For discussion **FCR(2008-09)45**
on 21 November 2008

ITEM FOR FINANCE COMMITTEE

HEAD 194 – WATER SUPPLIES DEPARTMENT
Subhead 223 Purchase of water

Members are invited to -

(a) note the financial implications of the new water supply agreement with Guangdong authorities for purchasing Dongjiang water between 2009 and 2011; and

(b) approve the supplementary provision of $84.4 million under Head 194 Water Supplies Department Subhead 223 Purchase of water to meet the additional water purchase cost in 2008-09.

PROBLEM

The current agreement for the supply of Dongjiang (DJ) water to Hong Kong is due to expire at the end of 2008. We have completed negotiations with the Guangdong (GD) side on the terms of a new agreement for the supply of DJ water between 2009 and 2011. As the proposed annual sum of the water purchase cost for 2009 is higher than the current sum for 2008, the provision allowed for in the 2008-09 Estimates for the purchase of DJ water is inadequate to meet the anticipated expenditure in the 2008-09 financial year.

/PROPOSAL .....

PROPOSAL

2. We propose to seek a supplementary provision of $84.4 million[1] under Head 194 Subhead 223 to meet the additional water purchase cost in 2008-09.

JUSTIFICATION

3. Since early 2008, we have commenced discussions with the GD side on the arrangements for DJ water supply between 2009 and 2011. The objective is to continue to ensure reliable and flexible supply of DJ water to meet our needs. Following extensive discussions with the GD side and taking account of Hong Kong's requirements, we have reached agreement with the GD side that the new arrangements for DJ water supply in the next three years should comprise the following essential features –

(a) To meet the actual needs of Hong Kong with 99% reliability[2] in water supply for the three-year period between 2009 and 2011, the package deal lump sum approach used in the current DJ water supply agreement shall be retained with the annual sum of the water purchase cost[3] for the annual supply ceiling of 820 million cubic metres (mcm) from 2009 to 2011 to be adjusted to $2,959 million, $3,146 million and $3,344 million respectively;

(b) The ultimate annual DJ water supply quantity of 1 100 mcm to be reserved for Hong Kong is maintained whilst the target date for achieving this objective will be subject to future review; and

(c) The GD side will strive to maintain the existing DJ water quality which has been upgraded to meet the latest national Type II Standard of GB 3838-2002.

The major considerations in arriving at the proposed water supply arrangements are detailed in paragraphs 4 to 14 below.

/**Reliable** .....

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1 A financial provision of $2,494.8 million has been made in the 2008-09 Estimates for the purchase of DJ water. Given that the annual sum of the water purchase cost for 2009 is proposed to be increased to $2,959 million in the new water supply agreement, the additional water cost for February to March 2009 is $84.4 million (i.e. $2,959M x 2 / 11 - $2,494.8M x 2 / 11). No payment is made in January because water is not drawn in December due to annual maintenance of the DJ water supply system.

2 "99%" reliability means that water supply is maintained round-the-clock even under an extreme drought condition with a return period of 1 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.

3 The annual sum of the water purchase cost for 2006 to 2008 is $2,494.8 million.

Reliable and Flexible Water Supply

4. The current arrangements for the supply of DJ water have adopted a package deal lump sum approach to ensure reliable and flexible water supply. We propose to retain this approach for the water supply arrangements between 2009 and 2011 on account of the following –

(a) **Reliable water supply up to 2011**

The local water resource of Hong Kong is inadequate to meet our needs. Its supply quantity is also unstable. Since 1884 when the Hong Kong Observatory has begun to keep rainfall records, the highest and lowest annual rainfall records are 3 343 mm in 1997 and 901 mm in 1963 respectively. The highest annual rainfall is almost four times the lowest. The amount of rainfall affects our local yield and hence the required supply quantity of DJ water. Taking the past few years as examples, we imported 810 mcm and 620 mcm of DJ water in 2004 and 2006 respectively to meet the actual needs of Hong Kong. The difference in the supply quantity is almost 200 mcm. As DJ water now meets about 70-80% of our demand, it is able to deal with the situation of inadequate local rainfall and reservoir storage. Therefore, adequate supply from DJ is essential to ensuring reliable and stable supply to people of Hong Kong.

On the other hand, competition with other GD cities (including Heyuan, Huizhou, Dongguan, Shenzhen and Guangzhou) on the scarce fresh water supply from DJ has become increasingly acute. In view of this, the GD authorities have recently promulgated the ＜廣東省東江流域水資源分配方案＞ which specifies fixed limits for these cities, including Hong Kong, to draw water from DJ. If the water purchase price is based on the actual quantity of water delivered without any pre-determined agreed quantities, there will be difficulties in ensuring adequate water supply for Hong Kong's use. The situation will become critical during drought years as there will be no guarantee that GD could meet a sudden surge in demand from Hong Kong given the competitive needs in the region. We will then have to face the risk of water rationing.

There is a view that we should agree with the GD side a unit water price and pay for the actual annual supply quantity to reduce our expenditure for purchasing DJ water. This is not a feasible approach because we are unable to advise the GD side of our actual

required annual supply quantity when negotiating the unit water price. The GD side will certainly take into account this uncertainty in fixing the unit water price in order to ensure a stable income. A unit price approach will also put reliability at risk unless we are prepared to reserve a specific annual quantity and pay a retention fee for the reserved quantity to compensate for the possibility of under-utilising the DJ water supply system and depriving other cities of the opportunities to draw on the scarce water resources reserved by us.

(b) **Flexible water supply to minimise wastage**

The previous DJ water supply agreements before 2005 were not flexible as they adopted the unit water price and fixed annual supply quantity approach. In wet years, it was unavoidable that we had to discharge surplus DJ water. It was not until the current agreement in 2006 when both sides agreed to adopt a package deal lump sum approach for greater flexibility in the daily supply rate of DJ water to tie in with the seasonal fluctuations in the local yield. As a result of this, we have avoided wastage of the precious water resources and saved pumping cost. With the flexibility in water supply, it is no longer necessary to discharge excess DJ water in the past two years. Similar to the current agreement, we will continue to enjoy flexibility in the daily supply rate. We will inform the GD side on a monthly basis our demand for DJ water according to the actual requirements.

Reasonable Water Price

5. Adjustment of the DJ water price is based on operation costs having regard to the exchange rate between Renminbi (RMB) and Hong Kong dollar (HKD) as well as the relevant price indices of both sides. The GD side has highlighted their increasing operating expenses in supplying DJ water to Hong Kong due to the increases in salary, electricity and fuel costs. According to the GD side, there has been widespread reform of the water price framework in the Mainland resulting in upward adjustment of water prices in many cities. Against this background, the GD side is under tremendous pressure to increase water prices in order to regulate the water demand in the region[4].

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[4] By way of illustration, we have been advised that water prices in Shenzhen, Dongguan, Guangzhou, Zhongshan and Zhuhai have increased by an average of about 29.7% from 2004 to 2007.

6. When we negotiated the current water supply agreement with the GD side in 2005, the exchange rate between RMB and HKD was relatively stable. For the subsequent three years from mid-2005 to mid-2008, RMB has significantly appreciated against HKD. The cumulative appreciation of RMB against HKD is about 14% over the period. The GD side has borne the impact caused by the significant appreciation of RMB in the past few years since the current water supply agreement does not contain any price adjustment provision. In the negotiation for the 2009 water price, both sides considered it reasonable to adjust the water price to account for the change in the exchange rate in the past three years.

7. In the first ten months of this year, RMB has already appreciated by 6.1% against HKD. Some institutions carrying out research of the Mainland forecast that the rate of appreciation of RMB against US Dollar in 2009 would slightly slow down as compared to that of this year, but the appreciating trend would prevail in the medium term. Based on current analysis, the appreciation of RMB against HKD is likely to continue.

8. As for inflation, the average annual inflation of GD and HK was about 3%[5] in the past three years from mid-2005 to mid-2008. With regard to future projections, widely used and regularly updated medium term forecasts of inflation for GD are not at present available in the market. The average nationwide annual inflation rate of the Mainland as forecasted by private institutions (mainly investment banks) is 3.6% for 2009-2011. As for Hong Kong, the inflation forecast is 4% per annum on average during 2009-2012, based on the 2009-2012 forecast trend promulgated in the 2008-09 Budget in February 2008.

9. Taking into consideration the above factors and the trend of the inflation and the exchange rate in 2009, we consider it reasonable to accept the proposed increase in the water purchase cost for the year 2009 by **18.61%** over the current annual sum. For years 2010 and 2011, the proposed annual increases over the preceding year by **6.32%** and **6.29%** respectively are also considered reasonable.

/**Adequate** .....

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[5] The cumulative change in the Consumer Price Index (CPI) of GD is about 10.4% between mid-2005 and mid-2008. The cumulative change in the Composite CPI of Hong Kong is about 7.4% over the same period.

Adequate Water Quantity

10. The ＜廣東省東江流域水資源分配方案＞ sets the upper limit of extracting water from DJ at 10 700 mcm per annum, including 1 100 mcm of annual supply quantity reserved for Hong Kong. In order to meet the pledge for water supply at 99% reliability, the Water Supplies Department (WSD) has estimated that the required annual supply quantity of DJ water would be about 820 mcm for 2009 to 2011. This is to ensure that Hong Kong will have adequate and reliable DJ water supply during the new agreement period to maintain round-the-clock supply even under extreme drought conditions with a return period of one in 100 years.

11. The supply quantity of 1 100 mcm reserved for Hong Kong is intended to be the ultimate annual supply level. Our latest estimate indicates that the target date for reaching this quantity will likely be deferred to 2030 assuming an average annual growth rate of 1.3% on water demand. Given that the water demand within the region has been increasing sharply, we will retain this long-term supply capacity without committing to the time of achieving this target or paying an additional retention fee for this purpose.

Enhanced Water Quality

12. WSD regularly monitors the quality of DJ water received at Muk Wu pumping station and publishes the water quality data at its website to promote transparency. The Advisory Committee on Quality of Water Supplies[6] (ACQWS) also regularly appraises the water quality data. In addition, ACQWS will visit DJ and its tributaries annually to inspect the works and measures undertaken to protect DJ water. ACQWS was satisfied with the quality of water supplied to Hong Kong in the past few years. Separately, since 2001, the GD side has annually provided the water quality data in the east bank section upstream of Taiyuan pumping station (intake point of DJ water supply to Hong Kong) to WSD for publication on the website.

13. Based on past monitoring data, the DJ water has met the national Type II Standard of GB 3838-2002 for surface water. This standard is mainly applicable for abstraction for human consumption in class one protection zone,

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[6] ACQWS is an independent body set up in 2000 with membership consisting of academics, district councillors, green advocates, professionals, community leaders and government officials. Its terms of reference is to keep under review matters relating to water quality and to advise the Government of the Hong Kong Special Administrative Region through the Director of Water Supplies on these matters.

habitats for rare and precious aquatic species etc. Compared to the current water supply agreement, the GD side will make a stronger commitment in the new agreement by undertaking to strive to maintain the water quality in compliance with the stated standard.

14. A list of major projects undertaken by the GD side in recent years to enhance the quality of DJ water supply to Hong Kong is at Enclosure 1.

Encl. 1

FINANCIAL IMPLICATIONS

15. We estimate that the annual purchase costs of DJ water for 2008-12, on a financial year basis, are as follows –

	$ million
2008-09	2,579.2[7]
2009-10	2,993.0[8]
2010-11	3,182.0[9]
2011-12 (Up to December 2011)	2,736.0[10]

16. The 2008-09 Estimates has included a provision of $2,494.8 million for purchase of DJ water. We therefore need a supplementary provision of $84.4 million to meet the additional water cost in 2008-09. The funding requirement in subsequent years, i.e. 2009-10, 2010-11 and 2011-12, will be sought in the respective Annual Estimates.

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[7] Water cost for April to December 2008 and February to March 2009 ($2,494.8M x 9 / 11 + $2,959M x 2 / 11).

[8] Water cost for April to December 2009 and February to March 2010 ($2,959M x 9 / 11 + $3,146M x 2 / 11).

[9] Water cost for April to December 2010 and February to March 2011 ($3,146M x 9 / 11 + $3,344M x 2 / 11).

[10] The amount only covers water cost for April to December 2011 ($3,344M x 9 / 11). The cost for the months of February and March 2012 will be subject to another new water supply agreement to be drawn up for the subsequent years from 2012.

IMPACT ON WATER CHARGES

17. The increased purchase costs of DJ water will not have an immediate impact on water charges. The Financial Secretary has already announced at the meeting of the Legislative Council (LegCo) Panel on Financial Affairs held on 10 June 2008 that water charges will be frozen for 2008-09 and 2009-10 as a means to assist various sectors of the community to cope with inflation. The Government will continue to take into consideration prevailing economic conditions and public affordability in determining water charges.

PUBLIC CONSULTATION

18. We briefed the LegCo Panel on Development on 28 October 2008 in regard to the new water supply arrangements and the supplementary provision to meet the additional water purchase cost in 2008-09. In response to Members' comments, we explained the rationale behind the package deal lump sum approach, the basis for adjustment of the water purchase cost and the 820 mcm annual supply ceiling. Members noted the keen competition of the precious water resources with Mainland cities, and urged the Administration to minimise water wastage due to watermains burst and leakage. In order to reduce the demand for fresh water, Members considered that the Administration should take forward measures to conserve water. In this respect, Members were briefed on the Total Water Management (TWM) strategy which aims to balance the supply and demand of raw water to support the sustainable development in Hong Kong. Details of the TWM strategy to be adopted are set out at Enclosure 2.

Encl. 2

BACKGROUND

19. The previous water supply agreements before 2005 were based on a unit water price and annual supply quantities agreed with the GD side. During the negotiation of the current agreement, both sides reached agreement to adopt a package deal approach under which reliable and flexible supply of DJ water to meet the actual needs of Hong Kong was guaranteed with the water purchase cost paid on annual lump sum basis. Besides, the ultimate annual DJ water supply quantity of 1 100 mcm specified in previous water supply agreements was maintained. The GD side also undertook to strive to supply DJ water with quality up to the latest national Type II Standard of GB 3838-2002.

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20. We submitted a paper No. CB(1)1305/05-06(01) to the then LegCo Panel on Planning, Lands and Works in April 2006 reporting the agreement reached between both sides, and the gist and benefits of the current water supply arrangements.

Development Bureau
November 2008

Major Projects to Enhance Dongjiang Water Quality

The Guangdong side has in recent years undertaken a number of projects to enhance the quality of Dongjiang (DJ) water supply to Hong Kong. The major ones are –

(a) relocation of the water intake point at DJ in 1998;

(b) commissioning of the bionitrification plant at Shenzhen Reservoir in 1999;

(c) full commissioning of the dedicated aqueduct in 2003;

(d) implementation of wastewater interception schemes at Shenzhen Reservoir and Sha Wan to safeguard water quality in the reservoir; and

(e) implementation of the Shima River wastewater diversion scheme to discharge wastewater through the East Canal instead of immediately downstream of the water intake point at Taiyuan pumping station.

Enclosure 2 to FCR(2008-09)45

Total Water Management

The Total Water Management strategy to be adopted is to proactively manage demand and supply of water in an integrated, multi-sectoral and sustainable manner. On water demand management, we will step up public education on water conservation with particular focus on education programmes for the younger generation on the concept and details of water conservation. We will investigate the feasibility of developing a Water Efficiency Labelling Scheme to facilitate consumers to select, on a voluntary basis, plumbing fixtures and appliances that would help conserve water. In addition, Government will promote installation of water saving devices through incorporating them in its projects and buildings as far as practicable.

2. We are pressing ahead with our on-going effort to reduce water leakage through replacing and rehabilitating 3 000 km of aged watermains for completion by 2015. We will also implement comprehensive pressure management to optimise watermains pressure, and enhance leakage detection and monitoring so that leakage could be detected for early remedial actions. On the use of seawater instead of fresh water for toilet flushing, we have planned to extend the present supply network in metropolitan areas and most new town areas to Pokfulam, Yuen Long and Tin Shui Wai.

3. On water supply management, we are planning to start a major capital works project to improve the existing catchwater system for safe and effective collection of surface water. We will continue to explore diversification of resources. With the advancement in technology and hence reduction in production cost, desalination is an option that warrants further examination. We will keep abreast of the technology development in this field that could enhance the viability of such system. On the use of reclaimed water from sewage treatment works for non-potable purposes such as toilet flushing and landscape irrigation, we are investigating the feasibility of supplying reclaimed water to consumers in Sheung Shui and Fanling, subject to the final results of two pilot schemes in Ngong Ping and Shek Wu Hui.

4. We will continue to look for and adopt suitable measures to balance water supply and demand with a view to minimising our exposure to the risk of water shortage.
