are established procedures for managing chemical waste disposal and handling of environmental emergencies. Environmental guidelines are in place to promote energy conservation, save resources and recover waste for recycling / reuse.

All the Sections in the Laboratory have been encouraged to set up environmental objectives and targets relevant to their operations. Sustained efforts have been made to reduce the consumption of chemicals and / or the release of harmful substances to the environment.

The Laboratory has set up objectives, targets and programmes for environmental protection. The environmental objectives and targets achieved in the year 2003 are given in Table 2.

**Table 2: Summary of Environmental Objectives, Targets and Programmes (as at 31 Dec 2003)**

| Objectives                                                                                           | Targets                                                                                                    | Programme Status                                                                                         |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Use of Energy and Resource</b>                                                                    |                                                                                                            |                                                                                                          |
| To reduce the chemical consumption in the determination of organic pollutants in air samples.        | To reduce the consumption of non-halogenated solvents used in the preparation of mobile phase.             | The programme is in progress.                                                                            |
| To reduce the consumption of chloroform in a number of analytical methods for environmental samples. | To reduce the consumption of chloroform by 10% in 2004.                                                    | The programme is in progress.                                                                            |
| <b>Pollution Prevention</b>                                                                          |                                                                                                            |                                                                                                          |
| To review the feasibility of replacing the use of HCFC-22 in the central cooling system in GL.       | To phase out the use of HCFC-22 in the system.                                                             | The liaison with concerned parties is in progress.                                                       |
| Reduce the use of chloroform for trace organic analysis of food samples.                             | To reduce the emission of chloroform during analysis with a view to meeting the legal requirement of APCO. | The analytical method was modified to use ethyl acetate instead of chloroform as the extraction solvent. |
| To prevent / reduce the accidental discharge of chemicals to drains in case of chemical spills.      | To install waste recovery traps with on/off valves.                                                        | The installation work had been completed and the progress will be reviewed in June 2004.                 |

Note: Details of the individual environmental management programme established for achieving the corresponding environmental objective(s) and target(s) are available on request.



## Environmental Management and Performance

### *Environmental Management Analysis*

#### *Responsibility and Accountability*

There are dedicated staff members to look after different environmental aspects of the Laboratory.

The Laboratory Environment, Safety and Security Committee (LESSC) is entrusted with the responsibility of deciding on the environmental policy, overseeing its implementation and monitoring environmental performance. The committee is under the direction of a directorate-grade officer and meets quarterly. It comprises officers appointed by the Government Chemist and staff representatives.

Section Heads and the Departmental Secretary are assigned to be the Laboratory's Environment, Safety and Security Inspectors, and are responsible for ensuring compliance with the environmental policy, guidelines and measures on environmental matters by all levels of staff.

In the A&ASD, an Environmental Management System Working Group (EMSWG) has been established to assist in looking after environmental matters and the implementation of ISO 14001 in the three environmental chemistry sections for the first half year. As a result of the restructuring of A&ASD in July 2003, the scope of implementation of the Environmental Management System was revised and confined to the Environmental Chemistry A & B Sections and the Trace Elements Section. This EMSWG is under the leadership of the Environmental Manager of the Division and comprises representatives from the Sections concerned and the Quality Management Section.

#### *Education and Training*

All new recruits are required to undertake training on safety and environmental operation relevant to their duties. Training in the handling of chemicals and equipment, and in the procedures for the cleaning-up of chemical spills and the general laboratory safety practices will be provided to all scientific staff. For other supporting staff, the training on safety includes basic fire emergency procedures, the use of fire-fighting equipment, etc. In addition to the safety and environmental training programme, a safety review is organised annually for all scientific staff to refresh them of the procedures and precautions in the handling of equipment and hazardous materials, and procedures for environmental protection.

As in previous years, briefing and drills were conducted regularly in 2003 on emergency handling procedures, which included training on the handling of chemical spills to prevent contamination of the environment. Other training programmes were organised to address environmental management issues such as the ISO14001 environmental management system (EMS) and environmental audits.

### *Regular Environmental Audits*

Two internal environmental audits were conducted in June and November 2003 respectively. The first round audit covered the three environmental chemistry sections certified to ISO14001 EMS, namely the Air Chemistry Section, the Water Chemistry Section and the Waste Chemistry Section while the Environmental Chemistry A & B Sections and the Trace Elements Section were covered in the second round audit. In addition, the Hong Kong Quality Assurance Agency (HKQAA) conducted an audit on three certified Sections in June 2003. These audits served to verify that relevant rules and procedures were properly observed and implemented.

### *Environmental Performance Analysis*

#### *Environmental Management System*

The internal and external audits conducted at the three environmental chemistry sections in June 2003 and the internal audit conducted at the Environmental Chemistry A & B Sections and the Trace Elements Section in November 2003 indicated that the implementation of the ISO 14001 EMS in the Sections concerned was satisfactory. No case of non-conformance was identified in these audits.

#### *Environmental Data*

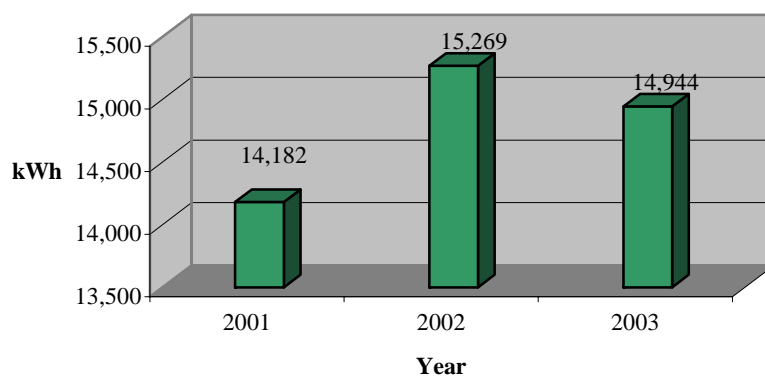
The progress and achievement of the environmental management programmes of the Sections are summarised in Table 2. Other environmental performance indicators established for environmental protection are detailed in the following paragraphs.

### **Trend in Use of Energy and Resource**

- Electricity consumption

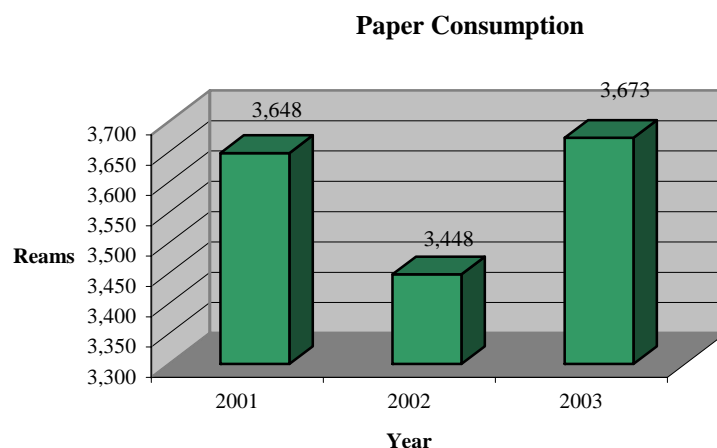
Electricity consumption for the whole of the Ho Man Tin Government Offices, which included the Highways Department, increased by 7.7% for the year 2002 but decreased by 2.1 % for the year 2003. An Energy Saving Committee has been set up to explore and implement practical measures to reduce electricity consumption.

#### **Electricity Consumption**



- Paper consumption

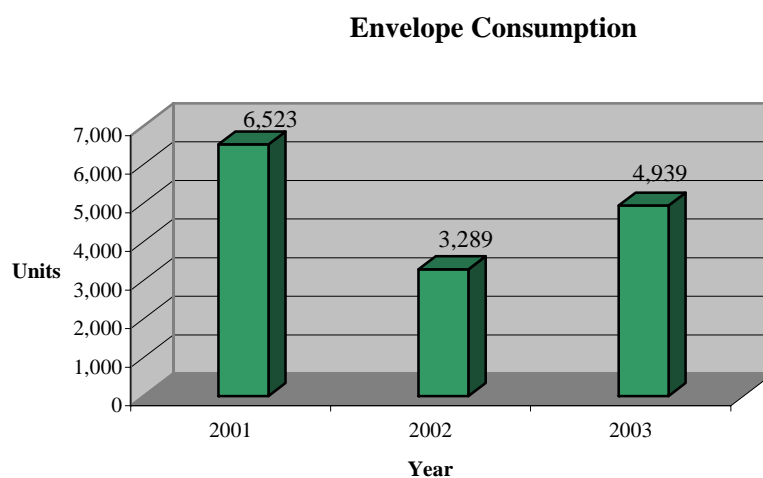
The paper consumption\* for the whole Laboratory decreased by 5.5 % in the year 2002 when compared with 2001, which then increased slightly by 6.5 % in the year 2003 and was close to the year 2001's level as a result. The increase was due to new testing activities and the establishment of new sections.



\*The consumption was based on the request of photocopying paper from the Government Logistics Department.

- Envelope consumption

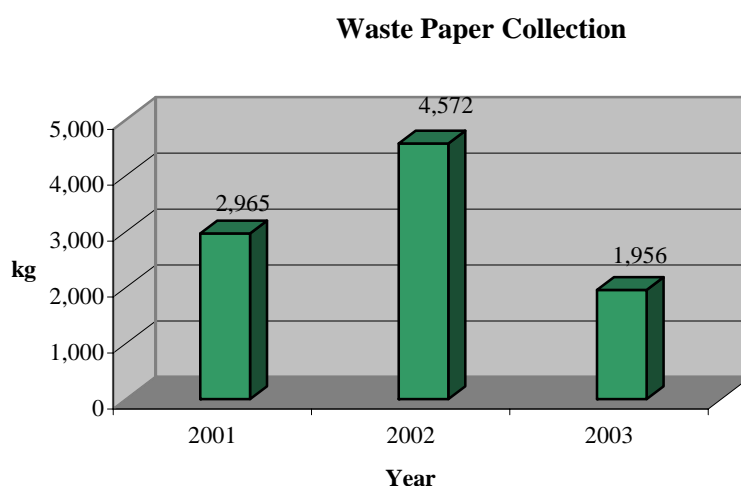
With the increasing use of e-mail and the sending of documents by fax, envelope consumption had been decreased by 49.6% in the year 2002. However, the launching of a recruitment exercise and related activities resulted in an increase of 50.2 % for the consumption in the year 2003. Notwithstanding, the consumption in the year 2003 was still 24.3 % less than that in the year 2001.



## Pollution Prevention

- Waste paper collection

The amount of waste paper collected decreased sharply by 57.2 % in the year 2003 after an increase of 54.2% in the year 2002.

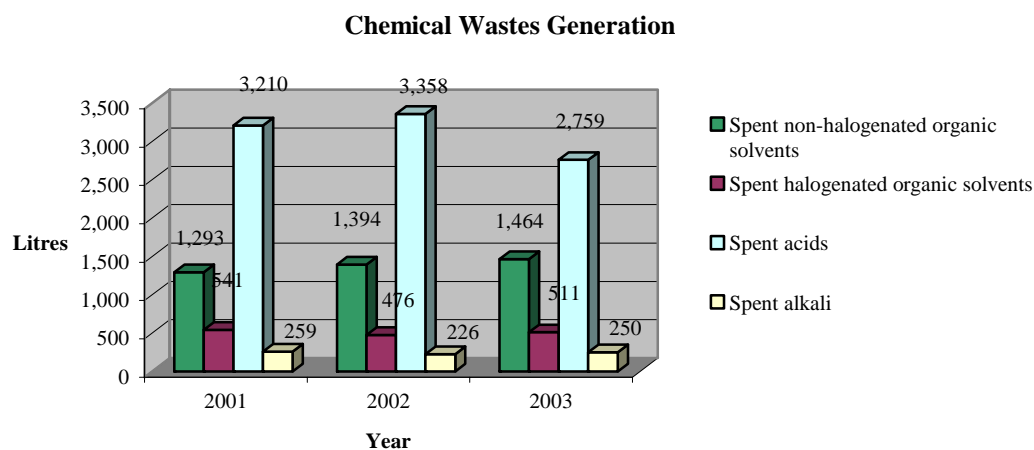


- Effluent discharge and air emission

As in previous years, the levels of pollutants in effluent discharge and air emission of the Sections certified to the ISO 14001 were found to comply with relevant regulatory limits.

- Chemical wastes generation

The amount of non-halogenated solvent organic waste, halogenated organic solvent and alkali waste generated in 2003 were all slightly increased by 5 %, 7 % and 10 % respectively when compared with 2002. These changes in waste generation were in line with the corresponding increase in workload. Upon the re-structuring of the Division in July 2003, the newly created Trace Elements Section had taken over analysis of trace elements scattered in the former Air Chemistry Section, Water Chemistry Section and Waste Chemistry Section and the Food and Environmental Hygiene B Section. As a result of the centralization of the trace elements analysis work, the amount of spent acid generated was noted to be decreased significantly by 17.8 % when compared with 2002.



### Management Actions/Initiatives on Environmental Improvement

- Environmental Management System

The number of sections with ISO 14001 certification was three, the same as the previous year.

- Education and training

- During the year 2003, two staff member received in-house training on environmental management system audit. The cumulative number of trained internal environmental auditors increased to 59.
- The number of emergency drills organised increased from 14 in 2002 to 17 in 2003 and covered both the certified Sections and the non-ISO 14001 certified Sections.
- 12 staff members attended inducting training on ISO 14001 EMS in the year 2003 and the cumulative number of staff trained increased to 256.

- Procurement Management
  - Preferential consideration will be given to products manufactured by certified ISO 14001 manufacturers and suppliers if the offers of the intended material or service from all suppliers are the same.
  - Contractors are requested to minimize the use of packing materials.
  - If the goods offered are to be packed in carton boxes, the carton box packaging must be made from 100% recovered fibre.

### **Environmental Actions Requiring Special Attention**

The Laboratory has constantly reviewed its operation in order to maintain a high standard of environmental performance. A number of measures have been taken to improve its operation control.

The fume cupboards replacement programme mentioned in the last report commenced in 2003 and will be completed in 2004. The new fume cupboards, which will operate in a constant face velocity mode, will satisfy the latest safety and environmental requirements, will have less disruption to the in-house ventilation system and can reduce energy consumption when compared to the old fume cupboards which operate in constant exhaust volume mode.

It is the policy of the Laboratory to conserve energy and save paper. With a view to formulating a comprehensive Energy Management Programme, the Laboratory will liaise with the Electrical & Mechanical Services Department and the Architectural Services Department to seek areas of improvement for energy saving. Regarding paper saving, staff members are reminded to observe guidelines on reducing the use of photocopying paper. The Laboratory will also explore the feasibility of dissemination of the results of examination of samples / exhibits, i.e. test reports, statutory certificates and witness statements etc. to client departments by electronic means instead of printed copy.

The Laboratory will continue to seek opportunities to improve its environmental performance and maintain a high standard of environmental performance in its operation.

### **Feedback and Enquiries**

Please direct any feedback and comments on this Report to the Departmental Secretary of Government Laboratory.

Tel: 2762 3708  
Fax: 2714 4083  
Address: Government Laboratory  
7/F, Ho Man Tin Government Offices  
88 Chung Hau Street, Homantin  
Kowloon, Hong Kong  
E-mail: [glabinfo@govtlab.gov.hk](mailto:glabinfo@govtlab.gov.hk)  
Home page: <http://www.info.gov.hk/govlab>

Dr David G Clarke, JP  
Government Chemist  
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