

LCQ17: Management of water resources

Following is a question by the Hon Dennis Kwok and a written reply by the Secretary for Development, Mr Michael Wong, in the Legislative Council today (March 20):

Question:

At present, around 70 to 80 per cent of Hong Kong's fresh water supply comes from Dongjiang while the remainder comes from local catchments. In reply to a question raised by a Member of this Council on June 27 last year, the Government said that the first stage of Tseung Kwan O (TKO) Desalination Plant under construction was expected to be completed by 2022. The fresh water production capacity of the desalination plant will be 135 000 cubic metres per day (equivalent to around 5 per cent of the fresh water consumption of Hong Kong) and can ultimately be increased to 270 000 cubic metres per day. However, the Government indicated that it had no plan to set a target percentage of the fresh water production capacity of desalination plants at 30 per cent of Hong Kong's water consumption. Regarding the management of water resources, will the Government inform this Council:

(1) as there are views that pollution of water sources that may be caused and the additional demand for fresh water generated by the rapid development of the Mainland economy and climate change may lead to an unstable Dongjiang water supply, but seawater desalination as a sustainable source of water supply will not be affected by such problems, of the reasons why the Government has no plan to set a target percentage of the fresh water production capacity of desalination plants at 30% of Hong Kong's water consumption;

(2) apart from TKO Desalination Plant, whether the Government has studied the implementation of other seawater desalination projects; if so, of the outcome (including fresh water production capacity); if not, the reasons for that;

(3) as the Government indicated last year that it would supply in phases reclaimed water for toilet flushing in the northeast New Territories, and that it planned to launch a public consultation and commence the legislative amendment work on the supply of reclaimed water, of the progress of such work; whether it has studied the supply of reclaimed water to other districts; if so, of the outcome (including the timetable); if not, the reasons for that;

(4) as the Government is taking forward the Inter-reservoirs Transfer Scheme, under which a tunnel connecting the Kowloon Byewash Reservoir and the Lower Shing Mun Reservoir is to be built to reduce overflow from the Kowloon Group of Reservoirs and increase water resources, of the progress of the Scheme; and

(5) of the number of government buildings currently installed with a grey water reuse system or rainwater harvesting system, and set out by building

name the volume of grey water used and rainwater harvested last year; if such statistics are unavailable, of the reasons for that; whether it has plans to install such systems in all government buildings; if so, of the details (including the timetable); if not, the reasons for that?

Reply:

President,

To cope with the impact of climate change, increase of water demand brought about by population and economic growth, and keen demand for water resources due to development of the Pearl River Delta region, etc., the Water Supplies Department (WSD) promulgated the Total Water Management Strategy (the Strategy) in 2008 to ensure a sustainable and reliable water supply in Hong Kong. The Strategy puts an emphasis on containing the growth of water demand through promoting water conservation and exploiting new water resources. On water conservation, we have installed flow controllers and water saving devices for public housing, government buildings and schools; promulgated "Water Efficiency Labelling Scheme"; implemented education programmes such as "Cherish Water Campus" and "Cherish Water Ambassador"; launched measures to reduce water leakage, which include establishing the "Water Intelligent Network" (WIN) in government water mains, as well as promoting and assisting leakage detection and maintenance of private water mains; extended the use of seawater for flushing, etc. On exploiting new water resources, apart from rainwater from local catchments, imported water from Dongjiang and seawater for toilet flushing, the WSD is striving to explore water sources which are not susceptible to climate change, including desalinated seawater and recycled water (including reclaimed water, recycled grey water and harvested rainwater) for non-potable use.

The reply to the Hon Kwok's question is as follows:

(1) In the future, water sources in Hong Kong would be more diversified. Apart from the three existing water sources, namely rainwater from local catchments, imported water from Dongjiang and seawater for toilet flushing, desalinated seawater and recycled water would be introduced to allow more flexibility, as well as to ensure security in Hong Kong's water supply. At present, the energy consumption and cost of drinking water produced by desalination are still relatively high. It is mainly used to cope with the impact of climate change on water resources. In the future, the proportion of water sources would vary according to a host of factors, including water demand (subject to effectiveness of various water conservation measures, and population and economic growth), local rainfall (can be affected by annual rainfall fluctuations and climate change), cost-effectiveness, as well as technological development of the various water sources, their reliability, impacts to the environment, etc. We will review proportions of the different water sources from time to time according to the latest circumstances.

(2) We do not have any study to implement other desalination projects at this stage. When planning for water supply in individual development areas, we will investigate whether desalination would be more suitable than other water sources. The water supply arrangements in individual development areas would

be affected by various factors, including the distance between the development areas and the coast, as well as the existing water supply network and facilities. The arrangements would also be affected by the capacities of the corresponding water supply networks and facilities, etc.

(3) As the Shek Wu Hui Sewage Treatment Works will be upgraded into an Effluent Polishing Plant by adopting tertiary treatment, we plan to further process the tertiary treated effluent to become reclaimed water. We plan to supply, in phases from 2022 onwards, reclaimed water for non-potable use, such as flushing, to users in the northeast New Territories who are currently being supplied with temporary mains water for flushing. We will first supply reclaimed water to Sheung Shui and Fanling and extend the supply to Kwu Tung North and Fanling North New Development Areas in accordance with their development programmes.

We are currently implementing the associated infrastructure works for the supply of reclaimed water in Sheung Shui and Fanling, including the construction of a service reservoir and the laying of trunk water mains and local distribution mains. In addition, we are designing the remaining works, including the water reclamation facilities, a pumping system and the remaining local distribution mains in Sheung Shui and Fanling.

Following the completion of the public consultation on the proposals for the supply of recycled water (including reclaimed water) in December 2018, we are now preparing works for the relevant legislative amendments. While we are still analysing in detail the public opinions collected during the consultation, the preliminary results indicate that the public are generally supportive of the proposal to supply recycled water by the WSD. With a view to further reducing the use of fresh water, we will continue to review the extension of supply of reclaimed water to other new development areas and areas still being supplied with temporary mains water for flushing, wherever it is technically feasible and cost-effective to do so.

(4) The Drainage Services Department has commenced the works contract for the "Inter-reservoirs Transfer Scheme" in February 2019, with the anticipated completion in the fourth quarter of 2022.

(5) In line with the Government's policy on green buildings, works departments would as far as practicable, install on-site rainwater harvesting or grey water recycling systems in government buildings in public works projects. By the end of 2018, new buildings of about 90 government projects have been installed with rainwater harvesting or grey water recycling systems. However, as the water collected for reuse by these systems is rather limited, we have not measured or collected statistics on the relevant water volumes. On the other hand, we are actively pursuing the implementation of a centralised grey water recycling system at the Development of Anderson Road Quarry Site. The system comprises of a grey water treatment plant with a daily capacity of 3 300 cubic metres. It will treat grey water collected within the development, and then distribute the treated grey water back to the development for non-potable use such as flushing.