

Chapter 3

Water purchased from Guangdong Province

The Committee noted that Audit had conducted a review to ascertain whether there was room for improvement in the planning of the purchase of water from Guangdong Province and whether the quality of Dongjiang raw water and that of treated water complied with the required standards. The major findings of the review were:

- since 1994, there had been an excess water supply from Guangdong Province mainly because water consumption in Hong Kong had increased at rates lower than those forecast. As supply exceeded demand, the water in the reservoirs often reached a high level, resulting in reservoir overflow whenever there was heavy rainfall. From 1994 to 1998, the overflow quantity was 716 million cubic metres (MCM). The financial implications could amount to \$1,718 million;
- the 1989 Water Supply Agreement (the 1989 Agreement), which was signed with the Guangdong Authority in December 1989, only provided that the Dongjiang water supplied to Hong Kong would meet the water quality standard of Guangdong Province currently in force and would not be inferior to the Environmental Quality Standard for Surface Water GB3838-83 Class II (the 1983 Standard). No agreement had been reached to include a provision in the 1989 Agreement requiring the supplier to comply with the Environmental Quality Standard for Surface Water GB3838-88 Type II (the 1988 Standard) which was comparable to other international standards and which had been used in the Mainland since 1 June 1988;
- in the 1998 Loan Agreement, which the Hong Kong Government signed with the Guangdong Authority to help finance a works project in Guangdong to improve the quality of Dongjiang water, there was no specific provision which required that the water supplied to Hong Kong should meet the 1988 Standard;
- the quality of Dongjiang water did not fully comply with the Mainland's quality standards for surface water;
- both the 1989 Agreement and the 1998 Loan Agreement did not contain a dispute resolution clause and a provision for penalty or compensation in case of non-compliance by either party with the terms of the agreements entered into, despite the fact that this was suggested by the Secretary for Justice in 1997;
- there was no agreed mechanism between the Water Supplies Department (WSD) and the Guangdong Authority for monitoring and reporting on the quality of Dongjiang water;

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- additional recurrent costs of \$104 million were incurred for the years 1996-97 to 1998-99 for remedial measures undertaken to tackle the substandard quality of Dongjiang water. Capital costs of \$35 million had been incurred to upgrade the water treatment works; and
- the treated water quality did not fully comply with the aesthetic levels of residual chlorine of the 1993 World Health Organisation Guidelines for Drinking Water Quality (the WHO Guidelines) and the WSD's Final Treated Water Quality Targets for turbidity, aluminium and residual chlorine. The increase in chlorine dosage to treat water had resulted in an increase in the formation of Trihalomethanes (THMs) in the treated water.

Quantity of Dongjiang water purchased

2. The Committee noted from paragraph 1.6 of the Audit Report that one of the provisions of the 1989 Agreement stated that:

“From 1995 onwards, upon completion of the extension works of the Dongshen Water Supply System (DWSS), the water quantity would be increased annually by 30 MCM, from 690 MCM in 1995 to 840 MCM in 2000, with the maximum annual supply of 1,100 MCM planned to be reached by 2008. Both sides would review the water supply situation each year. If there was a need for an ad hoc increase in supply to Hong Kong, the Guangdong Authority would do its best to accommodate such a request.”

While the 1989 Agreement had included a mechanism to increase the supply of Dongjiang water if necessary, there was no provision for a reduction in water supply if the growth rate of water consumption were to decline in Hong Kong. The Committee asked why no such provision was included and whether the Government had tried to request more flexibility in the water supply arrangement during the negotiation of the 1989 Agreement with the Guangdong Authority. The Committee asked whether the Government had made a wrong decision in signing an agreement which would last for 20 years and which had limited flexibility.

3. **Mr LEE Shing-see, Secretary for Works**, said that:

- prior to 1989, Hong Kong had gone through many periods of water restriction. Even a few years after 1989, Hong Kong still suffered from a shortage of water supply. With this background, it was clear that a long-term agreement

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providing for regular supply of water to Hong Kong was necessary;

- a long-term water supply agreement was required because the quantity of water supply could not be adjusted readily. Additional water supply involved the provision of infrastructure which required considerable lead time for planning and implementation. Therefore, even if the quantity of water supply could be adjusted, there was little flexibility in the provision of infrastructure; and
- in formulating water supply strategies, the Administration could either adopt a lower-bound or an average demand forecast. Taking into account the situation in 1989, it had adopted the more conservative approach. The 1989 Agreement was therefore based on the lower-bound demand forecasts.

4. **Mr H B Phillipson, Director of Water Supplies**, also said that:

- Hong Kong needed the 1989 Agreement because it had to secure a long-term and reliable supply of water. The Guangdong Authority also asked for a long-term agreement because of their huge investments in infrastructure;
- when the 1989 Agreement was discussed, the growth rate of water consumption was estimated to be 3.5%. This was a lower-bound demand forecast because the trend at that time was 6%. The estimate of a 3.5% growth rate with the option of purchasing additional water at an increased cost of 10% was considered to be a pragmatic approach at the time. The fact that the Government had to purchase additional water for the first few years in the 1990s showed that the proposal was sensible; and
- the reason for not including a greater degree of flexibility in the 1989 Agreement was that the Guangdong Authority, which had already invested heavily in infrastructure for supplying water to Hong Kong, required a guaranteed return for a fixed period on its investment in Stage 3 of the DWSS.

5. In his letter of 23 December 1999 in *Appendix 17*, the **Secretary for Works** informed the Committee that:

- in the negotiation of the 1989 Agreement, the Government had requested more flexibility in the water supply arrangement such that the maximum and the minimum annual supply quantities could be specified to cope with fluctuations in annual rainfall and uncertainties in the long-term growth of

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demand. The Government had also proposed that the Guangdong Authority would be notified in November every year of the actual quantity of water to be drawn from May to April in the following year. The Guangdong Authority rejected the proposal, as this would create major problems in planning their electricity requirements and other resources; and

- the 1989 Agreement was eventually signed on the basis that the supply quantities would match the lower demand projection, i.e. 3.5% with options for additional quantities to match the upper demand projection. In effect, a flexible arrangement had been provided.

6. According to paragraphs 2.14 to 2.16 of the Audit Report, the WSD had concluded in the 1992 Water Demand Forecast that the forecast water consumption would be less than the quantity supplied from Guangdong Province plus the mean rainfall yield from 1993 onwards, and that action should be taken to draw up a strategy to review in due course the water quantity to be supplied from Guangdong Province. The Administration then informed the Executive Council (ExCo) in 1993 that the growth rate of water consumption had declined due to the relocation of major water-consuming industries from Hong Kong to the Mainland. The WSD also estimated in the Water Demand Forecast, completed in December 1993, that the average growth rate of water consumption from 1994 to 2002 was 1.73%, which was 50% lower than the original estimate of 3.5%. The Committee asked:

- why, in spite of these developments, the Administration did not request the Guangdong Authority to reduce the supply of Dongjiang water at the business meetings held in July 1993 and May 1994 respectively; and
- whether the Administration had drawn up any strategy to review the water quantity to be supplied from Guangdong Province.

7. The **Director of Water Supplies** said that:

- in 1994, Hong Kong had just come out of several very dry years during which additional Dongjiang water had to be purchased. When the business meeting was held in May 1994, the yield from local rainfall had been less than average. The issue was therefore not raised at the meeting. However, there was very heavy rainfall later in the year;

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- rainfall was a very unreliable source of water supply. The average yield in a normal year was 280 MCM. In an extremely wet year, there could be 500 MCM. In a very dry year, there could be as little as 70 or 80 MCM. Given this huge difference in the yield from rainfall, it was appropriate for the WSD to adopt a conservative approach;
- the primary objective of the WSD was to guarantee a reliable and safe water supply. The Director of Water Supplies had to ensure that there would be adequate water supply to meet the short-term needs and to establish the water consumption trend for long-term planning. As the water situation was not at all secure on a year-to-year basis in the early 1990s, it was decided in 1993 and 1994 that the short-term fluctuations did not justify a request for a reduction in water supply;
- it could be seen from Table 1 of the Audit Report that the actual water consumption in 1994 was 923 MCM. However, the agreed quantity supplied to Hong Kong was only 660 MCM. There was a difference of 263 MCM which had to be met by the yield from rainfall. Hong Kong would face a desperate situation if there were a drought year, because the level of reservoir storage was not high at that time; and
- in considering the accuracy of the forecast, one should not lose sight of the fact that the past seven years had been very wet. If it had been seven dry years, all of the water supplied to Hong Kong would have been consumed and there would not have been any overflow from reservoirs.

8. **Mr CHAN Pui-wah, Deputy Director of Water Supplies¹**, added that:

- the original forecast of a growth rate of 3.5% was proven to be accurate in the first few years following the signing of the 1989 Agreement because additional water had to be purchased from the Guangdong Authority. It was not until 1992-93 that a surplus supply began to surface. The strategy that the WSD had adopted at that time was to closely monitor the trend of water consumption by conducting detailed reviews of the water demand forecasts;

¹ Mr CHAN Pui-wah also attended the third public hearing on 25 February 2000 in his capacity as Acting Director of Water Supplies.

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- the Administration notified the Guangdong Authority at the business meeting held in July 1993 that the growth rate of water consumption was declining. It had not made a formal request for a reduction in water supply because the declining trend of water consumption could not be established at that time. Although there was a decrease in industrial water consumption, the general public still required a reliable water supply. Moreover, any adjustment in quantity would affect the price of water. The WSD therefore decided to adopt a cautious approach in deciding whether the quantity of water supply should be reduced; and
- the local rainfall was lower than average in the first six months of 1994. As a result of a heavy downpour in July, the yield in that month was almost 50% of the total rainfall for the whole year. However, the long-term water consumption trend was still not clear in 1994.

9. With reference to Appendix D of the Audit Report, the Committee noted that the long-term annual mean rainfall was 2,214 millimetres and there was no substantial deviation from this figure in the two years preceding 1994. The recorded annual rainfall was 2,679 millimetres for 1992 and 2,344 millimetres for 1993. Taking into account the stable rain water supply and the increasing decline in the growth rate of water consumption, the Committee asked why the Administration had still not raised the issue with the Guangdong Authority in 1994. The Committee also asked whether the business meetings, which had for years been held in May/June, could be held after the rainy season so that more up-to-date information on the annual rainfall would be made available for discussion at those meetings.

10. The **Director of Water Supplies** said that:

- although the figures did not show a substantial variation in the yield from rainfall, there had been a continual problem of water shortage prior to and in the first few years of the 1990s;
- in 1988, the Administration had adopted a new target that there should be 99% reliability of water supply, which meant that the water supply system could cope with the worst drought scenario, i.e. a drought of 1 in 100 years. This new target was one of the considerations in the planning for water resources in the early 1990s;

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- the Government had to purchase additional water from Guangdong Province and to build extra water supply facilities up until 1994. It only became clear in the latter part of 1994 and early 1995 that there was surplus water supply; and
- as regards the timing of the business meetings, the WSD had asked for this to be put back to the later months of the calendar year. The Guangdong Authority had not been enthusiastic about holding the meetings in the middle of the rainy season because they were fully occupied during that period. Whether the meetings could be held after the wet season was worth exploring.

11. Noting the above information, the Committee asked whether they could be provided with the relevant documents which set out:

- the conclusions made by ExCo after it had been informed of the decline in the growth rate of water consumption in May 1993;
- the recorded monthly rainfall for 1993 and 1994; and
- the conclusions of the WSD's studies, conducted in 1994, on the need for requesting extra supply from Guangdong Province.

12. In respect of the 1994 studies, the **Director of Water Supplies** said that these were internal studies conducted by the WSD to assess the latest water supply situation. The conclusion of the studies was that if the rainfall later in the year was not above-average, a drought situation would emerge and there would be a need to request extra water supply from the Guangdong Authority. However, the heavy rain in June 1994 quickly reversed the position.

13. In his letter of 23 December 1999 in *Appendix 17*, the **Secretary for Works** provided the Committee with the following information:

- it was a long-standing principle that ExCo papers and records of proceedings should be kept confidential to ensure the effective functioning and free exchange of views at the ExCo meetings. It had previously been accepted by the courts in Hong Kong that ExCo papers were analogous to Cabinet papers

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and were therefore entitled to a high degree of protection from disclosure;

- the Finance Committee Paper No. FCC (89-90)8 (in *Appendix 18*) had summarised the proposals considered by ExCo at its meeting on 7 November 1989. There was no inconsistency between the information provided to ExCo and the Finance Committee;
- ExCo was informed in May 1993 that a decline in the growth rate of water consumption had been detected. This was due mainly to the relocation of major water-intensive industries to the Mainland. However, the trend of demand was still erratic at the time and the persistence of the decline had yet to be ascertained and quantified. Together with the difficulties involved in forecasting the yield from rainfall, it was considered premature to re-enter discussions on the 1989 Agreement on water supply quantities at that time;
- the monthly and annual rainfall from January 1989 to November 1999 together with the long-term mean rainfall was provided in Annex I of the letter; and
- in the first five months of 1994, the yield from rainfall was relatively low (only 43% of the long-term mean rainfall for the same period). Prior to the annual business meeting scheduled for May 1994, a review was conducted to assess the water storage situation and the demand projection at the time. It was concluded that there was no need to increase the 1994 supply quantities. There was exceptionally high rainfall in July and August, resulting in overflow from reservoirs in 1994.

14. The Committee noted from paragraphs 2.21 to 2.25 of the Audit Report that during the negotiations from 1995 to 1997, the Guangdong Authority had declined the Government's request for a reduction in water supply. The reasons which had been put forward were that any reduction would adversely affect the Guangdong Authority's plans and deny them a reasonable return, as the DWSS had been expanded to 1,100 MCM in 1994 based on the annual supply quantities proposed by the WSD in 1989 and would only produce a reasonable return 13 years after it had been in operation. Notwithstanding the fact that the 1989 Agreement did not provide a mechanism for the Administration to request a reduction in water supply, the Committee asked whether the Guangdong Authority's response was justified and whether the Administration had verified their claim about obtaining a reasonable return in 13 years.

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15. The **Secretary for Works** said that:

- as far as the 1989 Agreement was concerned, there was flexibility in terms of an upward adjustment. However, there was no provision for any downward adjustment. As any revision to the agreement would have to be decided by both sides through mutual consultation, the Guangdong Authority had no obligation to respond to the Government's request;
- however, in the light of the discrepancy between the original and the subsequent forecasts and the prospect of excess water supply, it was appropriate for the Administration, as a responsible government, to raise the issue with the Guangdong Authority. The discussion had been conducted in an amicable manner. In fact, the Guangdong Authority had made some concessions. For example, it had agreed to reduce the daily supply rate in the event of overflow in Hong Kong due to heavy rainfall; and
- the 1989 Agreement did not contain any provision for a reasonable return. However, the Administration recognised that infrastructure required substantial investments and that it would take time for a return to materialise. In general terms, the Guangdong Authority's projection of a return in 13 years was reasonable.

16. The **Director of Water Supplies** also said that as far as he was aware, the Guangdong Authority had provided the Government with cost estimates of the projects which were to be shared between Hong Kong and Shenzhen. For a major investment which involved billions of dollars, this was a standard practice and the period of return was considered to be reasonable.

17. From paragraph 1.8 of the Audit Report, the Committee noted that in July 1998, the Government signed a loan agreement with the Guangdong Authority, i.e. the 1998 Loan Agreement. One of the provisions of the agreement was that the annual increase of water quantity would be reduced from 30 MCM to 10 MCM from 1998 to 2004. The Guangdong Authority also undertook to take into account the future water demand growth and the reservoir storage situation in Hong Kong in considering the future supply and not to insist on reaching the annual supply quantity of 1,100 MCM by 2008. The Committee were concerned about the bargaining power of the Government and asked:

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- whether the above agreement had served to illustrate that the Guangdong Authority would agree to a reduction in water supply only if it could obtain an interest-free loan of \$2,364 million for the construction of the closed aqueduct;
- whether the Government had missed a golden opportunity to request more flexibility in the new agreement, as it had been known at that time that the total quantity of overflow from 1994 to 1998 was 716 MCM and that the potential overflow from 1999 to 2004 would be 596 MCM; and
- whether the Government would continue to negotiate for greater flexibility in annual water supply quantities to minimise the extent of overflow.

18. The **Secretary for Works** said that:

- the Government did not have much bargaining power in the negotiations with the Guangdong Authority over the reduction in water supply because there was no such provision in the 1989 Agreement. The Government had tried very hard to negotiate for a reduction, but failed;
- however, the provision in the 1989 Agreement about revising the terms of the agreement by mutual consultation had enabled the two sides to agree to alter the annual water supply quantities in the 1998 Loan Agreement. Though the reduction was not significant, it was better than nothing. Moreover, the water supply quantities after 2004 were still open to negotiation; and
- the Government would have another round of consultation with the Guangdong Authority soon. He would raise the issue with the Guangdong Authority again to consider how it could be resolved. However, a contract was a contract. It could only be altered with agreement by both sides.

19. Responding to the same questions, the **Director of Water Supplies** said that:

- it was not the case that there would be no overflow if the water supply quantity had been reduced. In the rainy season, overflow from reservoirs would inevitably occur when there was very heavy rainfall, because a certain level of reservoir storage would have been maintained to tide Hong Kong over

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dry periods;

- although he agreed that it would be desirable to include more flexibility in the water supply agreement, the matter had to be considered very carefully. If the degree of flexibility was too high, there would be a risk of Hong Kong not getting the agreed quantity in the event of a drought occurring in Guangdong Province; and
- some flexibility in the daily supply had already been agreed upon. The ceiling for the reduction was 25% of the total quantity in a wet month.

20. The Committee noted that the Director of Water Supplies had pointed out in paragraph 2.40(e) of the Audit Report that limitations of the reservoir system also had a significant effect on the issue of reservoir overflow. The Committee asked whether there was an optimum level for reservoir storage and whether the Administration would consider increasing the capacity of the reservoirs so that there would be less overflow. The **Secretary for Works** said that:

- it would be difficult to determine an optimum level for reservoir storage because it varied from one season to another and according to the yield from rainfall. Generally, it would be desirable to keep a high storage level before the dry season began so as to maintain an adequate supply to the public;
- as the forecast on the growth rate of water consumption was on the high side, the reservoir storage level had always been high. The reservoirs overflowed when there was heavy rain. Some reservoirs could easily overflow especially during the rainy season because of their limited capacity;
- suitable sites had been identified in the past for the construction of reservoirs. However, there was a limited supply of these sites because of the topography of Hong Kong;
- in anticipation of a shortage of water resources in the longer run, the Administration would closely monitor the trend of water consumption. It would also continue to discuss with the Guangdong Authority the best arrangements for supplying water to Hong Kong; and
- the Administration was undertaking a study to find out whether there could be alternative sources of water supply other than Dongjiang and to ensure that water resources would be adequate to meet the growing demand in the long

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term. The intention was to complete the study in 2000.

21. The **Director of Water Supplies** supplemented that:

- in view of the importance of having as much capacity as possible, the WSD had tried to exploit all possibilities for reservoir storage. The current strategy was to top up the storage at the end of each year so that there would be adequate supply for six months. This would tide Hong Kong over during the dry season from October to April; and
- within the limitations of the water storage system, the WSD had tried to minimise the quantity of overflow. This would be further improved if there was more flexibility in water supply.

22. Referring to paragraph 2.40(f) of the Audit Report, the Committee asked whether the Director of Audit would agree with the Director of Water Supplies' statement that the estimated costs of reservoir overflow in money terms were notional losses as they did not represent a real financial loss of the amounts stated. In reply, **Mr Dominic CHAN Yin-tat, Director of Audit**, said that this was a matter of how reservoir overflow was looked at. Savings could be achieved if less water had been purchased. It was a matter of judgement as to how much money could be saved. As regards the possibility that the unit price would have to be adjusted if greater flexibility were to be incorporated in the water supply agreement, he considered that it was a matter subject to negotiations.

23. The Committee noted from paragraphs 2.26 and 2.27 of the Audit Report that in June 1997, the WSD stopped drawing unneeded water from Guangdong Province in order to avoid wasting water due to overflow. In doing so, the WSD achieved some savings in the electricity cost of pumping operations although full charges for the agreed total annual supply were paid to the Guangdong Authority. However, the WSD did not take the same measure to reduce the overflow in 1998. The Committee asked why this was the case. The **Director of Water Supplies** said that if the reservoirs were not full, it would be prudent to accept the agreed quantity of water at the end of the calendar year. In the case of 1998, the drawing of the full amount of water had only increased the storage capacity of the reservoirs to the maximum level.

24. At the request of the Committee, the **Secretary for Works** provided, in his letter of 23 December 2000 in *Appendix 17*, information on the reservoir storage level in 1998. He also advised the Committee that the minimum storage which needed to be maintained

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depended on a number of factors, such as water demand, the time of the year and the supply quantity of Dongjiang water. If the storage level fell below 200 MCM at any time, or below 300 MCM by the end of October, it would be regarded as a high risk level leading to possible supply failure. Owing to the erratic pattern of rainfall, the level of reservoir storage should be kept as high as possible to overcome any possible drought and to ensure a reliable supply to customers.

25. At the second public hearing on 4 January 2000, the **Secretary for Works** informed the Committee that the subject of incorporating a greater degree of flexibility in water supply had been discussed at the meeting held with the Guangdong Authority in mid-December 1999. The Guangdong Authority showed understanding of the situation in Hong Kong. They agreed to consider the matter further at the working group level and on the basis that any proposed scheme should be practicable and should not affect the return on investments.

26. At the request of the Committee, the **Director of Audit** reviewed the relevant documents kept by the Works Bureau and the WSD to ascertain the information provided by the Secretary for Works in relation to the efforts made by the Government in requesting a flexible approach in supply quantities during the negotiation with the Guangdong Authority. His observations were set out in his letter of 21 February 2000 in *Appendix 19*.

27. At the suggestion of the Committee, the **Secretary for Works** provided, in Annex A of his letter of 9 March 2000 in *Appendix 20*, further information to demonstrate the Administration's effort in negotiating with the Guangdong Authority for flexibility in the supply quantities of Dongjiang water and in seeking improvements in the water quality.

28. The **Director of Audit's** further comments on the additional information provided by the Secretary for Works were set out in his letter of 16 March 2000 in *Appendix 21*.

Quality of raw water from Dongjiang

29. The Committee noted from paragraph 3.3 of the Audit Report that the 1989 Agreement stated that the water supplied to Hong Kong should meet the water quality standard of Guangdong Province currently in force and should not be inferior to the 1983 Standard. Noting that the Mainland had in June 1988 already adopted a more

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comprehensive and stringent standard, i.e. the 1988 Standard, the Committee asked why the Government did not ask for the 1988 Standard to be adopted in the 1989 Agreement.

30. The **Secretary for Works** said that according to his understanding, the 1989 Agreement was a product of negotiations over an extensive period of time, and the 1983 Standard was the water quality standard currently in force in the Mainland during the period. The **Director of Water Supplies** added that the 1983 Standard was a standard for raw water which required normal treatment process, and as such there was nothing wrong with adopting this standard in the 1989 Agreement. The **Deputy Director of Water Supplies** also said that during the negotiation with the Guangdong Authority and when the 1989 Agreement was signed, the Guangdong Province had not yet adopted the 1988 Standard. The 1983 Standard was therefore included in the 1989 Agreement.

31. The Committee noted that in the Finance Committee Paper on “Advance payment of water charges” dated 17 November 1989 (in *Appendix 18*), the quality of Dongjiang water and the stipulation of the 1983 Standard in the 1989 Agreement were not mentioned. According to the Notes on Decisions taken in Finance Committee on 17 November 1989 (in *Appendix 22*), the then Director of Water Supplies had provided Members with the following information:

“The Chinese authorities had re-affirmed that pollution control and any expenses related to it were the responsibility of China. A technical sub-group would be formed to discuss progress and make site visits to ensure that the project was progressing. The water to be supplied would be of a quality comparable to international standards and this would be monitored, but there was no safeguarding clause in the Memorandum of Understanding to allow for the repayment of the loan if the water quality became unacceptable. The Chinese authorities had guaranteed that they would do everything to keep the water quality up to standard and this was duly recorded in the verbatim record of meetings with them. The present quality was very acceptable. In the event of dissatisfaction, there could be an appeal to Beijing.”

In the light of the above, the Committee asked:

- whether the undertakings given by the Mainland authorities in 1989 had served to illustrate that the quality of Dongjiang water had been deteriorating;
- whether the Government had relied on those undertakings and requested the Guangdong Authority to protect and improve the quality of Dongjiang water; and

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- whether there had been any appeal to Beijing.

32. The **Secretary for Works** said that:

- in the past few years, the quality of Dongjiang water had failed to comply with some of the parameters of the 1983 Standard. However, the quality of treated water had complied with the WHO Guidelines and the water was safe for consumption;
- the Guangdong Authority had been responsible for all expenses incurred for installing the treatment facilities in Guangdong Province. They had been kept up-to-date about the quality of Dongjiang water supplied to Hong Kong and had taken corresponding measures to improve the situation;
- the mechanism for appealing to Beijing had never been used because there was no need to do so; and
- the current situation was that the quality of Dongjiang water had improved significantly. With the completion of the closed aqueduct, expected to be in 2002, the Administration was confident that the water quality would be further improved.

33. In respect of the information provided by the then Director of Water Supplies at the Finance Committee meeting on 17 November 1989, the **Secretary for Works** further informed the Committee in his letter of 17 January 2000 in *Appendix 23* that:

- pollution control within Guangdong was always the responsibility of the Guangdong side. The costs of implementing the improvement measures were all borne by the Guangdong side;
- the 1983 Standard was comparable to the equivalent European standards at the time. The water quality was monitored through the water quality sub-group established under the provision of the 1989 Agreement; and
- it was the intention at the time to resolve any difference by mutual consultation. If there were any matter which could not be resolved through negotiation, it would be necessary to resolve it at the political level between the Central Governments.

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34. At the request of the Committee, Audit had reviewed the relevant records of meetings to ascertain the undertakings given by the Chinese authorities, as recorded in the Notes on Decisions taken in Finance Committee on 17 November 1989. In his letter of 21 February 2000 in *Appendix 19*, the **Director of Audit** pointed out, among others, that according to the notes of the first preliminary meeting of 28 January 1989 and the records of meetings with the Guangdong Authority held from 10 to 13 October 1989, there was no record of any discussion about the option of appealing to Beijing. According to the WSD's explanation, the statement that "in the event of dissatisfaction, there could be an appeal to Beijing" was based on the WSD's interpretation of the legal advice given by the then Attorney General's Chambers in 1989 that "In the event of breach of the agreement, the matter would be referred to and resolved by negotiations between the respective Governments at the political level."

35. With reference to paragraph 3.4 of the Audit Report, the Committee noted that for the 1998 Loan Agreement signed in July 1998, there was again no stipulation that the quality of Dongjiang water should comply with the 1988 Standard, despite the fact that this had been in force in the Mainland for eleven years. The Guangdong Authority only agreed to strive to improve the water quality to the 1988 Standard after the completion of the closed aqueduct project. Having regard to Audit's observation that the quality of Dongjiang water had been deteriorating due to rapid industrial and urban development in the DWSS drainage basin and along Dongjiang, the Committee asked:

- why the Administration had not made use of the opportunity in 1998 to require the water quality to comply with the 1988 Standard; and
- whether the quality of Dongjiang water supplied to Hong Kong had complied with the parameters specified in the 1983 Standard.

36. The **Secretary for Works** said that:

- as the quality of Dongjiang water had already failed to meet some of the parameters of the 1983 Standard at the time when the 1998 Loan Agreement was signed, the Administration, therefore, had to accept the fact that the 1988 Standard, which was more stringent, could not be achieved; and

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- as it would take time to combat pollution, the most important consideration was whether Guangdong Province had recognised the problem and adopted appropriate remedial measures. In the past few years, Guangdong Province had acted vigorously to improve the quality of Dongjiang water. The measures taken included building a biological nitrification plant in Shenzhen, moving Hong Kong's water intake point upstream to Tai Yuen, and constructing new sewage treatment works in the Dongjiang Valley area. Together with the construction of the closed aqueduct, the Guangdong Authority was confident that compliance with the 1988 Standard was attainable.

37. The **Director of Water Supplies** also said that:

- in 1989, the quality of Dongjiang water was satisfactory. It was only after the relocation of the industries from Hong Kong to Guangdong Province that the water quality began to deteriorate;
- except for two occasions in 1998 where the quantity of Dongjiang water had to be reduced because of substandard quality, the water treatment works in Hong Kong had always been able to treat the water received at the Muk Wu Pumping Stations to meet the safety standards for consumption by the public;
- there were very few raw water standards in the world. There was a European standard and there was not any in the United States. The water industry had accepted the fact that water had to be treated according to different standards. The key consideration was whether the water quality could meet the safety standards for consumption, and this had never been compromised;
- there had been continuous liaison with the Guangdong Authority at the working level to discuss issues relating to the quality of Dongjiang water. These included the annual business meetings and meetings of the Operation and Management Technical Sub-group. As a result of the discussions at these meetings, the Guangdong Authority had taken various measures to improve the quality of Dongjiang water; and
- the quality of Dongjiang water had improved significantly. This was demonstrated by the fact that the level of ammonia and manganese decreased by 73% and 46% respectively in 1999. This led to a reduction of 40% in chlorine dosage for treating water. After the completion of the closed

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aqueduct, there would be less contamination along the Dongjiang Valley and the Shima Valley. The water quality would then be further improved.

38. **Mr CHEUNG Tze-leung, Chief Chemist, Water Supplies Department,** supplemented that:

- after the commissioning of the biological nitrification plant at the end of 1998, the water samples taken at the Muk Wu Pumping Stations showed that the water quality had improved substantially, though it still failed to meet some parameters of the 1983 Standard in mid-1999. In terms of chlorine dosage, there had been a significant improvement. The total amount of chlorine used had decreased by 2,000 tons during the period April to November 1999; and
- the Guangdong Authority had been informed of the occurrence of substandard Dongjiang water in mid-1999. As the biological nitrification plant was the first and the biggest project of this nature in the world, the Guangdong Authority admitted that they had to gather more experience in monitoring the day-to-day operation of the plant, and undertook to improve the efficiency of the plant.

39. In his letter of 11 January 2000 in *Appendix 24*, the **Secretary for Works** provided the Committee with two charts showing the improvement in the levels of ammoniacal nitrogen and manganese in Dongjiang water at the Muk Wu Pumping Stations in 1999. This was indicative of the efforts made by the Guangdong Authority in improving the raw water quality.

40. At the request of the Committee, the **Director of Audit** commented in his letter of 19 January 2000 in *Appendix 25* that:

- the data provided in the two charts tallied with Audit's analysis of the daily water quality test data collected by the WSD at the Muk Wu Pumping Stations from 1989 to 1999; and
- to ascertain whether the quality of raw water from Dongjiang had improved, Audit had analysed the latest water quality test data of ammoniacal nitrogen and total manganese collected by the WSD at the Muk Wu Pumping Stations from January to December 1999. Audit's analysis revealed that the quality of Dongjiang water had improved when the data were compared with those in 1998 for ammoniacal nitrogen and total manganese. However, the water quality still failed to comply with the 1988 Standard for total manganese and

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the Guangdong Province's water quality control index value for ammoniacal nitrogen.

41. The Committee noted that in the Final Report of the East River Water Quality Study, which was conducted by the WSD and completed in 1996, the consultant had the following observation:

“The water from DWSS, however, will continue to be contaminated and its water quality will continue to deteriorate. Such phenomenon is common for water resources all over China. Pollution to environment is rampant and is uncontrolled.”

In the light of the consultant's observation, the Committee asked whether the construction of the closed aqueduct was the best measure to protect the quality of Dongjiang water and whether any other measures had been taken to ensure that the water would not be contaminated before it entered the closed aqueduct. The **Secretary for Works** said that:

- in dealing with the pollution problem, an integrated and comprehensive approach would be required. The Chief Executive had said in his recent Policy Address that an agreement had been reached with the Guangdong Provincial People's Government to make joint efforts to improve the environment;
- in order to improve the water quality, preventive measures should be carried out not only in the mid-stream or the downstream but also in the upstream of Dongjiang. The Guangdong Authority had expedited the implementation of the various treatment works projects, although more effective measures had to be adopted for better planning and control of land use;
- to avoid the pollution, the water intake point for Hong Kong had been moved upstream to Tai Yuen. There was a need to build the closed aqueduct because the Dongjiang water at mid-stream and downstream could be better protected even before the other measures were put in place; and
- according to the Administration's understanding, the water quality at the upstream of Dongjiang, where Hong Kong's water intake point was located, was up to standard.

42. Having regard to the fact that Shenzhen had moved its water intake point upstream to north of Huizhou which had been heavily polluted, the Committee asked why Hong Kong was getting water of poorer quality downstream near Huizhou while making

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substantial payments for the construction of the closed aqueduct and other treatment works along Dongjiang. Furthermore, as the Dongjiang water supplied to Hong Kong was of substandard quality and additional expenses had to be incurred to treat the water, the Committee asked whether the Administration had requested the Guangdong Authority to cover some of water treatment costs or, alternatively, requested the Guangdong Authority to reduce the quantity of water supply so that Hong Kong could correspondingly reduce some of the water treatment costs. The **Secretary for Works** said that:

- the issue should be viewed in a broader perspective. Other than to Hong Kong, Dongjiang was also supplying water to Shenzhen, Guangzhou and other parts of Guangdong with a population of twelve million. If Hong Kong were to move its water intake point further north, it would take away one-third of the Dongjiang water supply and there would be less water at mid-stream and downstream. This would affect the water distribution and supply system for the whole area. It was due to such considerations that the Guangdong Authority decided that it would not be feasible to move Hong Kong's water intake point further upstream and that it should remain at Tai Yuen;
- according to the Administration's understanding, Shenzhen and Guangzhou were equally concerned about the quality of Dongjiang water. The Guangdong Authority had given equal treatment to Hong Kong and had been very committed to protecting the water to be supplied to Hong Kong;
- as the improvement measures were undertaken by the Guangdong Authority, Hong Kong could only put forward suggestions. According to the Administration's understanding, the Guangdong Authority had devoted more resources to step up the various control measures. The existing treatment works projects, together with the closed aqueduct, should be adequate for protecting the quality of water to be supplied to Hong Kong. However, if the Guangdong Authority did not tackle other sources of pollution, the problem might worsen; and
- the Administration had raised the issue about the deterioration of water quality and the increase in water treatment costs during its recent meetings with the Guangdong Authority. The response which the Administration received was that it had to face the reality that the pollution could not be eliminated overnight. The most important step to be taken was to set reasonable and practicable targets, and the time-frame for achieving them. The Administration believed that the Guangdong Authority was working towards the right direction. However, the results of the measures to be taken had yet to be assessed.

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43. The **Director of Water Supplies** supplemented that:

- the cost of chemicals had decreased from \$30 million to \$20 million in 1999 because the water quality had improved. The cost of chemicals only accounted for less than 1% of the total costs of purchasing and treating the Dongjiang water, i.e. a few cents out of about \$5 per cubic metre. Hence, in comparison with the total costs, the expenses incurred for treating the Dongjiang water was not significant. However, there was no dispute that this should be reduced as much as possible; and
- the Guangdong Authority had invested heavily in various facilities to improve the water quality. The investments included \$200 million for the biological nitrification plant, \$70 million for the de-sludging project, over \$100 million for the sewage treatment works, \$500 million for the tunnel and sewage systems, and about \$300 million for the Tai Yuen Pumping Stations. These facilities were funded by the Guangdong Authority in response to the concerns expressed by Hong Kong. These investments were bearing fruits as the quality of water which Hong Kong received at the Muk Wu Pumping Stations was improving.

44. The **Secretary for Works** further advised the Committee in his letter of 19 January 2000 in *Appendix 26* that there should be clear distinction between the cost for pollution control within Guangdong and the cost of water treatment in Hong Kong. If it was considered that the quality of raw water was unacceptable for treatment, the Administration could demand a suitable reduction in the quantity of water supply and recoup the undrawn quantity when the water quality returned to the acceptable level. After the water was delivered to Hong Kong, it was the Administration's responsibility to treat the water up to the drinking water standard. There was no explicit provision under the 1989 Agreement for Hong Kong to claim any water treatment cost from the Guangdong side.

45. In his letters of 11 January 2000 and 19 January 2000 in *Appendices 24 and 26*, the **Secretary for Works** provided the Committee with a breakdown of the additional capital costs and recurrent costs incurred for upgrading the water treatment works in Hong Kong from 1993-94 to 1998-99. Detailed information on the various environmental protection measures adopted by the Guangdong Authority to protect the quality of Dongjiang water was set out in the Secretary for Works' letter of 17 January 2000 in *Appendix 23*.

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46. According to paragraphs 3.31, 3.32 and 3.38 of the Audit Report, there were discrepancies in the test results between the Guangdong Authority and the WSD and there was no legal remedy if the water supplied did not meet the stipulated quality standard. In paragraphs 3.42(g) and 3.42(h) of the Audit Report, Audit had recommended that the Director of Water Supplies should continue to negotiate with the Guangdong Authority a mechanism for testing the quality of Dongjiang water and an option of appointing an independent accredited body to monitor and report on the test results. In paragraph 3.42(b) of the Audit Report, Audit had also recommended that the Administration should consider the inclusion of a remedial clause in future water supply agreements which would state explicitly the rights of a party if the other party did not comply with the terms stipulated in the agreements, particularly those concerning water quality. The Committee asked whether any progress had been made in this regard and whether the Administration would publish on a regular basis the test results of both raw and treated water.

47. The **Secretary for Works** said that:

- the Guangdong Authority had never held back any test results from Hong Kong. The discrepancies in test results might be attributed to the fact that water samples had been taken at different locations and times. To overcome this problem, it had been agreed with the Guangdong Authority that water samples would be taken near the Tai Yuen Pumping Stations and at the Shenzhen Reservoir, and that the test results would be made available to the WSD on a regular basis. On the part of Hong Kong, water samples would be taken on a regular basis at the Muk Wu Pumping Stations for testing;
- the Administration was considering setting up an independent Advisory Committee to enhance transparency in monitoring and reporting on the quality of Dongjiang water and potable water in Hong Kong. Details on how the future test results should be published would be worked out by this new establishment which would comprise professionals and experts in monitoring water quality; and
- in respect of the inclusion of a remedial clause in the water supply agreement, the Administration had tried to strive for the best possible terms for Hong Kong during its negotiations with the Guangdong Authority. However, no agreement could be reached. At the meeting in mid-December 1999, the same request had been put forward, but was again rejected.

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48. The **Secretary for Works** further advised the Committee in his letter of 17 January 2000 in *Appendix 23* that the various established channels through which the water quality and improvement measures were discussed included the annual business meetings, the sub-group meetings and the Hong Kong/Guangdong Environmental Protection Liaison Group meetings. There were also other contacts at the working level. It was at these meetings that both sides exchanged the data for monitoring the water quality and discussed the protection and improvement measures to be followed up by the Guangdong Authority.

49. The Committee noted that in paragraph 3.43 of the Audit Report, the Secretary for Works had said that the Government had proposed the inclusion of a remedial provision for the reduction of the price for substandard Dongjiang water. However, the proposal had been rejected persistently by the Guangdong Authority. Having regard to the fact that the price of Dongjiang water had gone up considerably while the water quality had gone down in the past ten years, the Committee asked:

- whether the Administration would continue to request the Guangdong Authority to reduce the water price as a remedy for being provided with water of substandard quality;
- whether it would be practicable to peg the price to the quality of Dongjiang water so as to ensure good value for money; and
- whether the Guangdong Authority would ask for an increase in the price of water in return for providing Hong Kong with better quality Dongjiang water.

50. The **Secretary for Works** said that:

- a number of factors were involved in determining the price of Dongjiang water. As it was a subject under negotiation with the Guangdong Authority, it would not be desirable to comment on this aspect for the moment;
- the price of water had increased over the years. However, since 1999, the quality of Dongjiang water had improved. It should also be emphasised that the quality of treated water was up to international standards and was safe for consumption; and

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- there was no dispute that the price of water should reflect the water quality. However, there were other considerations in determining the price of water. One of these was whether an alternative source of water supply was available to Hong Kong. According to the Administration's experience in negotiating the price of water, the Guangdong Authority had been very reasonable, the negotiations had always been conducted in an amicable manner, and the agreement reached was fair to both parties.

51. Referring to the statement made by the Chief Executive in his 1999 Policy Address that a Joint Working Group on Sustainable Development and Environmental Protection had been set up with the Guangdong Provincial People's Government, the Committee asked whether it would be appropriate for the Administration to bring the various issues relating to the deteriorating quality of Dongjiang water to this Joint Working Group so that any differences could be resolved at a higher level. The **Secretary for Works** said that:

- the quality of Dongjiang water had actually been included in the agenda of the Joint Working Group. However, the mode of operation of this Working Group was still under discussion; and
- the Administration would escalate the discussion on water quality to a higher level if it was considered appropriate to do so.

Quality of treated water

52. Referring to Audit's observation in paragraph 3.40 of the Audit Report that the increase in chlorine dosage for treating water would result in an increase in the formation of THMs in the treated water, which allegedly would cause cancer, the Committee asked whether the Department of Health (DH) had been informed of the need to increase the chlorine dosage to treat the Dongjiang water and whether such information should be disclosed to the public. **Dr CHAN FUNG Fu-chun, Director of Health**, said that:

- as the DH was responsible for safeguarding public health and hygiene, it was concerned about the quality of potable water. The DH had maintained regular liaison with the WSD to ensure that the potable water could meet the required standards;

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- despite the fact that the chlorine dosage had to be increased to treat the raw water up to the WHO standards, the ratio of THMs in the treated water had not exceeded the level as stipulated in the 1993 WHO Guidelines. In fact, according to the data provided by the WHO, only one adult in a population of 100,000, who consumed two litres of water a day for 70 years, would contract cancer as a result of consuming water containing the THMs. However, the Administration would not be complacent and would monitor the trend closely;
- she would like to assure the public that the quality of potable water in Hong Kong could meet all the safety standards and was suitable for consumption. In the past, there had not been any major outbreak of diseases caused by poor water quality. Hence, the quality of potable water was not a matter of concern; and
- in respect of the disclosure of information, she understood that the independent Advisory Committee to be set up would consider how the data on water quality should be publicised.

53. In reply to the Committee's question on whether the quality standards of treated water should be specified in the Waterworks Ordinance, the **Director of Health** said that:

- although many countries had adopted the WHO Guidelines, the values specified therein were not mandatory limits. Care should be taken to select parameters for developing the local standards which would suit the local situation; and
- it would be desirable to include the quality standards in the relevant legislation because this could enhance transparency. However, as the WHO standards were public information and as the WSD was prepared to publicise the test results on a regular basis, the public would have no difficulty in monitoring the water quality. A higher degree of transparency would then be achieved.

54. On the same issues, the **Director of Water Supplies** said that:

- subject to the advice to be given by the independent Advisory Committee, the WSD was agreeable to increasing the transparency in disclosing the quality standards;

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- as the level of THMs in the treated water was substantially below the standards specified in the WHO Guidelines, which were very conservative, there was no cause for concern; and
- there was a need to legislate to give the quality standards legal effect in countries where the water authority was run privately. As a government department, the WSD was accountable to the public and there was no need to specify the quality standards in the Waterworks Ordinance.

55. The **Secretary for Works** also said that:

- he was not against legislating per se. However, the most important points to consider were whether the quality of treated water was up to the WHO standards and whether there was a high degree of transparency in the publication of the test results. As these issues would be monitored by the independent Advisory Committee, which would be formed in two to three months' time, there was no need to legislate at the present moment; and
- it was the responsibility of the Works Bureau and the WSD to ensure that the treated water could comply with the WHO standards. It would work with the Advisory Committee to monitor the quality of both raw water and treated water and to publish the test results.

56. The **Secretary for Works** supplemented in his letter of 11 January 2000 in *Appendix 24* that:

- at present, the Administration had the capability of ensuring that the treated water complied with the WHO Guidelines. As part of the continuous improvement exercise, the WSD regularly reviewed and updated their performance pledge and operational instructions;
- the Administration had planned to publish the pledged targets with regular announcements of key results on the quality of treated water. Transparency would be increased. The public could monitor the quality of treated water more effectively through this customer-oriented arrangement than specifying the quality standards in the legislation. The Administration therefore considered that it was not necessary to legislate on the quality of treated water at the present moment; and

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- however, the Administration would not totally rule out the possibility of legislating on the quality of treated water in the future should there be any change of circumstances warranting it.

57. The Committee noted that Audit had recommended in paragraph 4.23(d) of the Audit Report that the Director of Water Supplies should consider setting up a contingency plan for possible cryptosporidiosis and giardiasis outbreaks. The Committee asked whether any action had been taken in this regard. The **Secretary for Works** said that the WSD and the DH had formulated a contingency plan which were divided into two stages. In the first stage, if the parasites were detected but did not exceed the stipulated standards, then the treatment process would be reviewed and the water quality would be closely monitored. In the second stage, if the level had exceeded the standards, then the source of the problem would be identified and the public might be asked to boil the water before consumption. More detailed information on the contingency plan was provided by the **Secretary for Works** in his letter of 11 January 2000 in *Appendix 24*.

Disclosure of information

58. At the third public hearing on 25 February 2000, the Committee pointed out that on three occasions (i.e. in the Committee's letters of 17 December 1999, 11 January 2000 and 22 January 2000), the Committee had asked to be provided with copies of the documents which were considered to be important documentary evidence which would demonstrate the efforts made by the Administration in striving for the best terms and conditions in the water supply agreements. However, the Secretary for Works had turned down the Committee's requests. The Committee asked why those documents could not be made available to the Committee and whether the decisions were made on the grounds of public interest.

59. The **Secretary for Works** said that:

- it was the practice for the Administration not to provide the public, including the Legislative Council (LegCo), with copies of ExCo Papers and records of meetings with the Guangdong Authority because they usually contained some information of a sensitive nature, for example, the strategies adopted by the Government in the negotiations of the water supply agreements with the Guangdong Authority. However, almost all of the information contained in those papers had been disclosed in the Administration's answers both at the

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public hearings and in the subsequent correspondence;

- he welcomed the Committee's suggestion of inviting Audit to review the relevant papers and make a report to the Committee afterwards; and
- he would seek legal advice to ascertain the relevance of the grounds of public interest to the Administration's decision not to provide the Committee with the relevant documents.

60. In reply to the Committee, the **Director of Audit** confirmed that Audit had reviewed all the relevant documents kept by the Works Bureau and the WSD.

61. The **Acting Director of Water Supplies** also said that the files which recorded the efforts made by the Administration in negotiating for the best agreements for Hong Kong were voluminous. Audit had access to all these files, though it was impossible for them to quote all the relevant information in the Audit Report.

62. From the Audit Report and the various information papers and minutes of meetings of the LegCo, the Committee noted the following sequence of events:

- the 1988 Standard, which replaced the 1983 Standard, took effect in the Mainland from 1 June 1988;
- in 1993, the Government raised its concern over the deteriorating quality of Dongjiang water with the Guangdong Authority;
- the former Secretary for Works had, under delegated authority, given approval to spend \$14.7 million in 1995 and \$13.8 million in 1997 to improve the chlorination facilities at various water treatment works (The relevant papers are in *Appendices 27 and 28*);
- the WSD commissioned a consultant in 1995 to study the deteriorating quality of Dongjiang water;
- in the Information Note for the meeting of the LegCo Panel on Environmental Affairs on 10 April 1997 (in *Appendix 29*), the Administration pointed out that:

“All our test results on the raw water from Guangdong have indicated that there is no quality trend change of any proportion that warrants material

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concern.....There is no indication of any significantly adverse change in quality.”

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Representatives of the Administration also said at the meeting that:

“the quality of raw water from Dongjiang had indeed stabilised. There was therefore no cause for alarm” (in *Appendix 30*);

- paragraph 3.16 of the Audit Report stated that:

“at the annual business meeting held in May 1997, the Guangdong Authority said that the quality of Dongjiang water was deteriorating and was a growing problem. Due to serious pollution along the DWSS, which was an open water channel, the Guangdong Authority planned to construct a closed aqueduct and sought financial assistance from the Government”;

- the Director of Water Supplies said at the Finance Committee meeting on 3 April 1998 that “the water supplied was clean at source, that it was up to the standard stipulated in the 1989 Agreement and was suitable for use and drinking” (in *Appendix 31*);
- the Deputy Secretary for Works said at the joint meeting of the LegCo Panels on Environmental Affairs and Planning, Lands and Works on 5 February 1999 that “the current quality of raw water from the main stream of Dongjiang water at the intake point was graded as meeting the national standard Class II, which was considered acceptable” (in *Appendix 32*);
- according to Audit’s analysis in Table 2 of the Audit Report, which was based on the water quality test data collected by the WSD at the Muk Wu Pumping Stations from 1989 to 1998, the quality of Dongjiang water, in general, failed to comply with some of the key parameters of the 1983 Standard; and
- a total of \$115 million of additional recurrent costs and \$35 million of capital costs had been incurred for water treatment since 1993.

With reference to the above, the Committee asked:

- why the Administration had not disclosed any information on the deterioration in the quality of Dongjiang water until the subject was first brought up at the LegCo Panel on Environmental Affairs Panel on 10 April 1997;
- whether the Administration had deliberately withheld the vital information on water quality from the LegCo and the public;

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- whether the Secretary for Works could assure the public that his former colleagues had tried their utmost to negotiate for the best terms and conditions in the water supply agreements; and
- whether the Administration had misled the LegCo and the public by stating at the various meetings that the quality of Dongjiang water was up to standard, even though there were clear indications at the time that the water quality had deteriorated.

63. The **Secretary for Works** said that:

- the quality of Dongjiang water at the intake point could basically comply with the 1983 Standard. The water quality deteriorated when it reached the reception point at the Muk Wu Pumping Stations because of the pollution along the way. As a responsible government, the Administration had to take remedial measures to treat the water. Additional expenditure had inevitably been incurred;
- the Administration had all along maintained that the quality of potable water in Hong Kong had complied with the WHO standards and was safe for consumption after treatment and, thus, there was no cause for concern;
- in deciding whether a document should be made public, the principle that had been adopted was whether the document contained sensitive information and whether the disclosure would affect future negotiations;
- in terms of providing information, the Administration had always been very forthcoming and had never hidden any information from the LegCo and the public. He believed that the specific information mentioned had been provided to the LegCo on various occasions such as the meetings of the relevant Panels and the Administration's replies to the LegCo questions. It was neither correct nor fair for anyone to make the comment that the Administration had not disclosed any information;
- in respect of the quality of Dongjiang water, the Guangdong Authority had never asked the Government not to disclose the relevant information; and
- he was satisfied that the departments concerned and the officers involved in the negotiations had tried their utmost to get the best possible agreements for Hong Kong.

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64. The **Acting Director of Water Supplies** also said that:

- at the Finance Committee meeting on 17 November 1989, the then Director of Water Supplies had rightly pointed out that the quality of the Dongjiang water supplied to Hong Kong was comparable to European standards. The 1988 Standard was not mentioned at the meeting because the Guangdong Province was still using the 1983 Standard at that time. It was only in 1991 that the Guangdong Authority officially adopted the 1988 Standard;
- it should be noted that water samples taken at different locations would show varying degrees of compliance with the water quality standards. Although the WSD's consultant had concluded that the quality of the raw water would continue to deteriorate, he had also pointed out in another part of his report that samples taken at the Shenzhen Reservoir indicated that the water quality was generally good. That was why the WSD's Assistant Director and Chief Chemist said at the meeting of the LegCo Panel on Environmental Affairs on 10 April 1997 that there was no cause for alarm;
- the Deputy Secretary for Works had correctly pointed out at the joint meeting of the LegCo Panels on Environmental Affairs and Planning, Lands and Works on 5 February 1999 that the quality of Dongjiang water at the intake point near Qiaotou, which was 80 kilometres away from Hong Kong, had complied with the 1983 Standard. It was during the delivery along the open channel that the water became polluted; and
- in respect of the provision of information, he was certain that the relevant information had been provided to the LegCo in the past. He would review the files and provide the Committee with the relevant documents.

65. In view of the fact that material information which indicated a deterioration in the quality of Dongjiang water was available at that time, the Committee asked the Acting Director of Water Supplies, if he were given another opportunity to participate in the discussion at the meeting of the LegCo Panel on Environmental Affairs on 10 April 1997, whether he would have presented the same information on the quality of Dongjiang water at the meeting. In reply, the **Acting Director of Water Supplies** said that the same information would have been presented at the meeting.

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66. Referring to the statement made by the then Director of Water Supplies at the Finance Committee on 17 November 1989 that in the event of dissatisfaction, there could be an appeal to Beijing, the Committee asked whether the then LegCo Members had been misled because the advice given by the Attorney General's Chambers only stated that "in the event of breach of the agreement, the matter will be referred to and resolved by negotiations between the respective Governments at the political level", and there was no provision of a mechanism for making an appeal to Beijing. The **Secretary for Works** said that:

- the 1989 Agreement was actually an agreement entered into by two regional governments because Hong Kong was still a British colony and Guangdong Province was a part of China. Hence, if any disputes arose, they should be resolved by the two governments at the national level. That was why reference had been made to Beijing; and
- it had been stated very clearly in the records that there could be an appeal to Beijing in the event of dissatisfaction. One could only rely on these records to guess what the intention was at that time.

67. The Committee were concerned that the failure to provide Members of the LegCo with accurate and complete information of a material nature might have affected the decisions made by Members in approving the relevant financial proposals, for example, the loan to the Guangdong Provincial People's Government for constructing the closed aqueduct. The Committee asked whether this had amounted to a dereliction of duty on the part of the officials concerned. The **Secretary for Works** said that:

- it all boiled down to a matter of transparency. The degree of transparency might be different at different times. It would be desirable for as much information as possible to be provided to the LegCo and the public so as to increase their understanding of the issues being discussed. There had been improvements over time and the Hong Kong Special Administrative Region Government had tried its best to be as transparent as possible. He agreed that all information which was relevant to a funding application should be disclosed;
- as regards the adequacy and relevance of the information as provided in the various papers and meetings in the past, he could only speculate on the intention of the officials concerned and the considerations that they had gone through in preparing the documents;

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- as to whether he would have disclosed more information if he were given the opportunity to go through the process again, he believed that there was no hard and fast rule and there was no one single answer. It all depended on the prevailing circumstances, the focus of the issue being discussed and the type of information which was required at the time. As a lot of information was available at that time, the officers concerned had to make a judgement as to whether certain information was relevant and therefore had to be disclosed. Ultimately, the decisions would rest with the judgement made by responsible officers in accordance with the circumstances of individual cases at the time; and
- he would review the relevant documents and provide the Committee with his views on whether more information should have been disclosed.

68. In his letters of 11 January 2000, 19 January 2000 and 9 March 2000 in *Appendices 24, 26 and 20*, the **Secretary for Works** supplemented that:

- the deterioration in the quality of Dongjiang water was first presented to the LegCo Panel on Environmental Affairs on 10 April 1997. It had not been brought up earlier because the water quality had not deteriorated to a level giving cause for significant concern;
- at both the meetings of the LegCo Panel on Environmental Affairs on 10 April 1997 and the Finance Committee meeting on 3 April 1998, the Administration advised Members that there was deterioration of the quality of Dongjiang water but the raw water could be treated to comply fully with the WHO standards. The Administration had never withheld any fact from the LegCo on the quality of Dongjiang water and had in no way misled the LegCo on these two occasions;
- the Administration had explained at the meeting of the LegCo Panel on Environmental Affairs on 10 April 1997 that the quality of Dongjiang water was found to have some deterioration. However, the problem was not serious. It had also been pointed out in the Information Paper that “although over the years, there have been some increases in the values of certain parameters, for example, turbidity, nitrate and chloride, they still remain well within acceptable levels”. However, as part of the forward planning to upgrade the water treatment capabilities in the longer term, the Administration considered it necessary to improve some of the chlorination facilities in good time. With such improvements, the Administration would be more capable of keeping the

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- quality of treated water fully within the required standards at all times even if the quality of raw water fluctuated;
- the Administration had not understated the situation in the Finance Committee Paper of 3 April 1998. The statement in paragraph 4 of the Paper that “the risk of pollution to the supply of water to Hong Kong has increased” appropriately reflected the prevailing situation at the time. Although there was a deteriorating trend in the quality of Dongjiang water, it was important to note that the treatment works continued to produce treated water in full compliance with the WHO standards. The treated water was always safe for consumption. It should also be noted that the Guangdong side had implemented mitigating measures to improve the quality of Dongjiang water. Initial improvements had been observed in 1999;
 - at the Finance Committee meeting on 3 April 1998, the Administration recommended the approval of a loan to help finance the closed aqueduct to be constructed by the Guangdong side. The assurance given by the Administration at the meeting was proper, as the raw water from the intake point at the Dongjiang mainstream, i.e. at source, was up to the standard stipulated in the 1989 Agreement. However, the water was vulnerable to contamination when it was delivered through the 80 kilometre long open channel. The closed aqueduct, when completed in 2002, would replace the open channel and prevent the deterioration of Dongjiang water during its delivery to Hong Kong;
 - the fact that Shenzhen was drawing water from Dongjiang near Huizhou was not mentioned at the Finance Committee meeting on 3 April 1998 because the project was only one of the local water resources schemes within Guangdong Province and was not directly related to Hong Kong;
 - the Administration had on various occasions explained to the LegCo that the quality of Dongjiang water actually varied at different locations along the transfer route starting from the intake point at Dongjiang mainstream through the 80 kilometre open transfer channel to Shenzhen Reservoir and subsequently to the reception point at Muk Wu Pumping Stations. Information on the quality of Dongjiang water was set out as follows:
 - (i) the quality of Dongjiang water at the mainstream intake point was in general up to the 1983 Standard;
 - (ii) due to pollution along the open transfer aqueduct in recent years, the Dongjiang water at Muk Wu Pumping Stations did not always comply

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with some of the parameters of the 1983 Standard; but

- (iii) the Dongjiang water received at Muk Wu was still in general acceptable for treatment, i.e. the water was safe for lifetime consumption after treatment to WHO standards. The Administration did on two occasions reduce temporarily the supply quantities because of unsatisfactory water quality. The undrawn quantities were subsequently recouped when the quality of Dongjiang water became acceptable for treatment;
- the grounds of public interest relevant to the present case were that the relevant documents contained negotiation strategies and commercially sensitive information which were highly confidential. Disclosure of the documents would undoubtedly jeopardize Government's position in future negotiations with the Guangdong Authority and inhibit free discussions between the parties over the purchase of water for Hong Kong which was an ongoing process in the years to come. The damage to public interest caused by the disclosure of the relevant documents therefore justified a claim for public interest immunity;
- as regards how much information should be included in the submission to the LegCo meetings, there was no hard and fast rule and there was no one single answer. It depended on the focus of the issue being pursued. Back in 1989, the Guangdong Authority had not adopted the 1988 Standard when the Administration submitted the funding application at the time. The 1988 Standard was only adopted in 1991. When the Administration sought funding to help finance the construction of the closed aqueduct in 1998, the LegCo was informed of the deterioration of Dongjiang water resulting from pollution along the transfer route;
- copies of the information papers presented to the LegCo Panels and the Administration's replies to the LegCo questions since 1997 on the quality of Dongjiang water were enclosed at Annex B of the letter of 9 March 2000; and
- the officers attending the relevant LegCo meetings were listed in Annex C of the letter of 9 March 2000. Their role was to present the relevant papers at the meetings and answer questions from Members. These officers were involved in preparing the papers which in fact represented the collective view of the Administration at the time.

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The construction of the closed aqueduct

69. The Committee noted that in April 1998, the Provisional LegCo had approved a loan of HK\$2,364 million to the Guangdong Provincial People's Government to help finance the construction of a new closed aqueduct for conveying water from the Dongjiang to Hong Kong. (The relevant Finance Committee Paper is in *Appendix 33*.) The Committee asked why the Government had to provide a loan to the Guangdong Provincial People's Government.

70. The **Secretary for Works** said that the Guangdong Provincial People's Government was provided with the interest-free loan to help finance the closed aqueduct project to improve the quality of water supplied to Hong Kong. The loan had to be repaid in 20 equal yearly installments starting from the commissioning of the project or the year 2003, whichever was earlier. The total interest forgone from the loan was about HK\$2,000 million in money-of-the-day (MOD) prices. This amount would be more than offset by the total recurrent expenditure savings of some HK\$2,240 million in MOD prices achieved through the reduction in water purchased from Guangdong. Hence, on the whole, Hong Kong would benefit from this arrangement.

71. With reference to the findings of a research conducted by Dr HO Kin-chung of the Open University of Hong Kong in 1997 and 1998 (in *Appendix 34*), the Committee noted that the quality of Dongjiang water near Huizhou had failed to comply with some of the parameters of the 1983 Standard. The water quality had further deteriorated in 1998. The Committee were concerned that the effectiveness of the closed aqueduct would be undermined if the water upstream had been polluted and that this would result in a waste of resources. The Committee asked whether the Administration had requested the Guangdong Authority to improve the quality of the water near Huizhou.

72. The **Secretary for Works** said that:

- Dongjiang was a long river. The water intake point for Hong Kong was at Qiaotou where the water quality complied with the 1983 Standard. The quality of the water near Huizhou and Heyuan which were further north was even better and complied with the national Class I Standard. Pollution occurred in cities south of Huizhou. The test results were therefore dependent on where water samples were taken;

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- as Dongjiang water was also serving a population of 12 million in the Guangdong Province, the Guangdong Authority had been under pressure to ensure that the quality of Dongjiang water could meet the required standards. It had been very vigorous in implementing various environmental protection measures. However, it would take time for these measures to take effect; and
- as the quality of the water from Qiaotou was up to standard, it was necessary to build the closed aqueduct so as to ensure that the water from Qiaotou to Shenzhen was protected and was pollution-free.

73. As Qiaotou was south of Huizhou from where pollution started to occur, the Committee asked why the quality of the water at Qiaotou was still up to standard. The **Secretary for Works** said that water from the tributaries would dilute the water along the mainstream of Dongjiang and bring the water at Qiaotou up to standard.

74. According to paragraph 3.4 of the Audit Report, the Guangdong Authority had agreed to strive to improve the quality of Dongjiang water to the 1988 Standard after the completion of the closed aqueduct project. In this regard, the Committee asked whether there was a mechanism for the Administration to ensure that the Guangdong Authority would adhere to its undertaking. The **Secretary for Works** said that:

- the only way to improve the water quality was to implement environmental protection measures. The Guangdong Authority had shown much determination to improve the environment and had committed substantial resources to this cause;
- on the other hand, the Administration would monitor the water quality very closely and would provide the independent Advisory Committee with information on the test results so that it could consider ways of improving the water quality; and
- the Chief Executive of the Hong Kong Special Administrative Region and the Governor of Guangdong Province had made a Joint Statement in October 1999 to protect the environment and to set up a Joint Working Group on Sustainable Development and Environmental Protection. If substandard water were detected, the Chief Executive would be informed so that he could take it up with the Governor of Guangdong Province. At the same time, the LegCo

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would be provided with information on the situation. If the problem were very serious, the public would also be informed.

75. In his letters of 2 February 2000 and 9 March 2000 in *Appendices 35 and 20*, the **Secretary for Works** set out once more the Administration's comments on the closed aqueduct project and the efforts made by the Guangdong Authority to protect the quality of Dongjiang water in areas including Huizhou.

76. **Conclusions and recommendations** The Committee:

- express dismay that, by agreeing to the terms and conditions contained in the 1989 Water Supply Agreement (the 1989 Agreement), the Administration had put itself in a disadvantaged position in its subsequent negotiations with the Guangdong Authority on both the quantity and quality of water which was to be supplied from Dongjiang, due to the fact that the Agreement committed Hong Kong to a long period of fixed supply quantity without:
 - (i) a mechanism for adjusting the annual supply quantities in the ensuing years which would take into account the reservoir storage level and the actual consumption level in the preceding year;
 - (ii) a mechanism for ensuring that the water supplied to Hong Kong would comply with the 1983 Standard and that the water quality standards would be reviewed and continue to be upgraded;
 - (iii) a mechanism for monitoring and reporting on the quality of Dongjiang water; and
 - (iv) a mechanism for dispute resolution and a provision for penalty or compensation in case of non-compliance with the terms of the Agreement by either party;
- express concern that prior to 1995, the Government had not raised with the Guangdong Authority the concern about the excess water supply with a view to setting up a mechanism to adjust the quantities of annual water supply, despite the fact that:
 - (i) there had been a drop in the growth rate of actual water consumption since 1990;
 - (ii) the industrial water consumption had decreased since 1990; and

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- (iii) the reservoir storage had continued to build up, resulting in reservoir overflow since 1992;
- express grave dismay and alarm at the statement made by the Secretary for Works at the public hearing on 4 January 2000 that, as the quality of Dongjiang water had already failed to meet some of the parameters of the 1983 Standard at the time when the 1998 Loan Agreement was signed, the Administration, therefore, had to accept as a fact that the 1988 Standard, which was more stringent, could not be achieved;
- express serious dismay that though the Government had attempted to negotiate with the Guangdong Authority for a reduction or a deferment of water supply since 1995, it had failed to capitalise on the opportunity to obtain more tangible results, when negotiating the 1998 Loan Agreement with the Guangdong Authority, by:
 - (i) insisting that the water supplied to Hong Kong complied with the 1988 Standard which had already been in use in the Mainland for eleven years and adopted by the Guangdong Authority since 1991;
 - (ii) requiring a remedial clause for substandard water, despite the fact that this had been suggested by the Secretary for Justice in 1997;
 - (iii) including a mechanism for monitoring and reporting on the water quality through an independent accredited body, so as to enhance effectiveness;
 - (iv) requesting an alternative source of water supply; and
 - (v) incorporating more flexibility in the Agreement for adjusting the annual supply quantities;
- express concern that the Water Supplies Department has cumulatively incurred additional recurrent costs of \$115 million since 1993 to tackle the problem of substandard quality of Dongjiang water, and another \$35 million as capital costs to upgrade the water treatment works;

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- condemn the Administration for having provided Members of the Legislative Council (LegCo) with inaccurate and incomplete information of a material nature, thereby influencing the direction of Members' discussion at the relevant meetings leading to the decisions to approve the financial proposals for making advance payment of water charges and a loan to the Guangdong Provincial People's Government for water quality improvement project. In arriving at this conclusion, the Committee have taken into account the following:
 - (i) the statement made by the Director of Water Supplies at the Finance Committee on 17 November 1989, that there could be an appeal to Beijing in the event of dissatisfaction with the quality of Dongjiang water, was factually incorrect;
 - (ii) material information relating to:
 - (a) the adoption of the 1988 Standard in the Mainland since 1 June 1988 and in Guangdong Province since 1991;
 - (b) the discussion with the Guangdong Authority on the deterioration of water quality as early as in 1993;
 - (c) the results of the consultancy study in 1996 which indicated that the quality of raw water would continue to deteriorate;
 - (d) the approval of \$14.7 million in 1995 and \$13.8 million in 1997 to improve the chlorination facilities at the various water treatment works; and
 - (e) a total of \$115 million of additional recurrent costs and \$35 million of capital costs having been incurred for water treatment since 1993,

was omitted from the papers submitted for discussion at the meetings of the LegCo Panel on Environmental Affairs on 10 April 1997 and 2 July 1999, the Finance Committee on 3 April 1998, and the joint meeting of the LegCo Panels on Environmental Affairs and Planning, Lands and Works on 5 February 1999; and

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- (iii) although the above material information was available at that time, the Administration still maintained at the Panel meeting on 10 April 1997, and subsequently at the Finance Committee meeting on 3 April 1998, that there was no trend in quality changes of any proportion which warranted material concern, that there was no cause for alarm and that the water supplied was clean at source and was up to the standard stipulated in the 1989 Agreement;
- express grave dismay and alarm at the statement made by the Acting Director of Water Supplies at the public hearing on 25 February 2000 that if he were given another opportunity to participate in the discussion at the meeting of the LegCo Panel on Environmental Affairs on 10 April 1997, he would have presented the same information on the quality of Dongjiang water at the meeting, even though the above material information which indicated a deterioration in the quality of Dongjiang water was available at that time;
- reject the explanation given by the Secretary for Works at the public hearing on 25 February 2000 and subsequently in the letter of 9 March 2000 that material information relating to the deterioration of Dongjiang water was not disclosed at the various LegCo meetings because it was not related to the focus of the issue being pursued;
- express concern that:
 - (i) the quality of the treated water did not fully comply with the aesthetic levels of residual chlorine of the 1993 World Health Organisation Guidelines for Drinking Water Quality (the WHO Guidelines) and the Water Supplies Department's Final Treated Water Quality Targets for turbidity, aluminium and residual chlorine;
 - (ii) notwithstanding the fact that the WHO Guidelines were revised in 1993, the Water Supplies Department's standards and Final Treated Water Quality Targets were based on the 1984 WHO Guidelines;
 - (iii) the monitoring of the quality of treated water is essentially a self-regulatory process of the Water Supplies Department because the Waterworks Ordinance or other legislation has not specified the parameters and the standards which the treated water should meet. This is not in line with international best practices; and

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- (iv) the Administration has not been more forthcoming in taking on the responsibility to publish test results of both raw water and treated water; instead, it has relegated this responsibility to the independent Advisory Committee on Water Supply which will be formed in early 2000 to discuss and make recommendations on issues related to water supplies;
- acknowledge that:
 - (i) the Secretary for Works and the Director of Water Supplies gave an assurance at the public hearing on 4 January 2000 that the quality of Dongjiang water had improved significantly since 1999;
 - (ii) through various channels and meetings, the Government will continue to urge the Guangdong Authority to step up measures to protect the quality of Dongjiang water;
 - (iii) the Government will continue to follow the WHO Guidelines including those relating to the level of residual chlorine in treated water;
 - (iv) the Water Supplies Department will regularly review and update the Department's performance standard;
 - (v) the Water Supplies Department, in consultation with the Department of Health, has formulated a contingency plan for possible Cryptosporidiosis and Giardiasis outbreaks; and
 - (vi) the subject on the quality of Dongjiang water had been discussed at the Hong Kong/Guangdong Environmental Protection Liaison Group Meetings held in November 1998 and March 1999;
 - urge the Administration to:
 - (i) continue to negotiate with the Guangdong Authority, with a view to:
 - (a) incorporating in future water supply agreements more flexibility in adjusting the annual supply quantities;
 - (b) stipulating a requirement that the water supplied to Hong Kong must comply with the 1988 Standard; and

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- (c) enabling Hong Kong to stop drawing unneeded water in order to avoid wasting water due to overflow and to achieve some savings in the electricity cost of pumping operations and treatment cost;
 - (ii) continue to discuss the subject of the quality of Dongjiang water at the Joint Working Group on Sustainable Development and Environmental Protection, and consider escalating the level of discussion to Beijing if the various issues raised cannot be resolved;
 - (iii) in line with international best practices, actively consider legislating on the standard of quality of treated water in accordance with the WHO Guidelines, so that consumers are given a statutory undertaking as to the quality of treated water;
 - (iv) publish on a timely basis the test results of both raw water and treated water and increase the transparency of the monitoring and reporting process through the establishment of the Advisory Committee on Water Supply at the earliest possible date;
 - (v) make public the presence of Cryptosporidiosis and Giardiasis in treated water if this has been confirmed by testing; and
 - (vi) expeditiously finalise the study on the local water storage level and alternative sources of water supply, and publish the study results as soon as available;
- recommend that the Administration should:
- (i) adopt a more pragmatic approach in determining a more reasonable storage level and formulating a strategy for planning water supply, in view of the exceptionally high reservoir storage level being maintained at present (99%). In doing so, factors such as the trend of water consumption, existing reservoir storage level and forecasts of future water demand should be taken into account;
 - (ii) explore alternative sources of water supply if the quality of Dongjiang water continues to deteriorate;

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- (iii) increase the local water storage capacity by enlarging the storage capacity of existing reservoirs and by building more reservoirs so as to reduce water overflow and to make better use of the cleaner water collected from rainfall;
 - (iv) include a dispute resolution clause and a provision for penalty or compensation in future water supply agreements;
 - (v) continue to explore with the Guangdong Authority the option of appointing an independent accredited body to monitor and report on the quality of Dongjiang water; and
 - (vi) shift the annual business meetings with the Guangdong Authority to the end of the wet season every year so that up-to-date information on the annual rainfall can be made available at the meetings;
- invite the Director of Audit to consider conducting a value for money study of the pricing mechanism for determining the price of Dongjiang water as a follow up to this report, taking into account the deterioration in water quality and the trend of rising prices; and
 - wish to be kept informed of the progress of:
 - (i) the project to build a closed aqueduct on a regular basis and its effectiveness in protecting the quality of Dongjiang water;
 - (ii) the establishment of the Advisory Committee on Water Supply;
 - (iii) the publication of the pledged targets and key results achieved on the quality of both raw water and treated water;
 - (iv) the study on the local water storage level and alternative sources of water supply;
 - (v) monitoring the quality of Dongjiang water near Huizhou;
 - (vi) the negotiations and discussions with the Guangdong Authority on the various issues relating to the quantity and quality of Dongjiang water supplied to Hong Kong; and

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- (vii) the discussion in the Joint Working Group on Sustainable Development and Environmental Protection on the quality of Dongjiang water.

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