

**立法會**  
**Legislative Council**

LC Paper No. CB(2) 779/00-01  
(These minutes have been seen  
by the Administration)

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**LegCo Panel on Environmental Affairs**

**Minutes of Special Meeting  
on Wednesday, 1 November 2000 at 10:45 am  
in the Chamber of the Legislative Council Building**

- Members Present** : Prof Hon NG Ching-fai (Chairman)  
Hon Cyd HO Sau-lan (Deputy Chairman)  
Ir Dr Hon Raymond HO Chung-tai, JP  
Hon Martin LEE Chu-ming, SC, JP  
Hon Bernard CHAN  
Hon WONG Yung-kan  
Hon Mrs Miriam LAU Kin-yee, JP  
Hon Emily LAU Wai-hing, JP  
Hon LAW Chi-kwong, JP  
Hon Abraham SHEK Lai-him, JP  
Hon Henry WU King-cheong, BBS  
Hon Tommy CHEUNG Yu-yan, JP  
Hon Albert CHAN Wai-yip  
Dr Hon LO Wing-lok  
Hon LAU Ping-cheung
- Member Attending** : Hon NG Leung-sing
- Members Absent** : Hon Eric LI Ka-cheung, JP  
Hon Michael MAK Kwok-fung  
Hon CHOY So-yuk
- Public Officers Attending** : Mr Kim Salkeld  
Deputy Secretary for the Environment and Food

Mr John Collier  
Director of Drainage Services

Mr C H LAM  
Assistant Director/Sewage Services  
Drainage Services Department

Mr C K HON  
Chief Engineer/Strategic Sewage Disposal Scheme  
Drainage Services Department

Mr Donald TONG  
Principal Assistant Secretary for the Environment and Food

**Clerk in Attendance** : Mrs Constance LI  
Chief Assistant Secretary (2)5

**Staff in Attendance** : Ms Joanne MAK  
Senior Assistant Secretary (2)2

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- I. Administration's proposal to increase the approved project estimate of 320DS "Strategic Sewage Disposal Scheme (SSDS) Stage I: completion of sewer tunnel system from Kwai Chung to Stonecutters Island"**  
(LC Paper No.CB(2)99/00-01(01), CB(2)124/00-01(01) and CB(2)139/00-01(01))

The Chairman welcomed representatives of the Administration to continue discussion with the Panel on the above proposal. He first invited questions from those members who had not got the opportunity to ask questions at the previous Panel meeting on 25 October 2000.

Problems relating to site investigations

2. Referring to items (b) and (c) in Annex D of LC Paper No. CB(2)99/00-01(01), Miss Emily LAU requested the Administration to explain in greater detail the \$200 million expenditure on site investigations. She asked whether such expenditure was justified in view of the discrepancies between the findings of these investigations and the actual ground conditions in Tunnel F.

3. Director of Drainage Services (DDS) responded that it was not possible for site investigations to provide 100% accurate information on the actual ground

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conditions. Nevertheless, the technique of directional core drilling used for the site investigations in SSDS Stage I works did provide very useful geological information which was important to the planning of subsequent stages of SSDS. He said that the Administration would explore the feasibility of applying more modern techniques for core drilling into deep faults in the future. He further said that most of the technical problems for SSDS stage I works had now been overcome, and that the excavation works for Tunnel F were almost completed with only one metre left just before the Panel meeting in that morning.

4. Assistant Director/Sewage Services (AD(SS)) clarified that the \$200 million spent on site investigations actually included the consultancy fees for site investigations and engineering studies for all stages of SSDS as well as the costs for the associated site investigation works from 1991 to 1993. He said that the expenditure on site investigations for Tunnel F amounted to only \$20 million, which was a reasonable amount as the overall budget for the construction of Tunnel F was in the region of \$500 million.

5. AD/SS said that the Administration had made use of the geological database of the Geotechnical Engineering Office of the Civil Engineering Department and conducted in-depth studies on geological conditions for this project. He added that the pre-excavation site investigations had been able to locate the Tolo Channel Fault, but its full extent could not be ascertained at that time because the Fault was so deep underground.

6. On the method used for site investigations, Deputy Secretary for the Environment and Food (DS(EF)) said that Professor E S Pelizza, who was a tunnelling expert and member of the International Review Panel (IRP), had been requested to review whether the methods used for the site investigations were adequate or not.

7. Miss Emily LAU said that the Administration should review whether any Government officer or persons should be held responsible for the inaccuracies in pre-excavation investigations. The Chairman added that before commencement of the SSDS project, engineering professionals had already pointed out that the ground conditions of the proposed tunnel alignments were extremely poor. He questioned whether the Administration had under-estimated the difficulties of the project, resulting in increases in the overall budget of SSDS Stage I from \$6,693 million to \$8,323.7 million.

8. DDS said that at the time when Tunnel F was designed, the predictions made on the ground conditions were considered reasonable. He also believed that the parties concerned had prepared the analysis in a responsible manner. He further said that 14 boreholes had been drilled along the Tunnel F alignment in order to obtain accurate geological information. He explained that there were restrictions in drilling too many boreholes because of limitations under the sea and at certain locations. In

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order not to conduct excessive ground investigations, the Administration had tried to extrapolate from the information available to make predictions. However, he accepted that for future tunnelling works for SSDS, Government might have to spend more on site investigations.

9. AD(SS) explained that the increases in project budget for SSDS Stage I were not caused by the site investigations but rather the suspension of works by the original contractor and the resultant delays in works. With regard to the cost increase due to the weak grounds for Tunnel F, AD(SS) said that the amount was about \$103 million.

10. In response to Miss Emily LAU's further comments that more money should have been spent on site investigations to obtain more accurate geological information, DSD agreed that with hindsight, more investigations should have been carried out on those faults already known. However, he hoped that members could appreciate that there were technical limitations in applying the technique of drilling. He also felt that it was important to obtain information on the geological conditions in a cost-effective manner.

11. Referring to paragraph 14 of the Chinese version of LC Paper No. CB(2) 139/00-01(01) which stated that difficulty in excavation through areas of weak ground had resulted in changes in tunnel alignment, Ir Dr Raymond HO questioned why it was not possible to locate the weak ground during the site investigations. He asked whether the consultants had made recommendations on the use of inclined bore drilling so that any weak ground along the tunnel alignment could be identified before excavation. Chief Engineer/SSDS (CE/SSDS) clarified that the tunnel alignment had not been changed but some local deviations of tunnel alignment were made because of difficulties in alignment control during excavation through areas of weak ground. He said that the Chinese translation of "local deviations of tunnel alignment" in the quoted paragraph might not have reflected the meaning accurately.

12. CE/SSDS further explained the difficulties in going through the faults along the tunnel alignments. He said that it had taken 10 months to pass through the Tolo Channel Fault, which proved to be 280 metres instead of 100 metres wide as envisaged. Directional core drilling had been used to investigate the extent of the Fault, but the drilling machine was not powerful enough to go any further after drilling 800 metres from the Stonecutters Shaft. Therefore, the full extent of the Fault could not be assessed beforehand. As the rock condition of the Fault was very poor (rock of Grade 4 and Grade 5 was found), ground strengthening and stabilisation works were necessary. CE/SSDS added that after going through the Lead Mine Pass Fault, the engineering team had also experienced great difficulties in going through the Fractured Rhyolite Dyke Zone where the rock condition was much poorer than that predicted. Responding to Ir Dr Raymond HO's further enquiry, CE/SSDS said that the inclined boreholes drilled before excavation did not directly pierce through the Tolo Channel Fault.

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13. Ms Cyd HO considered that the Administration should have conducted further investigation works by using more powerful drilling equipment during the pre-excavation stage in order to obtain accurate geological information on the Tunnel. She opined that the approach for pre-excavation investigations for Tunnel F had failed to serve the function of "trouble shooting".

14. DDS responded that substantial further geological investigations had been carried out, with horizontal core drilling done from Kwun Tong to Shau Kei Wan, for example. He said that the Administration had stretched the available technology in the site investigation works and that long core drilling, which was a fairly new technology, had also been applied.

15. DS(EF) advised that the question was how to manage the risks and to reduce contingencies. AD/SS added that even with more investments in pre-excavation investigations, there was still the risk that the full extent of the problems could not be revealed until actual excavation works commenced. He considered that Government's current approach of investing reasonably in site investigations and allowing more money for contingencies was a more balanced approach.

Adm 16. Ir Dr Raymond HO requested the Administration to provide more information on the site investigation methods, for example, whether ultra-sound investigations or directional core drilling had been used during Stage I. DS(EF) agreed.

17. Ir Dr Raymond HO further pointed out that it was widely known that two major faults and other minor ones were located at the Tunnel F alignment. Many engineering professionals had commented that a distributory system would pose less risks than a centralized one for the SSDS. As land had been reserved in Tseung Kwan O and in Kwun Tong for construction of sewage treatment facilities, he questioned why the Administration had still decided to go for a centralized SSDS system at the Stonecutters Island instead of a distributory system.

18. DS(EF) responded that the Administration had requested the IRP to examine the best approach for management of sewage and to make recommendations on the way forward. He pointed out that as Tunnel F was to deal with the sewage from Tsuen Wan, Kwai Chung and Tsing Yi, it would not be effective to build sewage treatment facilities in Kwun Tong or Tseung Kwan O to treat sewage transferred by Tunnel F.

19. Ir Dr Raymond HO clarified that he did not suggest to treat sewage generated in Tsuen Wan, Kwai Chung and Tsing Yi in Kwun Tong or Tseung Kwan O. His suggestion was to build sewage treatment facilities in the reserved sites in addition to the existing Stonecutters Island Sewage Treatment Works.

Provisions for settling contractor's claims

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20. Referring to Annexes C and E of LC Paper No.CB(2)99/00-01(01), Mr Henry WU enquired about the amount of funds required for settling the contractor's claims. CE/SSDS replied that so far about a dozen of claims submitted by the contractor were being actively assessed by the Consultant Engineer. He said that the Consultant Engineer would complete his assessment of some of these claims by December 2000 and certify payments to the contractor. The amount of payments for settling these claims was estimated to be in the region of \$16 million. In view of the tight cashflow for the project, the Administration needed to replenish the contingencies provision under 320DS urgently to cover the financial commitments that would arise imminently from the claim settlement.

21. In response to Mr Henry WU's further enquiries on items (b) and (c) in Annex D of the Administration's paper, AD/SS explained the usual practice for assessing contractors' claims. He advised that for large, complex projects, it was common practice for contractors to make claims for works not covered by the contracts. The Consultant Engineer would make independent assessment of such claims and Government might also seek legal advice on the reasonableness of the assessed amounts. AD/SS said that the \$59 million under item (b) had already been paid to the contractor after a fair assessment of the claim. For item (c), the \$44 million were not arising from any contractor's claims, but rather the estimated expenditure required for the additional works (including tunnel lining and ancillary works) to be carried out for Tunnel F.

22. Mr LAU Ping-cheung queried why the Administration still sought an increase in the contingencies provision when Stage I works were near completion and most of the unpredictability relating to the excavation works had been overcome. He held the view that the amount of the contingencies provision for 320DS was unproportionally large.

23. AD/SS explained that the contingencies provision had to be increased in order to settle the claims with the contractor. The total amount for the claims was close to \$200 million. DDS added that the amount of claims was sensitive information. Generally speaking, claims for construction and civil engineering works were normally settled at about one-third of the original claims.

Replacement of the mucking system

24. Mrs Miriam LAU considered that the Administration should have sold the mucking system to the new contractor and transferred the liability in connection with the equipment to the new contractor. She opined that had this been done, the Administration needed not have paid \$25 million for replacement of the equipment and \$20 million for the claims on delays. She queried why the Administration had decided to retain the legal ownership and the legal liability in connection with the mucking system when entering into contract with the new contractor. She commented that such a contract had not protected Government interests.

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25. Mr LAU Ping-cheung and Mr Tommy CHEUNG expressed similar concerns. Mr LAU considered that the original contractor should bear the costs of the faulty mucking system.

26. DDS responded that after the original contractor had unilaterally suspended work in 1996, Government took over the sites. All constructional plant including the mucking system left behind by the original contractor were forfeited and became Government property. He said that at that time the equipment was found in good working conditions and the original contractor had never reported any problems with the mucking system before. However, failures started to occur when the equipment was put under full load. He said that the advice sought from experts also confirmed that the defects with the equipment were latent defects.

27. CE/SSDS supplemented that upon forfeiture, the ownership of the mucking system vested automatically in Government. Like any other forfeited equipment, Government would have to dispose of the mucking system eventually by public auction upon completion of the tunneling works. For the purpose of money saving, the new contractor was allowed to use the mucking system for the completion of the works. When problems with the mucking system developed, the new contractor claimed for the system replacement cost and associated losses. CE/SSDS said that the Consultant Engineer had examined the terms of the contract regarding risk allocation and concluded that if the claims from the contractor were to be pursued by arbitration, it would be in favour of the contractor. The Department of Justice had confirmed such a view.

28. AD/SS also explained that there were two reasons for not selling the mucking system to the new contractor. First, as arbitration with the original contractor was in process, the Government would have to handle the forfeited equipment including the mucking system with care lest further disputes should develop in future. Second, as the new contractor had not used this mucking system before, he might not buy the system or he would buy it only if safeguards were provided in the contract to exempt him from any liability in using the equipment. Moreover, if the new contractor was not offered the equipment for his use to complete Stage I works, he would have to buy another mucking system and the cost would also be included in the tender price.

29. DS(EF) invited members to note that the replacement cost of the mucking system and the associated losses would form part of the Government's claim against the original contractor if the Government was successful in the arbitration.

Project management and cost control of SSDS

30. Mr Albert CHAN pointed out that the requested increase in funding for the project 320DS from \$487.6 million to some \$626 million was quite substantial. He

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considered that Government should account for the substantial over-expenditure and the following mistakes made on SSDS -

- (a) Government had under-estimated the difficulties in tunnel excavation of SSDS despite the fact that many professionals had pointed out that the ground conditions of the proposed tunnel locations were extremely poor;
- (b) the conditions in the contracts concerned had not provided adequate protection of Government or public interests, and this had led to substantial claims by the contractors; and
- (c) Government should not have refused to negotiate with the original contractor to revise the contract when the latter encountered difficulties in tunnel excavation and sought additional funds to overcome the technical difficulties.

31. Mr Albert CHAN further asked about the amount of additional funding requested by the original contractor in 1996 and the amount that would be charged to Government if it lost the arbitration.

32. DDS reiterated that on hindsight, more site investigations should have been conducted if not due to the various practical constraints at that time. However, he assured members that the Administration would explore the use of modern site investigation techniques for future tunnelling works. He further said that when the original contractor stopped work unilaterally, Government had actually tried to come to an agreement with the contractor but the latter refused the offer made by Government. The Government had subsequently varied the contract to provide relief to what the contractor had perceived as a difficulty in the contract. However, the contractor did not accept the details of that variation order and eventually the Government had to re-tender the works.

33. As regards the amount Government would have to pay to the first contractor if the Government lost the case, DDS said that he could not give an estimate at this stage. DS(EF) added that Government appreciated members' concern about prudent spending of public money. He said that Government would make its best efforts to negotiate and evaluate the case to safeguard public interests.

34. DS(EF) further said that as he was not involved in the initial planning stage of SSDS, he was not in the position to explain the basis of Government's pronouncement in 1992 that construction of SSDS could be accomplished without major problems. However, he said that Government would make greater efforts to enhance public understanding of the need for SSDS, the risks involved in the works and the best strategy for subsequent stages of SSDS. In this connection, Government had pledged to make available all information related to SSDS to the public. He

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further said that after this Panel and the Advisory Council on the Environment had met IRP at the end of November 2000, an open forum would be held to solicit public views on the future direction of SSDS.

35. Mr Albert CHAN pointed out that the contractual arrangements for the Airport Core Projects (ACPs) had worked quite well because they had been drafted and managed by a team of legal experts with high professional competence in this field. He suggested the Administration adopt similar approach and provide a high level of professional/legal support for the drafting and management of future SSDS contracts to ensure efficient delivery of projects within budget.

36. DDS responded that he would obtain information on the contractual arrangements for ACPs and see what could be applied to the future projects of SSDS. DS(EF) added that the Administration would also consider what improvements could be made for the management and supervision of SSDS contracts, in order to ensure that the SSDS projects would be delivered on schedule and in a well managed manner. A member of the IRP, Professor E S Pelizza, would specifically be requested to look at the methodology for drawing up and managing the contracts for the tunnels under SSDS.

37. DS(EF) highlighted that 12 of the projects making up SSDS Stage I had been completed within budget and that the Administration would continue its efforts in cost control. He said that the requested additional funding for 320DS was the best estimate that the Administration could make based on the progress of the works. He assured members that every claim submitted by the contractor would be carefully evaluated and negotiated to minimize costs.

38. Mr Henry WU requested the Administration to undertake that it would not apply for additional funding again for SSDS Stage I. DS(EF) responded that as six of the 19 projects making up Stage I programme had yet to be completed, Government could not guarantee at the present stage that there would be no further claims on the outstanding projects. However, Government's best estimate at the moment was that the total expenditure of the 19 projects would be within the overall budget of \$8,323.7 million.

39. Referring to paragraph 18 of LC Paper No. CB(2) 99/00-01(01), Mr Henry WU asked whether Government would need to seek additional funding again for the extra manpower requirements of "4,500 man-months" for the project. CE/SSDS replied that the proposed increases in the approved project estimate for 320DS had already taken into account the additional 4,560 man-months required.

Ground subsidence at Tseung Kwan O

40. Mr Martin LEE enquired whether the subsidence problem in Tseung Kwan O had anything to do with SSDS. DDS replied that the Administration's initial views

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on the matter were set out on page 7 of the Administration's supplementary information paper (LC Paper No. CB(2) 139/00-01(01)). He informed members that the issue of whether the tunnelling works had an impact on the subsidence problem in Tseung Kwan O was under the investigation of the Territory Development Department, which would release the investigation report by the end of this year. Given that the proposed funding increase was for the tunnel in Tsing Yi, DDS said that the subsidence problem in Tseung Kwan O would have no relevance to the current funding request.

Adm

41. After discussion, members were generally in support of Government submitting the funding proposal to the Public Works Subcommittee (PWSC) for discussion in view of the urgency of the request. Mr Albert CHAN urged the Administration to provide a response to the Panel on whether any party should be held responsible for the over-expenditure of the projects under SSDS Stage I.

**II. Any other business**

42. At Mr Albert CHAN's suggestion, members agreed to add "Protection of wetlands" to the list of issues to be considered by the Panel.

43. The meeting ended at 12:55 pm.

Legislative Council Secretariat  
5 February 2001