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**(ACE Paper 18/98)**  
**for information**

## Quality of Dongjiang Water

### Introduction

This paper informs Members of the existing sampling and testing programme for monitoring the quality of the Dongjiang water once it enters Hong Kong, the established liaison channels between Hong Kong and Guangdong to discuss policy and technical matters relating to the supply and quality of the Dongjiang water and the further improvement measures to be carried out by the Guangdong side to effectively control its quality.

### Background

#### Sources of Water Supply

2. There are two sources of raw water for water supply in Hong Kong, i.e. Dongjiang water supplied from Guangdong and rain water collected from local catchments. Currently about 80% of the water demand of Hong Kong is met by Dongjiang water, which is delivered to Hong Kong via a transfer system of pumping stations and open aqueducts from Dongjiang to Shenzhen Reservoir and then transmitted to the reception point at Muk Wu Pumping Stations in Hong Kong (see the layout plan at Annex). The remaining 20% is met by the storage in local reservoirs.

3. All fresh water supplied to the consumers, irrespective of its raw water sources, are treated at the water treatment works to a quality fully complying with the World Health Organisation (WHO) Guidelines for Drinking Water Quality. The quality of drinking water is continuously monitored through a comprehensive sampling and testing programme at different stages of treatment and distribution right up to the consumers' taps.

#### Monitoring of the Quality of Dongjiang Water

4. The quality of the Dongjiang water from Guangdong has been closely monitored since the inception of the water supply scheme in the early sixties. The raw water is sampled for testing as it is received at the Muk Wu Pumping Stations and again at the various treatment works to which the water is delivered for treatment.

That is to say, the quality of the raw water from Guangdong is closely monitored once it enters our reception point at Muk Wu and again at the treatment works. The final treated water is also subject to intensive regular monitoring procedure throughout the water supply distribution system to further ensure proper quality control and compliance with WHO guidelines.

5. In addition to the above water quality monitoring, the water from Dongjiang and the treated water have also been checked for radioactivity since 1994 when the Guangdong Nuclear Power Station at Daya Bay came into operation. So far, all test results are below minimum detectable activity levels, thus confirming that the water is safe.

6. Though the quality of Dongjiang water has shown a trend of deterioration in recent years, it is still of acceptable quality. Our treatment works are fully capable of treating it to comply fully with the World Health Organisation guidelines. The quality problem of the Dongjiang water is mainly due to pollution from domestic waste water as a result of rapid development en-route the water transfer system from Dongjiang to Shenzhen. Owing to the nature of the industrial development in these areas, being mainly light industries, and the diminishing of agriculture activities in the same areas, heavy metals, pesticides and fertilizers have never been a problem. In fact, the levels of heavy metals and pesticides have not shown any increase in the past ten years and are barely detectable by the sophisticated water testing equipment in our water science laboratory, the standard of which is accredited by HOKLAS (i.e. Hong Kong Laboratory Accreditation Scheme).

Liaison Channels with the Guangdong Side

7. There have been established liaison channels between the Hong Kong SAR Government and the Guangdong Provincial People's Government, namely -

- (i) Business Meetings - led by the Secretary for Works for the Hong Kong side and the Director of Guangdong Provincial Bureau for Water Conservancy (GBW) to discuss policy matters including quantity, quality and price of the water supply;
- (ii) Operation and Management Technical Sub-group meetings - comprising senior officials of Water Supplies Department (WSD) and GBW to discuss technical matters; and
- (iii) Regular working level contacts by operation staff on day-to-day matters.

### Improvement Measures

8. To ensure that the quality problem of Dongjiang water is effectively controlled, we have through the above established liaison channels with the Guangdong side, pressed for water quality improvement. In response, the Guangdong side has acknowledged our concern and has taken a series of improvement measures, including -

- (i) the enactment of legislation to control developments within the catchment of Dongjiang and the vicinities of the open aqueduct conveying Dongjiang water to Shenzhen; a few pieces of important legislation at provincial level were promulgated during the period 1991 to 1993, and legislation pinpointing the vast number of small industries which may be potential pollution sources was effected in 1994; these are conducive to safeguarding the water quality of the Dongjiang catchment in the long term;
- (ii) the construction of a number of sewage treatment plants at locations such as Bainikeng, Tangxia, Yantian etc. to intercept and treat the sewage which would otherwise pollute the raw water;
- (iii) the erection of several kilometres of protective iron fencing along the existing open aqueduct; this work is completed;
- (iv) the construction of aeration systems at the outlet of Shenzhen Reservoirs for increasing the dissolved oxygen content in the raw water; this work is completed and the aeration systems are commissioned; and
- (v) the construction of a large-scale biological treatment plant inside the Shenzhen Reservoir to reduce the ammonical nitrogen content in the raw water; construction of this multi-million dollar project commenced in Jan 1998 and will be completed before the end of this year.

9. In addition to the above measures, the Guangdong side has recently announced a scheme for constructing a dedicated closed aqueduct for conveying water from Dongjiang to Hong Kong, thereby avoiding all the pollution sources en-route. We have arranged a number of special meetings with the Guangdong side to discuss the scheme to see how we could benefit from the scheme and what we could do to help bring about the early implementation of the scheme to improve the water quality. So far, good progress has been made. According to the Guangdong side's current plan, construction will commence at the end of 1998 and will be completed in 2002 if everything goes smoothly.

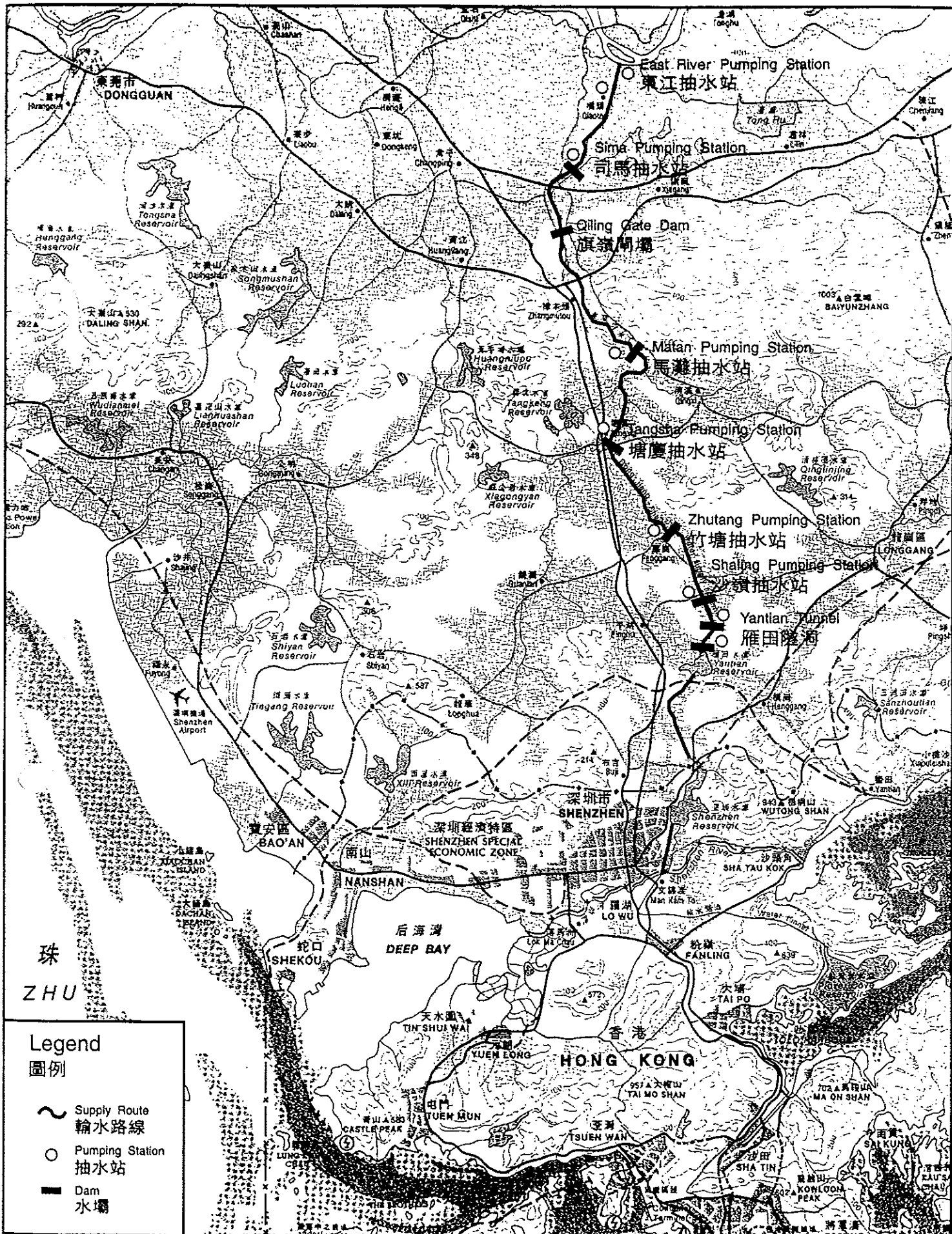
**Advice Sought**

10. Members are invited to note the content of the paper.

**Works Bureau  
April 1998**


Dongjiang - Shenzhen Scheme (General Layout Plan)

東江-深圳供水系統 (總平面佈置圖)



Legend

圖例

-  Supply Route  
輸水路線
-  Pumping Station  
抽水站
-  Dam  
水壩