

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)093**

**(Question Serial No. 0704)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What were the quantities of water supply under the Dongjiang (DJ) water supply agreement and the actual quantities of water delivered in the past ten years? What were the expenditures involved? What would be the amounts of savings achieved if DJ water was supplied according to the actual quantities of water delivered in the past ten years? In view of the public's doubts about the payment for excess quantities of DJ water, will the Government consider taking new measures to address the public's concern, which include using the average water consumption in the past five years as the benchmark for the quantity of water supply, and levying charges according to the actual amount of consumption in excess of the benchmark? If yes, what are the details? If no, what are the reasons?

Asked by: Hon James TO Kun-sun (Member Question No. 33)

Reply:

In the past ten years, the ceiling of the annual supply quantities in the Dongjiang (DJ) water supply agreements, the actual supplied quantities of DJ water and the associated expenditures are tabulated below –

Year	Annual supply ceiling quantity in the supply agreement (million cubic metres)	Actual supplied quantity (million cubic metres)	Expenditure (\$ million)
2006	820	617	2,494.80
2007	820	715	2,494.80
2008	820	653	2,494.80
2009	820	725	2,959.00

Year	Annual supply ceiling quantity in the supply agreement (million cubic metres)	Actual supplied quantity (million cubic metres)	Expenditure (\$ million)
2010	820	681	3,146.00
2011	820	818	3,344.00
2012	820	709	3,538.70
2013	820	612	3,743.30
2014	820	724	3,959.34
2015	820	766	4,222.79

The local yield is inadequate to meet the fresh water demand in Hong Kong. It also fluctuates significantly and is unreliable. In order to safeguard our water security, we need to procure a water right in the form of an annual ceiling of supply quantity with a view to maintaining water supply round-the-clock even under the extreme drought condition with a return period of 1 in 100 years.

Moreover, Hong Kong and Guangdong (GD) are under the same climatic setting (rainfall pattern, temperature, etc.). When our local yield reduces during drought years, the quantity of DJ water available for distribution will also dwindle. If we adopt the “payment on actual supply quantity” approach, the GD side considers that they will have difficulty to guarantee that the water supply quantity requested by Hong Kong can be met particularly in drought years given the keen demand for the limited DJ water resources. We will be exposed to a risk of inadequate water supply to Hong Kong during drought years unless we set a “reserved quantity” for possible need during drought years in the DJ water supply agreement and pay for it. However, such arrangement is effectively the same as the “package deal lump sum” approach we have adopted for the DJ water supply agreements since 2006.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)094**

**(Question Serial No. 0466)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government will make use of seawater desalination to be another water source for Hong Kong. In this connection, please advise the following information:

- (a) the cost of seawater desalination in comparison with the imported Dongjiang water; whether it had assessed, in the long run, the feasibility of lowering the cost of seawater desalination and increasing its percentage to the total water consumption, given the advancement of desalination technology; if it had, of the details; if it had not, of that reasons;
- (b) It is noted that the Government has reserved some spaces for future expansion to the ultimate water production capacity of 270 000 cubic metres per day. What are the details and schedule of this expansion project?

Asked by: Hon Abraham SHEK Lai-him (Member Question No. 33)

Reply:

- (a) According to the planning and investigation study of the proposed desalination plant at Tseung Kwan O (TKO), the estimated unit water production cost of the plant, inclusive of distribution and customer service cost, is about \$12.6 per cubic metre (at 2013-14 price level), which is higher than the unit water production cost using Dongjiang water at \$8.6 per cubic metre (at 2013-14 price level). According to the International Desalination Association, the unit water production cost of the desalination plant using reverse osmosis has generally been reduced over the years. Given the advancement of the desalination technology, there is good potential that the unit production cost could be lowered in the long run. In the course of design of the first stage of the proposed desalination plant at TKO, which commenced in November 2015, we will duly look into various options of reducing the cost of desalination with innovative

design features, in terms of pre-treatment process of lower energy consumption, optimal sizing of plant and equipment, and advanced energy recovery system for greater energy efficiency, etc.

As regards the long-term percentage of the supply of fresh water from various water resources including seawater desalination, we will look into this together with various demand and supply measures under a review study of the Total Water Management Strategy. The review study has commenced in October 2014 for completion in 2017.

- (b) Under the review study of the Total Water Management Strategy referred in (a) above, the consultant will study the appropriate timing for implementing the future expansion of the proposed desalination plant to its ultimate water production capacity of 270 000 cubic metres per day based on the fresh water demand and supply forecasts with a view to meeting the needs of Hong Kong with 99% reliability in water supply. The details and schedule of the expansion project have yet to be ascertained in due course.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)095**

**(Question Serial No. 0298)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (3) Customer Services  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Under this programme, the Department will continue to review and enhance the control of the construction, installation, etc. of the inside service including the control of pipes and fittings, inspection of plumbing works and the management of licensed plumbers. Please provide details, including the specific timetable for the reviews, the content of enhancement measures, and the required expenditure and manpower, etc. What are the differences in the required expenditure and manpower as compared with the previous year?

Asked by: Hon Tommy CHEUNG Yu-yan (Member Question No. 36)

Reply:

After the lead in drinking water incidents, the Water Supplies Department (WSD) has, after review, implemented various measures to enhance the control of the construction, etc. of the inside service, including the following:

- (a) To enhance control of pipes and fittings installed in the inside service, WSD has imposed a five-year validity period of general acceptance (GA) for water supply pipes and fittings. WSD has also stipulated the requirements for submission of supporting document of the lead free soldering materials.
- (b) To enhance the inspection and approval of the inside service, WSD has stipulated the requirements for carrying out tests on solder pipe joints and testing water samples for four heavy metals including lead at final inspection of newly installed fresh water inside service.
- (c) To enhance the management of the licensed plumbers (LPs), WSD has revised the point penalty system for LPs in regard to the importance of using compliant plumbing materials and proper discharge of duties.

WSD will continue to review and enhance the control of the construction, installation etc. of the inside service. Moreover, the Chief Executive in Council has established the Commission of Inquiry into Excess Lead Found in Drinking Water (COI). WSD will study the findings and recommendations of the COI and take appropriate follow up action.

In this connection, in 2016-17, WSD will create two civil service posts, which will incur approximately \$2.1 million per year, for amongst others, reviewing and enhancing the control of water supply pipes and fittings in the inside service (i.e. representing a 100% increase as compared with previous year) and 15 civil service posts, which will incur approximately \$7.4 million per year, for enhancing the inspection of plumbing works and management of LP (i.e. representing a 20% increase as compared with previous year).

In addition, WSD will create three civil service posts and one post-retirement service contract position in 2016-17, which will incur approximately \$4.4 million per year to assist in carrying out a holistic review of the Waterworks Ordinance and its Regulations. The review will cover various areas including the engagement and licensing of LPs to carry out the construction, installation etc. of the inside service, the current system of promulgating the material standards, and the existing inspection and approval regime with a view to enhancing the water supply and regulatory system.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)096**

**(Question Serial No. 1011)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the design of infrastructures and study on financial and legal frameworks for supplying reclaimed water for toilet flushing and other non-potable purposes in the north-eastern part of the New Territories including Sheung Shui and Fanling, what are the anticipated completion dates for the above work?

Asked by: Hon CHAN Hak-kan (Member Question No. 19)

Reply:

We plan to effect reclaimed water supply to the north-eastern part of the New Territories for toilet flushing and other non-potable uses in phases starting with Sheung Shui and Fanling from 2022 onwards.

Infrastructures necessary for the supply of reclaimed water to Sheung Shui and Fanling include a service reservoir, hypo-chlorination facilities, a pumping station, trunk and distribution mains.

We have commenced the design of the service reservoir and the associated trunk mains for completion of the infrastructures in 2020. As regards the remaining infrastructures (including hypo-chlorination facilities, a pumping station and distribution mains), they are currently under investigation/planning and we plan to complete the construction works in phases starting from 2022.

The consultancy study on the financial and legal aspects of the supply of reclaimed water is ongoing and is expected to be completed later this year.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)097**

**(Question Serial No. 1012)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

It is stated in the Estimates that in 2015, the Water Supplies Department (WSD) has stepped up monitoring of lead in drinking water in response to the excess lead found in drinking water in public rental housing estates. However, it is planned that 26 000 water samples will be taken from treatment works, service reservoirs, connection points and consumers' taps in 2016, which is 445 fewer than that in 2015 and 129 fewer than that in 2014. Is the planned target too low for 2016?

Asked by: Hon CHAN Hak-kan (Member Question No. 20)

Reply:

The figure "26 000" is an estimated annual number of sampling visits conducted at treatment works, service reservoirs, connection points and consumers' taps for taking treated water samples for monitoring of water quality in compliance with the World Health Organization's Guidelines for Drinking-water Quality. The number of water samples collected per visit is normally two but the actual number per visit may vary according to the number of parameters to be monitored in the sampling programme.

In view of the lead in drinking water incidents, the WSD has enhanced lead monitoring at public accessible consumer taps since July 2015. Additional water samples for lead testing are collected during the same sampling visit when other water samples are collected for routine testing. In 2015, the work for collecting additional samples for lead testing was included in the 26 455 sampling visits. Therefore, there was no increase in the total number of visits significantly as compared to 2014. The estimated sampling visits in 2016 is 26 000, which is the same as the estimated number in 2014 and 2015. The actual sampling visits performed in 2014 and 2015 are 26 129 and 26 455 respectively.

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)098**

**(Question Serial No. 0409)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

In recent months, there have been various serious water main bursts in Hong Kong which have not only wasted the precious water resources, but also caused much inconvenience to the public. Regarding replacement and rehabilitation of water mains, could the Government advise this Committee on the following:

1. What were the quantities of water loss due to water main bursts and leaks in the past three years, and the amounts of expenditure involved?
2. What were the progresses of the replacement of aged water mains in the past three years, and the amounts of resources allocated for such work? Please list out each expenditure item in detail.
3. Will the Government increase the resources and manpower for expediting the replacement of aged water mains and reducing wastage of water resources? If yes, what are the details? If no, what are the reasons?

Asked by: Dr Hon Priscilla LEUNG Mei-fun (Member Question No. 47)

Reply:

1. With service reservoirs located at high altitude for water supply to premises at different levels, water mains at lower altitudes are operating under a relatively high water pressure. The high water pressure together with ground settlement, ground upheaval, external loading and vibration could make the ageing water distribution network prone to leakage and bursting. Therefore, water main leaks and bursts are considered more as operational constraints rather than as losses. The water main leakage rates in 2013, 2014 and 2015 were 17%, 16% and 15% respectively. The

quantity of water drained away due to main bursts was less than 0.02% of the total annual water supplied in these years.

2. The length of water mains replaced or rehabilitated in the past three years and the corresponding expenditures are provided as follows:

Financial year	Length of water mains replaced or rehabilitated (km)	Expenditure (\$ million)		
		Construction works	Employment of consultants including site staff for works supervision	Total
2012-13	295	1,882	315	2,197
2013-14	320	2,344	408	2,752
2014-15	368	2,071	403	2,474

3. The replacement and rehabilitation (R&R) of about 3 000 km water mains programme was originally planned for implementation in stages over a 20-year period from 2000 to 2020. Since 2005, we have redeployed additional resources and compressed the works programme to advance the target completion date of the entire project by five years, i.e. completion of the programme within 15 years by 2015. The R&R programme was substantially completed at end December 2015 with 2 939 km of water mains replaced/rehabilitated (98%). It is anticipated that the remaining R&R works (2%) would be completed by end 2016.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)099**

**(Question Serial No. 0081)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding “signing of 2015 to 2017 new agreement regarding Dongjiang (DJ) water supply to Hong Kong with the Guangdong (GD) authorities”, would the Government advise on the following:

1. What were the expenditures for maintenance of the DJ water supply route for conveying fresh water to Hong Kong in the past three years?
2. What were the quantities of water discharged due to overflow from freshwater reservoirs in the past three years? What were the values of the water discharged each year as calculated by the price of DJ water?
3. Hong Kong has been promoting water conservation for many years. To what extent has the annual per capita water consumption in Hong Kong been reduced in the past three years? By how much has the total water consumption in Hong Kong dropped each year?
4. In the light of the changes in storage capacity of reservoirs and water consumption in Hong Kong, would the Department consider reducing the quantity of DJ water to be purchased?

Asked by: Hon IP Kwok-him (Member Question No. 43)

Reply:

1. The expenditures on the maintenance of the water supply route for conveyance of Dongjiang water in the Hong Kong territory in the past three years were:

Financial year	2013-14	2014-15	2015-16
Cost (\$ million)	13.2	13.7	12.9

We do not have any information on the expenditures on the maintenance of the supply route in mainland China, which is operated and maintained by the Guangdong authorities.

2. The overflow quantities from reservoirs in the past three years were 40.2 million m<sup>3</sup> (2013), 23.1 million m<sup>3</sup> (2014) and 3.3 million m<sup>3</sup> (2015). Since the adoption of “package deal lump sum” approach in 2006, we have not imported DJ water more than necessary and no overflow of DJ water since then. The overflow in last three years was from rainwater collected locally in small and medium reservoirs during heavy rainstorms and did not involve any expenditure related to purchase of DJ water.

3. The water consumption data in the past three years is as follows:

	Yearly Total water Consumption (million m <sup>3</sup> /year)			Yearly Per Capita Water Consumption (m <sup>3</sup> /year)
	Fresh water	Salt water	Total	
2013	933	278	1211	168.5
2014	959	271	1230	169.9
2015	973	272	1245	170.4

As shown in the above table, there is an overall water consumption increase by about 1.5% per year due to economic growth, substantial increase in visitor arrivals and temperature rise between 2013 and 2015.

We have been striving to contain the water demand through a number of water demand management initiatives including promoting water conservation both in schools and in the community, extending salt water supply networks, promoting the use of water saving devices, implementing proactive leakage controlling measures and replacing/rehabilitating aged water mains. With these efforts, we have managed to contain the per capita water consumption (i.e. total water consumption over total population in Hong Kong) within a narrow range from 168.5 m<sup>3</sup>/year to 170.4 m<sup>3</sup>/year in the past three years.

4. Under the current DJ water supply agreement, an annual supply ceiling of 820 million cubic metres is adopted. This annual supply ceiling is obtained on the basis of a detailed analysis taking into account the fresh water demand and supply forecast to ensure 99% reliability of water supply in the three years between 2015 and 2017. For the next water supply agreement due to start in 2018, we will in due course carry out a detailed analysis on the fresh water demand and supply forecast in the three years between 2018 and 2020.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)100**

**(Question Serial No. 0082)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding “the incident of lead in drinking water in public rental housing estates”, would the Government advise on the following:

1. What are the series of contingency measures and the expenditures involved for meeting the needs of the residents of public rental housing estates affected by the incident?
2. What are the Government’s estimated expenditures for inspection of fresh water in public rental housing estates and public utilities, and replacement of water mains in the coming year?
3. What are the Government’s current measures for routine monitoring of fresh water quality and the expenditures involved?

Asked by: Hon IP Kwok-him (Member Question No. 45)

Reply:

1. In response to the lead in drinking water incidents, the Water Supplies Department (WSD) has assisted Housing Authority in providing temporary water supply (i.e. standpipes, water wagons and water tanks) to the affected residents. The related costs are around \$3.2 million in 2015-16.
2. There is no provision under Head 194 for WSD to perform activities on inspection of fresh water and replacement of water mains in public rental housing estates and public utilities in 2016-17.

3. As the staff involved are also required to perform other water quality monitoring work such as monitoring at water treatment works, service reservoirs and connection points, the cost attributable to the task of routine monitoring of fresh water quality is not readily available. In view of lead in drinking water incidents, the WSD has enhanced the lead monitoring at public accessible consumer taps including shopping centres, community facilities, sports grounds, markets, government offices and estate management offices.

The initial monitoring of consumer taps for lead started in July 2015 and up to 4 March 2016, the WSD has tested about 1 120 samples for lead (excluding those from public rental housing and schools) at public accessible consumer taps and all samples are found to comply with the provisional guideline value of 10 ug/L for lead set out in the World Health Organization's Guidelines for Drinking-water Quality.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)101**

**(Question Serial No. 1155)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The work of the Water Supplies Department includes “operating and maintaining fresh water supply and distribution systems” and “operating and maintaining salt water supply and distribution systems”. Will the Department advise this Committee on the following:

- (1) In 2015-16, how many water main burst incidents had occurred due to the ageing of fresh water mains and salt water mains for flushing? For each burst water main, how many years had it been used and what was its originally expected lifespan?
- (2) What measures has the Administration taken to address the problems of bursting and leakage of fresh water mains and salt water mains for flushing in 2016-17? What are the expenditure and manpower involved? Furthermore, explain the progress and timetable of “Water Intelligent Network”.
- (3) Please provide the total lengths, existing ages, average ages, median ages and maintenance costs in 2015-16 of the fresh water mains and salt water mains for flushing in the territory.

Total length of fresh water mains: \_\_\_\_\_

Total length of salt water mains for flushing: \_\_\_\_\_

Fresh water mains	Proportion to total length	Maintenance cost in 2014-15 (Hong Kong dollars)
Below 5 years		
5 to 10 years		

10 to <15 years		
15 to <20 years		
20 to <25 years		
25 to <30 years		
30 to <35 years		
35 to <40 years		
40 to <45 years		
45 to <50 years		
50 years or above		

Average age: \_\_\_\_\_

Median age: \_\_\_\_\_

Salt water mains for flushing	Proportion to total length	Maintenance cost in 2013-14 (Hong Kong dollars)
Below 5 years		
5 to 10 years		
10 to <15 years		
15 to <20 years		
20 to <25 years		
25 to <30 years		
30 to <35 years		
35 to <40 years		
40 to <45 years		
45 to <50 years		
50 years or above		

Average age: \_\_\_\_\_

Median age: \_\_\_\_\_

Asked by: Hon Alan LEONG Kah-kit (Member Question No. 10)

Reply:



- (1) Water main burst is commonly due to a confluence of factors, including ageing of water mains, ground settlement or upheaval and external loading or vibration. The numbers of fresh and salt water main bursts in 2015-16 (up to January 2016) were 64 and 63 respectively. The numbers of years for which the water mains had been used before burst are shown in the table below-

Years of water main used before burst	Numbers of water main bursts in 2015-16 (up to January 2016)	
	Fresh water main	Salt water main
Below 5 years	0	0
5 to <10 years	4	2
10 to <15 years	1	1
15 to <20 years	1	10
20 to <25 years	2	4
25 to <30 years	2	11
30 years or above	54	35
Total	64	63

The water supply networks are made up of pipelines of different materials. The service life of the water mains varies with the type of pipe materials, the ground conditions and the type of water they carry. Most of the burst fresh water mains had been in use for more than 30 years before burst and were reaching the end of the typical service lives. Bursts in salt water mains had occurred earlier than fresh water mains as the internal lining of salt water mains are exposed to more corrosive environment.

- (2) The Water Supplies Department (WSD) has been taking a multi-pronged approach to tackle the water main burst and leakage problem including leakage detection, pressure management and implementation of the Replacement and Rehabilitation (R&R) Programme for water mains. In 2016-17, the expenditure on implementing all these measures is estimated to be about \$1,670 million. Some of these works are implemented by consultants. The number of in-house staff involved for implementation of the measures is about 100.

The R&R Programme was substantially completed at end December 2015 with 2 939 km of water mains replaced/rehabilitated (98%). The remaining R&R works are anticipated to be completed by end 2016.

To enable continuous monitoring on the health conditions of the water supply networks, WSD plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or being established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance

analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC “Implementation of Water Intelligent Network” to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively.

(3) Total length of fresh water mains: about 6 450 kilometres (km)

Total length of salt water mains for flushing: about 1 550 km

Age of fresh water mains	Proportion to total length
Below 5 years	14%
5 to <10 years	21%
10 to <15 years	17%
15 to <20 years	12%
20 to <25 years	8%
25 to <30 years	8%
30 years or above	20%
Total	100%

Average age: approximately 18 years

Median age: approximately 15 years

Age of salt water mains for flushing	Proportion to total length
Below 5 years	13%
5 to <10 years	22%
10 to <15 years	16%
15 to <20 years	15%
20 to <25 years	9%
25 to <30 years	9%
30 years or above	16%
Total	100%

Average age: approximately 18 years

Median age: approximately 15 years

In 2015-16, the estimated expenditure on maintenance and repair of water mains is about \$200 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)102**

**(Question Serial No. 1578)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the incident of lead in drinking water, please list the details, expenditures and progresses of the various temporary and long-term mitigation measures provided by the Water Supplies Department (WSD).

Please list the details, expenditures and progresses of the various measures by WSD to prevent the incidence of lead in drinking water.

Asked by: Hon Alan LEONG Kah-kit (Member Question No. 29)

Reply:

In response to the lead in drinking water incidents, the Water Supplies Department (WSD) has assisted Housing Authority in providing temporary mitigation measures by arranging emergency and temporary water supply (i.e. standpipes, water wagons and water tanks) to the affected residents. The related costs are around \$3.2 million. The long-term mitigation measures including the necessary plumbing rectification works are to be implemented by others.

As regards future prevention of the recurrence of the incidents of lead in drinking water, WSD has taken forward the following measures:

- (a) To enhance control of pipes and fittings installed in the inside service, WSD has imposed a five-year validity period of general acceptance (GA) for water supply pipes and fittings. WSD has also stipulated the requirements for submission of supporting document of the lead free soldering materials.
- (b) To enhance the inspection and approval of the inside service, WSD has stipulated the requirements for carrying out tests on solder pipe joints and testing water

samples for four heavy metals including lead at final inspection of newly installed fresh water inside service.

- (c) To enhance the management of the licensed plumbers (LPs), WSD has revised the point penalty system for LPs in regard to the importance of using compliant plumbing materials and proper discharge of duties.

WSD will continue to review and enhance the control of the construction, installation etc. of the inside service. Moreover, the Chief Executive in Council has established the Commission of Inquiry into Excess Lead Found in Drinking Water (COI). WSD will study the findings and recommendations of the COI and take appropriate follow up action.

In this connection, in 2016-17, WSD will create two civil service posts, which will incur approximately \$2.1 million per year, for amongst others, reviewing and enhancing the control of water supply pipes and fittings in the inside service and 15 civil service posts, which will incur approximately \$7.4 million per year, for enhancing the inspection of plumbing works and management of LPs.

In addition, WSD will create three civil service posts and one post-retirement service contract position in 2016-17, which will incur approximately \$4.4 million per year to assist in carrying out a holistic review of the Waterworks Ordinance and its Regulations. The review will cover various areas including the engagement and licensing of LPs to carry out the construction, installation etc. of the inside service, the current system of promulgating the material standards, and the existing inspection and approval regime with a view to enhancing the water supply and regulatory system.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)103**

**(Question Serial No. 2104)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

- (a) It is learned that the consultant's report on desalination plant at Tseung Kwan O will be completed in 2017. Does the consultant have an interim report? If yes, what are the details? If no, what is the preliminary evaluation by the consultant? Apart from seawater desalination, are there any specific and feasible measures to reduce the reliance on Dongjiang water?
- (b) Please compare the costs of water produced by desalination (per cubic metre) between Hong Kong and overseas countries (e.g. Singapore, the UK, the USA, Australia, Canada, etc.) in 2015 and explain the differences.
- (c) Please provide the estimated expenditures on Dongjiang water (including total supply quantities, total water costs and average water costs per cubic metre) in the past 3 years and in 2016-17.
- (d) Please provide the quantities of the discharge of fresh water to the sea resulting from overflow from reservoirs and the total expenditures involved in the past 3 years.

Asked by: Hon Claudia MO (Member Question No. 30)

Reply:

- (a) We engaged consultants in November 2015 to embark on the design of the first stage of the proposed desalination plant at Tseung Kwan O (TKO). The design is anticipated to be completed in about end 2017. As far as the design work is concerned, there is no interim report required on the part of the consultants. Nevertheless, a planning and investigation study was completed (via a previous consultancy study) in 2015 for the proposed desalination plant. The study confirmed the technical feasibility including the environmental viability of the project and provided a preliminary design of the plant. We have obtained approval from the Environmental Protection Department (EPD) for the environmental impact assessment report and EPD has accordingly issued an environmental permit for the project.

Apart from seawater desalination, we have been implementing a number of water demand and supply management measures to cope with the increase in water demand due to population and economic growth, and to enhance the resilience of our water sources to climate change impacts. The measures include extending the salt water supply networks for flushing purposes, taking forward the development of the reclaimed water supply system to the north-eastern part of the New Territories for flushing and other non-potable uses, enhancing water leakage control and encouraging grey water recycling / rainwater harvesting in new government developments. We have also been stepping up the effort on water conservation with an aim to reducing the water demand.

- (b) According to the planning and investigation study of the proposed desalination plant at TKO, the estimated unit water production cost of the plant is about \$12.6 per cubic metre (m<sup>3</sup>) (at 2013-14 price level) including the distribution and customer services costs. If the distribution and customer services costs are excluded, the estimated unit water production cost will become about \$10.1 per m<sup>3</sup> (at 2013-14 price level), which is comparable with those of other countries set out below.

Based on the information from the International Desalination Association published in 2015, the unit production costs (at 2013-14 price level, excluding the distribution and customer services costs) of desalinated water of some countries are as follows-

Country	Unit production cost (HK\$/m <sup>3</sup> )
Spain (Carboneras)	6.1
Singapore (Singspring)	6.4
Middle East (Israel and Saudi Arabia)	3.3 to 21.9
USA	7.6 to 13.3
Australia	11.6 to 43.0

The variations in the unit production cost of the desalinated water in different countries are attributed to a number of factors such as the energy cost which is a major component of the operating cost of a desalination plant, the seawater quality and temperature, intake arrangement, environmental measures, financing details, specific details of the water purchase agreement, etc.

- (c) The expenditures on purchasing Dongjiang water in the past three years and the estimated expenditures in 2016 and 2017 are as follows –

Dongjiang water	2013	2014	2015	2016	2017
Annual supply ceiling quantity (million m <sup>3</sup> )	820	820	820	820	820

Purchase price (\$ million)	3,743.3	3,959.34	4,222.79	4,491.52	4,778.29
Average water cost (\$/ m <sup>3</sup> )	4.6	4.8	5.1	5.5	5.8

- (d) Overflow quantities from reservoirs in the past three years were 40.2 million m<sup>3</sup> (2013), 23.1 million m<sup>3</sup> (2014) and 3.3 million m<sup>3</sup> (2015). The overflow was locally collected rainwater naturally discharged from small and medium reservoirs during heavy rainstorms and there was no expenditure incurred.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)104**

**(Question Serial No. 3211)**

Head: (194) Water Supplies Department

Subhead (No. & title): Not Specified

Programme: (1) Water Supply: Planning and Distribution

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

The aim of the Water Supplies Department is to plan and develop water resources and to design, construct, maintain and operate water supply systems in order to provide round-the-clock supplies throughout the year to meet the demands of the territory.

However, there is frequent occurrence of bursting of old fresh water mains aged over 20 to 30 years in many developed areas of the Kowloon District due to the ageing problem, causing road subsidence and flooding, and in turn resulting in disruptions to the traffic and damages to the property of the public. In this regard, I demand the Water Supplies Department to provide the details of the bursting of fresh water mains and salt water mains for flushing in the Kowloon West District (including Sham Shui Po, Yau Tsim Mong and Kowloon City) in the past three years using the table below.

Date and time	Location	Duration (hours)	Type of pipe (fresh water / salt water for flushing)	Age of water mains	Are there any claims made by the public / commercial tenants due to main bursting; if yes, what is the amount of claims?	Estimated date of next comprehensive replacement of the pipe involved

Asked by: Hon MO Claudia (Member Question No. 49)



Reply:

There are a total of 154 water main burst cases in Sham Shui Po, Yau Tsim Mong and Kowloon City districts in the past three years from 2013 to 2015. Details are provided as follows: –

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
1	8/1/2013 16:05	Hung Hom Road near Fat Kwong Street	Not affected	Salt	12	N
2	18/1/2013 11:58	Outside No. 140 Junction Road	7.75	Salt	26	N
3	31/1/2013 5:04	Carriageway of Pei Ho Street near Tai Po Road	18.83	Salt	26	Y
4	6/2/2013 5:22	Bulkeley Street near Kun Yam Street	Not affected	Salt	Unknown	Y
5	6/2/2013 12:59	Ma Tau Wai Road near Lok Shan Road	Not affected	Salt	20	Y
6	22/2/2013 2:13	Ma Tau Wai Road near Fat Kwong Street	9.42	Salt	25	Y
7	4/3/2013 21:13	Junction of Gascoigne Road and Jordan Road	13.25	Salt	26	N
8	6/3/2013 5:37	Kwun Chung Street near Bowring Street	6.42	Salt	Unknown	Y
9	20/3/2013 4:43	Mok Cheong Street near Tam Kung Road, To Kwa Wan	9.5	Fresh	Unknown	Y
10	20/3/2013 4:43	Mok Cheong Street near Tam Kung Road, To Kwa Wan	10	Salt	Unknown	Y
11	24/3/2013 21:05	Tak Shing Street near Cox's Road	14.33	Salt	23	N
12	25/3/2013 0:06	No. 193, Tai Kok Tsui Road, Kowloon	Not affected	Fresh	Unknown	Y
13	28/3/2013 4:41	Junction of Kansu Street and Woosung Street, Yau Ma Tei, Kowloon	8.75	Salt	Unknown	Y
14	8/4/2013 17:13	Lung Cheung Road near fire hydrant no. PH(S)2379	Not affected	Fresh	Unknown	Y
15	12/4/2013 3:33	Ma Tau Chung Road near Mok Cheong Street	10.17	Salt	Unknown	Y
16	17/4/2013 10:23	Luen Wan Street near Argyle Street	6.5	Fresh	Unknown	Y
17	21/4/2013 5:39	No.178 Canton Road	6.58	Fresh	28	Y
18	22/4/2013 4:36	Hereford Road near Cambridge Road	14.33	Salt	Unknown	Y
19	10/5/2013 20:50	Slope near No.10 Beacon Hill Road, Kowloon Tong	14	Fresh	30	Y
20	13/5/2013 10:52	No. 242 Argyle Street near Stirling Road	Not affected	Fresh	Unknown	Y

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
21	19/5/2013 5:59	Queen Elizabeth Hospital Path near Gascoigne Road	4	Salt	62	Y
22	29/5/2013 6:09	XRL Site CC820, Yuet Lun Street, Lai Chi Kok	2.77	Fresh	Unknown	Y
23	30/5/2013 21:10	Carriageway near No. 157 Kweilin St	Not affected	Salt	Unknown	Y
24	3/6/2013 14:02	Tak Ting Street near Tak Hong Street	Not affected	Salt	14	N
25	6/6/2013 16:12	Carriageway of Cheung Yee Street near Tai Nan West Street	Not affected	Fresh	Unknown	Y
26	8/6/2013 6:44	Fu Ning Street near Argyle Street	6.25	Salt	Unknown	N
27	9/6/2013 6:36	Carriageway of Lai Chi Kok Road near Maple Street	Not affected	Salt	Unknown	Y
28	10/6/2013 3:01	Argyle Street near Sai Yee Street	Not affected	Fresh	Unknown	Y
29	10/6/2013 3:19	Fat Kwong Street near Shung Shing Street	15.92	Salt	Unknown	Y
30	11/6/2013 8:18	Backlane of No. 191-203 Cheung Sha Wan Road	3.37	Fresh	7	Y
31	16/6/2013 19:33	Carriageway of Bedford Road near No. 7-19	6.5	Fresh	Unknown	Y
32	17/6/2013 8:04	Carriageway of Cheung Sha Wan Road near No. 127	Not affected	Fresh	Unknown	Y
33	18/6/2013 13:44	Chatham Road South near Observatory Road	10.75	Salt	Unknown	Y
34	26/6/2013 11:01	Mok Cheong Street near 8 Degrees Hotel, To Kwa Wan, Kowloon	8.58	Fresh	Unknown	Y
35	27/6/2013 17:24	Junction of Cheung Sha Wan Road and Cheung Lai Street	Not affected	Salt	Unknown	Y
36	15/7/2013 18:42	No. 7 Ko Shan Road	7	Fresh	33	Y
37	10/8/2013 5:23	Carriageway of Playing Field Road near Nathan Road	Not affected	Salt	Unknown	Y
38	17/8/2013 20:35	No. 19 Cheung Shun Street, Cheung Sha Wan	7.75	Fresh	Unknown	Y
39	26/8/2013 9:47	Junction of Cheung Sha Wan Road and Tonkin Street	Not affected	Salt	Unknown	Y
40	3/9/2013 4:23	Nam Cheong Street footpath	Not affected	Salt	Unknown	Y
41	11/9/2013 5:46	No. 294-312 Ma Tau Wai Road	Not affected	Salt	Unknown	Y
42	12/9/2013 2:40	Portland Street near Argyle Street	11.5	Salt	16	Y
43	13/9/2013 2:51	No.153 Argyle Street	Not affected	Salt	Unknown	Y
44	15/9/2013 23:32	Carriageway of Bedford Road near No.13	6.92	Fresh	Unknown	Y
45	20/9/2013	Tsing Chau Street Near Ma Tau Wai Road	13.42	Salt	Unknown	Y

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
	2:51					
46	25/9/2013 17:13	Junction of Yen Chow Street and Sham Mong Road (Site)	Not affected	Fresh	2	N
47	26/9/2013 2:17	Cheung Yee Street, Cheung Sha Wan, Kowloon	6.58	Fresh	Unknown	Y
48	28/9/2013 11:41	Carriageway of Fat Tseung Street near Cheung Sha Wan Fire Station	24.42	Salt	Unknown	Y
49	29/9/2013 20:06	Carriageway of Kweilin Street near Un Chau Street	6.92	Salt	Unknown	Y
50	2/10/2013 4:48	Ma Tau Wai Road near Kiang Su Street	Not affected	Salt	Unknown	Y
51	4/10/2013 21:03	Yee Kuk Street near Wang Cheong Factory Estate, Cheung Sha Wan	6.33	Fresh	Unknown	Y
52	7/10/2013 21:34	Jordan Road near Cox's Road	8.75	Salt	23	Y
53	9/10/2013 15:45	To Kwa Wan Road near Lok Shan Road	Not affected	Salt	14	N
54	9/10/2013 22:20	Carriageway of Tonkin Street near Shun Ning Road	14.33	Salt	Unknown	Y
55	21/10/2013 20:49	Pine Tree Hill Road near Hillwood Road	4	Salt	Unknown	Y
56	28/10/2013 14:11	Nga Tsin Wai Road near Hau Wong Road	Not affected	Fresh	Unknown	Y
57	30/10/2013 18:07	Nga Tsin Wai Road near Hau Wong Road	Not affected	Fresh	Unknown	Y
58	4/11/2013 23:03	Hung Hom Road near Hok Yuen Street East	Not affected	Salt	12	N
59	6/11/2013 0:06	Hung Hom Road near Peninsula Square	Not affected	Salt	14	N
60	15/11/2013 2:47	Carriageway of Kweilin Street near Tai Po Road	Not affected	Salt	Unknown	Y
61	16/11/2013 18:20	No. 30 Good Shepherd Street, Ho Man Tin, Kowloon.	11.13	Fresh	Unknown	Y
62	16/11/2013 19:00	No. 38 Good Shepherd Street	11.33	Salt	Unknown	Y
63	20/11/2013 21:24	Westbound of Nga Tsin Wai Road near Nga Tsin Long Road	5.33	Salt	Unknown	Y
64	24/12/2013 10:56	No. 264 Ma Tau Wai Road	5	Salt	0.3	N
65	27/12/2013 1:27	No. 38 Good Shepherd Street	6.33	Fresh	Unknown	Y
66	28/12/2013 8:44	Bulkeley Street near Gillies Avenue South	Not affected	Salt	Unknown	Y
67	31/12/2013 6:27	Carriageway of Tai Kok Tsui Road near Chung Wui Street	25.5	Salt	Unknown	N
68	6/1/2014 3:44	Kansu Street near Ferry Street	14.5	Salt	28	Y
69	14/1/2014 4:14	No. 83 Princess Margaret Road	Not affected	Fresh	Unknown	Y

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
70	8/2/2014 11:07	No. 142 Boundary Street	Not affected	Fresh	Unknown	Y
71	15/2/2014 3:00	Waterloo Road near Ferry Street	Not affected	Fresh	Unknown	Y
72	17/2/2014 12:42	No. 8 Cheong Hang Road	6.75	Fresh	Unknown	Y
73	18/2/2014 11:44	To Kwa Wan Road near Lok Shan Road	Not affected	Salt	15	N
74	22/2/2014 9:17	No. 7 Pine Tree Hill Road	8.08	Salt	Unknown	Y
75	25/2/2014 12:16	Junction of Pak Wan Street and Pak Tin Street	7.83	Salt	Unknown	Y
76	4/3/2014 2:23	Carriageway of Beech Street near Ivy Street	16.08	Salt	Unknown	Y
77	5/3/2014 7:48	Carriageway of Cheung Yee Street near Cheung Mou Street	5.58	Fresh	Unknown	Y
78	6/3/2014 2:04	Tai Nan West Street near Cheung Shun Street, Cheung Sha Wan	26.83	Fresh	Unknown	Y
79	26/3/2014 20:07	Austin Road near Temple Street	32.75	Salt	29	Y
80	8/4/2014 15:10	Junction of Castle Peak Road and Tonkin Street	14	Salt	Unknown	Y
81	19/5/2014 5:49	Temple Street near Hi Lung Lane	4.75	Salt	29	Y
82	29/5/2014 10:13	Pak Tai Street near Mok Cheong Street	10.25	Salt	Unknown	Y
83	18/6/2014 3:38	No. 70 Mody Road, Tsim Sha Tsui	17.08	Fresh	Unknown	Y
84	27/6/2014 4:19	No. 118-120 Argyle Street, Mong Kok	10.33	Fresh	Unknown	Y
85	3/7/2014 21:24	Saigon Street near Ferry Street	19.93	Salt	Unknown	Y
86	14/7/2014 4:54	No. 4 Wylie Path	8.35	Fresh	31	Y
87	1/8/2014 22:29	Granville Road near Chatham Road South	16.55	Salt	28	Y
88	16/8/2014 8:45	Fu Ning Street near Chi Chun House	23.33	Salt	Unknown	Y
89	22/8/2014 5:25	Queen Elizabeth Hospital Road near Gascoigne Road	20.85	Salt	Unknown	Y
90	28/8/2014 5:58	No. 33 Mei King Street	Not affected	Fresh	Unknown	Y
91	30/8/2014 7:00	Carriageway of Tonkin Street near Cheung Sha Wan Road	17.83	Salt	Unknown	Y
92	27/9/2014 6:37	Queen Elizabeth Hospital Road footpath near Gascoigne Road	8.67	Salt	Unknown	Y
93	1/10/2014 3:46	Junction of Boundary Street and Waterloo Road	8	Salt	12	N
94	4/10/2014	No. 61 Carpenter Road	10.5	Salt	14	Y

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
	10:39					
95	20/10/2014 9:45	Westbound of Carpenter Road near Hau Wong Road	13	Salt	14	Y
96	31/10/2014 22:12	No. 23 King's Park Rise	57.42	Salt	Unknown	Y
97	16/11/2014 6:25	No. 23 King's Park Rise	87.83	Salt	Unknown	Y
98	18/11/2014 13:32	Backlane of No. 186 Fuk Wing St	4.67	Salt	7	N
99	28/11/2014 8:39	Fat Kwong Street near Chung Hau Street (Site)	7	Salt	Unknown	Y
100	29/11/2014 4:10	No. 81 Nathan Road	6.67	Fresh	Unknown	Y
101	2/12/2014 7:22	Kwei Chow Street near Yuk Yat Street	14	Salt	Unknown	Y
102	2/12/2014 13:19	No. 6 Kwei Chow Street	7.97	Fresh	Unknown	Y
103	3/12/2014 17:40	Baker Street near Po Loi Street	9	Fresh	34	Y
104	6/12/2014 8:42	No. 72 Waterloo Road	3.45	Salt	16	Y
105	17/12/2014 3:35	No. 7 Tung Choi Street	Not affected	Salt	Unknown	Y
106	18/12/2014 3:40	Dundas Street near Portland Street	Not affected	Salt	16	Y
107	22/12/2014 8:13	Sheung Yee Road near Wang Chiu Road	Not affected	Salt	Unknown	Y
108	3/1/2015 13:50	No. 48 Mody Road	6.83	Salt	6	Y
109	6/1/2015 5:42	No. 39 Mong Kok Road	20.17	Salt	Unknown	Y
110	14/1/2015 3:41	Pak Hoi Street near Canton Road	25.42	Salt	32	Y
111	9/2/2015 3:52	Canton Road near Haiphang Road	16.75	Salt	38	Y
112	13/2/2015 7:43	No. 1 Waterloo Road	14.17	Salt	Unknown	Y
113	13/2/2015 7:45	No. 1 Waterloo Road	11.92	Fresh	Unknown	Y
114	28/3/2015 5:43	No. 1-7 Man Cheong Street	Not affected	Salt	Unknown	N
115	31/3/2015 18:37	No. 22 Yuk Yat Street	22.17	Salt	Unknown	Y
116	6/4/2015 11:46	Bulkeley Street near Gillies Avenue South	11.25	Salt	Unknown	Y
117	6/4/2015 14:12	Bulkeley Street near Marsh Street	9.88	Salt	Unknown	Y
118	6/4/2015 15:18	Science Museum Road	7.97	Fresh	Unknown	Y

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
119	11/4/2015 5:50	Carriageway of Cheung Sha Wan Road near Un Chau Estate	8.57	Salt	Unknown	Y
120	29/4/2015 9:59	No. 75 Lok Shan Road	43.75	Salt	16	N
121	10/5/2015 19:10	Carriageway of Fat Kwong Street near Sheung Foo Street	20.75	Salt	15	Y
122	29/5/2015 22:17	Junction of Mong Kok Road and Tong Mi Road.	Not affected	Fresh	Unknown	Y
123	7/6/2015 12:43	Wai Yip Street near Siu Yip Street	Not affected	Salt	Unknown	Y
124	7/6/2015 18:02	Wai Yip Street near Sheung Yee Road	Not affected	Fresh	31	Y
125	10/6/2015 20:55	Kai Cheung Road near Wang Kwong Road	Not affected	Salt	32	Y
126	13/6/2015 7:27	Junction of Science Museum Road and Granville Road	11.42	Salt	Unknown	Y
127	13/6/2015 8:36	Junction of Science Museum Road and Granville Road	3.58	Fresh	Unknown	Y
128	18/6/2015 18:01	No.111A Argyle Street	Not affected	Fresh	Unknown	Y
129	25/6/2015 14:48	Ma Tau Chung Road near Mok Cheong Street	13.9	Salt	16	N
130	3/7/2015 4:08	Mody Road near Chatham Road South	20.25	Salt	Unknown	N
131	18/7/2015 22:12	Bulkeley Street near Kun Yam Street	Not affected	Salt	Unknown	Y
132	19/7/2015 5:44	No. 69C Waterloo Road	6.33	Salt	Unknown	Y
133	26/7/2015 8:39	Shek Ku Street near Perth Street	6.92	Fresh	Unknown	Y
134	30/7/2015 2:37	Junction Road near Carpenter Road	20.5	Salt	Unknown	Y
135	1/8/2015 13:10	Junction of Argyle Street and Sai Yee Street	11.25	Salt	Unknown	Y
136	11/8/2015 4:32	Junction of Mong Kok Road and Canton Road	Not affected	Fresh	Unknown	Y
137	4/9/2015 10:55	No. 20 Good Shepherd Street	7.5	Fresh	Unknown	Y
138	11/9/2015 23:59	Chi Kiang Street near Lung Tak Street	17.5	Fresh	Unknown	Y
139	17/9/2015 4:01	Wui Cheung Road near Canton Road	44.32	Salt	17	N
140	21/9/2015 8:56	Junction of Canton Road and Wui Cheung Road	15.63	Salt	30	Y
141	23/9/2015 5:09	No. 22 Chi Kiang Street	7.67	Fresh	Unknown	Y
142	29/9/2015 19:38	Bulkeley Street near Whampoa Street	Not affected	Salt	Unknown	Y
143	2/10/2015	Hung Luen Road near Kin Wan Street	14.17	Salt	14	N

No.	Date and Time	Location	Water Supply Interruption (hr) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)	Included in R&R (Y/N) (Note 4)
	8:05					
144	12/10/2015 21:23	No. 22 Good Shepherd Street	5.17	Fresh	Unknown	Y
145	14/10/2015 4:46	No. 30 Good Shepherd Street	9.75	Fresh	Unknown	Y
146	29/10/2015 2:32	San Shan Road near Pak Tai Street	8.75	Salt	Unknown	N
147	4/11/2015 20:06	No. 33C Portland Street	Not affected	Salt	Unknown	Y
148	9/11/2015 4:10	Fu Ning Street near Shing Tak Street	11.5	Salt	Unknown	Y
149	9/11/2015 20:27	Fu Ning Street near Shing Tak Street	3.08	Fresh	Unknown	Y
150	26/11/2015 9:54	Backlane of No. 256 Tung Chau Street	2.67	Fresh	Unknown	N
151	8/12/2015 1:31	Lai Chi Kok Road near Tonkin Street	Not affected	Salt	27	Y
152	15/12/2015 3:34	Woh Chai Street footpath near Nam Cheong Street	9	Salt	Unknown	Y
153	16/12/2015 13:11	Chung Hau Street near MTR Site	Not affected	Fresh	Unknown	Y
154	16/12/2015 15:52	Nga Tsin Long Road near Nga Tsin Wai Road	34	Salt	Unknown	Y

**Note:**

1. Out of 154 cases, there are 23 cases with fresh water supply interrupted for more than 8 hours and 29 cases with the traffic at RED/PINK routes affected.
2. "Unknown" denotes no record of age of the water main. The year of completion was not incorporated in WSD's water mains record in the past until early eighties. Hence, the age of these water mains will likely be over 30 years.
3. Out of the 154 cases, there are 117 cases with age of water mains over 30 years and 23 cases between 15 years and 30 years. Regarding the remaining 14 cases with age of water mains less than 15 years, the major causes include corrosion to salt water mains, which the internal lining was exposed to a more corrosive environment, and damage by others.
4. R&R denotes the Replacement and Rehabilitation Programme of Water Mains, which has been substantially completed at end December 2015. For water mains not included in the R&R programme, they will be closely monitored so that leak detection and repair or replacement works could be arranged at an early stage to reduce the chance of main burst.

Among the 154 cases, we have received three claims for damages. One of the claims has not stated the claimed amount and is still under investigation. The claimed amounts for the other two cases are \$16,400, and \$1,000,000 respectively. None of the two claims is found justified after investigation.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)105**

**(Question Serial No. 2751)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (223) Purchase of Water  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The estimated expenditure in 2016-17 on purchasing Dongjiang (DJ) water is \$4,543,660,000. Please advise:

1. What were the Government expenditures on the maintenance of the dedicated aqueduct for DJ water in the past five years?
2. What were the estimated expenditures on filtering and processing of DJ water in the past five years?

Asked by: Hon Gary FAN Kwok-wai (Member Question No. 45)

Reply:

1. We purchase Dongjiang water under the package deal lump sum payment. We do not make separate payment for maintaining the dedicated aqueduct in the Mainland and do not have breakdown on the expenditure on the maintenance of the aqueduct. The expenditures on the maintenance of the water mains for conveyance of Dongjiang water in the Hong Kong territory in the past five years were:

Financial year	2011-12	2012-13	2013-14	2014-15	2015-16
Cost (\$ million)	14.0	12.6	13.2	13.7	12.9

2. The inflow to water treatment works includes both the locally collected fresh water and Dongjiang water. We do not have a separate breakdown on the expenditure for treatment of Dongjiang water.

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)106**

**(Question Serial No. 1594)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

On page 864, Volume I of the Estimates, it is mentioned that the Water Supplies Department (WSD) will “ensure that test samples taken from treatment works, service reservoirs, connection points, consumers’ taps, etc., conform to the standards stipulated in the WHO Guidelines.”

a. Mr Justice Andrew Chan Hing-wai, Chairman of the Commission of Inquiry into Excess Lead Found in Drinking Water, says that the so-called “test samples taken from consumers” are mostly those taken from taps in places like shopping malls or community halls instead of from the domestic premises of households. In this connection, please list the types of “consumers” from whom the WSD took its samples, the number of samples taken, the testing parameters, and the average time and costs needed for each test sample from 2011 to 2015.

b. Will WSD increase the number of test samples taken from household consumers’ taps? If yes, what are the relevant expenditures?

Asked by: Hon MA Fung-kwok (Member Question No. 10)

Reply:

a. WSD takes water samples at public accessible consumer taps including shopping centres, community facilities, sports grounds, markets, government offices and estate management offices to check the quality of water supplied to consumers.

The number of consumer tap samples tested during the period of 2011 – 2015 is tabulated below:

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
No. of consumer tap samples	33 957	34 292	33 736	34 159	35 500

The number of samples collected per year may vary according to the number of parameters to be monitored in the sampling programme.

The above consumer tap samples include samples taken for chemical, bacteriological, radiological and trace analysis testing.

The average testing time taken to complete a consumer tap sample depends on the type of analysis and number of test parameters to be tested. For chemical and bacteriological testing, the average testing time is about one day and for trace analysis and radiological testing, the average testing is about one to two weeks. As the staff involved are also required to perform other water quality monitoring work, such as monitoring at water treatment works, service reservoirs and connection points, the cost attributable to this task is not readily available.

b. Under the current regulatory regime of the Waterworks Ordinance, the WSD has no power to enter private premises to take water samples from household consumers' taps unless with their consent or by a magistrate's warrant. In view of the lead in drinking water incidents, the WSD has enhanced the lead monitoring at public accessible consumer taps since July 2015. Up to 4 March 2016, the WSD has tested about 1 120 samples for lead (excluding those from public rental housing and schools) and all samples are found to comply with the provisional guideline value of 10 ug/L for lead set out in the World Health Organization's "Guidelines for Drinking-water Quality" (WHO2011). As the staff involved are also required to perform other water quality monitoring work such as monitoring at water treatment works, service reservoirs and connection points, the cost attributable to this task is not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)107**

**(Question Serial No. 1870)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government has reserved ten hectares of land in Tseung Kwan O (TKO) Area 137 for the construction of a medium-sized seawater desalination plant. For the first stage of the desalination plant, desalination components and associated works will be constructed, including intake and outfall water mains, with fresh water output capacity reaching 135 000 cubic metres per day. Moreover, space will be reserved to cater for future needs of increasing output capacity to a maximum of 270 000 cubic metres per day. Regarding this, would the Government inform this Committee:

(1) The location of the desalination plant is close to the South East New Territories Landfill. Has the Government considered the chances of leakage of the intake and outfall and pollution of fresh water produced through water desalination by leachate from the landfill?

(2) Recently, some people took water samples near the proposed site for testing. A large amount of noctiluca scintillans was found in the samples, causing concerns about water quality. How will the Government ensure that the seawater intake is safe and prevent the harming of the plant machinery or affecting water quality?

(3) Recently, some University of Hong Kong students improved the technology of "reverse electrodialysis" that can reduce the costs of water desalination by around 10%; at the same time, Hong Kong's richest person, Li Ka-shing, also invests in water desalination technologies in Israel at lower costs. Regarding this, would the Department contact them and adopt more cost-effective water desalination technologies at lower costs?

Asked by: Hon CHAN Chi-chuen (Member Question No. 23)

Reply:

- (1) The intake and outfall pipelines for the proposed seawater desalination plant will be located offshore on the southern side of Tseung Kwan O (TKO) Area 137. Their locations are far away from the South-East New Territories (SENT) landfill and leachate from the landfill is collected by an impermeable leachate collection system to prevent leakage of leachate from the landfill site. According to the planning and investigation study completed in 2015 for the proposed seawater desalination plant at TKO, the leachate from the SENT landfill will unlikely contaminate the seawater in the vicinity of the intake and outfall. Moreover, based on the results of the seawater testing and analysis, there is no sign of contamination of the seawater by any leachate.
- (2) We have carried out seawater sampling and laboratory testing over a period of 12 months in the vicinity of the proposed seawater intake of the desalination plant. The results revealed that there would not be any large quantity of this kind of algae, while algal bloom might occur occasionally during summer time at a relatively low frequency. Notwithstanding, we will carry out real-time monitoring of the seawater quality during the operation of the proposed desalination plant. In the event that any algal bloom is detected, we will adjust the treatment process to avoid any impact on the desalination equipment and ensure that the desalinated water produced from the plant complies with the World Health Organization's "Guidelines for Drinking-water Quality" (WHO 2011).
- (3) We have held meetings with a professor of the Department of Civil Engineering of the University of Hong Kong (HKU), who has been carrying out research on the application of a novel reverse electro dialysis process for desalination, as well as the contractor responsible for building the seawater reverse osmosis desalination plant with the world's current largest output capacity in Israel.

In the course of design of the first stage of the proposed desalination plant at TKO, which has commenced in November 2015, we will duly look into details of the various options of reducing the cost of desalination including the above mentioned HKU study and innovative design features of overseas desalination plants as appropriate, in terms of pre-treatment process of lower energy consumption, optimal sizing of plant and equipment, and advanced energy recovery system for greater energy efficiency, etc.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)108**

**(Question Serial No. 2189)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

How many water samples did the Department take from treatment works, service reservoirs, connection points and consumers' taps respectively for testing from 2013 to 2015? Among others, what were the standards adopted by the Department when taking water samples from consumers' taps? What were the unit costs of water tests conducted by the Department each year in the past three years?

Asked by: Hon LEUNG Che-cheung (Member Question No. 36)

Reply:

The Water Supplies Department (WSD) carries out about 26 000 visits per year to collect samples at treatment works, service reservoirs, connection points and consumers' taps for treated water monitoring in compliance with the World Health Organization's "Guidelines for Drinking-water Quality" (WHO 2011). The number of water samples collected per visit is normally two but the actual number per visit may vary according to the number of parameters to be monitored in the sampling programme.

The total number of treated water samples taken from the visits at various locations including water treatment works, service reservoirs, connection points and consumer taps for the past three years is tabulated as below:

	<u>2013</u>	<u>2014</u>	<u>2015</u>
Total no. of samples taken	57 356	57 438	59 157

WSD's standard of taking samples for the above locations including consumer taps is based on ISO 5667-5 as recommended in the WHO Guidelines published in 2011.

The estimated total costs of testing of the above water samples in 2013, 2014 and 2015 are about \$24.2 million, \$25.2 million and \$25.9 million respectively. We do not have readily available information for individual unit costs of water tests.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)109**

**(Question Serial No. 2190)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What is the number of domestic consumers with a salt water supply connection for flushing and the relevant salt water consumption in the past three years? What is the number of domestic consumers without a salt water supply connection in the same period? What is the Department's estimated expenditure next year for expansion of the current salt water supply network to reduce domestic consumers' usage of fresh water for flushing?

Asked by: Hon LEUNG Che-cheung (Member Question No. 37)

Reply:

Due to the high turbidity and corrosivity of the salt water, no water meter is installed to measure the salt water consumption of individual households. Our flushing water supply statistics are therefore not based on the number of consumer accounts, but on the percentage of population covered by the salt water supply network.

Since the completion of the infrastructures for provision of salt water supply to Pokfulam and the Northwest New Territories in 2013 and 2015 respectively, the network coverage has increased from 80% to 85% of the population in Hong Kong. Currently, conversion of flushing supply to salt water for individual consumers in these districts is in progress. The salt water consumption in 2013, 2014 and 2015 are respectively 278.3, 271.0 and 272.4 million cubic metres. Following the progressive completion of the conversion works in these districts, we expect that salt water consumption in 2016 will increase to 281 million cubic metres. The number of domestic accounts using fresh water for flushing as at March of 2014, 2015 and 2016 are respectively 32 600, 33 700 and 34 500.

The estimated expenditure for the conversion works in Pokfulam and the Northwest New Territories in 2016-17 is \$39 million. There is no other expenditure in 2016-17 for the expansion of salt water networks beyond these areas.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)110**

**(Question Serial No. 2196)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

How many fresh water main burst cases were reported to the Department in the past three years? Please provide the number of cases in each of the 18 districts. What was the Department's expenditure for repairs of the water mains and the highest and lowest expenditure for emergency repairs of a single fresh water main burst case in the same period? What is the estimated expenditure for the same next year?

Asked by: Hon LEUNG Che-cheung (Member Question No. 43)

Reply:

The numbers of fresh water main burst cases from 2013 to 2015 by district are tabulated below –

<b>District</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Central & Western	3	0	4
Eastern	6	2	2
Islands	0	6	3
Kowloon City	8	6	9
Kwun Tong	5	9	2
Kwai Tsing District	29	8	8
North	1	3	7
South	0	2	2
Sai Kung	16	2	4
Sham Shui Po	10	2	2
Sha Tin	10	9	6



<b>District</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Tuen Mun	1	3	3
Tai Po	7	8	3
Tsuen Wan	2	3	1
Wan Chai	3	3	0
Wong Tai Sin	1	3	2
Yuen Long	24	12	6
Yau Tsim Mong	6	5	5
<b>Total</b>	<b>132</b>	<b>86</b>	<b>69</b>

The emergency repair cost incurred for the fresh water main burst cases in 2013, 2014 and 2015 are about \$15 million, \$11 million and \$10 million respectively. The emergency repair cost for a fresh water main burst case depends on the size of the water main, burst location, extent of the road surface to be reinstated and site constraints, and ranges from \$800 to \$1 million. The estimated expenditure for emergency repair due to fresh water main bursts in 2016-17 is about \$9 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)111**

**(Question Serial No. 2530)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Department says that it will continue implementing the Total Water Management (TWM) strategy and progressively establish the Water Intelligent Network (WIN) to tie in with the Replacement and Rehabilitation (R&R) Programme of water mains. Yet, there are still many ageing water mains in Hong Kong's old districts. Water main bursts and leakage often occur. Regarding this, would the Department inform this Committee:

(1) Please list details of bursts of fresh water mains and salt water mains for flushing in Yuen Long, Tuen Mun and Tsuen Wan Districts in the past three years, including date and time, length of water supply interruption, types of water mains, age of water mains and the amounts of money involved in compensation for nearby residents and businesses owing to the water main bursts;

(2) The Department suggests establishing "Water Intelligent Network" to improve the above situation. What are the works progress and details on the relevant districts adopting the technology? What is the expenditure involved? What is the estimated expenditure for the works in 2016-17?

Asked by: Hon Alice MAK Mei-kuen (Member Question No. 26)

Reply:

(1) The numbers of water main burst cases in Yuen Long, Tuen Mun, Tsuen Wan and Kwai Tsing Districts from 2013 to 2015 are tabulated below –

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
1	13/1/2013 14:41	No. 41 Kwong Fai Circuit, Kwai Chung	6.5	Fresh	Unknown
2	18/1/2013 5:48	Lai Yiu Street near lamp post no. FC1124, Kwai Chung	7	Fresh	Unknown
3	29/1/2013 17:44	Tsing Yi Road West near Tsing Chin Street & lamp post no. FC4222, Tsing Yi	14.75	Salt	29
4	4/2/2013 13:33	Kwai Fuk Road near roundabout and lamp post no. W1518, Kwai Chung	Not affected	Salt	Unknown
5	8/2/2013 22:31	Kung Um Road near lamp post no. AD4085, Yuen Long	7	Fresh	Unknown
6	10/2/2013 18:03	Tsing Chin Street near lamp post no. FA4624, Tsing Yi	10.25	Salt	Unknown
7	14/2/2013 9:16	Near No. 112, Kung Um Road, Yuen Long	5.17	Fresh	Unknown
8	17/2/2013 8:13	Tai Tong Road near Yuen Long New Street and lamp post no. FA9157, Yuen Long	Not affected	Fresh	Unknown
9	21/2/2013 5:42	Castle Peak Road near lamp post no. W4897, Kwai Chung	8.42	Salt	Unknown
10	1/3/2013 5:45	Cheung Wan Street near lamp post no. W4723, Tsing Yi	Not affected	Fresh	Unknown
11	1/3/2013 5:45	Cheung Wan Street near lamp post no. W4723, Tsing Yi	7.33	Salt	32
12	7/3/2013 0:46	Heung Sze Wui Road near lamp post no. DD0103, Tuen Mun	7.75	Salt	Unknown
13	10/3/2013 10:20	Ng Ka Tsuen, Kam Sheung Road near lamp post no. U8337, Pat Heung,	6.83	Fresh	Unknown
14	21/3/2013 6:27	Castle Peak Road carriageway near Bayview Garden, Tsuen Wan	6.92	Fresh	Unknown
15	23/3/2013 5:28	Junction of Tseng Choi Street and Tsing Chui Path carriageway	3.83	Salt	Unknown
16	24/3/2013 17:21	Hop Yick Road near lamp post no. FB4344, Yuen Long	4.42	Fresh	Unknown
17	13/4/2013 0:10	Kwai Hei Street near lamp post no. W2033, Kwai Chung	Not affected	Fresh	Unknown
18	15/4/2013 6:12	Chuk Hang Tsuen Bus Station near lamp post no. FB3616, Fan Kam Road	14.25	Fresh	Unknown
19	24/4/2013 3:52	Castle Peak Road near lamp post no. W4879, Kwai Chung	8	Salt	Unknown
20	26/4/2013 23:45	Hing Fong Road near lamp post no. FB9917, Kwai Chung	Not affected	Salt	Unknown
21	28/4/2013 18:42	No. 51 Container Port Road, Kwai Chung	10.25	Fresh	Unknown
22	28/4/2013 18:42	No. 51 Container Port Road, Kwai Chung	11.42	Salt	Unknown
23	15/5/2013 22:40	Kam Tin Road near lamp post no. FB5778, Pat Heung	6.83	Fresh	Unknown
24	17/5/2013 17:20	Castle Peak Road (San Tin) near lamp post no. FC4132	5.92	Fresh	Unknown
25	20/5/2013 5:19	Tai Wo Hau Road near lamp post no. CC0960, Kwai Chung	11.25	Fresh	Unknown

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
26	22/5/2013 7:40	Container Port Road near lamp post no. W3062, Kwai Chung	4.67	Fresh	Unknown
27	22/5/2013 18:05	No. 1 Yiu Wing Street, Kwai Chung	6.25	Fresh	Unknown
28	29/5/2013 7:24	Shek Kong Vegetable Station near lamp post nos. FB5779 and FB5784, Kam Tin	14.5	Fresh	Unknown
29	3/6/2013 20:20	Fung Cheung Road near lam post no. H3956, Yuen Long	5.67	Fresh	Unknown
30	4/6/2013 21:54	No. 2 Kwai Lok Street, Kwai Chung	7.33	Fresh	Unknown
31	5/6/2013 17:15	Tsoi Yuen Tsuen near lamp post no. FB 5785, Kam Tin Road	6.58	Fresh	Unknown
32	6/6/2013 9:49	No.33 Lai Chi Ling Road, Lai King	8	Fresh	26
33	11/6/2013 6:05	No. 2 San Kwai Street, Kwai Chung	6.42	Fresh	Unknown
34	12/6/2013 6:27	Kung Um Road near lamp post no. AD4085, Yuen Long	6.5	Fresh	Unknown
35	12/6/2013 13:42	Shek Wu Tong Tsuen, Kam Sheung Road near lamp post no. U8358, Yuen Long	8	Fresh	Unknown
36	18/6/2013 2:09	Chai Wan Kok Street near lamp post no. FC0600	Not affected	Fresh	Unknown
37	22/6/2013 21:58	No. 18 Kwai Lok Street, Kwai Chung	7.25	Fresh	Unknown
38	27/6/2013 5:36	Tsuen Wan Road near lamp post no. FC0459, Kwai Chung	Not affected	Fresh	Unknown
39	1/7/2013 15:05	Near Shek Wu Tong School, Tin Sum Tsuen, Kam Sheung Road	5.33	Fresh	Unknown
40	2/7/2013 5:22	Kung Um Road near lamp post no. AD4082, Yuen Long	9	Fresh	Unknown
41	3/7/2013 1:23	Kin Tak Street near lamp post no. FB4340, Yuen Long	5.5	Fresh	Unknown
42	4/7/2013 16:33	Fan Kam Road near Pat Heung Police Station, Kam Tin, Yuen Long	Not affected	Fresh	Unknown
43	7/7/2013 2:47	Kwai Hei Street near lamp post no. W2033, Kwai Chung	Not affected	Fresh	Unknown
44	10/7/2013 1:41	Kwai Lok Street near lamp post no. FC4681, Kwai Chung	6.5	Fresh	Unknown
45	10/7/2013 21:44	Wo Yi Hop Road near Cheung Wing Road, Kwai Chung	18.33	Salt	Unknown
46	15/7/2013 2:16	Yiu Wing Street near lamp post no. FA9606, Kwai Chung	10	Fresh	28
47	15/7/2013 8:03	Tuen Mun Heung Sze Wui Road near Yau Oi Road, Tuen Mun	Not affected	Fresh	Unknown
48	15/7/2013 8:36	Wo Yi Hop Road near lamp post no. FB6937, Kwai Chung	6	Salt	Unknown
49	19/7/2013 3:19	San Kwai Street near lamp post no. W4499, Kwai Chung	5	Fresh	Unknown
50	21/7/2013 5:54	Hop Yick Road near lamp post no. FB4343, Yuen Long	5.17	Fresh	Unknown
51	25/7/2013 19:51	Kwai Hei Street near lamp post no. W2033, Kwai Chung	Not affected	Fresh	Unknown
52	30/7/2013 4:53	Yiu Wing Street near lamp post no. BC1417, Kwai Chung	10	Fresh	Unknown

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
53	30/7/2013 11:30	Kwai Lok Street near Kwai Hei Street, Kwai Chung	15.33	Salt	Unknown
54	6/8/2013 21:56	Ma Tin Road near lamp post no. FB5828, Yuen Long	Not affected	Fresh	Unknown
55	12/8/2013 4:09	Castle Peak Road near lamp post no. FC4132, San Tin, Yuen Long	7	Fresh	Unknown
56	13/8/2013 15:45	Chung Mei Road near lamp post no. U7276, Tsing Yi	28.83	Salt	Unknown
57	13/8/2013 16:05	Heung Sze Wui Road near lamp post no. W4109, Tsing Yi	Not affected	Salt	30
58	14/8/2013 10:17	Cheung Wan Street near lamp post no. W1685, Tsing Yi	13.42	Salt	33
59	20/8/2013 14:12	Kwai Lok Street J/O Kwai Hei Street, Kwai Chung	6	Fresh	Unknown
60	26/8/2013 15:16	No. 188 Kwai Shing Circuit, Kwai Chung	5	Fresh	Unknown
61	28/8/2013 15:23	Kwai Hei Street Near lamp post no. W2033, Kwai Chung	Not affected	Fresh	Unknown
62	3/9/2013 15:10	Near No. 38-46, Tsuen Wah Street Tsuen Wan	10.17	Salt	Unknown
63	11/9/2013 22:59	Near No. 3, Kung Yip Street, Kwai Chung	6.67	Fresh	Unknown
64	15/9/2013 19:55	Container Port Road near lamp post no. FC1378, Kwai Chung	Not affected	Fresh	Unknown
65	18/9/2013 2:58	Hop Yick Road near lamp post no. FB4343, Yuen Long	7.95	Fresh	Unknown
66	26/9/2013 18:02	Near No. 87, Tsuen King Circuit, Tsuen Wan	8.83	Salt	Unknown
67	5/10/2013 0:32	Kwai Tsing Road near Tsuen Wan Road, Kwai Chung	3.75	Fresh	Unknown
68	14/10/2013 5:15	Tai Wo Hau Road near lamp post no. FA6886, Kwai Chung	5	Salt	Unknown
69	16/10/2013 4:02	Lai King Hill Road near lamp post no. FA4951, Kwai Chung	4.5	Fresh	Unknown
70	30/10/2013 19:03	Castle Peak Road (San Tin) near lamp post no. FC4137, Yuen Long	7	Fresh	Unknown
71	31/10/2013 8:44	Castle Peak Road (San Tin) near lamp post no. FC4138, Yuen Long	6.75	Fresh	Unknown
72	8/11/2013 20:51	Near Mai Po Garbage Station, Castle Peak Road, Yuen Long	5.67	Fresh	Unknown
73	26/11/2013 5:05	No. 1 Kwai Fuk Road, Kwai Chung	Not affected	Salt	Unknown
74	2/12/2013 13:43	Kwai Hing Road near lamp post no. FC4343, Kwai Chung	3	Salt	Unknown
75	4/12/2013 6:47	Kwok Shui Road near lamp post no. FA1914, Kwai Chung	5.17	Fresh	Unknown
76	16/12/2013 1:48	Kwok Shui Road near lamp post no. FA6356, Kwai Chung	6.92	Fresh	Unknown
77	28/12/2013 6:44	Shek Pai Street near lamp post no. W1762, Kwai Chung	4	Fresh	Unknown
78	18/1/2014 5:55	No. 2, San Kwai Street, Kwai Chung	6.75	Fresh	Unknown
79	4/2/2014 11:51	SKH Saint Joseph's Church Kindergarten, No. 83A Kam Sheung Road	Not affected	Fresh	Unknown
80	9/2/2014 19:38	Tsing Lun Road near lamp post no. H4633, Tuen Mun	Not affected	Fresh	27
81	13/3/2014 9:09	Lam Hi Road near lamp post no. BD1164, Yuen Long	4.67	Fresh	20
82	18/3/2014 13:42	No. 1-3, Wang Lok Street, Yuen Long Industrial Estate	7.83	Fresh	Unknown

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
83	28/3/2014 20:03	Tai Ha Street near lamp post no. FA4792, Kwai Chung	6	Salt	Unknown
84	30/3/2014 4:15	No. 77 Container Port Road, Kwai Chung	6	Fresh	Unknown
85	2/4/2014 14:07	Container Port Road near Kwai Fung Crescent, Kwai Chung	8	Salt	Unknown
86	12/4/2014 13:22	Kwai Hei Street near lamp post no. W0238, Kwai Chung	4.92	Fresh	Unknown
87	22/4/2014 4:40	No. 10 Tsing Tai Road, Tuen Mun	3.58	Fresh	1
88	22/4/2014 10:56	Tsuen Kwai Street near lamp post no. AC5422	4.5	Fresh	Unknown
89	29/4/2014 13:29	No. 100 Texaco Road, Kwai Chung	Not affected	Salt	Unknown
90	5/5/2014 22:53	Kwai Hing Road near Wo Tong Tsui Street, Kwai Chung	6.83	Salt	Unknown
91	19/5/2014 7:25	Fung Shue Wo Road near lamp post no. W4053, Tsing Yi	Not affected	Salt	31
92	21/5/2014 13:45	Tin Ha Road near lamp post no. FB9097, Yuen Long	7.92	Fresh	Unknown
93	29/5/2014 22:41	Tsoi Yuen Tsuen near lamp post no. FB5778, Kam Tin Road	4.37	Fresh	Unknown
94	5/6/2014 3:57	Kwai Chung Road near lamp post no. FA6279, Kwai Chung	21	Salt	Unknown
95	19/6/2014 5:08	Tai Kiu Road, near Yuen Long Hong Lok Road	Not affected	Fresh	20
96	26/6/2014 3:14	No. 39 Tsing Yi Road, Tsing Yi	6	Salt	Unknown
97	1/7/2014 17:12	No. 1 Leung Yip Street, Yuen Long	Not affected	Fresh	Unknown
98	1/7/2014 23:34	Junction of Fung Nin Road and Kau Yuk Road, Yuen Long	6	Fresh	Unknown
99	5/7/2014 17:07	Tin Hau Road near lamp post no. BD4435	13	Fresh	Unknown
100	7/7/2014 14:52	Kwai Shing Circuit near Hing Shing Road, Kwai Chung	8.5	Fresh	Unknown
101	9/7/2014 8:15	Near Yuen Long Theatre, Yuen Long	6.58	Fresh	20
102	19/7/2014 0:23	Ng Ka Tsuen near lamp post no.U8337, Kam Sheung Road	6.17	Fresh	Unknown
103	20/7/2014 3:58	Tai Wo Hau Road near lamp post no. CC0960, Kwai Chung	7.58	Fresh	Unknown
104	31/7/2014 13:58	Wo Yi Hop Road near lamp post no. FB2893, Kwai Chung	Not affected	Salt	Unknown
105	12/8/2014 11:04	Lai King Hill Road near lamp post no. FA4952, Kwai Chung	6.5	Fresh	Unknown
106	13/8/2014 4:30	Junction of Tai Loong Street and Wo Yi Hop Road, Kwai Chung	6.75	Fresh	Unknown
107	13/8/2014 17:35	Tsuen Wan Road near lamp post no. FC0461, Kwai Chung	Not affected	Fresh	Unknown
108	26/8/2014 20:08	Kwai Fuk Road near lamp post no. FA9716, Kwai Chung	6.92	Salt	Unknown
109	8/9/2014 6:14	Yue Fung Mansion, Hong Lok Road near lamp post no. FB 3091, Yuen Long	Not affected	Fresh	Unknown
110	18/9/2014 16:03	No. 71-21, Tai Cheung Street, Yuen Long	Not affected	Fresh	Unknown
111	25/9/2014 3:09	Tuen Mun Heung Sze Mun Road near lamp post no. DD0067, Siu Lun Court	18.25	Salt	Unknown

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
112	8/10/2014 4:08	Texaco Road North near fire hydrant no. PH2009	20.33	Fresh	34
113	26/11/2014 4:28	Kwai Fuk Road near lamp post no. DC0093, Kwai Chung	18	Salt	Unknown
114	14/12/2014 12:44	Sha Tsui Road near lamp post no. AC3392	Not affected	Fresh	49
115	14/1/2015 6:49	Near No.11, Tsing Yi Heung Sze Wui Road, Tsing Yi	Not affected	Salt	20
116	22/1/2015 16:24	Kwun Fat Street near fire hydrant no. PH10493	6.6	Fresh	12
117	23/1/2015 6:51	Tsing Yi Road near lamp post no. AC0779, Tsing Yi	11	Fresh	Unknown
118	5/2/2015 6:19	Tsun Wen Road near lamp post no. FB9415	11.5	Salt	Unknown
119	24/2/2015 8:32	Container Port Road near lamp post no. FC1374, Kwai Chung	Not affected	Fresh	Unknown
120	24/2/2015 8:39	No. 51 Container Port Road, Kwai Chung	20	Salt	Unknown
121	28/2/2015 8:12	Near no. 85 Wo Tong Tsui Street, Kwai Chung	14.83	Salt	14
122	2/3/2015 13:50	Near lamp post at Wang Yip Street, Yuen Long	Not affected	Fresh	20
123	5/3/2015 16:12	Tuen Hi Road near fire hydrant no. PH2286	5.63	Fresh	Unknown
124	9/3/2015 13:51	Container Port Road near lamp post no. FC1379, Kwai Chung	Not affected	Fresh	Unknown
125	9/3/2015 13:51	Container Port Road near lamp post no. FC1379, Kwai Chung	10	Salt	Unknown
126	27/3/2015 2:54	Hop Choi Street near lamp post no. U8546, Yuen Long	6.83	Fresh	Unknown
127	18/4/2015 0:20	Fung Cheung Road near Hop Yick Road, Yuen Long	10	Fresh	Unknown
128	1/5/2015 8:53	Chung Mei Road near lamp post no. U7277, Tsing Yi	8.75	Fresh	Unknown
129	15/5/2015 2:43	Chung Mei Road near lamp post no. U7279, Tsing Yi	15.75	Fresh	Unknown
130	21/5/2015 20:06	Castle Peak Road near lamp post no. FC2623, Tsuen Wan	7	Fresh	Unknown
131	4/6/2015 16:20	Junction of Sha Tsui Road & Chung On Street, Tsuen Wan	Not affected	Salt	Unknown
132	5/6/2015 9:16	Near no. 188 Kwai Shing Circuit, Kwai Chung	3.5	Fresh	Unknown
133	10/6/2015 7:07	Kam Tin Road near Kam Tin Mung Yeung Public School, Yuen Long	6.37	Fresh	Unknown
134	16/7/2015 14:07	Lung Tak Street near lamp post no. FC3727, Tsuen Wan	13.17	Salt	Unknown
135	3/9/2015 3:02	Kwai Lok Street near lamp post no. FC4678, Kwai Chung	Not affected	Fresh	Unknown
136	6/9/2015 1:03	Tsing Wun Road near lamp post no. FC3773	20.25	Salt	34
137	2/10/2015 3:29	Hop Yick Road near lamp post no. FB4339, Yuen Long	Not affected	Fresh	Unknown
138	17/10/2015 15:31	Texaco Road near lamp post no. FB1805, Kwai Chung	12	Salt	Unknown
139	8/11/2015 5:10	Carriageway of Castle Peak Road near Tuen Hing Road	18.4	Salt	19
140	15/11/2015 10:46	Kwai Fuk Road near lamp post no. DC0100, Kwai Chung	Not affected	Salt	Unknown
141	27/11/2015 14:57	Tsing Yi Heung Sze Wui Road, Tsing Yi	4.92	Fresh	Unknown
142	14/12/2015 5:39	Hop Yick Road near lamp post no. FB4340, Yuen Long	7.58	Fresh	Unknown
143	16/12/2015 17:49	Tuen Mun Heung Sze Wui Road near lamp post no.	7.62	Fresh	36

No.	Date	Location	Water Supply Interruption (hr.) (Note 1)	Type of Water Main	Age of Water Main (Note 2 & 3)
		H0913			
144	29/12/2015 7:17	Shan King Estate near King On House	11	Salt	8

Note:

1. Out of 144 cases, there are 14 cases with fresh water supply interrupted for more than 8 hours and 7 cases with traffic at RED/PINK Routes affected.
2. "Unknown" denotes no record of age of the water main. The year of completion was not incorporated in WSD's water mains record in the past until early eighties. Hence, the age of these water mains will likely be over 30 years.
3. Out of the 144 cases, there are 129 cases with age of water mains over 30 years and 11 cases between 15 years and 30 years. Regarding the remaining 4 cases with age of water mains less than 15 years, the causes include corrosion of salt water mains (2 cases), which the internal lining was exposed to a more corrosive environment, and damage by others (2 cases).

Among the 144 cases, we have received eight claims for damages. There are two cases without claimed amount and still under investigation. The claimed amount for the remaining cases ranged from \$10,100 to \$363,940. One claim case was withdrawn and five claim cases were found not justified after investigation.

- (2) The Water Supplies Department (WSD) plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or being established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC "Implementation of Water Intelligent Network" to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively. The remaining 515 DMAs will be established under the remainder of PWP Item No. 196WC. The preliminary estimate of the total cost of establishing all the DMAs and the intelligent network management computer system under the said PWP Item is about \$1,200 million (in September 2015 prices). The corresponding estimated expenditure in 2016-17 is about \$22 million.

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)112**

**(Question Serial No. 1993)**

Head: (194) Water Supplies Department

Subhead (No. & title): Not Specified

Programme: (1) Water Supply: Planning and Distribution

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

Regarding the design for the desalination plant and related infrastructure at Tseung Kwan O, would the Government provide the following details:

	<b>Item</b>	<b>Progress</b>	<b>Expenditure involved (anticipated/actual)</b>
1.	Review of findings of the planning and investigation study related to the water mains		
	Carrying out associated site investigation works		
	Design of the water mains		
	Preparation of the tender document and assessment of tenders		
2.	Review of findings of the planning and investigation study and undertaking further impact assessments		
	Carrying out associated site investigation works		
	Preparation of design		
	Preparation of the tender document and assessment of tenders		
3.	(Other related items)		
4.			

5.			
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Asked by: Hon Dennis KWOK (Member Question No. 26)

Reply:

Progress of the design for the desalination plant and related infrastructure at Tseung Kwan O are set out the table below.

	<b>Item</b>	<b>Progress</b>	<b>Actual Expenditure in 2015-16 (\$ million)</b>	<b>Estimated Expenditure in 2016-17 (\$ million)</b>
1.	Associated water mains for the desalination plant			
	Review of findings of the planning and investigation study related to the water mains	Review of findings of the planning and investigation study related to the water mains using in-house resources has been completed.	--	--
	Carrying out associated site investigation works	Site investigation works are in progress.	0.1	2.0
	Design of the water mains	Detailed design of the water mains using in-house resources is in progress. Consultants are engaged to conduct the associated traffic impact assessment and landscaping assessment.	0.3	0.6
	Preparation of the tender document and assessment of tenders	Tender documents are under preparation using in-house resources with advisory input from consultants on the New Engineering Contract (NEC) form.	--	0.4
2.	First stage of the proposed desalination plant			
	Review of findings of the planning and investigation study and undertaking further impact assessments	Review of findings of the planning and investigation study is near completion. Further impact assessments, such as drainage impact assessment, have commenced.	8.7	5.1
	Carrying out associated site investigation works	Site investigation works is scheduled for commencement in April	--	17.0

	<b>Item</b>	<b>Progress</b>	<b>Actual Expenditure in 2015-16 (\$ million)</b>	<b>Estimated Expenditure in 2016-17 (\$ million)</b>
		2016.		
	Preparation of design	Preparation of reference design for the plant has commenced.	3.0	31.8
	Preparation of the tender document and assessment of tenders	Preparation of documentation for prequalification of tenderers has commenced.	--	26.3

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)113**

**(Question Serial No. 1994)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the construction of a seawater desalination plant at Tseung Kwan O, will the Government inform this Committee:

(a) The seawater desalination plant at Tseung Kwan O will use the latest reverse osmosis technology. Where is the origin of such technology? What are the costs for the development and application of the technology? Please provide a breakdown by items.

(b) The daily fresh water production of the desalination plant can increase from 130 000 cubic metres to 270 000 cubic metres, supplying five to ten percent of fresh water for consumption in Hong Kong. What are the estimated costs of operation? What are the resources and manpower involved? Please list the details in a table.

Asked by: Hon Dennis KWOK (Member Question No. 27)

Reply:

(a) The reverse osmosis technology dated back to the 1940s when researchers at the University of California in the United States began investigation of the properties of a kind of membrane for developing reverse osmosis. In recent years, reverse osmosis has become a mature technology and has been used in many overseas desalination plants. While we do not have information on the cost for the development of the technology, we understand that the costs of application of the technology vary in different countries. According to the International Desalination Association, the unit production costs (excluding distribution and customer services costs) of desalination plants using reverse osmosis range from about HK\$3.2 to HK\$46.2 per cubic metre (m<sup>3</sup>) (at 2015 price level). The variations in the unit production costs are attributed to a number of factors such as the energy cost which is a major component of the operating cost of a desalination plant, the seawater quality and temperature, intake

arrangement, environmental measures, financing details, specific details of the water purchase agreement, etc. We do not have a breakdown by items of the unit production costs.

- (b) According to the planning and investigation study completed in 2015 for the proposed desalination plant at Tseung Kwan O, the operation cost of the proposed desalination plant is estimated to be about HK\$5.5 per m<sup>3</sup> (at 2013-14 price level). We commenced the design of the first stage of the desalination plant at Tseung Kwan O in November 2015. During the design stage, the estimated cost of the operation, procurement mode (adopting either a “Design and Build” or “Design-Build-Operate” approach), etc. will be reviewed, and the estimated resources and manpower involved in the operation of the plant will be ascertained in due course.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)114**

**(Question Serial No. 2598)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding matters concerning supply of reclaimed water for flushing and other non-potable purposes, would the Government inform this Committee:

(a) In "Matters Requiring Special Attention" of this year's Estimates, the Department carries out design of infrastructures for supplying reclaimed water for flushing and other non-potable purposes in the north-eastern part of the New Territories. The estimated expenditure on the study on financial and legal frameworks for this project was \$4 million. How is the actual expenditure revised now? What is the estimated expenditure for the same item this year?

(b) The above is a project for supplying reclaimed water in the north-eastern part of the New Territories. Besides Shek Wu Hui sewage treatment works, what are the other facilities? What is the progress of the various projects including Shek Wu Hui sewage treatment works? What are the relevant expenditures? Please list them in a table.

(c) Last year, the Department said that it would work in collaboration with the Hong Kong Green Building Council in the review of the standard for assessing green buildings in respect of the weighting for the use of recycled water. What is the work progress? If there is expenditure for the work, what are the details? Please list the details.

(d) Apart from the items mentioned above, has the Department taken any other measures to develop sustainable water resource management? If yes, what are the details and details of expenditures (please list them in a table)?

Asked by: Hon Dennis KWOK (Member Question No. 22)

Reply:

- (a) Regarding the study on the financial and legal aspects of the supply of reclaimed water, the expenditure in 2015-16 and the estimated expenditure in 2016-17 are \$0.9 million and \$3.1 million respectively.
- (b) Waterworks infrastructures necessary for the supply of reclaimed water to Sheung Shui and Fanling include a service reservoir, hypo-chlorination facilities, a pumping station, trunk and distribution mains. The progress and the estimated expenditures in 2016-17 of the waterworks projects are as follows.

	<b>Waterworks Projects</b>	<b>Progress</b>	<b>Estimated Expenditures in 2016-17 (\$ million)</b>
(1)	Providing a service reservoir and the associated trunk mains	Design (by in-house resources) commenced in July 2014 for construction to commence in end 2016	3.14 (for construction works)
(2)	Providing hypo-chlorination facilities, a pumping station and distribution mains	Under Investigation/planning	9.5 (for consultancy fee and site investigation works)

The upgrading of the Shek Wu Hui sewage treatment works (a Drainage Services Department project) does not form part of the waterworks and is excluded from the above table.

- (c) We have been providing support to the Hong Kong Green Building Council (HKGBC) in their review of the environmental assessment schemes that they operate for existing and new buildings.

For existing buildings, HKGBC have completed the review with a revised environmental assessment scheme launched in September 2015 providing for assessment criteria that could encourage the adoption of water conservation practices including use of recycled water. Registration of projects for accreditation under the revised scheme commenced in March 2016.

As for new buildings, it is understood that HKGBC's review will commence in due course.

Our support to HKGBC in their work on reviewing their environmental assessment schemes for existing and new buildings incurs minimal expenditure.

- (d) We are exploring various measures in our review of Total Water Management (TWM) strategy to enhance water security and sustainability of water supply. Apart from reclaimed water, we are also developing other new water resources, namely seawater

desalination and grey water reuse and rainwater harvesting. The progress and the associated estimated expenditures in 2016-17 are as follows.

	Items	Progress	Estimated Expenditure in 2016-17 (\$ million)
(1)	Proposed desalination plant at Tseung Kwan O  - Planning and investigation study  - Investigation review and design of the first stage of the plant	Completed  Commenced in November 2015	80.3
(2)	Grey water recycling and rainwater harvesting  - Consultancy for developing charging scheme(s) and legal framework for supply of recycled grey water and recycled rainwater	In progress	1.3

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)115**

**(Question Serial No. 2210)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the purchase of Dongjiang (DJ) water, would the Department inform this Committee:

- a) The total costs for Hong Kong's purchase of DJ water, water supply ceiling, actual water supply and unit cost per cubic metre in the past five years;
- b) The estimated total costs for Hong Kong's purchase of DJ water, water supply ceiling, actual water supply and unit cost per cubic metre in the next three years;
- c) A comparison of unit costs per cubic metre of locally collected water, DJ water and water desalination;
- d) Since the "package deal lump sum" approach is adopted for the current purchase of DJ water and Hong Kong's purchase of water did not reach the water supply ceiling for many years in the past, the purchase has been externally criticized as wasting money. Would the Department study other means of purchasing DJ water and negotiate with the Guangdong authorities?

Asked by: Hon SIN Chung-kai (Member Question No. 58)

Reply:

- a) The purchase price, annual supply ceiling quantity, imported quantity and average unit cost of Dongjiang (DJ) water in last five years are shown in the table below –

<b>DJ water</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Purchase price	3,344.0	3,538.7	3,743.3	3,959.34	4,222.79

(\$ million)					
Annual supply ceiling quantity (million m <sup>3</sup> )	820	820	820	820	820
Imported quantity to Hong Kong (million m <sup>3</sup> )	818	709	612	724	766
Average unit cost (\$/m <sup>3</sup> )	4.1	4.3	4.6	4.8	5.1

b) The purchase price, annual supply ceiling quantity, imported quantity and average unit cost of DJ water for 2016 and 2017 are shown in the table below –

<b>DJ water</b>	<b>2016</b>	<b>2017</b>
Purchase price (\$ million)	4,491.52	4,778.29
Annual supply ceiling quantity (million m <sup>3</sup> )	820	820
Imported quantity to Hong Kong (million m <sup>3</sup> )	Not known*	Not known*
Average unit cost (\$/m <sup>3</sup> )	5.5	5.8

(Note : \* Import quantity of DJ water is subject to actual demand and local yield.)

The current supply agreement for DJ water is for 2015-2017. The purchase price, annual supply ceiling quantity and average unit cost for supply of DJ water after 2017 is subject to a new supply agreement to be agreed between Guangdong authorities and Hong Kong.

c) The unit production cost for water collected locally, DJ water and desalinated water are as follows-

<b>Unit Cost</b>	<b>(\$/m<sup>3</sup>)</b>
Water collected locally	4.0 (2013-14)
DJ water	8.6 (2013-14)
Desalinated water	12.6 <sup>#</sup> (2013-14)

(Note : <sup>#</sup> It is the latest price level available. We engaged consultants in November 2015 to embark on the design of the first stage of the desalination plant. The unit water production cost of the desalination plant will be reviewed during the design stage.)

d) The local yield is inadequate to meet the fresh water demand in Hong Kong. It also fluctuates significantly and is unreliable. In order to safeguard our water security, the “package deal lump sum” approach is adopted in the DJ water supply agreement which secures a water right in the form of an annual ceiling of supply quantity with a view to maintaining water supply round-the-clock even under the extreme drought condition with a return period of 1 in 100 years.

Hong Kong and Guangdong (GD) are under the same climatic setting (rainfall pattern, temperature, etc.). When our local yield reduces during drought years, the quantity of DJ water available for distribution will also dwindle. If we adopt other payment approach like the “payment on actual supply quantity” approach, the GD side considers that they will have difficulty to guarantee that the water supply quantity requested by Hong Kong can be met particularly in drought years given the keen demand for the limited DJ water resources. We will be exposed to a risk of inadequate water supply to Hong Kong during drought years unless we set a “reserved quantity” for possible need during drought years in the DJ water supply agreement and pay for it. However, such arrangement is effectively the same as the “package deal lump sum” approach we have adopted for the DJ water supply agreements since 2006.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)116**

**(Question Serial No. 2211)**

Head: (194) Water Supplies Department

Subhead (No. & title): (661) Minor Plant, Vehicles and Equipment (Block Vote)

Programme: Not Specified

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

In 2016-17, the Department's Estimates for Subhead 661 Minor plant, vehicles and equipment (block vote) under Capital Account represents nearly a double over the revised estimates in 2015-16. The Department explains that there are increased requirements for acquisition of laboratory equipment for safeguarding drinking water safety and replacement of ageing plant and equipment. What are the details? How many ageing facilities are to be replaced?

Asked by: Hon SIN Chung-kai (Member Question No. 59)

Reply:

In 2016-17, the provision under Subhead 661 is \$18.322 million. We plan to procure the following items, including additional items for acquisition of laboratory equipment for safeguarding drinking water safety and items for replacement of ageing facilities:

Description	Estimated cost (\$000)
<b>Additional items for safeguarding drinking water safety</b>	
(1) one set of Liquid Chromatographic Mass Spectrometry System and Accessories	3,800
(2) one set of Inductively Coupled Plasma Mass Spectrometry System and Accessories	2,200
(3) one set of Gas Chromatographic Mass Spectrometry System and Accessories	1,900
(4) one set of Inductively Coupled Plasma Optical Emission Spectrometer and Accessories	900
<b>Replacement items for ageing facilities</b>	
(5) one set of Inductively Coupled Plasma Mass	2,200

Spectrometry System and Accessories	
(6) one set of CADNet System for computer-aided drafting at Drawing Office	3,554
(7) one set of Lime Handling Facility at Au Tau water treatment works	3,768
<b>Total</b>	<b>18,322</b>

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)117**

**(Question Serial No. 2023)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

1. Professor John Fawell, the expert witness of the Commission of Inquiry into Excess Lead Found in Drinking Water, presents a report which suggests that the Water Supplies Department (WSD) should create the position of water quality manager who would oversee drinking water quality data and activities in a holistic manner and report directly to the Director of Water Supplies. Has the WSD earmarked provision for creating the position concerned? If yes, what is the amount of provision involved? If no, what are the reasons?

2. The WSD indicated that it will strengthen inspections and random tests of dispensers in the market. In this connection, what is the staff establishment involved in the inspections and tests in 2015-16 and 2016-17? What are the respective numbers of inspections and random tests in 2015-16 and 2016-17? Among the dispensers that were tested in 2015-16, how many of them were found to contain lead content exceeding the World Health Organization's guideline value? What are the relevant amendments and estimated expenditure in 2015-16 and 2016-17?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 22)

Reply:

1. We will consider the recommendation of Professor John Fawell in conjunction with any other recommendations of the Commission of Inquiry into Excess Lead Found in Drinking Water. Expenditure will be reserved if and when considered required.

2. The staff establishment for the inspections and water sampling tests of wall-mounted dispensers in 2015-16 is not readily available as the staff were also required to perform other duties such as conducting inspections and water sampling tests for inside service. In 2015-16, WSD assisted the Education Bureau and Social Welfare Department in taking and

testing drinking water samples from 772 kindergartens and 205 welfare units. Amongst these samples, a total of 366 water samples were collected from the taps of wall-mounted dispensers and ten samples from eight kindergartens failed to meet the World Health Organization provisional guideline value in lead content.

As a follow-up investigation, WSD appointed a consultant with a cost of about \$0.8 million in 2015-16 to conduct a study on different components of the wall-mounted dispensers and identify the possible sources leading to excess lead in drinking water. Based on the result of the study, WSD has produced a leaflet providing tips for the testing, purchase and use of wall-mounted dispensers.

We are now focusing our effort on educating major users of wall-mounted dispensers including schools, kindergartens, social welfare units, hospitals, hotels, government departments and licensed restaurants. Against this, we have solicited their general support and assistance in promoting and providing the leaflets to the respective organisations and associations in regard to proper use of wall-mounted dispensers, arranging testing of boiled water samples from their dispensers in accredited laboratories if necessary and purchasing new dispensers with international certification or type test reports. We are also making arrangements with the associations of the catering industry for giving talks on wall-mounted dispensers with a view to increasing the awareness of their members on this issue.

Separately, we have issued an advice to local suppliers/manufacturers on the use of lead-free soldering materials and components of low lead content for the manufacturing of wall-mounted dispensers and to arrange type tests of their products in accredited laboratories. The advice has also been distributed to the major retailing shops and local suppliers of wall-mounted dispensers. Whilst we will continue to engage the stakeholders of wall-mounted dispensers, we do not anticipate any major expenditure for the taking of water samples from wall-mounted dispensers in 2016-17.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)118**

**(Question Serial No. 3266)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government mentions the establishment of the Water Intelligent Network (WIN) in 2016-17. What are the details? What is the current progress of establishment of WIN and its tying in with the 15-year Replacement and Rehabilitation Programme?

Asked by: Dr Hon Elizabeth QUAT (Member Question No. 58)

Reply:

The Replacement and Rehabilitation Programme of about 3 000 km of water mains was substantially completed at end December 2015. To enable continuous monitoring on the health conditions of the water supply networks, the Water Supplies Department (WSD) plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or to be established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC "Implementation of Water Intelligent Network" to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively.



Prior to WIN being fully put in place, the existing water supply networks will continue to age and deteriorate and it is still necessary to reprovise those water mains which will become aged and susceptible to bursting or leakage in the interim. As a transitional arrangement, WSD will continue to identify water mains of higher risk for reprovise in order to sustain the healthiness of the water supply networks.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)119**

**(Question Serial No. 1730)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (3) Customer Services  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Please provide the following information regarding applications for new meters:

- 1) The number of posts and staff for handling applications for new meters in the past three years and estimated numbers in 2016-17?
- 2) The number of applications for new meters and actual approved new meters in the past three years and estimated numbers in 2016-17?
- 3) What was the average time needed for handling applications for new meters in the past three years? What was the shortest and longest time needed?
- 4) How many complaints were received in handling applications for new meters in the past three years? Has the Department adjusted its performance targets or pledge to improve quality of service? If no, please explain.

Asked by: Hon POON Siu-ping (Member Question No. 10)

Reply:

1) The numbers of staff of the Water Supplies Department (WSD) involved in handling applications for metered supply in the past three years and in 2016-17 are tabulated below:

<b>Post</b>	<b>Number of WSD staff</b>	
	<b>2013-14 to 2015-16</b>	<b>2016-17 (estimate)</b>
Engineer	4.5	7.5
Waterworks Inspector	9.5	13.5
Assistant Waterworks	17	19

Inspector		
Consumer Services Inspector	35	41
Clerical Officer	4	4
Assistant Clerical Officer	9	9
Clerical Assistant	9	9
Total	88	103

As shown in the above table, WSD will add 15 new posts (including 3 Engineers, 4 Waterworks Inspectors, 2 Assistant Waterworks Inspectors and 6 Consumer Services Inspectors) in 2016-17 to handle new applications for water supply in view of the anticipated increase in workload.

2) The number of applications for metered supply to new buildings and village type houses and the number of meters installed for such applications in the past three years and in 2016 are as follows:

	2013	2014	2015	2016 (estimate)
<b>No. of new building applications</b>	330	320	340	370
<b>No. of new village type house applications</b>	1 930	2 170	1 650	2 250
<b>No. of meters installed for new applications</b>	30 000	32 000	31 000	36 000

3) The average, shortest and longest time required for replying to the applications for metered supply to new building projects in the past three years were 13, 2 and 49 working days respectively. The cases requiring longer time than the average were generally cases with a complex design requiring further information or clarification from the applicants or their consultants.

4) In the past three years, there was no complaint received about application for metered supply to new building projects. Nevertheless, WSD from time to time receives and replies to enquiries on progress of applications. WSD's current performance pledge for replying to an application for metered supply to a new building project is 20 working days. For the past three years and up to the present, the performance pledge remains the same. WSD will continually review the performance pledge and will take steps to make appropriate adjustment whenever necessary.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)120**

**(Question Serial No. 2715)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the progressive establishment of the Water Intelligent Network (WIN) to tie in with the completion of the 15-year Replacement and Rehabilitation (R&R) Programme of water mains, would the Government inform this Committee:

1. What is the current progress of studies and testing of WIN? What is the distribution of the planned 2 000 District Metering Areas (DMAs) in the 18 districts? Please list by districts;
2. At present, it is known that three DMAs will be established in Tai Po District. What are the manpower and expenditure involved? What are the dates of project initiation of other DMAs; and
3. During the installation of monitoring, sensing and other kinds of equipment, water supply may need to be stopped. Does the Government have any measures to reduce the relevant effects on residents?

Asked by: Ir Dr Hon LO Wai-kwok (Member Question No. 37)

Reply:

1. The Water Supplies Department (WSD) plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or being established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer

system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks.

The estimated numbers of DMAs under the 18 District Councils are as follows:

<b>District Council</b>	<b>Total</b>
Central & Western	43
Eastern	50
Islands	95
Kowloon City	44
Kwai Tsing	130
Kwun Tong	99
North	185
Sai Kung	247
Sham Shui Po	52
Shatin	196
Southern	119
Tai Po	122
Tsuen Wan	140
Tuen Mun	145
Wan Chai	35
Wong Tai Sin	49
Yau Tsim Mong	32
Yuen Long	217
<b>Total</b>	<b>2 000</b>

2. Subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC “Implementation of Water Intelligent Network” to Category A to construct some 85 DMAs in Kwun Tong, Sha Tin and Tai Po districts and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively. The proposed three DMAs in Tai Po district are among the 85 DMAs. The estimated construction cost of establishing the 85 DMAs is about \$120 million. The remaining 515 DMAs will be established under the remainder of PWP Item No. 196WC.
  
3. In order to install the monitoring, sensing and other kinds of equipment, WSD may have to arrange temporary water supply suspension to the concerned areas. To minimize the impact of water supply suspension on affected consumers, WSD will consult and coordinate with the District Council members, management offices, etc. to make arrangements which will suit the consumers’ typical consumption patterns as far as possible, limit the period of each supply suspension to no more than eight hours and issue notices of water supply suspension at least four days before the suspension. For example, temporary water suspension in industrial or business areas would be arranged on weekends to minimize impact on consumers. WSD will also minimize the number

of water supply suspension by carrying out the connection works for installation of monitoring, sensing and other kinds of equipment at different locations of the same distribution network at the same time as far as possible.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)121**

**(Question Serial No. 2233)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: Not Specified  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the incident of lead in drinking water in public rental housing estates in 2015, please advise on the following:

In November 2015, the Task Force on Investigation of Excessive Lead Content in Drinking Water presented the relevant report with a number of recommendations on preventing the occurrence of similar incidents. Has the Water Supplies Department (WSD) followed up on the recommendations and what is the latest progress?

What was the manpower arranged by the WSD to handle the relevant work in 2015-16? Please provide a breakdown by grades, ranks, civil service posts, non-civil service posts and main duties. Were retired civil servants employed to assist in handling the work? If yes, what were their numbers, appointment periods, grades, posts and main duties and the expenditures involved?

Will the WSD deploy more resources and manpower to enhance inspections related to water supply in public and private buildings? If yes, what are the details?

Asked by: Hon Tony TSE Wai-chuen (Member Question No. 39)

Reply:

The Water Supplies Department (WSD) is closely working in collaboration with the plumbing industry stakeholders on the relevant recommendations of the Task Force on Investigation of Excessive Lead Content in Drinking Water (TF). The latest progress and the manpower involved are tabulated below:-

TF Recommendations which are related to the WSD	Progress to date	WSD staff's involvement
<p>(a) Prevention of the use of leaded solder material and non-conforming pipe fittings:</p> <p>(i) <b>It is recommended that systematic non-destructive tests of solder pipe joints should be conducted during construction (e.g. conducting quick lead test or using portable x-ray fluorescence analyser / spectrometer)</b> which allows handy and quick check on the lead contents of the solder material.</p>	<p>WSD has discussed with the industry stakeholders in this regard and planned to issue good practices/guidelines for, amongst others, conducting non-destructive tests of solder pipe joints during construction works as quick checking of the lead contents of the solder materials on site before completion of the plumbing works.</p>	<p>Existing civil service staff (one senior engineer and one engineer) are deployed to carry out the work in addition to their current duties.</p>
<p>(ii) It is recommended that <b>testing of four additional heavy metals (lead, chromium, cadmium and nickel) should be stipulated for drinking water samples and testing of the lead content in newly installed inside service</b> which would help to reveal the existence of components with severe lead leaching in particular leaded solder joints in the plumbing system.</p>	<p>WSD has already stipulated these testing requirements via Circular Letters Nos. 1/2015 and 5/2015 issued on 13 July 2015 and 28 August 2015 respectively.</p>	<p>The work involved in the preparation and issue of the relevant Circular Letters was minimal.</p>



<b>TF Recommendations which are related to the WSD</b>	<b>Progress to date</b>	<b>WSD staff's involvement</b>
(b) It is recommended that the <b>Water Authority (WA) should explore the use of pipe materials free from the risk of misuse of leaded solder joints in plumbing works</b> , e.g. stipulating the use of silver brazing or compression joints for copper pipes, stainless steel pipes or crosslinked polyethylene pipes.	WSD is studying, in consultation with the industry stakeholders, the applicability of different pipe materials and pipe joints to replace the use of soldering joints in plumbing works.	Existing civil service staff (one senior engineer and one engineer) are deployed to carry out the study in addition to their current duties.
(c) It is recommended that <b>WA should consider reviewing relevant legislation</b> to effect the above recommendations. The WA should also review the Waterworks Ordinance (WVO) and Waterworks Regulations (WWR) to see if improvement is necessary to further strengthen its regulatory regime on the construction of inside service.	WSD has commenced a holistic review on the WVO and WWR to, amongst others, strengthen its regulatory regime on the construction of the inside service. The review will take into account the TF's recommendations.	WSD has arranged the following staff to commence a preliminary review:- <u>Civil Service Posts</u> One senior engineer, one engineer and one mechanical engineer <u>Post-retirement Service Contract Position</u> One staff equivalent to a senior engineer, who is a retired civil servant and the duration of engagement is one year. Related expenditure is approximately \$1.6 million.

In 2016-17, the WSD will create 15 civil service posts (i.e. three engineers, four waterworks inspectors, two assistant waterworks inspectors and six consumer services inspectors) for enhancement of inspections and approval of the inside service in public and private housing estates.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)122**

**(Question Serial No. 2962)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

A: In some of the areas of Hong Kong, fresh water is being used for flushing. Please inform this Committee of the areas where fresh water is being used for flushing, the number of consumers who use fresh water for flushing and the cost per cubic metre on supplying fresh water and salt water for flushing.

B: The project on the use of reclaimed water for flushing in the north-eastern part of the New Territories has been in the works for years. Could the Department inform this Committee of the current works progress, estimated date of completion, staff establishment and expenditure?

C: What is the percentage of using reclaimed water for flushing in Hong Kong at present? Does the Department plan to extend the plan of using reclaimed water for flushing beyond the north-eastern part of the New Territories?

D: It is learned that a closed system is used for water supply for flushing. If the Department implements a plan of using reclaimed water for flushing in the North District, the entire water supply network may need to be revamped. Could the Department inform this Committee of the estimated expenditure for the implementation of the plan and the length of water pipes required for replacement?

Asked by: Hon Alvin YEUNG Ngok-kiu (Member Question No. 17)

Reply:

A. At present, fresh water is used for toilet flushing in the areas where salt water supply is not yet available. The main areas currently supplied with fresh water for flushing are the Peak, Southern District, Sai Kung, Outlying Islands and Northern District. As at 29 February 2016, there were around 34 500 accounts using fresh water for toilet

flushing. The average production cost per cubic metre of fresh water supply and sea water supply at 2015-16 price level are estimated to be about \$8.7 and \$3.9 respectively.

- B. We plan to effect reclaimed water supply to the north-eastern part of the New Territories for toilet flushing and other non-potable uses in phases starting with Sheung Shui and Fanling from 2022 onwards.

Infrastructures necessary for the supply of reclaimed water to Sheung Shui and Fanling include a service reservoir, hypo-chlorination facilities, a pumping station, trunk and distribution mains.

We have commenced the design of the service reservoir and the associated trunk mains (using in-house resources) for completion of the infrastructures in 2020. As regards the remaining infrastructures (including hypo-chlorination facilities, a pumping station and distribution mains), they are currently under investigation/planning and we plan to complete the construction works in phases starting from 2022.

Concurrently, we are carrying out a consultancy study on the financial and legal aspects of the supply of reclaimed water. This study is expected to be completed later this year.

In 2016-17, the in-house manpower involved in the infrastructures projects and the consultancy study is about eight professionals and the annual staff cost is about \$8.5 million.

- C. At present, we are supplying either fresh water or seawater for toilet flushing, but not reclaimed water. Apart from supplying reclaimed water to the north-eastern part of the New Territories for non-potable uses, we will explore the feasibility of supplying reclaimed water for toilet flushing to other areas which are outside seawater supply zones in order to save precious fresh water resource.
- D. Fresh water is being supplied to Sheung Shui and Fanling for both potable and non-potable uses without a dedicated flushing water supply network. To effect reclaimed water supply to Sheung Shui and Fanling for toilet flushing, it is necessary to provide a new separate flushing water supply network. The separate flushing water supply network is currently under investigation/planning. Details of the separate flushing water supply network and the associated expenditure will be ascertained in due course.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)123**

**(Question Serial No. 2963)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Water Supplies Department (WSD) is responsible for ensuring that the purity, wholesomeness and safety of treated fresh water conform to international standards, i.e. the World Health Organization's Guidelines for Drinking-water Quality (WHO Guidelines), in all respects and at all times. The WSD is also responsible for ensuring that the quality of salt water for flushing conforms to the WSD's standards. Last year, lead content was found in fresh water in many public rental housing estates in Hong Kong. Furthermore, many residents of Tai Po, Sha Tin and Ma On Shan have reflected on the poor quality of flushing water though some of the buildings concerned have been recognised by the Quality Water Supply Scheme for Buildings of the WSD. Regarding these, please respond to the following:

**Fresh Water**

A: How many buildings were awarded certificates in the "Quality Water Supply Scheme for Buildings – Fresh Water" each year in the past five years? How many buildings did the WSD visit for inspection of water quality of fresh water tanks each year? What were the manpower and expenditures involved? What was the expenditure for sample tests on heavy metal content?

B: Referring to the above question, under the "Quality Water Supply Scheme for Buildings – Fresh Water", how many residential units did the WSD visit for inspection of fresh water quality each year in the past five years? What were the manpower and expenditures involved? What was the expenditure for sample tests on heavy metal content?

C: Since the incident of lead found in drinking water on 5 July 2015, the WSD has deployed staff to conduct home visits for water inspection. How many flats were inspected by housing estates? What was the additional expenditure involved?

D: According to “Dongjiang Water Quality for the Period of October 2014 - September 2015 as received in Hong Kong at Muk Wu Pumping Station”, the content of dissolved oxygen, 5-day biochemical oxygen demand, total phosphorus and faecal coliforms exceeded the Environmental Quality Standards for Surface Water (GB3838-2002). Currently, before Dongjiang water is transferred to Hong Kong’s water supply system, what are the parameters for the tests conducted by the Department? What standards are adopted for water quality? What were the expenditures for purification of Dongjiang water in the recent five years?

Asked by: Hon Alvin YEUNG Ngok-kiu (Member Question No. 18)

Reply:

A. The number of certificates awarded in “Quality Water Supply Scheme for Buildings – Fresh Water” and the number of inspections of plumbing system including water tanks for the buildings in the past five years are provided as follows:

Year	No. of new/renewal certificates awarded <sup>1</sup>	No. of valid certificates as at year-end <sup>1</sup>	No. of inspections of plumbing system for the buildings
2011	2 715	3 653	35
2012	1 875	3 626	21 <sup>3</sup>
2013	2 245	3 704	15
2014	2 269	4 010	17
2015	1 108 <sup>2</sup>	3 974	9

Note:

1 One certificate may cover more than one building and we do not maintain record of the number of buildings covered under the scheme. Instead we have record to show that the scheme has covered about 45% of the total households in Hong Kong.

2 In July 2015, we decided to enhance the scheme by extending the scope of water sampling and including four heavy metals as additional testing parameters. To prepare for existing certificate holders and new applicants to join the enhanced scheme, we have withheld processing of new application to join the scheme until December 2015 when the enhanced scheme is launched. Thus, the number of certificates awarded in 2015 is for applications processed up to July 2015.

3 The number of inspections is based on application number but not the certificate number. One application may involve more than ten certificates.

Under the requirements of the old scheme, the applicant is required to arrange cleansing of water tanks and inspection of the communal plumbing system at least once quarterly. Besides, the applicant is required to arrange collection of water samples at communal plumbing system for physical, chemical and bacteriological analyses annually for new application or biannually for renewed application. For auditing purpose, we will randomly select applications and arrange visual inspection of the communal plumbing system including water tanks. As the staff carrying out the audits are required to perform other duties, no separate costing is readily available.

B. As mentioned in part A above, under the old scheme in the past, the applicant is required to arrange collection of water samples at communal plumbing system for testing and we will not collect water samples at individual households for audit check. Thus, we have not spent any resources nor incurred any expenditure in testing of water samples for individual households in the past five years under the scheme.

C. A total of about 6 000 samples from about 6 000 households in the Public Rental Housing Estates were taken by the Water Supplies Department (WSD) after the lead in drinking water incidents in which about 2 500 samples were tested by WSD whilst the rest were tested by the Government Laboratory. As some of the staff in performing the tasks of collection and examination of water samples are required to perform other duties and no separate costing exercise has been conducted, the total costs attributable to these tasks are not readily available.

D. At the Muk Wu Pumping Station where DongJiang (DJ) water is delivered to Hong Kong, the quality of DJ water is monitored round the clock through on-line water quality monitoring systems for real-time measurement of various parameters including ammoniacal nitrogen, dissolved oxygen, pH, conductivity, salinity, chlorophyll and turbidity. Samples of DJ water are also taken on a regular basis for physical, chemical, bacteriological and radiological analyses, etc.

The DJ water quality supplied to Hong Kong is monitored at the Muk Wu Pumping Station for compliance with the Type II waters in the Environmental Quality Standards for Surface Water (GB 3838-2002) stipulated in the Supply Agreement. The Type II standard is the highest applicable water quality standard for abstraction for human consumption.

According to the WSD's routine water quality monitoring results, the quality of DJ water delivered to Hong Kong has remained stable and of good quality. All monitoring parameters comply with the national standard GB3838-2002, which is based on annual average of monitoring data in accordance with international practice. A summary of DJ water quality as received at Muk Wu Pumping Station in comparison with national standard GB3838-2002 is available from WSD's website at [http://wcmshtml.wsd.gov/en/water\\_resources/water\\_quality/water\\_quality\\_monitoring\\_data/index.html](http://wcmshtml.wsd.gov/en/water_resources/water_quality/water_quality_monitoring_data/index.html). Occasional deviations of certain water quality parameters from the national standard GB3838-2002 do not necessarily mean that the untreated DJ water is not suitable for the abstraction for human consumption. All raw water including DJ water has to go through a series of stringent treatment processes at water treatment works, including filtration and disinfection, prior to distribution to consumers.

Treatment cost for raw water comprises elements of cost of raw water, collection, treatment, distribution and customer services. Raw water entering water treatment works includes locally collected raw water and DJ water which is treated simultaneously. The cost attributable to treatment of DJ water alone is not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)124**

**(Question Serial No. 2964)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

- 1: In “Quality Water Supply Scheme – Flushing Water”, what are the manpower and expenditures involved in inspections of water tanks in the flushing water supply system of public rental housing estates?
- 2: In “Quality Water Supply Scheme – Flushing Water”, what are the manpower and expenditures involved in random inspections of the flushing water supply system of households in public rental housing estates?
- 3: Seawater is used for toilet flushing in some areas of Hong Kong. Marine pollution directly affects quality of water supply. What are the manpower and expenditures involved in the communication between the Water Supplies Department (WSD) and Environmental Protection Department (EPD)?
- 4: What were the manpower and expenditures involved in the WSD’s testing of the flushing water for 5-Day biochemical oxygen demand and chemical oxygen demand in the past five years?
- 5: The project on the use of reclaimed water for flushing in the north-eastern part of the New Territories has been planned for years. How much of the planning is complete? What is the percentage of use of reclaimed water for toilet flushing in Hong Kong in the past five years? What is the estimated time for the full extension of the use of reclaimed water and salt water for toilet flushing in the North New Territories?
- 6: It is learned that a closed system is currently used for water supply for toilet flushing. Supplying reclaimed water into the flushing water supply system may warrant water pressure adjustments or replacement of water pipes. What are the estimated additional expenditures?

Asked by: Hon Alvin YEUNG Ngok-kiu (Member Question No. 19)

Reply:

1. Under the requirements of the Quality Water Supply Scheme for Buildings – Flushing Water (the scheme), applicants are required to arrange cleansing of water tanks at least once every 6 months and inspection of the communal plumbing system at least once quarterly but collection of water samples for testing is not required due to less health concern on the quality of flushing water. We will randomly select about 4% of applications and arrange visual inspection of the communal plumbing system including water tanks for auditing purpose. One inspectorate officer is deployed to perform the audit in addition to his normal duties for the inspection of the inside service in private buildings and public rental housing estates. We have not separated the cost attributable to the task. Details of our inspection since the launch of the scheme in July 2013 are as follows:

<i>Year</i>	<i>No. of inspections</i>
2013	4
2014	11
2015	7

2. Applicants are not required under the scheme to collect water samples from individual units of the buildings for testing as there is less health concern on the quality of flushing water and thus no cost is attributable to the task. Instead, applicants are required to arrange cleansing of water tanks at least once every 6 months and inspection of the communal plumbing at least once quarterly.

3. While the Environmental Protection Department (EPD) monitors seawater quality under the “Marine Water Quality Monitoring” programme at various marine locations for environmental protection purposes, WSD monitors seawater quality at specific abstraction points of saltwater pumping stations to ensure adequate hygiene and sanitation for the flushing water supply.

As the seawater monitoring of EPD and the Water Supplies Department (WSD) serve different purposes and at different locations, communication between the two departments on this aspect is only on needed basis.

4. About 3 300 salt water samples were tested for biochemical oxygen demand (BOD5) from April 2010 to March 2015. Testing of Chemical oxygen demand (COD) is normally not required in the routine testing programme for monitoring of seawater quality for flushing water supply.

As regards the manpower and expenditure, two Waterworks Chemists, five Engineering Laboratory Technicians, four Water Samplers and three Laboratory Attendants are involved in the collection and analysis of salt water samples for BOD5. As BOD5 together with other monitoring parameters is an integral part of the water quality monitoring for fresh and flushing water supply, no separate costs are readily available for BOD5 testing of salt water samples.



5. WSD has been supplying either fresh water or seawater for toilet flushing in Hong Kong. There is no reclaimed water supply by WSD in the past five years.

As regards reclaimed water supply to the north-eastern part of the New Territories for toilet flushing and other non-potable uses, we plan to effect the water supply in phases starting with Sheung Shui and Fanling from 2022 onwards. We have commenced the design of a service reservoir and the associated trunk mains with a view to effecting the supply of reclaimed water to Sheung Shui and Fanling starting from 2022. We expect that the supply of reclaimed water will progressively be extended in line with the completion of the developments in the north-eastern part of the New Territories.

Concurrently, we are carrying out a consultancy study on the financial and legal aspects of the supply of reclaimed water. This study is expected to be completed later this year.

6. Fresh water is being supplied to Sheung Shui and Fanling for both potable and non-potable uses without a dedicated flushing water supply network. To effect reclaimed water supply to Sheung Shui and Fanling for toilet flushing, it is necessary to provide a new separate flushing water supply network. The separate flushing water supply network is currently under investigation/planning. Details of the separate flushing water supply network and the associated estimated expenditure will be worked out in due course.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)125**

**(Question Serial No. 2979)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Frequent water main bursts in Tai Po District caused much inconvenience to the public. Regarding this, does the Water Supplies Department (WSD) plan to replace old water mains in each of the 18 districts to reduce the incidence of water main bursts owing to ageing?

Please list the starting dates of replacement programme of water mains, estimated dates of completion, works progress and works expenditures by the 18 districts.

Asked by: Hon Alvin YEUNG Ngok-kiu (Member Question No. 36)

Reply:

To reduce the risk of water main burst, a 15-year programme for the Replacement and Rehabilitation (R&R) of 3 000 km of selected aged water mains in 18 districts of Hong Kong commenced in 2000. The R&R programme was substantially completed in end December 2015 with 2 939 km of water mains replaced/rehabilitated (98%). The remaining works are anticipated to be completed by end 2016.

Up to end January 2016, the actual expenditure of the R&R programme is approximately \$19.31 billion and the progress of R&R of water mains in 18 districts of Hong Kong is provided as follows:

	<b>District</b>	<b>Total length of water mains under R&amp;R (km)</b>	<b>Commence ment date of R&amp;R</b>	<b>Completed length of water mains under R&amp;R (km)</b>	<b>Estimated remaining length of water mains to be replaced/rehabilitated (km)</b>
<b>Hong Kong</b>	Central & Western	170	Oct 2003	168	2
	Wan Chai	101	Oct 2003	100	1
	Eastern	122	Aug 2001	120	2
	Southern	109	Oct 2003	106	3
<b>Kowloon</b>	Kwun Tong	150	Jun 2004	149	1
	Wong Tai Sin	102	Feb 2002	101	1
	Kowloon City	216	Feb 2002	212	4
	Yau Tsim Mong	199	Dec 2000	198	1
	Sham Shui Po	148	Feb 2002	146	2
<b>New Territories</b>	Sai Kung	150	Aug 2003	146	4
	Sha Tin	193	Dec 2000	185	8
	Tai Po	146	Dec 2000	144	2
	North	231	Dec 2000	228	3
	Yuen Long	434	Feb 2002	426	8
	Tuen Mun	194	Aug 2003	190	4
	Tsuen Wan	90	Dec 2006	89	1
	Kwai Tsing	135	Feb 2004	133	2
Islands	110	Jun 2003	109	1	
	<b>Overall</b>	<b>3 000</b>	<b>Dec 2000</b>	<b>2 950</b> (98.3%)	<b>50</b> (1.7%)

Since the scope of works under most of the R&R contracts has covered water mains in more than one district, the actual expenditures under R&R programme broken down by 18 districts of Hong Kong are not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)235**

**(Question Serial No. 3989)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Secretary for Development says, “the Water Supplies Department (WSD) plans to progressively implement the Water Intelligent Network (WIN), which will involve the division of the territory into some 2 000 district metering areas (including 650 existing district metering areas). Installing sensors in the water supply network is like carrying out ‘minimally invasive surgery’, where small-scale excavations will be carried out on the road surface to find the right water mains for installing sensors. ”

Why does the Budget Speech says that “Government will implement the Water Intelligent Network project in phases”, but the estimated water main leakage rate in 2016-17 is even higher than that in 2015-16, i.e. 15%?

Please inform this Committee: what is the reserved provision for WIN in 2016-17? What is the manpower involved? Why are the “WIN items” not mentioned under subhead of “Head 194 – Water Supplies Department”?

Asked by: Hon Albert HO Chun-yan (Member Question No. 372)

Reply:

The substantial completion of the Replacement and Rehabilitation (R&R) Programme of water mains at end December 2015 has brought about significant improvement to the existing water supply networks both in terms of reduction of number of main bursts and leakage rate. However, the existing water mains, particularly those laid before 2000 (when the R&R Programme commenced) and not included in the R&R Programme, will continue to age and deteriorate. Therefore, it is anticipated that the leakage rate will increase slightly in 2016 after the completion of the R&R Programme.

The Water Supplies Department (WSD) plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or being established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks. When WIN is fully implemented, it will help determine the most effective network management measures (including pressure management, active leakage control, reprovisioning of water mains in poor condition, etc.) for maintaining the healthiness of the water supply networks, thereby helping reduce the leakage rate. The adoption of these most effective network management measures under WIN would be more cost-effective than relying mainly on further large scale R&R programmes, particularly when the water supply networks have already been improved significantly.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC “Implementation of Water Intelligent Network” to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively. Some of these works will be implemented by consultants. The number of in-house staff involved in these works is about five. The preliminary estimate of the total cost of establishing all the DMAs and the intelligent network management computer system under the said PWP Item is about \$1,200 million. The corresponding estimated expenditure in 2016-17 is about \$22 million.

Prior to WIN being fully put in place, the existing water supply networks will continue to age and deteriorate and it is still necessary to reprovision those water mains which will become aged and susceptible to bursting or leakage in the interim. As a transitional arrangement, WSD will continue to identify water mains of higher risk for reprovisioning in order to sustain the healthiness of the water supply networks.

Under “Head 194 – Water Supplies Department”, WSD has indicated in Section 6 that “During 2016-17, the Department will establish progressively the Water Intelligent Network which dovetails with the completion of the 15-year programme for replacement and rehabilitation of water mains.”

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)236**

**(Question Serial No. 4002)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not specified  
Programme: Not specified  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

According to Paragraph 148 of the Budget Speech in 2015-16, the Financial Secretary mentioned, "asked all policy bureaux to achieve more efficient use of resources through re-engineering and re-prioritising. I have also launched the '0-1-1' envelope savings programme to reduce operating expenditure by a total of two per cent over the next three financial years. Resources saved will be re-allocated for new services." Please inform this Committee of how the Government will implement the "0-1-1" programme in 2015-16, 2016-17, 2017-18, what services will be affected and what expenditure details are involved.

Asked by: Hon James TO Kun-sun (Member Question No. 55)

Reply:

In view of the "0-1-1" envelope savings programme, the Water Supplies Department (WSD) has comprehensively reviewed the existing scope of services and work priorities, and will implement re-engineering and re-prioritising measures for achieving efficiency gains, such as to implement a host of rolling energy management programmes to continuously reduce energy use over the whole spectrum of operations for water supply to customers. In 2016-17, no essential services provided by WSD will be affected. In fact, the estimate for WSD for 2016-17 is higher than that for 2015-16 by 3.5% with new resources having been allocated to WSD for meeting operational needs and delivering new/improved services.

- End -

**CONTROLLING OFFICER'S REPLY**

<b>DEVB(W)237</b>
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**(Question Serial No. 4131)**

Head: (194) Water Supplies Department

Subhead (No. & title): (000) Operational Expenses

Programme: Not specified

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

On engagement of outsourced workers, please provide the following information:

	2015-16 (the latest position)
Number of outsourced service contracts	( )
Total expenditure for outsourced service providers	( )
Duration of service for each outsourced service provider	( )
Number of workers engaged through outsourced service providers	( )
Details of the positions held by outsourced workers (e.g. customer service, property management, security, cleansing and information technology)	
Monthly salary range of outsourced workers	
• \$30,001 or above	( )
• \$16,001 - \$30,000	( )
• \$8,001 - \$16,000	( )
• \$6,501 - \$8,000	( )
• \$6,240 - \$6,500	( )
• less than \$6,240	( )
Length of service of outsourced workers	
• 15 years or above	( )
• 10 - 15 years	( )
• 5 - 10 years	( )
• 3 - 5 years	( )
• 1 - 3 years	( )
• less than 1 year	( )

	2015-16 (the latest position)
Percentage of outsourced workers against the total number of staff in the department	( )
Percentage of expenditure for outsourced service providers against the total staff costs in the department	( )
Number of workers who received severance payment / long service payment / contract gratuity	( )
Amount of severance payments / long service payments / contract gratuities paid	( )
Number of workers with severance payment / long service payment offset by or with contract gratuity calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Amount of severance payments / long service payments offset by and amount of contract gratuities calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Number of workers with paid meal break	( )
Number of workers without paid meal break	( )
Number of workers working 5 days per week	( )
Number of workers working 6 days per week	( )

( ) denotes changes in percentage as compared with 2014-15

Asked by: Hon WONG Kwok-hing (Member Question No. 112)

Reply:

The Water Supplies Department uses a wide range of outsourced services, such as cleansing and security, information technology support, etc. The information for 2015-16 (as at or up to 31.12.2015, as appropriate) is provided below.

**(a) Number of outsourced service contracts**

<b>2015-16</b> (as at 31.12.2015)
49 (+25.6%)

**(b) Total expenditure for outsourced service providers**

<b>2015-16</b> (up to 31.12.2015) (\$ million)
58.4 (+5.0%)



(c) **Duration of outsourced service contracts**

<b>Duration of service</b>	<b>Number of contracts in 2015-16 (as at 31.12.2015)</b>
6 months or less	0 (-)
Over 6 months to 1 year	29 (+31.8%)
Over 1 year to 2 years	15 (+25.0%)
Over 2 years	5 (0%)
<b>Total:</b>	<b>49 (+25.6%)</b>

(d) **Total number of workers engaged through outsourced service providers** <sup>Note</sup>

<b>2015-16</b> (as at 31.12.2015)
282 (-1.4%)

Note : Only those contracts with specified number of staff to be provided are counted.

(e) **Work nature**

<b>Nature of service contracts</b>	<b>Number of outsourced workers in 2015-16 (as at 31.12.2015)</b>
Security	104 (0%)
Cleansing	56 (+3.7%)
Information Technology	17 (0%)
Drivers	97 (-5.8%)
Logistics (Store support)	8 (0%)
<b>Total:</b>	<b>282 (-1.4%)</b>

(f) **Salaries of outsourced workers**

After the implementation of the Statutory Minimum Wage (SMW) on 1 May 2011, for service contracts on security and cleansing, contractors have been required to pay their workers wages not lower than the prevailing SMW.

For other service contracts, we specify and require only the service to be provided. We do not have information about the salaries of the workers employed by the contractors.

(g) **Length of service of outsourced workers**

The mode of using outsourced workers is that government departments and the contractor enter into a service contract under which the contractor will supply manpower as and when required. As long as the requirements of the government department (in terms of the number of outsourced workers and the qualifications and/or experience required from outsourced workers) are satisfied, the contractor may

arrange any of their employees to work in the department or arrange replacement outsourced workers during the contract period for different reasons. Therefore, we do not have information on the years of service of outsourced workers who are employees of the contractors and are at the disposal of the latter.

**(h) Percentage of outsourced workers against the total number of staff in the Department**

<b>2015-16</b> (as at 31.12.2015)
6.2%

**(i) Percentage of expenditure for outsourced service providers against the total staff costs in the Department**

<b>2015-16</b> (up to 31.12.2015)
4.9%

**(j) Severance payments / long-service payments / contract gratuities paid to outsourced workers**

The department entered into contracts with the outsourced contractors for provision of services as required by the department during the contract period. The contractual relationship of the outsourced workers is with the outsourced contractors which have to fulfil the obligations of employers under the relevant laws including the Employment Ordinance (Cap. 57) and Mandatory Provident Fund Schemes Ordinance (Cap. 485). We do not have information on the severance payments / long service payments / contract gratuities paid by the contractors to their workers.

**(k) Meal break for outsourced workers**

The outsourced workers are employed by the contractors, and whether the meal break is paid or not is governed by the employment contract between the two parties. We do not have information on this matter.

**(l) Working days per week**

Working days per week	Number of outsourced workers in 2015-16 (as at 31.12.2015)
5	145 (-4.0%)
6	137 (+1.5%)
<b>Total:</b>	<b>282 (-1.4%)</b>

*Percentages in ( ) denote comparison with 2014-15 (as at or up to 31.12.2014, as appropriate). A dash denotes that the relevant figure in 2014-15 is zero.*

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)238**

**(Question Serial No. 4132)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: Not specified  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

On engagement of agency workers, please provide the following information:

	2015-16 (the latest position)
Number of contracts with employment agencies	( )
Contract sum paid to each employment agency	( )
Duration of service for each employment agency	( )
Number of agency workers	( )
Details of the positions held by agency workers	
Monthly salary range of agency workers	
• \$30,001 or above	( )
• \$16,001 - \$30,000	( )
• \$8,001 - \$16,000	( )
• \$6,501 - \$8,000	( )
• \$6,240 - \$6,500	( )
• less than \$6,240	( )
Length of service of agency workers	
• 15 years or above	( )
• 10 - 15 years	( )
• 5 - 10 years	( )
• 3 - 5 years	( )
• 1 - 3 years	( )
• less than 1 year	( )
Percentage of agency workers against the total number of staff in the department	( )

	2015-16 (the latest position)
Percentage of expenditure for employment agencies against the total staff costs in the department	( )
Number of workers who received severance payment / long service payment / contract gratuity	( )
Amount of severance payments / long service payments / contract gratuities paid	( )
Number of workers with severance payment / long service payment offset by or with contract gratuity calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Amount of severance payments / long service payments offset by and amount of contract gratuities calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Number of workers with paid meal break	( )
Number of workers without paid meal break	( )
Number of workers working 5 days per week	( )
Number of workers working 6 days per week	( )

( ) denotes changes in percentage as compared with 2014-15

Asked by: Hon WONG Kwok-hing (Member Question No. 113)

Reply:

The information in respect of the use of agency workers for 2015-16 (as at or up to 30.9.2015, as appropriate) is provided below. This information excludes services provided under term contracts centrally administered by the Office of the Government Chief Information Officer.

**(a) Number of contracts with employment agencies (EAs)**

<b>2015-16</b> (as at 30.9.2015)
10 (-16.7%)

**(b) Contract sum and duration of services**

Contract sum	Number of contracts in 2015-16 (as at 30.9.2015)
Less than \$0.5 million	0 (-)
\$0.5 million to \$1 million	1 (-50.0%)
Over \$1 million	9 (-10.0%)
<b>Total:</b>	<b>10 (-16.7%)</b>

<b>Duration of services</b>	<b>Number of contracts in 2015-16 (as at 30.9.2015)</b>
6 months or less	0 (-)
Over 6 months to 1 year	9 (-25.0%)
Over 1 year to 2 years	1 (-)
Over 2 years	0 (-)
<b>Total:</b>	<b>10 (-16.7%)</b>

**(c) Number of workers and their job categories**

	<b>2015-16 (as at 30.9.2015)</b>
<b>Number of workers</b>	77 (-3.8%)

<b>Job categories</b>	<b>Number of agency workers in 2015-16 (as at 30.9.2015)</b>
Backend office support	0 (-)
Technical services	77 (-3.8%)
<b>Total:</b>	<b>77 (-3.8%)</b>

**(d) Monthly salary range of agency workers**

With the implementation of the Statutory Minimum Wage (SMW) since 1 May 2011, bidders are required to pay their agency workers salaries not lower than the average monthly wages for “General Worker for all selected industries” in the Quarterly Report for December 2010, unless it is overtaken by the prevailing SMW plus one paid rest day in every period of seven days. As at 30 September 2015, the minimum monthly wage specified in the contracts was \$8,397.

**(e) Length of service of agency workers**

The mode of using agency workers is that a government department and an EA enter into a service contract under which the EA will supply manpower as and when required. As long as the requirements of the government department (in terms of the number of agency workers and the qualifications and/or experience required from agency workers) are satisfied, the EA may arrange any of their employees to work in the department or arrange replacement agency workers during the contract period for different reasons. Therefore, we do not have information on the years of service of agency workers who are employees of the EAs and are at the disposal of the latter.

**(f) Percentage of agency workers against the total number of staff in the Department**

<b>2015-16</b> (as at 30.9.2015)
1.7%

**(g) Percentage of expenditure for EAs against the total staff costs in the Department**

<b>2015-16</b> (up to 30.9.2015)
1.0%

**(h) Severance payments / long service payments / contract gratuities paid to agency worker by employment agency**

The department entered into contracts with the EAs for provision of services as required by the department during the contract period. The contractual relationship of the agency workers is with the EAs which have to fulfil the obligations of employers under the relevant laws including the Employment Ordinance (Cap. 57) and Mandatory Provident Fund Schemes Ordinance (Cap. 485). We do not have information on the severance payments / long service payments / contract gratuities paid by the EAs to their workers.

**(i) Meal break for agency workers**

The agency workers are employed by the EAs, and whether the meal break is paid or not is governed by the employment contract between the two parties. We do not have information on this matter.

**(j) Working days per week <sup>Note</sup>**

<b>Working days per week</b>	<b>Number of agency workers in 2015-16 (as at 30.9.2015)</b>
5	71 (0%)
6	0 (-)
<b>Total:</b>	<b>71 (0%)</b>

Note: For full-time workers only.

*Percentage in ( ) denotes comparison with 2014-15 (as at or up to 30.9.2014, as appropriate). A dash denotes that the relevant figure in 2014-15 is zero.*

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)239**

**(Question Serial No. 4133)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: Not specified  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding the employment of non-civil service contract (NCSC) staff, please provide the following information:

	2015-16 (the latest position)
Number of NCSC staff	( )
Details of the positions held by NCSC staff	
Total expenditure on salaries for NCSC staff	( )
Monthly salary range of NCSC staff	
• \$30,001 or above	( )
• \$16,001 - \$30,000	( )
• \$8,001 - \$16,000	( )
• \$6,501 - \$8,000	( )
• \$6,240 - \$6,500	( )
• less than \$6,240	( )
Length of service of NCSC staff	
• 15 years or above	( )
• 10 - 15 years	( )
• 5 - 10 years	( )
• 3 - 5 years	( )
• 1 - 3 years	( )
• less than 1 year	( )
Number of NCSC staff successfully appointed as civil servants	( )
Percentage of NCSC staff against the total number of staff in the department	( )



	2015-16 (the latest position)
Percentage of staff costs for NCSC staff against the total staff costs in the department	( )
Number of NCSC staff who received severance payment / long service payment / contract gratuity	( )
Amount of severance payments / long service payments / contract gratuities paid	( )
Number of NCSC staff with severance payment / long service payment offset by or with contract gratuity calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Amount of severance payments / long service payments offset by and amount of contract gratuities calculated from the accrued benefits attributable to employer's contributions to MPF	( )
Number of NCSC staff with paid meal break	( )
Number of NCSC staff without paid meal break	( )
Number of NCSC staff working 5 days per week	( )
Number of NCSC staff working 6 days per week	( )

( ) denotes changes in percentage as compared with 2014-15

Asked by: Hon WONG Kwok-hing (Member Question No. 114)

Reply:

Information on the employment of full-time non-civil service contract (NCSC) staff for 2015-16 is provided below.

**(a) Job nature**

Job nature	Number of NCSC staff in 2015-16 (as at 31.12.2015)
Professional	7 (0%)
Technical & inspectorate	39 (+69.6%)
General administration	80 (+1.3%)
<b>Total:</b>	<b>126 (+15.6%)</b>

**(b) Total expenditure on salary of NCSC staff**

<b>2015-16</b> (up to 31.12.2015) (\$ million)
26.8 (+5.1%)

**(c) Monthly salary and length of service**

<b>Monthly salary</b>	<b>Number of NCSC staff in 2015-16 (as at 31.12.2015)</b>
\$30,001 or above	30 (+42.9%)
\$16,001 to \$30,000	49 (+36.1%)
\$8,001 to \$16,000	47 (-9.6%)
\$6,501 to \$8,000	0 (-)
\$6,240 to \$6,500	0 (-)
Less than \$6,240	0 (-)
<b>Total:</b>	<b>126 (+15.6%)</b>

<b>Length of services</b>	<b>Number of NCSC staff in 2015-16 (as at 31.12.2015)</b>
15 years or above	10 (-)
10 years to less than 15 years	19 (-29.6%)
5 years to less than 10 years	4 (-60%)
3 years to less than 5 years	24 (-14.3%)
1 year to less than 3 years	22 (-31.3%)
Less than 1 year	47 (+291.7%)
<b>Total:</b>	<b>126 (+15.6%)</b>

**(d) Number of NCSC staff appointed as civil servants** <sup>(Note 1)</sup>

<b>2015-16</b> (up to 31.12.2015)
10 (+25%)

Note 1: This refers to the number of Water Supplies Department's (WSD's) NCSC staff appointed as civil servants in WSD. The said NCSC staff have joined the civil service through an open, fair and competitive process.

**(e) Percentage of NCSC staff against the total number of staff in the Department**

<b>2015-16</b> (as at 31.12.2015)
2.8 %

**(f) Percentage of staff costs for NCSC staff against the total staff costs in the Department**

<b>2015-16</b> (up to 31.12.2015)
1.9%

**(g) Number of NCSC staff who received severance payment / long service payment / contract gratuity**

<b>2015-16</b> (up to 31.12.2015)
102 (+6.3%)

**(h) Amount of severance payments / long service payments / contract gratuities paid**

<b>2015-16</b> (up to 31.12.2015) (\$ million)
\$2.8 (+47.4%)

**(i) Number of NCSC staff with severance payment / long service payment offset by or with contract gratuity calculated from the accrued benefits attributable to employer's contributions to the Mandatory Provident Fund (MPF) <sup>(Note 2)</sup>**

<b>2015-16</b> (up to 31.12.2015)
0

**(j) Amount of severance payments / long service payments offset by and amount of contract gratuities calculated from the accrued benefits attributable to employer's contributions to MPF <sup>(Note 2)</sup>**

<b>2015-16</b> (up to 31.12.2015) (\$ million)
0

Note 2: According to the Civil Service Bureau's guidelines on employment of NCSC staff, the contract gratuity for NCSC staff, plus the Government's MPF contributions in respect of the NCSC staff, should not be more than 10% (for non-skilled jobs) or 15% (for skilled jobs) of the total basic salary drawn during the contract period. The Government will not make reference to accrued benefits in calculating contract gratuity for NCSC staff.

**(k) Paid or unpaid meal break**

<b>Meal break</b>	<b>Number of NCSC staff in 2015-16 (as at 31.12.2015)</b>
Paid	98 (+6.5%)
Unpaid	28 (+64.7%)
<b>Total:</b>	<b>126 (+15.6%)</b>

**(l) Working days per week** <sup>(Note 3)</sup>

<b>Working days per week</b>	<b>Number of NCSC staff in 2015-16 (as at 31.12.2015)</b>
5 <sup>(Note3)</sup>	126 (+15.6%)
6	0 (-)
<b>Total:</b>	<b>126 (+15.6%)</b>

Note 3: Including staff who are rostered to work shift for 5 days or less in a week.

*Percentages in ( ) denote comparison with 2014-15 (as at or up to 31.12.2014, as appropriate). A dash denotes that the relevant figure in 2014-15 is zero.*

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)240**

**(Question Serial No. 4247)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government is constructing a new water desalination plant in Tseung Kwan O. The design work for the first stage of the plant commenced at the end of 2015. The output of the plant, with a water production capacity of 130 000 cubic metres per day, which can be further expanded to 270 000 cubic metres per day, will account for 5% to 10% of Hong Kong's total fresh water consumption. What are the estimated expenditure, manpower arrangements and work progress? Will the Government reserve resources for studies on construction of further water desalination plants to increase the proportion of fresh water supply. If yes, what are the details? If no, what are the reasons? Furthermore, since the new water desalination plant can supply 5% to 10% of Hong Kong's total fresh water consumption, will the Government reduce the purchase of Dongjiang water? If yes, what is the estimated saving of expenditure? If no, what are the reasons?

Asked by: Dr Hon LAM Tai-fai (Member Question No. 48)

Reply:

We have reserved a 10-hectare site at Tseung Kwan O (TKO) to construct a desalination plant in two stages. The output capacity of the plant of the two stages are 135 million litres per day (Mld) and 270 Mld respectively to meet about 5 to 10 percent of the overall fresh water demand of Hong Kong. The estimated expenditures of the design work for the first stage of the plant in 2015-16 and 2016-17 are \$7.7 million and \$80.2 million respectively. In regard to the manpower for the design work, we engaged consultants in November 2015 to carry out the work, which has been progressing as scheduled for target completion in about 2017.

We have commissioned consultants to conduct a review on the Total Water Management Strategy, which will update the strategy and look into various demand and supply measures including the appropriate time to construct the second stage of the desalination plant at TKO

and the need for more desalination plants to increase the proportion of fresh water supply from desalination. The review study has commenced in October 2014 for completion in 2017. We will study the review findings before deciding on the way forward.

In regard to the quantity of Dongjiang (DJ) water to be purchased for the next term of agreement from 2018 to 2020, we will carry out a detailed analysis in due course on the fresh water demand and supply forecast with a view to meeting the need of Hong Kong with 99% reliability in water supply. At this stage, it is too early to forecast the quantity of DJ water to be purchased for Hong Kong by that time. It is also relevant to note that currently the estimated unit water production cost of the proposed desalination plant at TKO is about \$12.6 per cubic metre (at 2013-14 price level), which is higher than the unit water production cost using DJ water at \$8.6 per cubic metre (at the same price level).

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)241**

**(Question Serial No. 4264)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Budget mentions that the Department takes test samples from treatment works, service reservoirs, connection points, consumers' taps, etc. How many test samples were taken from consumers' taps from 2014 to 2016 (planned)?

Asked by: Hon CHAN Hak-kan (Member Question No. 64)

Reply:

The number of public accessible consumer tap samples tested during the period of 2014 – 2015 is tabulated below:

	<u>2014</u>	<u>2015</u>
No. of consumer tap samples	34 159	35 500

The number of consumer tap samples for 2016 would be in a similar order as previous years.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)242**

**(Question Serial No. 6879)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding fresh water in the territory, please inform this Committee of:

- a. details of the review on the Total Water Management strategy;
- b. details of design for the desalination plant and related infrastructure at Tseung Kwan O;
- c. commencement of construction of the fresh and salt water supply systems to meet the increase in demand arising from housing development in Sheung Shui and Fanling area (fresh water), and Chai Wan area (salt water) respectively;
- d. the annual quantity of water supply from the reservoirs in the various districts of Hong Kong, details of fresh water from the reservoirs and details of district and water supply from 2012 to 2016;
- e. the annual quantity of Dongjiang (DJ) water purchased each year, the unit cost of water per cubic metre and provision from 2012 to 2016;
- f. the discharge of DJ water into the sea each year from 2012 to 2016.

Asked by: Hon CHEUNG Kwok-che (Member Question No. 1096)

Reply:

- a. We commenced a consultancy study for the review of the Total Water Management (TWM) Strategy in October 2014. The study is to review overseas experience and to recommend new initiatives to strengthen our resilience and preparedness against uncertainties and challenges such as climate change. The study is targeted for completion in 2017.



b. We engaged consultants in November 2015 to embark on the design of the first stage of the proposed seawater desalination plant at Tseung Kwan O with a water production capacity of 135 million litres per day (Mld) to meet five percent of Hong Kong's fresh water demand. The consultants are responsible for reviewing the findings of an earlier planning and investigation study of the desalination plant, supervising site investigation, carrying out design, preparing tender documents, assessing tenders and supervising the construction of the first stage of the desalination plant for the related infrastructure to the desalination plant. The detailed design of the water distribution mains for delivery of the desalinated water to the water supply system at Tseung Kwan O is in progress using in-house resources.

c. The construction of fresh water supply system to be commenced in 2016-17 to meet the increase in demand arising from housing development in Sheung Shui and Fanling area comprises constructing a 24 000 cubic metres service reservoir and laying of about 4 400 metres water mains. We plan to commence the construction in end 2016 for completion in 2020.

The uprating of Chai Wan salt water supply system to be commenced in 2016-17 to meet the increase in demand arising from housing development in Chai Wan area comprises uprating the output capacity of Siu Sai Wan salt water pumping station from 30 Mld to 41.7 Mld and laying of about 4 100 metres water mains. We plan to commence the construction in end 2016 for completion in 2020.

d. The raw water supply quantities of impounding reservoirs, excluding Dongjiang (DJ) water, in 2012 to 2016 (as at 29 February 2016) is as follows-

	Plover Cove & Lower Shing Mun	Tai Lam Chung	Shek Pik	High Island	Shing Mun & Reception	Others including Kowloon Group and Tai Tam Group	Total
2012	100.8	33.6	34.5	24.4	21.1	11.6	226.0
2013	148.7	58.5	30.1	54.6	19.1	10.0	321.0
2014	96.7	37.0	39.3	29.8	19.5	12.7	235.0
2015	65.9	31.1	34.2	46.1	17.1	12.6	207.0
2016 (as at 29/02/2016)	Nil	4.6	5.4	4.7	2.4	0.9	18.0

Note: Supply quantities in million cubic metres

The major impounding reservoirs are High Island Reservoir, Plover Cove Reservoir, Shek Pik Reservoir, Tai Lam Chung Reservoir and Shing Mun Reservoir etc. Raw water from these reservoirs after treatment is being supplied to the following areas-

1. Plover Cove and High Island Reservoirs mainly supply water to Kowloon, Hong Kong Island, and the New Territories East.

2. Shek Pik Reservoir mainly supplies water to the Hong Kong Island, Lantau Island and outlying islands.
  3. Tai Lam Chung Reservoir mainly supplies water to the New Territories west and Lantau Island.
  4. Shing Mun Reservoir mainly supplies water to the New Territories west.
- e. The purchase price, annual supply ceiling quantity and unit cost of DJ water are shown in the table below –

<b>DJ water</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Purchase price (\$ million)	3,538.70	3,743.30	3,959.34	4,222.79	4,491.52
Annual supply ceiling quantity (million m <sup>3</sup> )	820	820	820	820	820
Unit cost (\$/m <sup>3</sup> )	4.3	4.6	4.8	5.1	5.5
	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Approved provision (\$ million)	3,575.90	3,782.58	3,959.34	4,319.55 (Note)	4,543.66

Note: According to the agreement covering the period from 2015 to 2017, the purchase cost in 2014-15 should be increased by \$47.9 million. However, the payment of \$47.9 million was deferred to be paid in 2015-16.

- f. Since the adoption of “package deal lump sum” approach in 2006, there has not been any discharge of DJ water.

- End -

**CONTROLLING OFFICER'S REPLY**

**(Question Serial No. 4638)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not specified  
Programme: (1) Water Supply : Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

In 2016-17, the Water Supplies Department (WSD) will commence the construction of the fresh and salt water supply systems to meet the increase in demand arising from housing development in Sheung Shui and Fanling area (fresh water), and Chai Wan area (salt water) respectively. Regarding this, would the WSD inform this Committee: what are the details and timetable of the works? What are the required manpower and estimated expenditure?

Asked by: Hon James TIEN Pei-chun (Member Question No. 71)

Reply:

In regard to the construction of fresh water supply system to meet the increase in demand arising from housing development in Sheung Shui and Fanling area, it comprises constructing a 24 000 cubic metres service reservoir and laying of about 4 400 metres watermains. We plan to commence the construction in end 2016 for completion in 2020. The estimated project cost is \$521.3 million in money-of-the-day (MOD) prices. In 2016-17, the in-house manpower involved in this project will be about six professional or technical staff with a staff cost of about \$3.5 million.

In regard to the uprating of Chai Wan salt water supply system to meet the increase in demand arising from housing development in Chai Wan and Siu Sai Wan areas, it comprises uprating the output capacity of Siu Sai Wan salt water pumping station from 30 million litres per day (Mld) to 41.7 Mld and laying of about 4 100 metres water mains. We plan to commence the construction in end 2016 for completion in 2020. The estimated project cost is \$379.1 million in MOD prices. In 2016-17, the in-house manpower involved in this project will be about four professional/technical staff with a staff cost of about \$2.3 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**(Question Serial No. 4696)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding treated sewage effluent for reuse (“reclaimed water”), would the Government inform this Committee:

- 1) What was the expenditure involved for study for “reclaimed water” each year in the past three years;
- 2) Does the Government have any plan for extending the use of “reclaimed water” under projects of expanding or newly constructed sewage treatment works in the future 12 months? If yes, what are the details?

Asked by: Hon WU Chi-wai (Member Question No. 114)

Reply:

- 1) In the past three years, we completed a consultancy study for establishing a set of water quality standard and guidelines on the use of reclaimed water for toilet flushing and other non-potable purposes. We have also commenced a consultancy study on the financial and legal aspects of the supply of reclaimed water. The expenditures on these studies in 2013-14, 2014-15 and 2015-16 are \$0.02 million, \$0.06 million and \$0.9 million respectively.
- 2) In the next 12 months, we will continue to work on the plan of producing reclaimed water at the Shek Wu Hui sewage treatment works for toilet flushing and other non-potable uses in the north-eastern part of the New Territories and carry out the consultancy study on the financial and legal aspects of the supply of reclaimed water. This study is expected to be completed later this year. The estimated expenditure on this study in 2016-17 is \$3.1 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**(Question Serial No. 7248)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding Subhead 9358WF In-situ reprovisioning of Sha Tin water treatment works (South Works) under Head 709 Capital Works Reserve Fund – Waterworks, please inform this Committee:

- (a) What is the current works progress?
- (b) On what areas will the expenditure in 2016-17 be spent?
- (c) Will the whole project be completed as scheduled when the project estimate was approved?
- (d) 608 trees were found in the site area of the project. 543 of them will be felled, including five numbers of *Aquilaria sinensis* and one number of *Ailanthus fordii* which are important trees. By which criteria does the Government decide whether the trees in the area should be removed or stay?
- (e) By what reasons was the Environmental Impact Assessment ("EIA") report endorsed? What is in the compensatory plan?

Asked by: Hon Gary FAN Kwok-wai (Member Question No.55)

Reply:

- (a) The construction works of the project 9358WF commenced on 30 October 2015 and the progress is currently on schedule.
- (b) The expenditure of the project in 2016-17 will cover the contract payments to the contractor, resident site staff salaries and consultancy fees for site supervision.

- (c) Based on the current schedule of progress, the project can be completed on time.
- (d) The project involves the removal of 543 common trees and 6 important trees including five numbers of *Aquilaria sinensis* and one number of *Ailanthus fordii*. Among these 549 trees, 539 numbers will be felled and ten numbers will be replanted.

Since the existing site of the Sha Tin water treatment works is already very congested and is surrounded by woodland and the East Rail Line, felling of trees is unavoidable to enable the in-situ reprovisioning of the Sha Tin water treatment works (South Works) to a higher treatment capacity of 550 000 cubic metres per day. We conducted careful layout design and adopted compact water treatment technologies so as to minimise the number of affected trees. In addition, we employed tree specialists to prepare tree preservation and removal proposal (TPRP) for the affected trees in consultation with the Agriculture, Fisheries and Conservation Department and the Leisure and Cultural Services Department in accordance with the Development Bureau Technical Circular (Works) No. 10/2013, which sets out the policy on tree preservation. In the TPRP, a comprehensive assessment on the affected trees was conducted taking into account a series of factors, including the form, health, amenity value, survival rate after replanting, conservation value, to determine and recommend the most appropriate treatment method (i.e. preserving, felling or replanting) for each affected tree.

Among the six important trees affected by the project, three numbers of *Aquilaria sinensis*, which are in poor health condition with estimated low survival rate after replanting, will need to be felled while the remaining two numbers of *Aquilaria sinensis* and one number of *Ailanthus fordii* will be replanted.

- (e) An Environmental Impact Assessment (EIA) Report, covering various environmental issues including landscape and ecological impacts, etc. and proposing associated mitigation measures, was prepared. The EIA Report concluded that, with the implementation of mitigation measures, the environmental impacts of the project could be controlled to within the established standards and criteria. Accordingly, an environmental permit was issued by the Environmental Protection Department on 28 January 2015.

In order to compensate for the felled trees, the number of compensatory trees is greater than that the number of trees felled as required in the Development Bureau Technical Circular (Works) No. 10/2013. The tree species chosen for compensatory planting are similar to those native species recorded within the affected area in order to blend with the surrounding environment.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)246**

**(Question Serial No. 4754)**

Head: (194) Water Supplies Department

Subhead (No. & title): Not specified

Programme: (2) Water Quality Control

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

On page 867, Volume I of the Estimates, it is mentioned that the Water Supplies Department (WSD) will create 36 civil service posts responsible for work related to safeguarding drinking water safety. Please list the ranks of newly created posts, actual work and scope of duty, corresponding numbers of posts, estimated staff costs, allowance (if any) and timetable of filling the above posts.

Asked by: Hon MA Fung-kwok (Member Question No. 57)

Reply:

In 2016-17, WSD will create 36 civil service posts in two stages (viz April 2016 and January 2017) related to safeguarding drinking water safety. Details are provided as follows:

Rank	Number of posts	Estimated staff cost (\$ million per annum)	Scope of duty	Expected timetable to fill the posts
To safeguard water safety in terms of water quality control and monitoring				
Senior Waterworks Chemist	1	1.33	To carry out a comprehensive review on the water quality standard, the water quality monitoring and the water safety regime with a view to formulating policies related to water safety and related issues. To oversee the preparation and implementation of enhanced water quality monitoring programme for	Apr 2016
Waterworks Chemist	2	1.74		

Rank	Number of posts	Estimated staff cost (\$ million per annum)	Scope of duty	Expected timetable to fill the posts
			<p>safeguarding the safety of drinking water.</p> <p>To study the overseas experience on sampling protocol, water quality monitoring strategy, water safety and related issues.</p> <p>To assist in the establishment of an international expert panel on water safety to determine the way forward for safeguarding the safety of drinking water.</p>	
Engineering Laboratory Technician I	3	1.61	<p>To assist in the necessary preparation and implementation for enhancement of water quality monitoring, supervise laboratory staff and organise activities of sections for sampling and conducting tests and assist professional staff in research investigations and development work.</p>	Apr 2016
Engineering Laboratory Technician II / Student Engineering Laboratory Technician	2	0.52		
Laboratory Attendant	1	0.23	To assist in preparation of chemicals and reagents and cleaning bottles, and laboratory wares.	
Engineering Laboratory Technician II / Student Engineering Laboratory Technician	4	1.04	To assist in the implementation for enhancement of water quality monitoring, supervise laboratory staff and assist in organising activities of sections for sampling and conducting tests.	Jan 2017
Laboratory Attendant	1	0.23	To assist in preparation of chemicals and reagents and cleaning bottles, and laboratory wares.	
Water Sampler	2	0.45	To undertake sampling from the water supply and distribution system and sampling of related materials.	



Rank	Number of posts	Estimated staff cost (\$ million per annum)	Scope of duty	Expected timetable to fill the posts
To safeguard water safety in terms of strengthening the control of pipes and fittings and inspections of plumbing systems				
Senior Mechanical Engineer	1	1.33	To handle all matters related to control and approval of plumbing materials including implementation of enhancement measures for general acceptance of pipes and fittings and expanded scope of fittings requiring general acceptance, regular review of applicable British Standard and liaison with the relevant stakeholders on adoption the latest standards, review on the existing system of promulgating material standards and the establishment of a Technical Committee /Working Groups with industry stakeholders to review, collect and consider views, comments or feedback received from the industry on plumbing matters relating to material, technologies, standards and testing, waterworks requirements and application and approval of plumbing works.	Apr 2016
Mechanical Engineer	1	0.72		
Engineer	3	2.17	To enhance the inspections and approval of plumbing works.	Apr 2016
Waterworks Inspector	4	2.57		
Assistant Waterworks Inspector	2	0.82		
Consumer Services Inspector	6	1.87		
Senior Engineer*	1	1.33	To conduct a holistic legislative review of the Waterworks Ordinance (Cap. 102) and Waterworks Regulations (Cap 102A) and carry out the necessary work for legislative amendments as relevant.	
Mechanical Engineer*	1	0.72		
Engineer*	1	0.72		

Rank	Number of posts	Estimated staff cost (\$ million per annum)	Scope of duty	Expected timetable to fill the posts
<b>Total</b>	36	19.40		

\* Time-limited posts for five years from 2016-17 to 2020-21.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)247**

**(Question Serial No. 5473)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: Not Specified  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Water Resources Education Centre (WREC) opened in 2013, on which \$4.77 million of public money was spent. It was moved to the new site after only around four years of use. It was criticised as a waste of public money. It is learned that the Government plans to move current facilities of the Water Supplies Department (WSD) in Sai Yee Street, Mong Kok and construct a seven-storey building at a site of around 3 340 square metres at the junction of Tin Cheung Road and Tin Pak Road, Tin Shui Wai, to provide a total of around 12 900 square metres as construction floor area (CFA) and space for New Territories West Regional Office and WREC. Would the Government explain: how many exhibits of the current WREC can be used in the new building to avoid waste? What are the design work and details of the new WREC? How will the WSD attract visitors to the centre? What is the proportion of expenditure for the new centre of the whole relocation plan?

Asked by: Hon CHAN Chi-chuen (Member Question No. 232)

Reply:

The temporary Water Resources Education Centre (WREC) at Mongkok, with an area of 270 m<sup>2</sup>, was accommodated within the existing New Territories West Regional Office of the Water Supplies Department (WSD). The area was previously used primarily for storage. Ever since WREC was opened in late 2012, it has been receiving an increasing number of visitors (mainly students). The number of visitors in 2015 was 14 352, representing an increase of more than 50% from 9 458 in 2014. The feedback collected from the visitors is generally positive. In fact, as revealed from over 18 500 questionnaires that have been returned, the great majority of visitors (89% of students and 99% of teaching staff and parents) considered their visits interesting and beneficial in raising their awareness of water conservation.

With the aim of stepping up promotion of public awareness to the protection of water resources and the scarcity of water, a permanent WREC of a larger area of 1 160 m<sup>2</sup> is scheduled to be commissioned in Tin Shui Wai in end 2018, i.e., six years from the opening of the temporary WREC in late 2012. The permanent WREC will have a wider scope to introduce more new initiatives and in-depth materials covering various aspects of water resources and water conservation, for example, water reclamation and reuse, desalination, water use efficiency, leak detection of water mains, virtual water concepts, etc., to cater for an extended spectrum of visitors from students to the general public.

We are presently making arrangements to engage an exhibition consultant to design and supervise the fabrication and installation of the exhibits in the permanent WREC. The exhibits from the temporary centre will be reused as far as practicable, such as those exhibition items that demonstrate the capability of water saving devices accredited under the Water Efficiency Labelling Scheme to reduce water consumption, specially made videos that show Hong Kong's history of water supply, Hong Kong's reservoirs, the Dongjiang water supply, etc. The permanent WREC consultancy is scheduled to commence in the fourth quarter of 2016. While the exhibits design of the new WREC will incorporate interactive and innovative elements that allow easy changeability and thus exhibition flexibility and vibrancy, synergetic opportunities will be sought to collaborate with the Wetland Park and LCSD parks nearby, particularly any specific programmes that take place therein, to attract visitors. Further, we will take steps to increase patronage, for example, by proactively contacting schools, community groups and non-governmental organisations to organise visits.

The base cost for the design and setup of the permanent WREC is estimated at \$38.7 million at September 2014 price level, which constitutes around 6% of the overall base cost of the whole relocation plan inclusive of the construction of the new building in Tin Shui Wai, the demolition of the existing building in Mongkok, etc.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)248**

**(Question Serial No. 5531)**

Head: (194) Water Supplies Department

Subhead (No. & title): Not specified

Programme: Not specified

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

Please list the water consumption of Central Government Offices, Government offices and department buildings in the past three years. Does the Department intend to carry out measures to reduce unnecessary water consumption?

Asked by: Hon CHAN Chi-chuen (Member Question No. 300)

Reply:

The information on water consumption for Central Government Offices in Tamar is provided in the table below. For other government offices and government buildings, there are many meters both in a government office and in a government building. We have kept records of water consumption for various accounts by department but not by government office or government building. Hence, we do not have readily available information for other government offices and government buildings. The water consumption of the top five departments in the past three financial years is provided below for reference:

	2013-14	2014-15	2015-16 (up to Feb 2016)
	mcm	mcm	mcm
Central Government Offices (including irrigation)	0.028*	0.028*	0.038
* These are estimated consumptions as the meters for irrigation were found defective.			
Top five water consumption departments			
1   Leisure and Cultural Services	12.8	13.6	11.9
2   Correctional Services	5.0	4.3	4.6
3   Food and Environmental Hygiene	3.6	3.6	3.2

4	Hong Kong Police Force	2.0	2.3	2.5
5	Drainage Services	2.3	2.3	1.5

mcm = million cubic metres

The Water Supplies Department (WSD) has been implementing software and hardware measures for enhancing the water use efficiency in government facilities.

On the software side, WSD has issued Best Practice Guidelines (BPG) to the Leisure and Cultural Services Department (LCSD) and the Food and Environmental Hygiene Department (FEHD) for efficient use of water in their facilities including public parks, swimming pools and markets. WSD has also completed water efficiency audits for the Correctional Services Department (CSD), and is finalising the draft BPG for efficient use of water in its correctional facilities.

On the hardware measures, apart from the replacement of plumbing appurtenances with water saving devices, WSD has embarked on installation of flow controllers at government buildings and schools with about 51 500 water saving devices replaced and over 33 400 flow controllers installed at these premises.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)249**

**(Question Serial No. 3878)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

(1) Please list the number of water main bursts and leakage cases last year in accordance with the demarcation of District Councils. What were the total quantities of fresh water lost due to the cases and leakage rates? Also, what were the expenditures for urgent rehabilitation of these water mains?

(2) What are the details and estimated expenditures for full implementation of the Total Water Management strategy to manage water loss?

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 366)

Reply:

(1) The numbers of water main burst and leakage cases in 2015 by districts are tabulated below –

District	Burst	Leakage
Central & Western	7	520
Eastern	6	580
Islands	3	307
Southern	3	426
Wan Chai	1	115
Kowloon City	25	605
Kwun Tong	6	380
Sham Shui Po	5	309
Wong Tai Sin	6	161

District	Burst	Leakage
Yau Tsim Mong	17	453
North	9	768
Sai Kung	6	747
Sha Tin	8	436
Tai Po	13	515
Kwai Tsing	14	336
Tuen Mun	7	464
Tsuen Wan	3	381
Yuen Long	6	1 819
Total	145	9 322

In 2015, the leakage rate of fresh water mains was 15% and the water drained away due to fresh water main bursts was less than 0.01% of the total fresh water supplied. The expenditures on urgent repairs of the above-mentioned water main burst and leakage cases in 2015 were about \$120 million.

- (2) Under the Total Water Management Strategy, the Water Supplies Department (WSD) has been taking a multi-pronged approach to tackle the water loss problem including leakage detection, pressure management and implementation of the Replacement and Rehabilitation (R&R) Programme of water mains.

The R&R Programme was substantially completed at end December 2015. To enable continuous monitoring on the health conditions of the water supply networks, WSD plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or to be established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC “Implementation of Water Intelligent Network” to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively.

Prior to WIN being fully put in place, the existing water supply networks will continue to age and deteriorate and it is still necessary to re-provision those water mains which will become aged and susceptible to bursting or leakage in the interim. As a



transitional arrangement, WSD will continue to identify water mains of higher risk for re-provisioning in order to sustain the healthiness of the water supply networks.

In 2016-17, the expenditure on implementing all the above said measures is estimated to be about \$1,670 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)250**

**(Question Serial No. 3879)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What was the number of complaints on fresh water quality (e.g. strange odour) received from the public by the Water Supplies Department last year? Please provide information on the number of cases, reason for poor quality of fresh water, and follow-up action taken by the Department and the expenditure involved with a breakdown by type of complaints.

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 367)

Reply:

The numbers of enquiries and complaints on fresh water quality received by the Water Supplies Department (WSD) last year are tabulated below:

Type	Number of cases	Possible Reasons
Dirty and discoloured water	1 817	(a) Corrosion of water pipes in the complainant's premises or plumbing system of the concerned building; (b) Lack of proper/frequent cleansing of water storage tanks of the concerned building; or (c) After resuming water supply from suspension, the sediments inside water mains may be stirred up resulting in slightly high turbidity in water supply. However, these sediments will not pose risk to health or safety of water supply.
Taste and odour in water	214	(a) Lack of proper/frequent cleansing of water storage tanks of the concerned building; or

		(b) The presence of small amount of residual chlorine in the water supply may sometimes cause taste and odour complaints or enquiries from users. It is necessary to maintain a small amount of residual chlorine in the water supply so as to keep it free from bacteria. It will not pose risk to health and will disappear when the water is boiled.
Excess lead in water	149	Leaded solder is used in jointing copper pipes of the plumbing systems in public rental housing estates.

The WSD endeavours to investigate all enquiries and complaints on water quality expeditiously by site inspection, investigation, water sampling and testing as appropriate. In 2015, about 250 staff of various ranks (including engineers, inspectors, consumer services inspectors and works supervisors) were involved in dealing with enquiries and complaints on water quality. As they were also responsible for carrying out other work on customer services, there is no separate breakdown of the staff cost for dealing with the enquiries and complaints on water quality. Other expenditure for dealing with the enquiries and complaints on water quality such as the cost of the chemical for testing the water samples was insignificant. After the lead in drinking water incidents, WSD has, after review, implemented various measures to enhance the control of the construction, etc. of the inside service, including the following:

- (a) To enhance control of pipes and fittings installed in the inside service, WSD has imposed a five-year validity period of general acceptance for water supply pipes and fittings. WSD has also stipulated the requirements for submission of supporting document of the lead free soldering materials.
- (b) To enhance the inspection and approval of the inside service, WSD has stipulated the requirements for carrying out tests on solder pipe joints and testing water samples for four heavy metals including lead at final inspection of newly installed fresh water inside service.
- (c) To enhance the management of the licensed plumbers (LPs), WSD has revised the point penalty system for LPs in regard to the importance of using compliant plumbing materials and proper discharge of duties.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)251**

**(Question Serial No. 3880)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

(1) How many cases of underground salt water main bursts have occurred since January 2015? Please list in chronological order these cases by the location of occurrence, cause of the water main burst and damage caused by such burst.

(2) Referring to the above question, what are the length of the salt water mains replaced due to water main bursts and the expenditure involved?

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 369)

Reply:

(1) There are a total of 84 salt water main burst cases from January 2015 to January 2016 as detailed below –

No.	Date and Time	Location
1	3/1/2015 7:05	On Po Road near lamp post no. N6671, Tai Po
2	3/1/2015 13:50	No.48 Mody Road
3	6/1/2015 5:42	No.39 Mong Kok Road
4	14/1/2015 3:41	Pak Hoi Street near Canton Road
5	14/1/2015 6:49	Near No.11 Tsing Yi Heung Sze Wui Road, Tsing Yi
6	15/1/2015 5:28	Eastbound of Choi Hung Road near Rhythm Garden
7	23/1/2015 14:08	Near No 31-32 Chui Yi Street, Tai Po
8	27/1/2015 19:25	Aberdeen Main Road opposite lamp post no. 26178, Aberdeen
9	29/1/2015 6:54	Carriageway of Connaught Road Central near Gilman Street, Central
10	5/2/2015 6:19	Tsun Wen Road near lamp post no. FB9415
11	9/2/2015 3:52	Canton Road near Haiphang Road
12	13/2/2015 7:43	No.1 Waterloo Road
13	24/2/2015 8:32	No. 51 Container Port Road, Kwai Chung

No.	Date and Time	Location
14	28/2/2015 4:29	Tolo Highway 9.5, Sha Tin
15	28/2/2015 8:12	Near No.85 Wo Tong Tsui Street, Kwai Chung
16	9/3/2015 13:51	Container Port Road near lamp post no. FC1379, Kwai Chung
17	9/3/2015 16:31	Mau Yip Road near lamp post no. EB0222, Tseung Kwan O
18	17/3/2015 5:12	Junction of Tai Yau Street and Ng Fong Street
19	28/3/2015 0:34	Hong Ning Road near Wo Hong Path
20	28/3/2015 5:43	No.1-7 Man Cheong Street
21	31/3/2015 18:37	No. 22 Yuk Yat Street
22	1/4/2015 11:29	Kam Wa Street footpath near lamp post no. 34958
23	6/4/2015 11:46	Bulkeley Street near Gillies Avenue South
24	6/4/2015 14:12	Bulkeley Street near Marsh Street
25	11/4/2015 5:50	Carriageway of Cheung Sha Wan Road near Un Chau Estate
26	18/4/2015 14:48	No. 104 Connaught Road West, Central
27	22/4/2015 2:48	Junction of Hong Ning Road and Kung Lok Road
28	29/4/2015 9:59	No. 75 Lok Shan Road
29	10/5/2015 19:10	Carriageway of Fat Kwong Street near Sheung Foo Street
30	21/5/2015 11:19	No. 8 Wyndham Street, Central
31	26/5/2015 6:49	Choi Hung Road near Shatin Pass Road
32	1/6/2015 22:16	No. 1 Tai Wing Avenue (Town Gas site)
33	4/6/2015 16:20	Junction of Sha Tsui Road and Chung On Street, Tsuen Wan
34	7/6/2015 12:43	Wai Yip Street near Siu Yip Street
35	10/6/2015 20:55	Kai Cheung Road near Wang Kwong Road
36	13/6/2015 7:27	Science Museum Road Junction Granville Road
37	23/6/2015 10:50	Luard Road near lamp post no. 24508
38	25/6/2015 14:48	Ma Tau Chung Road near Mok Cheong Street
39	30/6/2015 11:27	Tsui Lam Road footpath near Hong Shing Garden, Tseung Kwan O
40	3/7/2015 4:08	Mody Road near Chatham Road South
41	4/7/2015 8:40	Plover Cove Road near lamp post no. 6022, Tai Po
42	4/7/2015 14:24	Sun Sing Street near No. 290 Shau Kei Wan Road
43	8/7/2015 19:37	Backlane of No. 5-9, Tsz Wah Lane
44	16/7/2015 14:07	Lung Tak Street near lamp post no. FC3727, Tsuen Wan
45	17/7/2015 14:56	Plover Cove Road footpath near Kwong Fung Road Playground, Tai Po
46	17/7/2015 16:40	Sai Wan Ho Street near lamp post no. 44793
47	18/7/2015 22:12	Bulkeley Street near Kun Yam Street
48	19/7/2015 5:44	No. 69C Waterloo Road
49	25/7/2015 12:51	Ting Kok Road near lamp post no. EB0396, Tai Po
50	30/7/2015 2:37	Junction Road near Carpenter Road
51	1/8/2015 13:10	Junction of Argyle Street and Sai Yee Street
52	6/9/2015 1:03	Tsing Wun Road near lamp post no. FC3773
53	9/9/2015 17:25	Hiu Kwong Street near Bus Terminus
54	17/9/2015 4:01	Wui Cheung Road near Canton Road
55	21/9/2015 8:56	Junction of Canton Road and Wui Cheung Road
56	24/9/2015 16:16	Ting Kok Road near lamp post no. EB5685, Tai Po
57	29/9/2015 19:38	Bulkeley Street near Whampoa Street
58	2/10/2015 8:05	Hung Luen Road near Kin Wan Street
59	7/10/2015 12:01	Serenity Park near lamp post no. EA7243, Tai Po
60	17/10/2015 15:31	Texaco Road near lamp post no. FB1805, Kwai Chung
61	21/10/2015 16:02	Yuen Shin Park near lamp post no. EA8044, Tai Po
62	29/10/2015 2:32	San Shan Road near Pak Tai Street

No.	Date and Time	Location
63	4/11/2015 2:23	Tai Kwai Street near lamp post no. M7479, Tai Po
64	4/11/2015 20:06	No.33C Portland Street
65	8/11/2015 5:10	Carriageway of Castle Peak Road near Tuen Hing Road
66	9/11/2015 4:10	Fu Ning Street near Shing Tak Street
67	14/11/2015 10:35	Dai Fuk Street near lamp post no. EB5685, Tai Po
68	15/11/2015 10:46	Kwai Fuk Road near lamp post no. DC0100, Kwai Chung
69	24/11/2015 14:45	Ting Kok Road near lamp post no. EB2815, Tai Po
70	7/12/2015 15:59	Sha Tin Wai Road near Sha Kok Road, Sha Tin
71	8/12/2015 1:31	Lai Chi Kok Road near Tonkin Street
72	9/12/2015 14:13	Ting Kok Road near lamp post no. BE1883
73	14/12/2015 18:06	No. 90 Kung Lok Road
74	15/12/2015 3:34	Woh Chai Street footpath near Nam Cheong Street
75	16/12/2015 15:52	Nga Tsin Long near Nga Tsin Wai Road
76	29/12/2015 7:17	Shan King Estate near King On House
77	5/1/2016 0:42	Footpath near subway adjacent to Takan Lodge, Tseung Kwan O
78	13/1/2016 3:25	Lai Yip Street near Hoi Bun Road
79	19/1/2016 13:06	Hiu Kwong Street near Hiu Lai Court
80	20/1/2016 5:19	Plover Cove Road, Tai Po
81	26/1/2016 4:03	Hip Wo Street near Hiu Kwong Street
82	28/1/2016 17:26	Carriageway of Tai Po Road near Berwick Street Sitting Out Area
83	29/1/2016 12:54	Carriageway of Fat Kwong Street near Yan Man House
84	31/1/2016 15:20	Fu Ning Street near Shing Tak Street

Regarding the 84 cases, the major causes include corrosion of metallic pipes, ageing of non-metallic pipes, ground movement, e.g. settlement and upheave, and damage by others. With respect to the impact arising from these salt main burst cases, eight cases have affected traffic at Red/Pink Routes.

(2) The total length of salt water mains replaced during the emergency repair is about 130 metres and the associated expenditure is about \$13 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)252**

**(Question Serial No. 3881)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding management of reservoirs, please inform this Committee:

- (1) What were the numbers of overflow cases in Plover Cove Reservoir and High Island Reservoir each year in the past five years? What were the quantities of discharge?
- (2) Did the Government estimate the average evaporation rates of water in the above two reservoirs each year? What were the average evaporation rates in the past five years?
- (3) Referring to the above question, if yes, has the Government studied how to reduce evaporation? What are the details?
- (4) Does the Government plan to improve the design of the above two reservoirs to increase their capacity and reduce evaporation without affecting the environment of the nearby country parks? If yes, what are the work plans and estimated expenditure?
- (5) Does the Government plan to improve water catchment systems in Hong Kong next year? What are the work plans and estimated expenditure?

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 370)

Reply:

- (1) In the past five years, there was no overflow from Plover Cove Reservoir and High Island Reservoir.
- (2) In general, the evaporation rate of water depends on a number of factors including solar radiation, relative humidity, area of water surface, wind speed and direction, temperature of the air and water, etc. The average rate remains generally the same in the

past five years. The overall average evaporation rate of water in all reservoirs, including Plover Cove Reservoir and High Island Reservoir, is about 2% of the annual water consumption.

(3) We have commenced a preliminary study on how to reduce evaporation from reservoirs in general and plan to install one pilot floating solar power system each at Shek Pik Reservoir and Plover Cove Reservoir by end 2016 and 2017 respectively.

(4) We have previously commissioned a consultancy study on the feasibility of increasing the storage capacity of Plover Cove Reservoir and High Island Reservoir. The consultants accorded a lower priority to the proposals because of the capital investment required and the potential environmental impacts. In October 2014, we commenced a consultancy review of the Total Water Management strategy. As a part of the review, the consultants are looking at options for strengthening our water supplies, including revisiting the feasibility of increasing the storage capacity of reservoirs. The review is currently in progress and is scheduled to be completed in 2017.

(5) The catchment systems of Hong Kong comprise intakes, catchwaters, tunnels, shafts, etc. Some of them are aged and become deteriorated resulting in reduction of their operational efficiency and effectiveness. In 2016-17, we plan to spend about \$42.3 million to improve the portion of the catchment system which has deteriorated. The proposed works will include renovation of the deteriorated catchwater walls, slabs and joints; desilting of the catchwaters, tunnels, shafts and intakes; and renovation of the ancillary works such as radial gates, etc.

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)253**

**(Question Serial No. 3882)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government predicts that the water main leakage rate will increase from 15% in 2015 to 15.2% in 2016. What are the reasons? How will the Government reduce the rate? Please provide relevant work plans and the estimated expenditure.

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 371)

Reply:

The substantial completion of the Replacement and Rehabilitation (R&R) Programme of water mains in end December 2015 has brought about significant improvement to the existing water supply networks both in terms of reduction of number of main bursts and leakage rate. However, the existing water mains, particularly those laid before 2000 (when the R&R Programme commenced) and not included in the R&R Programme, will continue to age and deteriorate. Therefore, it is anticipated that the leakage rate will increase slightly in 2016 after the completion of the R&R Programme.

The Water Supplies Department (WSD) plans to progressively establish the Water Intelligent Network (WIN) by installation of monitoring and sensing equipment for setting up District Metering Areas (DMAs) in the water supply networks. Under WIN, there will be about 2 000 DMAs over the entire territory. WSD will link up 1 400 DMAs which were either established or being established under other projects in all the districts of the territory for establishment of WIN. The remaining DMAs are at different stages of planning and design. An intelligent network management computer system will be put in place to enable intelligent (and where necessary real-time) network performance analysis of the data collected from the monitoring and sensing equipment for monitoring the conditions of the water supply networks. When WIN is fully implemented, it will help determine the most effective network management measures (including pressure management, active leakage control, re-provisioning of water mains in poor condition, etc.) for maintaining the

healthiness of the water supply networks, thereby helping reduce the leakage rate. The adoption of these most effective network management measures under WIN would be more cost-effective than relying mainly on further large scale R&R programmes, particularly when the water supply networks have already been improved significantly.

In 2016-17, subject to funding approval by the Finance Committee of the Legislative Council, WSD plans to upgrade part of the PWP Item No. 196WC “Implementation of Water Intelligent Network” to Category A to construct some 85 DMAs and set up the intelligent network management computer system with concerned works commencing in end 2016 and early 2017 for completion in end 2019 and end 2018 respectively. The preliminary estimate of the total cost of establishing all the DMAs and the intelligent network management computer system under the said PWP Item is about \$1,200 million. The corresponding estimated expenditure in 2016-17 is about \$22 million.

Prior to WIN being fully put in place, the existing water supply networks will continue to age and deteriorate and it is still necessary to reprovise those water mains which will become aged and susceptible to bursting or leakage in the interim. As a transitional arrangement, WSD will continue to identify water mains of higher risk for reprovise in order to sustain the healthiness of the water supply networks.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)254**

**(Question Serial No. 3883)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

- (1) What are the progresses of the study on financial and legal frameworks and design of infrastructures for supplying reclaimed water for toilet flushing and other non-potable purposes in the north-eastern part of the New Territories? What are the work plans and estimated expenditure next year?
- (2) When does the Government expect to supply reclaimed water for the north-eastern part of the New Territories? What are the works progresses and estimated expenditure?

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 372)

Reply:

- (1) Infrastructures necessary for the supply of reclaimed water to Sheung Shui and Fanling include a service reservoir, hypo-chlorination facilities, a pumping station, trunk and distribution mains.

We have commenced the design of the service reservoir and the associated trunk mains for completion of the infrastructures in 2020. The estimated expenditure for the construction works in 2016-17 is \$3.14 million. As regards the remaining infrastructures (including hypo-chlorination facilities, a pumping station and distribution mains), they are currently under investigation/planning and the estimated expenditures for consultancy fee and site investigation works in 2016-17 is \$9.5 million.

The consultancy study on the financial and legal aspects of the supply of reclaimed water is ongoing and is expected to be completed later this year. The estimated expenditure on this study in 2016-17 is \$3.1 million.

- (2) We plan to effect reclaimed water supply to the north-eastern part of the New Territories for toilet flushing and other non-potable uses in phases starting with Sheung Shui and Fanling from 2022 onwards. We expect that the supply of reclaimed water will progressively be extended in line with the completion of the developments in the area.

Details of the reclaimed water supply network and the associated expenditure will be ascertained in due course.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)255**

**(Question Serial No. 3884)**

Head: (194) Water Supplies Department  
Subhead (No. & title): (000) Operational Expenses  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What were the details of work and expenditure regarding the Water Supplies Department (WSD)'s follow-up on excessive lead content in fresh water in residential buildings last year? What are the work plans and estimated expenditure next year?

Asked by: Dr Hon Kenneth CHAN Ka-lok (Member Question No. 373)

Reply:

After the lead in drinking water incidents, the Water Supplies Department (WSD) has implemented various measures to help prevent the recurrence of the incident as set out below:

- (a) To enhance control of pipes and fittings installed in the inside service, WSD has imposed a five-year validity period of general acceptance (GA) for water supply pipes and fittings. WSD has also stipulated the requirements for submission of supporting documents of lead free soldering materials.
- (b) To enhance the inspection and approval of the inside service, WSD has stipulated the requirements for carrying out tests on solder pipe joints and testing water samples for four heavy metals, including lead, at the final inspection of newly installed fresh water inside service.
- (c) To enhance the management of licensed plumbers (LPs), WSD has revised the point penalty system for LPs in regard to the importance of using compliant plumbing materials and proper discharge of duties.

WSD will continue to review and enhance the control of the construction, installation, etc. of the inside service. Moreover, the Chief Executive in Council has established the

Commission of Inquiry into Excess Lead Found in Drinking Water (COI). WSD will study the findings and recommendations of the COI and take appropriate follow up action.

In this connection, in 2016-17, WSD will create two civil service posts, which will incur approximately \$2.1 million per year, for amongst others, reviewing and enhancing the control of water supply pipes and fittings in the inside service and 15 civil service posts, which will incur approximately \$7.4 million per year, for enhancing the inspection of plumbing works and management of LPs.

In addition, WSD will create three civil service posts and one post-retirement service contract position in 2016-17, which will incur approximately \$4.4 million per year to assist in carrying out a holistic review of the Waterworks Ordinance and its Regulations. The review will cover various areas including the engagement and licensing of LPs to carry out the construction, installation, etc. of the inside service, the current system of promulgating material standards, and the existing inspection and approval regime with a view to enhancing the water supply and regulatory system.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)256**

**(Question Serial No. 3639)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Will the Government promulgate "Drinking Water Safety Ordinance", list guideline values of various fresh water substances and strictly set out standards of waterworks in 2016-17 with reference to recommendations of World Health Organization's "Guidelines for Drinking-water Quality"?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 401)

Reply:

The Government is open to the proposal for enacting a Drinking Water Safety Ordinance. We need to examine the issues in detail and study in depth the overseas experience, including the background and the unique circumstances of the relevant countries in enacting similar legislations, the legislation focus, the water quality standard, the guideline values of the World Health Organization's "Guidelines for Drinking-water Quality" and the difficulties encountered in the implementation. The Development Bureau is leading an inter bureau and departmental working group to conduct a study to tap overseas experience on the water safety regime and related issues to determine the way forward for the legislation for safety of drinking water.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)257**

**(Question Serial No. 3640)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Will the Government follow the example of the United Kingdom and establish a Water Regulation Authority for holistic monitoring of Hong Kong's waterworks, including reviewing operation of water suppliers, continuous improvement of waterworks laws and ensuring the compliance of water quality with World Health Organization's guidelines in 2016-2017?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 403)

Reply:

The Government is open to the proposal for establishing a Water Regulation Authority. We need to examine the issues in detail and study in depth the overseas experience, including the background and the unique circumstances of the relevant countries in establishing a Water Regulation Authority, the regulator's role and duties, operational issues, regulatory strategy, and the difficulties encountered in the implementation. The Development Bureau is leading an inter bureau and departmental working group to conduct a study to tap overseas experience on the water safety regime and related issues to determine the way forward for enhancing the safety of drinking water.

- End -



**CONTROLLING OFFICER'S REPLY****DEVB(W)258****(Question Serial No. 4877)**

Head: (194) Water Supplies Department

Subhead (No. & title): Not Specified

Programme: (1) Water Supply: Planning and Distribution

Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)

Director of Bureau: Secretary for Development

Question:

Please advise on the Government expenditures on and prices for purchasing Dongjiang (DJ) water in the past five years; the Government expenditure on and price for purchasing DJ water in 2016-2017; the expiry date of the current contract for purchasing DJ water; whether the Government holds regular discussions with the Mainland on the quantity and price of DJ water purchased, and if yes, the details.

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 34)

Reply:

The prices and expenditures on purchasing Dongjiang (DJ) water from 2011 to 2017 are shown in the following table –

<b>Year</b>	<b>Price and expenditure on purchasing DJ water (\$ million)</b>
2011	3,344.00
2012	3,538.70
2013	3,743.30
2014	3,959.34
2015	4,222.79
2016	4,491.52
2017	4,778.29

The current agreement on the supply of DJ water is from 2015 to 2017 which is due to expire at the end of 2017. We will conduct negotiation with the Guangdong authorities on the water quantity and price of DJ water to be purchased under the new agreement about one year before the expiry of the current agreement, i.e. end of 2016.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)259**

**(Question Serial No. 4878)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Had the Government conducted any studies on the construction of desalination facilities in the past five years? If yes, what were the details and specific expenditures? What is the estimated expenditure on the study of the construction of desalination facilities in 2016-2017? If the study findings show that the cost of seawater desalination is lower than that of purchasing Dongjiang water, will the Government review the sources of water supply in Hong Kong and construct the desalination facilities immediately?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 35)

Reply:

The Water Supplies Department (WSD) engaged consultants in December 2012 to carry out a planning and investigation study for the construction of a desalination plant at Tseung Kwan O (TKO). The study was completed in 2015 and confirmed the technical feasibility including the environmental viability of the project. In November 2015, WSD commissioned consultants to commence design work for the first stage of the proposed desalination plant at TKO for an output capacity of 135 million liters per day. The actual expenditures in regard to the above in 2012-13, 2013-14, 2014-15 and 2015-16 are \$0.8 million, \$4.5 million, \$10.9 million and \$22.3 million respectively whilst the estimated expenditure in 2016-17 is \$80.2 million.

According to the planning and investigation study, the estimated unit water production cost of the proposed desalination plant is about \$12.6 per cubic metre (m<sup>3</sup>) (at 2013-14 price level), which is higher than the unit water production cost using Dongjiang (DJ) water at \$8.6 per m<sup>3</sup> (at 2013-14 price level). We will closely monitor the cost comparison of the desalinated water with the DJ water.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)260**

**(Question Serial No. 6290)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What were the specific expenditures on purchasing Dongjiang (DJ) water and the specific quantities of DJ water purchased in the past five years? What were the specific expenditures on treating DJ water in the past five years? What were the quantities and values of DJ water discharged into the sea without being used in the past five years? What are the estimated expenditure on purchasing DJ water and the estimated quantity of DJ water purchased in 2016-2017? What is the estimated expenditure on treating DJ water?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 210)

Reply:

The expenditures on purchasing Dongjiang (DJ) water and the annual purchase quantities from 2014 to 2017 are shown in the following table -

<b>DJ water</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Purchase price (\$ million)	3,344.00	3,538.70	3,743.30	3,959.34	4,222.79	4,491.52	4,778.29
Annual supply ceiling quantity (million m <sup>3</sup> )	820	820	820	820	820	820	820

Since the adoption of “package deal lump sum” approach in 2006, there has not been any discharge of DJ water into the sea.

Raw water entering water treatment works includes both locally collected raw water and imported DJ water and it is treated simultaneously. We do not have a separate costing

exercise for treatment of DJ water alone and the cost attributable to this task is not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)261**

**(Question Serial No. 6693)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Will the Government initiate amendments to the Waterworks Ordinance (Cap. 102, Laws of Hong Kong) for regulation of water pipes for inside services of buildings? If yes, what are the details and expenditures involved?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 393)

Reply:

The Water Supplies Department has commenced a holistic review of the Waterworks Ordinance (WWO) and its Regulations (WWR). The major areas of review in relation to the regulation of inside service include (i) the institutional hierarchy and personnel, including licensed plumbers, in carrying out and supervising the construction of the inside service; (ii) the current system of promulgating material standards and control; (iii) the regime of inspection and approval of inside service; and (iv) leakage detection of underground water pipes in the inside service. In 2016-17, we will create three time-limited civil service posts and one post-retirement service contract position for carrying out a review on the WWO and WWR for legislative amendments, which will incur approximately \$4.4 million a year.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)262**

**(Question Serial No. 6694)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

In 2016-17, will the Government conduct study on the control of prefabricated building units with pipes from China to ensure that no harmful substances such as heavy metals exist in the pipes of the units? If yes, what are the details and expenditures involved?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 395)

Reply:

Under the Waterworks Regulations, all pipes and fittings to be used in the inside service shall comply with the British Standard (BS) irrespective of the place of manufacturing / supply, or whether they are to be installed in prefabricated units. According to BS, some of the valves may contain certain amount of lead. In new building projects, before commencement of the plumbing works, the applicant, licensed plumber (LP) and Authorised Person (AP) shall apply to the Water Authority (WA) for permission to commence the plumbing works. In the application, the LP and AP will list out the proposed pipes and fittings intended to be installed for approval of the WA. Currently, the pipes and fittings with general acceptance granted by WA have a maximum five-year validity period. Upon completion of the plumbing works, non-destructive tests on solder joints of copper pipes will be conducted to ensure that no leaded solder has been used. Testing of water samples for the completed plumbing works would also be carried out against prescribed standard values while the testing parameters include four heavy metals (i.e. lead, chromium, cadmium and nickel).

The above approval and inspection procedures will help ensure / check that the installed pipes and fittings are in compliance with the Waterworks Regulations requirements which are also applicable to the pipes and fittings installed in pre-fabricated units. The Water Supplies Department has no plan to carry out a study on the control of pipes and fittings installed in pre-fabricated units.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)263**

**(Question Serial No. 6695)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Will the Government review the effectiveness of the Water Safety Plan in 2016-2017? If yes, what are the details and expenditures involved?

Asked by: Dr Hon KWOK Ka-ki (Member Question No. 398)

Reply:

The Water Supplies Department will conduct regular review of the overall effectiveness of the Water Safety Plan. In 2016-17, a comprehensive review will be carried out on the water quality standard, water quality monitoring and water safety regime including the Water Safety Plan. As there is no separate costing for the review of Water Safety Plan, the cost attributable to this task is not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)264**

**(Question Serial No. 5020)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What measures has the Government taken to enhance and safeguard drinking water safety in 2015-16? What are the details and expenditures? What are the details and expenditures for the issue in 2016-17?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 55)

Reply:

After the lead in drinking water incidents, the Water Supplies Department (WSD) has taken forward the following measures to enhance and safeguard drinking water safety:

- (a) To enhance control of pipes and fittings installed in the inside service, WSD has imposed a five-year validity period of general acceptance for water supply pipes and fittings. WSD has also stipulated the requirements for submission of supporting document of the lead free soldering materials.
- (b) To enhance the inspection and approval of the inside service, WSD has stipulated the requirements for carrying out tests on solder pipe joints and testing water samples for four heavy metals including lead at final inspection of newly installed fresh water inside service.
- (c) To enhance the management of the licensed plumbers (LPs), WSD has revised the point penalty system for LPs in regard to the importance of using compliant plumbing materials and proper discharge of duties.

In 2015-16, WSD has implemented the above measures by redeployment of existing staff and recruitment of non-civil service contract staff, which has incurred approximately \$1.4 million.



In 2016-17, WSD will create two civil service posts, which will incur approximately \$2.1 million per year, for amongst others, reviewing and enhancing the control of water supply pipes and fittings in the inside service and 15 civil service posts, which will incur approximately \$7.4 million per year, for enhancing the inspection of plumbing works and management of LPs.

In addition, WSD will create three civil service posts and one post-retirement service contract position in 2016-17, which will incur approximately \$4.4 million per year to assist in carrying out a holistic review of the Waterworks Ordinance and its Regulations. The review will cover various areas including the engagement and licensing of LPs to carry out the construction, installation etc. of the inside service, the current system of promulgating the material standards, and the existing inspection and approval regime with a view to enhancing the water supply and regulatory system.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)265**

**(Question Serial No. 5021)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

How will the Government monitor water pipe fittings used in public rental housing estates, hospitals, schools and child care centres in 2016-17? What are the details and expenditures? Will the Government increase manpower and resources for inspection of water pipe fittings, pipes and solders, etc, of the above premises to see whether they contradict the declared information to the Water Supplies Department (WSD) (including name of product, standard, origin of product)?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 56)

Reply:

Under the Waterworks Regulations (WWR), all pipes and fittings to be used in the inside service shall comply with British Standards. Before commencement of the plumbing works, the applicant, Licensed Plumber (LP) and Authorised Person (AP) shall apply to the Water Authority (WA) for permission to commence the plumbing works. In the applications, the LP and AP are required to list out the proposed pipes and fittings intended to be installed for approval of the WA. The LP and AP are also required to certify that all pipes and fittings to be used shall be as prescribed by the WWR. After completion of the works, WSD will conduct random checks on the pipes and fittings installed. For any pipes or fittings installed found to be not on the approved list or different from the original submission, penalty points will be imposed on the LP and he is required to rectify the defects to the satisfaction of WSD. If the total penalty points in a single inspection exceeds 10 points, a warning letter will be issued to the LP. Once two letters are issued to the LP within a period of 12 months, the licence of the LP may be suspended.

After the lead in drinking water incidents, WSD, after review, has rolled out various measures to enhance the control of the construction, etc. of inside service. These enhancements include imposing a five-year validity period of general acceptance to water

supply pipes and fittings; stipulating the requirement for submission of lead free soldering materials; carrying out tests on solder pipe joints and testing water samples for lead and three additional heavy metals at final inspection of newly installed fresh water inside service; and enhancing the point penalty system for LP in regard to the importance of using compliant plumbing materials and proper discharge of duties.

The current control mechanism together with the enhancement measures are applicable to the newly installed inside service in public rental housing estates, hospitals, schools and kindergartens.

To cater for the additional workload in reviewing and enhancing the material control of pipes and fittings, WSD will create two civil service posts in 2016-17, which will incur approximately \$2.1 million per annum. For enhancing the inspection and approval of inside service, WSD will create 15 civil service posts in 2016-17, which will incur approximately \$7.4 million per annum.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)266**

**(Question Serial No. 5022)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What were the Government's expenditures on filtration and treatment of raw water and water from reservoirs in the past three years? What are the anticipated details and estimated expenditures in 2016-17?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 57)

Reply:

The recurrent costs incurred in WSD's treatment plants for treating raw water and water from reservoirs in the past three years are as follows:

2012-13	\$240.1 million
2013-14	\$256.0 million
2014-15	\$268.2 million
2015-16	\$229.9 million

(up to February 2016)

It is expected that there will be no major change in the operation mode as well as the expenditure level in the treatment plants in 2016-17.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)267**

**(Question Serial No. 5023)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What are the Government's measures for handling safety of Dongjiang (DJ) water and prevention of pollution? What are the details, manpower and expenditures involved in inspection and sampling and testing of DJ water in the Mainland? What are the anticipated details of work, manpower and expenditures in 2016-17?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 58)

Reply:

Under the current Dongjiang (DJ) water supply agreement, the Guangdong (GD) authorities would maintain the quality of the DJ water supplied to Hong Kong to meet the national standard set out for Type II waters (applicable to the abstraction for human consumption in first class protection area) in the "Environmental Quality Standards for Surface Water GB3838-2002". In this connection, the Government has all along been maintaining close liaison with the GD authorities on water quality of DJ through an established institutional mechanism, which includes the GD/Hong Kong Water Supply Business Meeting, GD/Hong Kong Water Supply Operation and Management Technical Cooperation Sub-group Meeting and the Special Panel on the Protection of DJ Water Quality.

Separately, we have been closely monitoring the DJ water quality through a 24-hour on-line monitoring system installed at the reception point in Muk Wu Pumping Stations. Regular water samples are also taken at Muk Wu Pumping Stations for detailed analysis to ensure that the DJ water supply complies with the required standard.

In case of any anomaly in the quality of DJ water, we will immediately step up monitoring and liaise with the GD authorities concerned including stepping up the monitoring of various water quality parameters at Muk Wu Pumping Stations and consider reducing or suspending the supply of DJ water in the light of its actual quality conditions.

As regards prevention of pollution to the DJ water, the major measures are the relocation of the intake points of DJ water supplied to Hong Kong to a location of better water quality, the construction of an about 60-kilometre-long dedicated aqueduct to convey DJ water from GD to Hong Kong, and the various sewage interception and diversion projects. The quality of the DJ water has been substantially improved and has been maintained at good quality since the introduction of various pollution prevention measures. In case of any major contamination incidents affecting the quality of DJ water supplied to Hong Kong, the GD authorities will immediately notify the WSD via an established notification mechanism manned by designated liaison officers of both Hong Kong and GD authorities.

Currently there are 128 staff in WSD involved in sampling, testing as well as water quality control and monitoring. It covers sampling, testing, control and monitoring of the quality of water from DJ, in the water gathering grounds, impounding reservoirs, service reservoirs, distribution network as well as consumer taps, and a small portion of the allocation is for control of the quality of sea water for flushing. The provision for water quality control in 2016-17 is \$210.2 million. As the staff involved are required to perform the water quality control for DJ water as well as other water quality monitoring work, the estimated cost attributable to inspection, sampling and testing of DJ water is not readily available.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)268**

**(Question Serial No. 5024)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Previously, the Secretary for Development said that there was “a lack of awareness” of lead in soldering materials and risk of lead in drinking water among stakeholders including the Water Supplies Department (WSD). Will the WSD allocate additional resources for further staff training to safeguard water safety in this financial year?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 59)

Reply:

While the Water Supplies Department (WSD) is aware that lead can be leached into water and has therefore specified that only lead free solder shall be used in jointing copper pipes under the Waterworks Regulations, WSD did not anticipate the illegal use of lead solder in plumbing works despite the fact that there was a multi-barrier system in place to ensure the correct use of materials. The system in place includes the statutory regime, the multi-tiered supervisory system of the developers and contractors on site, and the requirement for certification by licensed plumbers and Authorised Persons.

The current training courses conducted by WSD for existing and newly recruited frontline staff have already covered the risk of lead leaching into drinking water. Nevertheless, WSD will further beef up these courses to cover the newly introduced enhancement measures to prevent the illegal use of lead solder in jointing fresh water supply pipes. The enhancement measures include the requirement for submission of lead free soldering materials, carrying out non-destructive tests on solder pipe joints, and testing water samples for lead and three additional heavy metals at the final inspection of newly installed fresh water inside service. Existing staff resources are deployed to implement these enhanced training programmes.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)269**

**(Question Serial No. 5025)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding water supply components, in 2016-17, will the Government conduct study on implementation of a product labelling scheme to ensure that the import, retail and wholesaling of water supply components comply with relevant laws to let the public have the right to know? If yes, what are the details and expenditures? If no, what are the reasons?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 60)

Reply:

According to the Waterworks Regulations, all water supply pipes and fittings to be used in inside service shall comply with British Standards. The Water Supplies Department (WSD) has set up a general acceptance system on pipes and fittings. Normally, suppliers will submit British Standards Institution Certificates (BSI Kitemark), Water Regulations Advisory Scheme Certificates or test reports issued by accredited laboratories to show compliance with the relevant British Standards to WSD. WSD will verify the validity of the certificates and the results of test reports prior to granting a general acceptance. The general acceptance will have a maximum validity period of five years. A list of water supply pipes and fittings accepted by WSD is posted on WSD's website for the information of the public.

The Waterworks Ordinance and Waterworks Regulations do not control the import, sale and retail of water supply pipes and fittings in Hong Kong. WSD is now exploring with the relevant industry stakeholders on a voluntary labelling scheme for some common water supply fittings for sale in shops which are with currently valid approval by WSD.

- End -



**CONTROLLING OFFICER'S REPLY**

**DEVB(W)270**

**(Question Serial No. 5026)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What are the number of water safety experts in the establishment of the Water Supplies Department (WSD) and details? What is the annual expenditure? The public places importance on water safety. Will the WSD consider increasing the number of water safety experts in response to the public's opinion?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 61)

Reply:

Currently, there are one chief, five senior and 20 professional chemists in WSD involved in the implementation of the Water Safety Plan advocated in the Guidelines for Drinking-water Quality published by the World Health Organization. The estimated staff cost is \$25.2 million per annum.

In 2016-17, WSD will create one senior and two professional chemist posts to strengthen the control and monitoring of the drinking water safety in Hong Kong. The estimated additional staff cost is \$3.1 million per annum.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)271**

**(Question Serial No. 5027)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

What are the Water Supplies Department (WSD)'s measures and plans on realising a review of the Waterworks Ordinance? What are the details and expenditures? Will the WSD consider improving relevant issues with reference to recommendations of Commission of Inquiry into Excess Lead found in Drinking Water (CoI)?

Will the Government consider legislation on drinking water safety? If yes, how many manpower and resources will be deployed for drafting laws and what are the details? Is there a timetable for legislation? If no, what are the reasons?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No 62)

Reply:

The Water Supplies Department (WSD) has commenced a holistic review of the Waterworks Ordinance (WVO) and its Regulations (WWR). The major areas of review in relation to the regulation of inside service include (i) the institutional hierarchy and personnel, including licensed plumbers, in carrying out and supervising the construction of the inside service; (ii) the current system of promulgating material standards and control; (iii) the regime of inspection and approval of inside service; and (iv) leakage detection of underground water pipes in the inside service. In 2016-17, WSD will create three time-limited civil service posts and one post-retirement service contract position for carrying out a review on the WVO and WWR for legislative amendments, which will incur approximately \$4.4 million a year. In this connection, WSD will duly take into consideration the findings and recommendations of the Commission of Inquiry into Excess Lead found in Drinking Water (CoI) in the review of the WVO and WWR.

The Government is open to the proposal for legislating for safety of drinking water. We need to examine the issues in detail and study in depth the overseas experience, including the background and the unique circumstances of the relevant countries in enacting similar legislations, the legislation focus and the difficulties encountered in the implementation. Relevant findings and recommendations of the CoI will also be considered. The Development Bureau (DEVB) is leading an inter bureau and departmental working group to conduct a study to tap overseas experience on the water safety regime and related issues to determine the way forward for the legislation for safety of drinking water. It is too early to fix a firm timetable for legislation at this stage. In addition to utilizing the existing manpower resources of DEVB, the estimated expenditure in 2016-17 for undertaking the study by DEVB amounts to about \$1.4 million.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)272**

**(Question Serial No. 5028)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Will the Government reserve resources to provide subsidy to residents of non-rental public housing estates for water sampling tests in 2016-17? If yes, what are the details and expenditures? If no, what are the reasons?

Asked by: Dr Hon Helena WONG Pik-wan (Member Question No. 63)

Reply:

The Government does not have a plan to provide subsidy to the residents of non-rental public housing for water sampling tests. Under the Waterworks Ordinance, the agent and consumers are responsible for the custody and maintenance of the communal service and inside service in the premises. The agents and consumers of the non-rental public housing estates, like other private housing estates, may make their own arrangement to engage accredited laboratories for water sampling tests if necessary.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)273**

**(Question Serial No. 4936)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not Specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

The Government says it will continue to carry out design of infrastructures for supplying reclaimed water for flushing and other non-potable purposes in the north-eastern part of the New Territories. Regarding this, would the Government inform this Committee of:

- (1) completed projects in the past two years and expenditures involved; please list the names of completed pilot projects and scope of application. If any, please provide evaluation results of their effectiveness;
- (2) the timetable of full application of the above projects and promotion of them to the public, scope of application, estimated cost-effectiveness and water resource saving;
- (3) does the Government plan to extend to the above projects to other areas? If yes, what are the details and expenditure involved?

Asked by: Hon TANG Ka-piu (Member Question No. 34)

Reply:

- (1) The Government conducted two pilot schemes on reclaimed water in Ngong Ping and Shek Wu Hui in 2006. Both schemes indicated that the production of reclaimed water from treated sewage effluent for non-potable uses such as toilet flushing and irrigation was technically feasible. No further pilot projects were considered necessary to be carried out in the past two years. Instead, to take forward the water reclamation initiative, we have been focusing our effort on the scheme of supplying reclaimed water to the north-eastern part of the New Territories for toilet flushing and other non-potable uses in phases starting with Sheung Shui and Fanling from 2022 onwards.

- (2) We plan to effect reclaimed water supply to the north-eastern part of the New Territories for toilet flushing and other non-potable uses such as irrigation in phases starting with Sheung Shui and Fanling from 2022 onwards. The Government has conducted user opinion surveys for the two pilot schemes at Ngong Ping and Shek Wu Hui. The surveys indicated that the majority of users generally accepted the use of reclaimed water. We will conduct public consultation when more detailed information about the scheme of supplying reclaimed water to Sheung Shui and Fanling is available. We expect that the supply of reclaimed water will progressively be extended in line with the completion of the developments in the area. We anticipate that this scheme of supplying reclaimed water to the north-eastern part of the New Territories including Sheung Shui and Fanling, which is the most cost effective scheme as compared with that of supplying fresh water and seawater, will save up to 21 million cubic metres of fresh water each year.
- (3) Apart from supplying reclaimed water to the north-eastern part of the New Territories for toilet flushing and other non-potable uses, we will explore the feasibility of supplying reclaimed water to other areas which are outside seawater supply zones in order to save the precious fresh water resource.

- End -

**CONTROLLING OFFICER'S REPLY**

**DEVB(W)274**

**(Question Serial No. 7273)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not specified  
Programme: (1) Water Supply: Planning and Distribution  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Regarding Subhead 9358WF "In-situ reprovisioning of Sha Tin water treatment works (South Works) – design and site investigation" under Head 709 in the Estimates of 2015, has the Government conducted study on relocating the South Works of Sha Tin water treatment works to cavern? If yes, what are the manpower and expenditure involved?

Asked by: Hon Alvin YEUNG Ngok-kiu (Member Question No. 21)

Reply:

Unlike other government facilities being considered for relocation to caverns such as sewage treatment works, service reservoirs, etc., there are major technical concerns in accommodating the Sha Tin Water Treatment Works (WTW) inside caverns. There is potential hazard arising from the accumulation of chlorine inside the caverns due to the use and storage of chlorine in the WTW. Besides, the Sha Tin WTW is at a strategic location and connected with a network of major raw water tunnels and treated water mains, and it is difficult to find a suitable site to reprovision the WTW in caverns. The above preliminary assessment to relocate Sha Tin WTW into caverns was carried out using in-house resources which are minimal. Detailed project feasibility study on the relocation of the South Works of Sha Tin WTW to caverns is considered not necessary in view of the above findings.

- End -

**CONTROLLING OFFICER'S REPLY**

**S-DEVB(W)02**

**(Question Serial No. S0042)**

Head: (194) Water Supplies Department  
Subhead (No. & title): Not specified  
Programme: (2) Water Quality Control  
Controlling Officer: Director of Water Supplies (Enoch T.S. LAM)  
Director of Bureau: Secretary for Development

Question:

Q:0082/DEVB(W)100

1. "Public accessible consumer taps" are not residents' taps. The public usually takes water at home for cooking. Why does the Water Supplies Department (WSD) not try to take fresh water from residents' taps?
2. Will resources be allocated to recruit more water safety experts and conduct study on Drinking Water Safety Ordinance? If yes, what are the details?

Asked by: Dr Hon Helena WONG Pik-wan

Reply:

1. Under Section 12 of the Waterworks Ordinance, WSD has no power to enter private premises to take water samples from household consumers' taps unless with their consent or by a magistrate's warrant. WSD takes water samples at public accessible consumer taps including shopping centres, community facilities, sports grounds, markets, government offices and estate management offices to monitor the general quality of water supplied to consumers for the compliance with the World Health Organization's "Guidelines for Drinking-water Quality". Samples taken at public accessible consumers' taps can serve as a surrogate for treated water quality at connection points as well as an indication of the cleanliness of the inside service of consumers' premises.
2. In 2016-17, WSD will create one senior and two professional chemist posts to strengthen the control and monitoring of the drinking water safety in Hong Kong. The estimated additional staff cost is \$3.1 million per annum.

The Government is open to the proposal for enacting a Drinking Water Safety Ordinance. We need to examine the issues in detail and study in depth the overseas experience, including the background and the unique circumstances of the relevant countries in enacting



similar legislations, the legislation focus, the water quality standard, the guideline values of the World Health Organization's "Guidelines for Drinking-water Quality" and the difficulties encountered in the implementation. The Development Bureau is leading an inter bureau and departmental working group to conduct a study to tap overseas experience on the water safety regime and related issues to determine the way forward for the legislation for safety of drinking water.

- End -