

**For discussion on  
28 November 2017**

## **Legislative Council Panel on Development**

### **Supply of Dongjiang Water**

#### **PURPOSE**

The current agreement with the Guangdong (“GD”) authorities for the supply of Dongjiang (“DJ”) water is due to expire at the end of 2017. This paper briefs Members on the new agreement for the supply of DJ water in the next three years between 2018 and 2020 (“the new agreement”).

#### **THE NEW AGREEMENT**

2. Following several rounds of discussions with the GD authorities since early 2017 and taking account of the requirements of Hong Kong in water supply, the new agreement for supply of DJ water in the next three years between 2018 and 2020 shall include the following major features -

- (a) To meet the actual needs of Hong Kong with 99% reliability<sup>1</sup> in water supply for the three-year period between 2018 and 2020, the “package deal lump sum” approach adopted in the current DJ water supply agreement is to be retained with the annual supply ceiling of 820 million cubic metres (“mcm”) and the annual lump sum water prices<sup>2</sup> for 2018 to 2020 adjusted to Hong Kong Dollar (“HKD”) 4,792.59 million, HKD4,807.00 million and HKD4,821.41 million respectively;

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<sup>1</sup> “99%” reliability means that water supply is maintained round-the-clock even under extreme drought condition with a return period of 1 in 100 years. “Return period” is the average number of years during which an event will occur once statistically. A longer return period means a rarer chance of occurrence. To ensure 99% reliability of water supply, the Water Supplies Department estimates that an annual supply ceiling of 820 mcm of DJ water will be required in the period between 2018 and 2020.

<sup>2</sup> The annual lump sum water prices for 2015 to 2017 under the current supply agreement are HKD4,222.79 million, HKD4,491.52 million and HKD4,778.29 million respectively.

- (b) The ultimate annual DJ water supply quantity of 1 100 mcm is to be maintained whilst the date for supplying this quantity will be subject to future review; and
- (c) The GD side is to maintain the quality of DJ water supplied to Hong Kong in compliance with Type II<sup>3</sup> waters in the Environmental Quality Standards for Surface Water (GB 3838-2002), which is the highest national standard for surface water applicable for the abstraction for human consumption.

## **JUSTIFICATION**

3. The current DJ water supply agreement is due to expire at end of 2017. In early 2017, we commenced discussion with the GD side on the new agreement for supply of DJ water in the next three years between 2018 and 2020. The objective is to ensure that Hong Kong will continue to have a reliable and flexible supply of DJ water to meet our needs. We plan to enter into the new agreement with the GD side by the end of 2017 before the expiry of the current supply agreement. The major considerations in arriving at the new agreement are detailed in paragraphs 4 to 17 below.

### Provision of Reliable Water Supply to Hong Kong

4. The local water resource mainly comes from rainfall but the yield collected from local catchment is inadequate to meet the needs of Hong Kong. The amount of local yield is also unstable due to fluctuation in rainfall year by year<sup>4</sup>. DJ water, which now provides about 70% to 80% of our fresh water supply, is able to fill the gap due to the inadequate local yield in meeting the water demand. Therefore, a reliable and stable DJ water supply arrangement is essential for Hong Kong.

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<sup>3</sup> There are five types of surface water standards designated for specific environmental functions and protection objectives in the Environmental Quality Standards for Surface Water (GB 3838-2002). Type I standard is mainly applicable to source water and national nature reserve and is not for abstraction for human consumption. Type II standard is mainly applicable to first class protection area for the abstraction for human consumption. It is therefore the highest national standard for surface water applicable for the abstraction for human consumption.

<sup>4</sup> In the last 30 years (1987-2016), the annual rainfall recorded in Hong Kong varied from 1 487 mm to 3 343 mm and the annual yield collected from our local catchment fluctuated between 103 mcm and 385 mcm.

## “Package Deal Lump Sum” Approach

5. In the last four DJ water supply agreements since 2006, the “package deal lump sum” approach has been adopted to ensure a reliable and flexible supply of DJ water to meet the actual needs of Hong Kong. On one hand, the approach enables us to import DJ water as needed each year up to an annual supply ceiling specified in the supply agreements while on the other hand, it avoids wastage of the DJ water resources and saves our pumping costs when more local yield is available in a particular year.

6. There have been requests to explore the adoption of an alternative “payment on actual supply quantity” approach which has also been raised by some Members during the Panel on Development’s duty visit to the DJ river basin in April 2017. The GD side in response remarked that in addition to providing the supply to Hong Kong, DJ water is also an important water resource to several GD cities including Heyuan, Huizhou, Dongguan, Guangzhou and Shenzhen. The water resource utilization rate of DJ has already reached a level very close to its exploitation limit. Besides, the average annual per capita water resources in the DJ river basin is only 1 100 cubic metres which is substantially lower than those of the GD province and the whole nation of 2 100 and 2 200 cubic metres respectively. Furthermore, with the fast pace of economic development of the above GD cities, there is keen competition for the fresh water resources of DJ. Thus, if no annual supply quantity is specified in the supply agreement, the GD side considered that they would have difficulty in ensuring adequate water supply for Hong Kong in case of droughts.

7. Moreover, Hong Kong and 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. In the event of drought, there would be no guarantee that the GD side could meet our demand for a higher DJ water supply quantity unless we set a “reserved quantity” for possible need during drought years in the supply agreement. By so doing, such arrangement is effectively the same as the “package deal lump sum” approach.

8. Besides, if the “payment on actual supply quantity” approach is to be adopted, a unit water price will need to be determined. Since there is no specified supply quantity, the GD side may have to make due allowance for the uncertainty in the actual supply quantity in fixing the unit water price to ensure a reasonable income to cover their operation expenses and investment return. Hong Kong may end up paying more under the “payment on actual supply quantity” approach than the current “package deal lump sum” approach.

9. Notwithstanding the above, the “package deal lump sum” approach has been adopted for more than ten years since its first application in 2006. It is considered an appropriate time to review the payment approach, e.g. whether some forms of combination of a fixed lump sum for a guaranteed supply quantity above which a variable sum will be made based on the actual supply quantity can be adopted. We have thus asked and GD side has agreed to jointly take forward the review. Given the complexity of the issues involved in the review such as its effect on the reliability of water supply to Hong Kong, the operational arrangement of the GD side in planning the annual energy consumption, the fixing of the lump sum and the unit rate for calculating the variable sum etc., thorough studies are required for the review which could not be completed before expiry of the current supply agreement by the end of this year. Both sides have therefore agreed to retain the “package deal lump sum” approach for the new agreement and to further discuss the payment approach upon completion of the review for future supply agreements after 2020.

10. In view of the above, the “package deal lump sum” approach is retained in the new agreement.

### Water Price

11. Similar to previous supply agreements, adjustment of DJ water price is based on changes in operation costs, exchange rate between Renminbi (“RMB”) and HKD as well as the relevant price indices of both sides.

12. The average annual rate of change in RMB/HKD exchange rate is about -2.29% in the past three years from 2014 to 2016 while the average annual rate of change of the relevant price indices of GD and Hong Kong is about +2.66% over the same period. After rounds of negotiation, both GD and Hong Kong sides agreed to adopt an annual increase in the water price by 0.3% in the new agreement. The water prices from 2018 to 2020 in the new

agreement are therefore those set out in paragraph 2 above. Taking account of the actual rates of change of RMB/HKD exchange rate and the relevant price indices of GD and Hong Kong during 2014 to 2016, we consider the adjustments in water price reasonable.

### Water Quantity

13. Whilst there has been a steady growth in population in Hong Kong, we have managed to contain the growth of our fresh water demand in the past few years, thereby containing the growth of demand for DJ water.

14. The current supply agreement has adopted an annual supply ceiling of 820 mcm. We have carried out a detailed analysis based on the latest fresh water demand forecast and estimated that the annual demand for DJ water in the coming three years between 2018 and 2020 with 99% reliability of water supply will not exceed 820 mcm. We retained the current supply ceiling of 820 mcm in the new agreement to maintain the reliability of water supply in Hong Kong.

15. As DJ water is also an important water resource to several GD cities, the GD authorities have promulgated the “Water Resources Distribution Plan in the Dongjiang River Basin of Guangdong Province” (“Distribution Plan”) setting out the maximum amount of water that respective GD cities and Hong Kong can draw from DJ. The Distribution Plan allocates an annual supply quantity of 1 100 mcm for Hong Kong. Whilst Hong Kong is allocated with such right, we have requested and the GD side has agreed to defer the supply up to this quantity based on the needs of Hong Kong.

### Water Quality

16. The GD side has agreed to maintain in the new agreement the quality of DJ water supplied to Hong Kong in compliance with Type II waters in the Environmental Quality Standards for Surface Water (GB3838-2002), which is the highest national standard for surface water applicable for the abstraction for human consumption. According to our water quality monitoring data, the quality of DJ water supplied to Hong Kong has met this standard in accordance with the supply agreements.

17. During the duty visit to the DJ river basin in April 2017, Members were in general satisfied with the quality of DJ water and the measures taken by the GD side in safeguarding the quality of DJ water supplied to Hong Kong.

## **WAY FORWARD**

18. We plan to enter into the new agreement with the GD side by the end of 2017 before the expiry of the current agreement.

**Development Bureau**  
**November 2017**