### **MESSAGE**

Water is essential for life. The provision of an adequate and reliable water supply is always the prime objective of the Works Bureau and the Water Supplies Department. To maintain Hong Kong as a world class city, we are committed to ensuring a high quality water supply and a high standard of service.

Hong Kong enjoys a safe and convenient water supply. We will continue to maintain close liaison and full co-operation with the Guangdong Authority for a reliable supply of quality raw water.



We will ensure that the treated water supplied to consumers is clean, safe and conforms to the World Health Organization standards. We will also promote the proper upkeep and maintenance of customers' inside services to protect the quality of treated water for direct consumption out of the tap.

To meet the rising expectations of the community, we have set up the Advisory Committee on the Quality of Water Supplies. With a wide representation from the community, the Committee advises Government and enhances communication with the public on matters relating to the quality of water supplies.

To further enhance the efficiency and cost-effectiveness in the water supply services, we will constantly review our operations and management, and make full use of information technology and other efficiency improvement measures.

I welcome your comments and suggestions, which will help us attain a higher standard in our services.

(Lee Shing-see) Secretary for Works

### **Water Supply**

Policy Objective and Key Result Areas

### WATER SUPPLY

Our Policy Objective is to ensure the provision of a reliable, adequate and quality water supply and an efficient water supply service.

### **Overall Targets**

Our targets this year in pursuing this Policy Objective are –

- to maintain a 24-hour water supply
- to undertake 98% of the planned maintenance of the water supply infrastructure
- to ensure 100% compliance with the Guidelines for Drinkingwater Quality of the World Health Organization (WHO) (1993) for water supplied to customers at connection points
- to attain a level of 90% customer satisfaction with the water supply service

### **Progress**

We had four targets at the Policy Objective level in the past 12 months.

Our first target was to maintain a 24-hour water supply. In the past 12 months, we have maintained full water supply throughout the year. We have also maintained close liaison with the Guangdong Authority to ensure an adequate supply of raw water for the next decade.

Our second target was to undertake 95% of the planned maintenance of the water supply infrastructure. In the past 12 months, progress in meeting this target was satisfactory. We have carried out regular preventive maintenance on all waterworks installations, plant and equipment. Preparatory works are in hand for the rehabilitation programme for aged watermains, service reservoirs, water treatment works and pumping stations to start in 2000.

Our third target was to ensure 100% compliance with the Guidelines for Drinking-water Quality of the World Health Organization (1993) for water supplied to customers at connection points. Measures have been taken to enhance the water quality monitoring system to ensure full compliance with the Guidelines

Our fourth target was to attain 90% customer satisfaction with the water supply service. In the 1999 Benchmark Opinion survey on Water Supplies Services, over 90% of customers were generally satisfied with our services.

We also achieved the following progress in our seven Key Result Areas (KRAs).

#### 1 Identify water supply needs and secure water resources

In the past 12 months, we aimed to secure 100% of water resources to meet the increase in demand. We have maintained close liaison with the Guangdong Authority to ensure the implementation of the current Dongjiang water supply agreement.

### 2 Improve the water supply administrative and regulatory framework

We have implemented a new integrated computer system for efficient management and control of materials and job records. We have obtained the ISO 9000 certification on project management function in February 2000, and preparation for certification on other functions for managing waterworks projects is in progress.

## 3 Expand the water supply infrastructure to meet increasing demand

In the past 12 months, we aimed to complete nine high priority projects on time and within budget to meet development programmes. All the nine new water supply infrastructure projects scheduled for completion in the 1999-2000 financial year have been completed on time and within budget. Works for expanding water supply infrastructure to meet the requirements of new developments and for improving the reliability of existing water supply systems are in progress.

### 4 Maintain and improve the condition of the water supply infrastructure

Progress under this KRA over the past 12 months was satisfactory. About 90% of fresh water interruptions were restored within 12 hours. Leakage detection tests and inspections of waterworks installations were carried out as scheduled. The frequency of inspection of small service reservoirs has been doubled

We have started off a programme to replace/rehabilitate aged watermains, with priority given to those in urban areas or most susceptible to leakage/burst. Moreover, works for rehabilitating aged service reservoirs, water treatment works and pumping stations have commenced in 2000.

#### 5 Ensure the quality of water supplied to customers

In the past 12 months, we aimed to ensure compliance of the quality of both fresh and salt water at connection points with WHO guidelines and Water Supplies Department (WSD) objectives respectively.

In the past 12 months, progress in meeting the above target was satisfactory. New instruments have been commissioned and methods validated to enhance the water quality monitoring system. Procedures are also being audited and revised to ensure compliance with the quality assurance and laboratory safety requirements in water science laboratories by end-2000.

### 6 Improve customer services in the provision of water supply

In the past 12 months, we processed 99% of applications for change of account holder within seven working days; attended to 99% of fresh water fault complaints within half a working day; and gave three days' notice to consumers for 99% of planned suspensions of water supply.

In addition, we have introduced telephone applications for closing accounts and change of mailing address. We have also introduced application services on the Internet for taking up of water accounts, closing of water accounts, changes of mailing address, new water supply in new building developments and Plumber Licences.

#### 7 Improve overall efficiency and reduce cost

WSD is drawing up plans to improve its service and cost efficiency, aiming at reducing significantly the operation and maintenance expenditure without lowering service level over the next three years. On the other hand, in order to make use of the lower electricity tariffs during off-peak, the pumping patterns for Sai O Pumping Station, Ma On Shan Treatment Works and Au Tau Pumping Station have been revised. An energy audit is also underway to review the energy costs of major waterworks installations.

Progress on each previously announced initiative under the above KRAs is set out in the "Detailed Progress" section of this report.

### **Looking Forward**

To achieve our overall targets this year, we will undertake the following initiatives and targets under each of the KRAs for the coming year.

## Identify water supply needs and secure water resources

We aim to plan water resources so as to ensure a continuous, reliable supply of water for Hong Kong. We plan supply requirements on the basis of providing a full 24-hour supply of both potable and flushing water.

As Hong Kong's own water resources are insufficient to meet demand, we have been importing additional water from Guangdong since 1960. In 1989, we entered into a long-term agreement with the Guangdong Authority for the supply of water from Dongjiang up to the year 2000 and beyond. In 1998, both sides reached an agreement to update the 1989 agreement. This update will take us into the next decade with a reliable water supply. We will continue to co-operate closely with the Guangdong Authority to ensure the smooth implementation of the agreements and to negotiate for more flexibilities in adjusting the annual supply quantities.

We will assess our performance in respect of this KRA against the following indicator –

 Percentage of water resources secured to meet the increase in demand. Our target is to secure water resources to meet 100% of the increase in demand.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative *	Target
To maintain close liaison with the Guangdong Authority on the implementation of the current Agreement (Works Bureau)	To hold at least one high-level business meeting and two technical sub-group meetings with the Guangdong Authority in 2001 to discuss and resolve problems

\* the bracketed information denotes the agency with lead responsibility for the initiative

Initiative	Target
To ensure the supply and storage of water is sufficient to meet demand  (Water Supplies Department (WSD))	To review the storage position and demand forecast on a monthly basis and to seek agreement to adjust the Dongjiang water supply when necessary
To monitor the quality of Dongjiang water (WSD)	To closely monitor the quality of Dongjiang water and exchange data with the Guangdong Authority on a weekly basis
To formulate a long-term strategy for developing new fresh water resources for the Hong Kong Special Administrative Region (WSD)	To formulate a long-term strategy, taking into account the findings of a consultancy study, by 2001

## Improve the water supply administrative and regulatory framework

Managing the supply of water to all consumers in Hong Kong is a challenging administrative and managerial task. We are implementing various measures to further improve our operational efficiency. In order to capitalise on the benefits available from information technology, we have started to implement the measures recommended in the Information Systems Strategy Study. We also keep our systems and procedures under constant review to ensure cost-effectiveness in delivering quality water supply services.

Water Supplies Department is responsible for the control of waterworks installations in building developments and the licensing of plumbers through the enforcement of the Waterworks Ordinance and Regulations. We review and update the Ordinance and Regulations regularly in order to meet the changing requirements of the society.

We will assess our performance in respect of this KRA against the following indicator –

• Percentage of initiatives completed on time. Our target is to complete 100% of the initiatives on time.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To improve quality assurance in the maintenance of WSD slopes (Water Supplies Department (WSD))	To obtain ISO 9000 certification for WSD slope maintenance by end-2001
To improve quality assurance in the attendance to main bursts and leaks (WSD)	To obtain ISO 9000 certification for attendance to main bursts and leaks by end-2001

Initiative	Target	
To improve quality assurance in handling consumers' complaints related to water supply (WSD)	To obtain ISO 9000 certification for handling consumers' complaints by end-2001	
To improve quality assurance in leakage detection work (WSD)	To obtain ISO 9000 certification for managing leakage detection work by end-2001	

## **Expand the water supply infrastructure to meet increasing demand**

Hong Kong's water supply needs to continue to expand as the population grows and the standard of living rises. Water Supplies Department plans, designs and builds new projects to extend and upgrade the fresh and salt water supply systems to meet demand.

During the 1999-2000 financial year, we spent \$2.6 billion on Public Works Programme projects to improve the water supply infrastructure. These included water treatment works, service reservoirs, watermains and other ancillary structures for extending water supply to new developments. Major works now in hand include the Tai Po Treatment Works, service reservoirs, pumping stations and mainlaying in Tuen Mun, Yuen Long, Tseung Kwan O, Lantau Island, Kowloon East and some other parts of the urban areas.

We will assess our performance in respect of this KRA against the following indicators –

- Number of high priority projects completed in 2000-2001. Our target is to complete eight.
- Number of high priority projects completed within budget in 2000-2001. Our target is to complete eight.

We will pursue the following initiative and targets to deliver results in this area –

Initiative	Target
To expand the water supply infrastructure to meet new development requirements	• To provide water supply for new developments in Pokfulam area by 2005
(Water Supplies Department)	<ul> <li>To provide fresh water supply to Penny's Bay, Lantau by 2004 and salt water supply by 2006</li> </ul>

## Maintain and improve the condition of the water supply infrastructure

Our extensive water supply network represents both a significant asset and a major operational and maintenance responsibility. Regular preventive maintenance is carried out on all waterworks installations, plant and equipment.

To enhance the reliability of the water supply infrastructure, there is a need to upgrade or replace aged watermains and reservoirs to reduce leakages and bursts, thus minimising inconvenience to the public. Proper maintenance is also particularly important for the reservoir and catchwater systems as well as those pipes and reservoirs that may affect the stability of adjacent slopes.

Water Supplies Department has initiated action to implement the recommendations of the Underground Asset Management Study. We aim to operate and maintain the water supply systems in the most cost-effective manner possible.

We will assess our performance in respect of this KRA against the following indicators –

- Percentage of cases where supply can be resumed within 12 hours after interruption. Our target is to resume fresh water supply for 90% of the cases.
- Number of leakage detection tests. Our target is to conduct 4 500 leakage detection tests.
- Number of inspections of impounding and service reservoirs. Our target is to conduct 860 inspections of impounding and service reservoirs.
- Number of safety inspections. Our target is to conduct 350 safety inspections.
- Number of inspections of major waterworks installations for compliance with environmental protection requirements. Our target is to conduct 400 inspections.

We will pursue the following initiatives and targets to deliver results in this area -

Initiative	Target
To implement a replacement/ rehabilitation programme for the aged waterworks installations (Water Supplies Department (WSD))	<ul> <li>To complete the replacement/ rehabilitation for Tuen Mun Fresh Water Pumping Station by 2005</li> <li>To complete the replacement/ rehabilitation for Tsuen Wan Raw Water Pumping Station by 2007</li> </ul>
To reduce the leakage in distribution network (WSD)	<ul> <li>To adopt a continuous leakage monitoring strategy in 35 existing district metering areas by mid-2002</li> <li>To complete a pilot project on</li> </ul>
	adopting pressure management techniques in a major supply zone by 2003

### Ensure the quality of water supplied to customers

The supply of clean water is essential to our health. Water Supplies Department (WSD) is responsible for ensuring that the treated water supplied to consumers is pure, safe and wholesome and conforms to the World Health Organization (WHO) guidelines. WSD is also responsible for ensuring that salt water for flushing meets the Department's Water Quality Objectives. Conformity with these standards is assured by regular water quality sampling and testing, and monitoring of the test results throughout the entire supply and distribution system, i.e. at source points, in various treatment stages and at consumers' taps.

We will assess our performance in respect of this KRA against the following indicators –

- Percentage of compliance with WHO guidelines for fresh water supplied to customers at connection points. Our target is 100%.
- Percentage of compliance with WSD internal guidelines for salt water supplied to customers. Our target is 93%.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To enhance transparency of water quality monitoring following the advice of the Advisory Committee on the Quality of Water Supplies (Water Supplies Department (WSD))	To publish and update water quality data annually

Initiative	larget		
To advise customers on the upkeep	• To conduct 25 educational visits		
of their inside services (storage	to schools and housing estates		
tanks, pipes) so that water can be	to publicise the importance of		
drinkable out of their taps	proper maintenance of water		
(WCD)	tanks and inside services in		

(WSD)

• To develop a broader action plan by 2001

## Improve customer services in the provision of water supply

Water Supplies Department (WSD) is responsible for the provision of efficient and effective services to some 2.3 million registered water consumers. To upgrade our services, we are improving efficiency and effectiveness in dealing with customer enquiries and complaints; publicising the customer services offered and information provided to customers; ensuring timeliness of billing and promptness in updating consumer account records; and promptly processing new consumer account applications. We will implement information technology systems and introduce business process re-engineering to improve the quality of services provided to customers.

We will assess our performance in respect of this KRA against the following indicators –

- Percentage of applications for change of account processed within seven working days. Our target is 99%.
- Percentage of fresh water fault complaints responded to within half a working day. Our target is 99%
- Percentage of planned suspensions undertaken with three days' notice in advance. Our target is 99%.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target
To educate school students on the importance of saving water	To conduct 10 exhibitions in schools in 2001
(Water Supplies Department (WSD))	

Initiative	Target
To introduce a new and monolingual format of water and sewage charge bill with detailed billing calculations under the tiered charging structure	To implement the new format by 2001
(WSD)	
To conduct customer opinion surveys on the services provided in the Customer Telephone Enquiry Centre and Customer Enquiry Centres	To complete the surveys in 2001
(WSD)	

### Improve overall efficiency and reduce cost

In response to the Government's Enhanced Productivity Programme, efforts will be made to improve the cost-effectiveness and efficiency of Water Supplies Department (WSD). Plans are being drawn up to achieve significant overall savings in operation and maintenance expenditure without lowering service level over the next three years. Separately, a long-term strategy for efficiency improvement of the WSD, including organisational change where appropriate, will be carefully formulated.

We will assess our performance in respect of this KRA against the following indicator –

• The cost-effectiveness of the provision of the services. Our target is to further enhance efficiency and reduce cost.

We will pursue the following initiatives and targets to deliver results in this area –

Initiative	Target		
To implement a pilot scheme for automatic reading of water meters (Water Supplies Department (WSD))	To complete the technical feasibility and financial viability study of automatic meter reading by 2002		
To improve efficiency and productivity (WSD)	To achieve significant overall savings in operation and maintenance expenditure without lowering service level over the next three years		

## **Water Supply**

**Detailed Progress** 

## Identify water supply needs and secure water resources

To achieve results in this area, the following initiative has been undertaken in the past year. Details are set out below –

Initiative *	Target #	Present Position +
To co-operate with the Guangdong Authority to ensure the smooth implementation of the Dongjiang water supply agreement  (Works Bureau)	To hold at least one high-level business meeting and two technical sub-group meetings with the Guangdong Authority annually to discuss and resolve problems  (1999)	In 1999 the business meeting was held in July with two supplementary meetings held in August and December respectively. Two technical sub-group meetings were also held.  (Action Completed)

- \* the bracketed information denotes the agency with lead responsibility for the initiative
- # the bracketed information denotes the year in which the target was set
- the bracketed information denotes the status of the target

# Improve the water supply administrative and regulatory framework

Initiative	Target	<b>Present Position</b>
To improve quality assurance in the delivery of waterworks projects in the Public Works Programme  (Water Supplies Department (WSD))	To obtain ISO 9000 certification for managing waterworks projects by 2001 (1999)	ISO 9000 certification on project management function was obtained in February 2000. The ISO 9000 certification for design, construction, and mechanical and electrical (project) functions is in progress.
		(Action in Progress: On schedule)
To move towards the introduction of a comprehensive information technology system to improve working efficiency (WSD)	• To complete a feasibility study for Stage II implementation of the Information Systems Strategy by 2001	• The study commenced in September 2000, and is scheduled for completion by 2001.  (Action in Progress: On Schedule)
	(1999)  • To complete a feasibility study for Stage I implementation by the end of 1999 (1998)	<ul> <li>The study was completed in December 1999.</li> <li>(Action Completed)</li> </ul>
To install a new integrated computer system for more efficient management and control of materials and job records (WSD)	To set up the Materials and Job Records Management System by the end of 1999 (1998)	The system was implemented in full in October 1999.  (Action Completed)

# Expand the water supply infrastructure to meet increasing demand

Initiative	Target	<b>Present Position</b>
To expand the water supply infrastructure to meet the requirements of new developments (Water Supplies Department (WSD))	<ul> <li>To provide water supply for new developments in the Kowloon East area by 2004</li> </ul>	<ul> <li>Construction works are in progress.</li> </ul>
	• To provide water supply for the Tung Chung and Tai Ho Phase 3 development by 2007	<ul> <li>Detailed planning works are in progress.</li> <li>Consultants will be engaged for the design and construction works.</li> <li>(Action in Progress: On Schedule)</li> </ul>
To improve the reliability of existing water supply systems by providing new linkages (WSD)	To complete the improvements for Tuen Mun/Yuen Long and Sham Tseng/Yau Kom Tau by 2003 (1998)	Construction works for improving the water supply systems for Tuen Mun/ Yuen Long and Sham Tseng/Yau Kom Tau are in progress, and will be completed by 2003.  (Action in Progress: On Schedule)



# Maintain and improve the condition of the water supply infrastructure

Initiative	Target	<b>Present Position</b>
To implement a replacement/ rehabilitation	To complete the replacement/ rehabilitation for –	
programme for aged waterworks installations	<ul> <li>Kwai Shing Salt Water Pumping</li> </ul>	<ul> <li>The work was completed in February</li> </ul>
(Water Supplies Department (WSD))	Station by 2000	2000.
Department (115D))		(Action Completed)
	<ul> <li>Ha Lo Wai Salt Water Pumping Station by 2001</li> <li>(1999)</li> </ul>	• Equipment for the pumping station is being manufactured. The work is scheduled for completion by 2001.
		(Action in Progress: On Schedule)
To launch a comprehensive and systematic programme to replace and rehabilitate aged watermains, with priority given to the	To start in 2000 the first stage of the programme by replacing or rehabilitating 350 km of aged watermains, for completion by 2006	Detailed design of the inhouse works is in an advanced stage. Tenders will be invited upon funding approval. Works are expected to start by end-2000.
watermains in urban areas and those most susceptible to leakages and bursts	(1998)	(Action in Progress: On Schedule)
(WSD)		

Initiative	Target	<b>Present Position</b>
To rehabilitate aged service reservoirs, water treatment works and pumping stations and enhance their facilities and equipment	To start the rehabilitation works of aged service reservoirs, water treatment works and pumping stations in 2000	Renovation works have commenced at Tuen Mun Treatment Works, Sha Tin Treatment Works, seven pumping stations and 22 service reservoirs in 2000.
(WSD)	(1998)	(Action Completed)
To carry out independent safety inspections on small service reservoirs (i.e. with a capacity not exceeding 25 000 m³) (WSD)	To double the frequency of inspections of small service reservoirs from 2000 onwards (1998)	Frequency of inspection of small service reservoirs was doubled in December 1999.  (Action Completed)

### Ensure the quality of water supplied to customers

Initiative	Target	<b>Present Position</b>
To enhance water quality monitoring (Water Supplies Department (WSD))	To build the Kowloon Laboratory by 2000 (1999)	Construction is in progress. Commissioning is expected by end-2000 as scheduled. (Action in Progress: On Schedule)
To improve the water quality testing laboratory facilities at Sham Tseng and Yau Kom Tau treatment works  (WSD)	To complete the improvement by 2001 (1999)	The new laboratory at Sham Tseng Treatment Works has been completed. Construction of the new laboratory at Yau Kom Tau Treatment Works is in progress.
		(Action in Progress: On Schedule)
To enhance control and monitoring of the water gathering grounds and reservoirs  (WSD)	To increase by 15% the frequency of patrolling the gathering grounds and monitoring of water quality in reservoirs by 2000	Frequency of patrolling and monitoring has been stepped up, and will reach a 15% increase by end-2000.
	(1998)	(Action in Progress: On Schedule)
To improve quality assurance and laboratory safety in WSD water science laboratories (WSD)	To achieve compliance with WSD's quality assurance procedures and laboratory safety procedures by 2000 (1998)	Review and revision of quality manuals are in progress to meet new recommendations by the Hong Kong Accreditation Service. A draft laboratory safety manual has been prepared for comments prior to issue.  (Action in Progress: On Schedule)



# Improve customer services in the provision of water supply

Initiative	Target	<b>Present Position</b>
To improve IT systems and implement business process re-engineering for Customer Service Programme  (Water Supplies Department (WSD))	Implementation to start by 2000 and complete by 2003 (1999)	A feasibility study on improving customer service was completed in May 2000. Funding for the implementation of a Customer Care and Billing System will be sought.  (Action in Progress: On Schedule)
To introduce telephone applications for closing consumer accounts and change of mailing address (WSD)	To introduce the telephone application service by 2000 (1999)	Telephone applications for closing consumer accounts and change of mailing address were implemented in August 1999.  (Action Completed)
To monitor customer feedback on WSD services (WSD)	To conduct a customer opinion survey in 1999 (1998)	The survey was completed in November 1999 and the survey report was issued in March 2000.  (Action Completed)

### Improve overall efficiency and reduce cost

Initiative	Target	<b>Present Position</b>
To draw up a long-term strategy for efficiency improvement, including organisational change where appropriate (Works Bureau)	To decide on the broad strategy by early 2000 (1999)	In view of the complexity of the subjects concerned, more time is needed before a view can be taken on a long-term strategy involving organisational changes. Meanwhile, Water Supplies Department is drawing up plans to improve its service and cost efficiency. Surplus staff identified will be retrained and redeployed into growth areas.
		(Action in Progress: Behind Schedule)
To improve the management of energy costs (Water Supplies Department)	• To re-schedule the pumping pattern and make use of the lower electricity tariffs during offpeak periods to reduce costs by end-2000	• The pumping patterns for Sai O Pumping Station, Ma On Shan Treatment Works and Au Tau Pumping Station have been revised. Revision to pumping pattern of Fanling Pumping Station is in progress.
	• To conduct an energy audit for major waterworks installations by 2002	• Stage I of the audit has been completed. Work on Stages II & III was 22% completed.
	(1999)	(Action in Progress: On Schedule)