

For information

**LEGISLATIVE COUNCIL PANEL ON
PLANNING, LANDS AND WORKS**

DONGJIANG WATER SUPPLY

PURPOSE

The long-term supply of Dongjiang (DJ) water to Hong Kong is secured under current agreements signed in 1989 and 1998 with the Guangdong (GD) Provincial Government, subject to periodic review of water prices and supply quantities mutually acceptable to both sides. At the 12th Business Meeting¹ held on 12 April 2006, we reached agreement with the GD authorities on the details of water supply arrangements for the period up to 2008. This paper briefs Members on the gist of the new arrangements.

BACKGROUND

2. The 1989 Water Supply Agreement stipulated that the adjustment of water prices should be based on operation costs having regard to the relevant price indices of both sides and the exchange rate between Hong Kong dollar and Renminbi. We adhered to this mechanism up to 1999 when it was observed that high inflation in the preceding years had become a dominant factor and would render the increase in water prices unrealistic. Following much deliberation with the GD side, we managed to agree at the Business Meeting held in 2001 that the unit water price for 2000 should be frozen at 1999 level (i.e. \$3.085/cu.m.). Since 2001, we have been procuring DJ water at the unit price of \$3.085/cu.m. on a provisional basis.

¹ Pursuant to the 1989 Agreement, the Hong Kong side represented by the Environment, Transport and Works Bureau and the GD side represented by the Water Resources Bureau shall hold Business Meetings to discuss all matters in relation to DJ water supply.

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3. As stated in the 1989 Agreement, the annual supply quantity for 1995 was 690 million cubic metres (mcm) to be increased by 30 mcm/year until the ultimate annual capacity of 1,100 mcm would be reached in 2008. In 1998, we entered into a supplementary loan agreement for the construction of the dedicated aqueduct to improve the quality of DJ water, and at the same time took the opportunity to substantially reduce the supply quantities between 1998 and 2004 to suit our needs (see **Annex A**). In addition, both sides consented to defer the implementation of the ultimate annual capacity of 1,100 mcm from 2008 to a later date to be decided through mutual consultation. The annual supply quantities beyond 2004 would be subject to further negotiation.

4. In the past few years, the negotiation process became protracted due to substantial difference in opinions between the two sides on the pricing mechanism. We also experienced difficulty in seeking further scaling down of the annual supply quantities with consequential reduction in our payments for purchase of DJ water. Main issues of concern are detailed in paragraphs 11 to 15.

NEW WATER SUPPLY ARRANGEMENTS

5. On 12 April 2006, we concluded the negotiation by making new arrangements for DJ water supply with the following essential features

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- (a) The provisional unit price of DJ water adopted from 2001 to 2004 at \$3.085/cu. m. is confirmed.
- (b) To meet the actual needs of Hong Kong with 99% reliability², a fully flexible supply of DJ water for the four-year period up to 2008 is guaranteed on the basis of a package deal as follows -

² "99% reliability" means that water supply is maintained round-the-clock even under extreme drought condition with a return period of one in 100 years. "Return period" is the average number of years during which a certain severity of drought will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe drought.

- (i) the lump sum for 2005 is \$2,529.7 million (i.e. same as the 2004 level); and
 - (ii) the annual lump sum for 2006 to 2008 will be \$2,494.8 million [i.e. \$34.9 million below the 2004 level] to be paid at equal monthly installments.
- (c) The ultimate annual DJ water supply quantity of 1,100 mcm is maintained whilst the target date for achieving this objective will be subject to future review.
- (d) The GD side will strive to supply DJ water with quality up to the latest national Type II Standard of GB 3838-2002.³

BENEFITS OF THE NEW ARRANGEMENTS

Guaranteed Water Supply Up to 2008

6. Apart from formalising our financial commitment from 2001 to 2004, the new arrangements will guarantee a fully flexible supply of DJ water up to 2008 to achieve the 99% reliability pledged by the Administration. This will cater for our water demand even under extreme drought conditions with a return period of one in 100 years.

Flexibility in Water Supply to Minimize Wastage

7. With certainty of payments at fixed intervals, the GD side will allow greater flexibility in the daily supply rate to tie in with seasonal fluctuations in the local yield. We will inform the GD side on a monthly basis our demand for DJ water according to the actual requirements. This would enable us to have better control of the storage level in Hong Kong, thus minimizing the overflow more effectively and saving pumping costs.

³ Under the 1998 Loan Agreement, GD undertook to make endeavour to supply DJ water with quality up to the national Type II Standard of GB 3838-1988.

Annual Lump Sum not Exceeding the 2004 Level

8. Despite anticipated inflation between 2005 and 2008, we managed to cap the annual expenditure in the purchase of DJ water not exceeding the 2004 level, thereby accruing a total potential saving amounting to \$104.7 million for the four-year period.

Retention of Ultimate Annual Supply Quantity

9. The target date for reaching the ultimate annual supply quantity of 1,100 mcm will likely be deferred to 2044 assuming an average annual growth rate of 0.8% on water demand. Given that the water demand within the region has been increasing sharply, we need to ensure the certainty of long-term availability of water resources to cope with the future development of Hong Kong. It is prudent to reiterate this ultimate supply capacity without committing to the time of achieving this target or paying an additional retention fee for this purpose.

Improved Water Quality

10. The quality of DJ water supply has shown marked improvement upon commissioning of the dedicated aqueduct system in mid-2003. GD will continue with its efforts to protect the water environment of DJ and strive to upgrade the water quality in compliance with the latest national Type II Standard of GB 3838-2002. We will benefit from reduced expenses in water treatment due to enhanced quality of DJ water.

MAIN ISSUES OF CONCERN

Increasing Water Demand in GD

11. Like many other provinces in the Mainland, there has been spiralling demand for the scarce fresh water resources from cities in GD, in particular Shenzhen, Dongguan, Huizhou and Guangzhou, all of which rely heavily on water supply from DJ. These cities are now competing

intensely with Hong Kong for DJ water to sustain their rapid development.⁴ The GD side have underscored that preserving high flexibility in the water supply to Hong Kong is at the expense of the reliability and efficiency of their supply to other cities. They have also cited operational difficulties in respect of manpower and technical planning of distribution network covering pumping and electrical power. Furthermore, the need to retain the ultimate supply quantity of 1,100 mcm for Hong Kong will lead to under-utilisation of the DJ water supply system and thus diminished return for the investments made on the fixed cost of providing and maintaining the system.

Escalating Water Prices in Mainland

12. According to the GD side, there has been widespread reform of the water price framework in the Mainland triggered by new legislation and policies, resulting in upward adjustment of water prices in many cities. Against this background, GD is under tremendous pressure to increase water prices in order to regulate the keen competition for fresh water in the region.⁵ On the principle of equal treatment, offering sizeable price reductions to Hong Kong contrary to the rising trend would hardly be justifiable.

13. Whilst the unit water price borne by Hong Kong is higher than those GD cities consuming DJ water, GD is of the view that it is inappropriate to make a direct comparison among different cities, as the pricing mechanism is often dictated by a host of intrinsic factors such as living standards, risk of water shortage, water quality, let alone the cost of providing and maintaining the water supply system. The current wide gap in the average wage levels and living standards between Hong Kong and these cities, such as Shenzhen and Dongguan, is not incommensurate with the difference in water prices being paid.

⁴ As an example, it is estimated that the demand of water in Shenzhen would increase from 1,230 mcm in 2003 by 58% to 1,943 mcm in 2010 and by 168% to 3,300 mcm in 2030.

⁵ By way of illustration, we have been advised that water prices in Shenzhen and Dongguan recently increased by about 27% from 2002 to 2004.

Environmental Cost

14. GD is investing increasingly more resources on pollution control measures to comply with new legislation and policies in order to protect the water environment of DJ. As highlighted by the GD side, the economic development of cities in the upstream of DJ such as Heyuan is being severely restricted to safeguard the water quality. On the global front, the incorporation of an additional cost component into the water prices on protection of water resources is prevailing in the Mainland. Expectations have arisen that Hong Kong, as a key consumer of DJ water, should also share the burden through an appropriate increase in the water price. We have been resisting such a request on the premise that the environmental cost should form part of the operation costs.

Financial Implications on the GD Side

15. The Dongshen water supply system has been expanded gradually since commissioning in 1965. Each time the GD side had to invest heavily on the works, and we assisted in financing the works by granting them a loan. If the annual payment for the DJ water supply was decreased significantly below the original level envisaged in the existing agreements, this could have financial implications on the GD side bearing in mind their commitment to repayment of loan under the 1998 Loan Agreement. Moreover, in view of GD's rapid economic growth in recent years, it is inevitable that inflation has been biting into the operation costs for the Dongshen water supply system and thus affecting the price of DJ water.

ALTERNATIVE OPTIONS

16. Our average annual consumption for 2005 to 2009 is about 990 mcm and the local catchment could only provide about 295 mcm of fresh water annually under an average rainfall scenario. To make up for the shortfall, importation of DJ water remains to be the only economical option available.

17. We realize that the risk associated with our heavy reliance on the importation of DJ water to maintain a reliable water supply against the rising demand in GD itself and the depleting resources of clean water in GD must be carefully managed. We will continue promoting public awareness of the benefits of water conservation through education and promotional activities, including the production of Announcement of Public Interests, promotional messages, publications, leaflets, posters and stickers. We have also introduced a tiered charging regime to encourage domestic households to save water. To reduce water leakage, we will advance the completion of the massive replacement and rehabilitation programme from 2020 to 2015 for aged watermains totaling 3,000 km long. In 2002, we studied possible alternative water resources, with desalination offering a palatable alternative for potable water. At the moment two suitable sites have been identified capable of providing a total maximum of 200 mcm fresh water annually. Nevertheless, the production cost is still higher than DJ water with the present technology.

18. The two other options are the reuse of treated sewage effluent and the expansion of local water gathering grounds. We commenced a trial scheme on effluent reuse at the Ngong Ping Sewage Treatment Plant (STP) in March 2006 and is planning another one at Shek Wu Hui STP for operation later this year. This source of recycled water would be targeted at non-potable use as the public's acceptance for such reuse is more realistic. The expansion of local water gathering grounds is the most expensive option and has the highest impact on land development potential associated with possible objection from interested parties. Built on the outcome of the various pilot schemes, we have commenced a study for completion in August 2007 aiming to map out a long-term strategy on total water management and formulate comprehensive implementation plans.

Annex A**Annual Supply Quantities Under Previous Agreements**

Year	Quantities Agreed in the 1989 Agreement (mcm)	Quantities Agreed in the 1998 Agreement (mcm)	Reduction (mcm)
1998	780	760	20
1999	810	770	40
2000	840	780	60
2001	870	790	80
2002	900	800	100
2003	930	810	120
2004	960	820	140
2005	990)	
2006	1,020) To be negotiated	
2007	1,050)	
2008	1,100)	
		Total	560