

立法會
Legislative Council

LC Paper No. CB(1) 484/04-05
(These minutes have been seen
by the Administration)

Ref : CB1/PL/EA/1

Panel on Environmental Affairs

**Minutes of meeting held on
Thursday, 18 November 2004, at 9:00 am
in the Chamber of the Legislative Council Building**

Members present : Hon CHOY So-yuk (Chairman)
Hon Emily LAU Wai-hing, JP (Deputy Chairman)
Ir Dr Hon Raymond HO Chung-tai, S.B.St.J., JP
Hon Martin LEE Chu-ming, SC, JP
Hon CHEUNG Man-kwong
Hon WONG Yung-kan, JP
Hon LAU Kong-wah, JP
Hon Miriam LAU Kin-yee, GBS, JP
Hon Audrey EU Yuet-mee, SC, JP
Hon LEE Wing-tat
Hon Jeffrey LAM Kin-fung, SBS, JP
Dr Hon KWOK Ka-ki
Hon Patrick LAU Sau-shing, SBS, JP

Member absent : Hon Albert CHAN Wai-yip

Public officers attending : **For item IV**
Environment, Transport and Works Bureau

Ms Doris CHEUNG
Deputy Secretary (Environmental)1

Mr Raistlin LAU
Principal Assistant Secretary (Environment)1

Dr Samuel CHUI Ho-kwong
Assistant Secretary (Environment)1A

Environmental Protection Department

Dr Malcolm James BROOM
Assistant Director (Waste & Water) (Atg)

Mr David WONG Tak-wai
Principal Environmental Protection Officer
(Sewage Infrastructure Planning)

Drainage Services Department

Mr CHUI Wing-wah
Chief Engineer/Harbour Area Treatment Scheme

Attendance by invitation : For item IV

Association of Engineers in Society

Mr YIM Kin-ping
Vice Chairman

Mr Patrick YUEN Se-kit
Honorary Secretary – General

Hong Kong Institution of Engineers

Ir Dr Greg C Y WONG
Vice President

Ir Dr H F CHAN
Discipline Representative – Environmental Division

Hong Kong Marine Conservation Society

Dr John WONG
Chairman

World Wide Fund for Nature Hong Kong

Mr Clarus CHU
Assistant Conservation Officer

Individual

Mr Peter WONG Hong-yuen

Clerk in attendance : Miss Becky YU
Chief Council Secretary (1)1

Staff in attendance : Mrs Mary TANG
Senior Council Secretary (1)2

Miss Mandy POON
Legislative Assistant (1)4

As the Chairman was caught in the traffic, Ms Emily LAU, Deputy Chairman took the chair.

I. Confirmation of minutes

(LC Paper No. CB(1) 224/04-05 — Minutes of the meeting held on 25 October 2004)

2. The minutes of the meeting held on 25 October 2004 were confirmed.

II. Information paper issued since last meeting

3. Members noted that the following information paper had been issued since last meeting -

LC Paper No. CB(1) 213/04-05 — Submission from the Friends of the Earth objecting against the demolition of Hunghom Peninsula

III. Items for discussion at the next meeting

(LC Paper No. CB(1) 225/04-05(01) — List of follow-up actions

LC Paper No. CB(1) 225/04-05(02) — List of outstanding items for discussion)

4. The Deputy Chairman advised that as the subject of total water management fell under the purview of the Panel on Planning, Lands and Works (PLW Panel), it could not be included in the agenda for the next regular meeting. A separate joint meeting with the PLW Panel would be required to discuss the subject. For the next meeting on Tuesday, 21 December 2004, Members agreed to discuss the following subjects –

(a) Noise pollution issues;

(b) 7780TH - Retrofitting of noise barriers on Cheung Pei Shan Road, Tsuen Wan; and

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- (c) Revision of fees and charges for environment and conservation related services.

(Post-meeting note: At the request of the Administration and with the concurrence of members, item (a) was subsequently replaced by “Staffing proposal on handling cross-boundary environmental issues”.)

(The Chairman arrived and took the chair at this juncture.)

5. The Chairman then sought members’ view on the need to advance the next meeting to start at 3:30 pm in order to allow more time to discuss the three subjects. Mr Jeffrey LAM said that he would not wish to extend the meeting as members might have prior commitments. Mr LAU King-wah said that members should be consulted on their availability on 21 December 2004 since some of them might be out of town.

(Post-meeting note: With the concurrence of the Chairman and in consultation with members, the meeting on 21 December 2004 would be held as scheduled.)

6. The Chairman reminded members of the special meeting on Monday, 22 November 2004, at 2:30 pm to discuss the following -

- (a) Extension of Tai Po Sewage Treatment Works and Peng Chau Sewage Treatment Works Upgrade;
- (b) Review of the Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); and
- (c) New Nature Conservation Policy

7. The Chairman informed members that the Panel on Commerce and Industry (CI Panel) would discuss “The proposal to require mandatory registration and labelling of the contents of volatile organic compounds in specified products” at its meeting on Tuesday, 14 December 2004, at 4:30 pm. As the subject had previously been discussed by the Panel on Environmental Affairs (EA Panel), members of the EA Panel would be invited to attend the meeting of the CI Panel.

IV. Way forward for the Harbour Area Treatment Scheme (HATS) Stage 2

Meeting with the Association of Engineers in Society (AES)

(LC Paper No. CB(1) 225/04-05(03) — Submission from the Association (English version only))

8. Mr YIM Kin-ping highlighted the salient points in the AES’s submission.

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Meeting with the Hong Kong Institution of Engineers (HKIE)

(LC Paper No. CB(1) 225/04-05(04) — Submission from the Institution (English version only))

9. Ir Dr Greg WONG briefed members on the submission from HKIE.

Meeting with the Hong Kong Marine Conservation Society (HKMCS)

10. Dr John WONG said that the improvements brought about by HATS Stage 1 were evidenced by the increase in diversity of marine organisms in the Harbour and the return of many marine species. Therefore, HKMCS would support the early implementation of HATS Stage 2A to collect and treat the remaining sewage from the northern and western sides of Hong Kong Island as this would provide further improvements to the water quality. He however considered the Administration's proposal to use chlorine for disinfection of the treated sewage in an attempt to reduce the bacteria levels of the Tsuen Wan beaches not a sustainable solution in the long run. He pointed out that there were a number of causes for the high bacteria levels, including the rapid population growth in Tsuen Wan, Sham Tseng and Ma Wan, the weak diluting effect of the receiving waters due to slow current at Ma Wan, and the short interim outfall of the Stonecutters Island Sewage Treatment Works (SCISTW) which failed to take advantage of the greater flushing effect at west of Ma Wan. Efforts should be made to identify the problem and resolve it at source. Instead of using chlorination/dechlorination, which involved the addition of large amounts of chemicals, consideration should be given to using other effective and less expensive options, such as ozonation, for disinfection. Efforts should also be made to enhance the natural disinfecting effect of oceanic waters through the use of biofilters, artificial reef and aeration tanks.

11. Dr WONG also held the view that biodiversity studies on marine organisms should be conducted as these would provide more useful indicators on water quality than biological and chemical oxygen demand. Hong Kong should aim at achieving a water quality objective which would provide a safe marine environment. In the absence of baseline biological data, there would not be sufficient justifications for the use of chlorination/dechlorination for disinfection nor the heavy investment for Stage 2B. Apart from the "polluter-pays principle", he also welcomed public private partnership in the provision of sewerage infrastructure as this was a more cost-effective arrangement. He further supported centralization of sewage treatment at SCISTW as this would be easier to manage and would allow for further expansion.

Meeting with the World Wide Fund for Nature Hong Kong (WWF)

(LC Paper No. CB(1) 225/04-05(05) — Submission from the World Wide Fund for Nature Hong Kong (English version only))

12. Mr Clarus CHU took members through the submission from WWF.

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Meeting with Mr Peter WONG Hong-yuen

(LC Paper No. CB(1) 247/04-05(01) — Submission from Mr Peter WONG and Dr John RUSSELL (English version only))

13. Mr Peter WONG said that he and Dr John RUSSELL were both concerned about the sustainability of HATS, formerly known as the Strategic Sewage Disposal Scheme (SSDS), given its substantial capital and recurrent costs. While agreeing to the need for Stage 2A which would collect and treat the rest of the sewage before discharging it into the Harbour, he considered the investment in Stage 2B unsound and that the sum to be invested in Stage 2B should more justifiably be used to improve the regional water quality. He cautioned that if the pollution from the Pearl River Delta (PRD) Region was not tackled, the investment of \$11 billion in Stage 2B would only result in discharging cleaner effluent into heavily polluted waters. It would therefore be difficult to persuade the public to pay extra sewage charges for such purposes. To help improve the regional water quality, consideration could be given to providing loans or grants to the Mainland to assist them in expediting the provision of necessary environmental infrastructure.

14. Mr WONG also expressed concern on the large amounts of chemicals to be used for sewage treatment. He said that efforts should be made to reduce the pollution load from industrial activities so that less amount of chemicals would be required to remove the pollutants. A longer oceanic outfall should also be used to discharge the treated sewage. He called on the public to look for long-term solutions and not short-term fixes which would also require at least four to five years to see any real benefit.

15. The Chairman thanked the deputations for their valuable views. She then drew members' attention to the submission from the Friends of the Earth which was circulated under LC Paper No. CB(1) 247/04-05(02) and the submission from the Democratic Alliance for Betterment of Hong Kong (DAB) which was tabled at the meeting.

Meeting with the Administration

(LC Paper No. CB(1) 225/04-05(06) — Background brief prepared by the Legislative Council Secretariat

LC Paper No. CB(1) 225/04-05(07) — Paper provided by the Administration

LC Paper No. CB(1) 2215/03-04(06) — Way Forward for the HATS Stage 2

LC Paper No. CB(1) 2215/03-04(07) — Findings of Trials and Studies Relating to the HATS Stage 2

LC Paper No. CB(1) 247/04-05(03) — Supplementary technical notes and Consultation document for the HATS Stage 2

LC Paper No. CB(1) 270/04-05(01) — Administration's response to the submission from the Association of Engineers in Society Ltd (English version only)

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- LC Paper No. CB(1) 270/04-05(02) — Administration's response to the submission from the Hong Kong Institution of Engineers (English version only)
- LC Paper No. CB(1) 270/04-05(03) — Administration's response to the submission from Mr Peter WONG (English version only))

16. At the Chairman's invitation, the Principal Assistant Secretary for the Environment, Transport and Works (Environment)1 (PASETW(E)1) gave a power-point presentation on HATS Stage 2.

(Post-meeting note : The presentation materials together with the submission from DAB were circulated under LC Paper No. CB(1) 278/04-05(01) and (02) respectively.)

17. Responding to Ms Emily LAU on the latest position of the consultation on the way forward for HATS Stage 2, the Assistant Secretary for the Environment, Transport and Works (Environment)1A (ASETW(E)1A) advised that as at 16 November 2004, about 70 submissions were received. Of these, around 60% supported the implementation of HATS Stage 2, 20% held different views about the way forward as some considered that the resources should be spent on other more pressing needs in connection with improving the livelihood of the public, while the remaining 20% did not reveal any clear inclination.

General discussion

◆ *Treatment options*

18. Mr LAU Kong-wah noted from the HKIE's submission that Option B (which involved treatment of 80% of sewage at SCISTW and the remaining 20% at a new plant at Lamma Island) might be a better choice than Option A (which involved centralized treatment of all sewage at SCISTW) on account of its greater flexibility for sewage transfer and future expansion. However, Option B might impose a higher risk on ecological resources around the south Lamma Island and fishery resources in the southern waters. He was concerned that the pollution problem of Tsuen Wan beaches might take place in the southern waters if Option B was adopted.

19. Ir Dr H F CHAN/HKIE said that the pollution of Tsuen Wan beaches would worsen if the treated sewage under Option A was allowed to be discharged from SCISTW. Option B however allowed for the discharge of sewage through an outfall in the southern waters off Lamma Island where the stronger current in the region would provide a greater flushing effect. Notwithstanding the above, the impact on fisheries and the rare species of green turtles in the sensitive southern waters would need to be taken into account.

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20. Dr John WONG/HKMCS said that HKMCS considered it unacceptable for any sewage to be discharged into the Lamma Island as this might jeopardize the important fisheries resources in the sensitive southern waters. He added that with the implementation of Stage 1, there had been marked improvements in the biodiversity of marine organisms. Various species of corals and seahorses started to re-appear in the seabed along the western waters. Further improvements would be expected with the collection and treatment of the remaining sewage from the northern and western Hong Kong Island under Stage 2A.

21. The Chairman asked if the increase in *E. coli* levels of Tsuen Wan beaches was due to pollutants carried down from the Pearl River. The Deputy Secretary for the Environment, Transport and Works (Environment)1 (DSETW(E)1) explained that the pollution of Tsuen Wan beaches was partly attributed to the discharge of treated sewage from SCISTW and partly to the local discharge of untreated sewage from the area. PASETW(E)1 said that during the commissioning phase of the full HATS Stage 1 system in late 2001 and early 2002, the impact of the treated effluent discharged by SCISTW on the surrounding waters was carefully reviewed. It was ascertained that the daily discharge of about 1.4 million cubic metres of treated sewage from SCISTW did have a direct and profound impact on the Tsuen Wan beaches. Apart from proposing HATS Stage 2, in order to improve the water quality of the Tsuen Wan beaches, the Administration had also taken steps to remove the local pollution sources affecting the beaches by building a local sewage treatment works at Sham Tseng and providing sewerage to collect the sewage from the unsewered areas all the way from Tsuen Wan west to Tuen Mun. There were also plans to upgrade the sewage treatment facilities at Pillar Point. ASETW(E)1A supplemented that with the implementation of HATS Stage 1, the *E. coli* levels at Ma Wan Channel where the Tsuen Wan beaches were located had doubled. This showed that the operation of SCISTW had a direct impact on the *E. coli* levels and disinfection was required.

22. Dr John WONG/HKMCS pointed out that the pollution of Tsuen Wan beaches was more serious in summer when the pollutants from the Pearl River were carried by water currents flowing from west to east. Given that part of the Rambler Channel between Tsing Yi and Tsuen Wan was too narrow, it could not provide the needed flushing effect for the effluent discharged from the SCISTW outfall located in the area. An extension of the outfall further into Ma Wan Channel would help improve the situation. A study had to be made on the daily/seasonal changes in water currents when assessing the impact of Stage 2A on the surrounding waters.

23. Through the chair, PASETW(E)1 said that while the proposed extension of the outfall westwards might make use of the stronger currents at Ma Wan Channel to improve the initial dilution, its possible impact on the fish culture zones located at Ma Wan and its possible obstruction on the navigation path of ships and encroachment on the anchorage area had to be carefully assessed. ASETW(E)1A added that the proposal might result in greater impact on the Tsuen Wan beaches but the effect would need to be ascertained through water quality modelling studies.

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24. Mr LEE Wing-tat asked whether the impact of HATS Stage 1 on the water quality of Tsuen Wan beaches had been included in the relevant funding proposal. He noted that the Administration often tended to make optimistic presumptions on the impact of projects in an attempt to secure funding approval. He stressed that he would need to be convinced of the presumptions on HATS Stage 2 this time, in particular the safety of the chlorination/dechlorination process which might have a deleterious effect on the marine ecology if the assumptions were proved to the contrary. Ms Emily LAU echoed that the Administration should be more cautious about its presumptions because the community would be at risk if these presumptions were wrong as in the case of the pollution caused to Tsuen Wan beaches. She also considered it necessary for the Administration to set out more background information on the basis upon which funding was sought for the project in future funding submissions.

25. DSETW(E)1 responded that a number of studies were conducted on the impact of Stage 1 on the surrounding waters. While some impacts on the Tsuen Wan beaches were expected, the extent to which these beaches would be affected were not known until after the full commissioning of Stage 1. Members would appreciate that presumptions were not always precise and some degrees of deviation were inevitable. The Assistant Director of Environmental Protection (Waste and Water) (Acting) (ADEP(WW)(Atg)) recalled that when Stage 1 was first implemented, it was fraught with complications associated with the construction of the sewage network. Based on the prevailing assessments, the completion of Stage 1 did bring about marked improvement to the water quality in the Harbour. In fact, there were some improvements in the water quality of Tsuen Wan beaches when the Stage 1 High Priority Programme, including the tunnels, were first put in place but the quality deteriorated upon the commissioning of the full HATS Stage 1 system. The outfall was originally intended as an interim measure to be replaced by a long oceanic outfall, but the 2000 International Review Panel (IRP) advised against this strategy and considered that the treatment level should be upgraded so that the treated sewage could be discharged through a shorter outfall. He said that although the overall performance of Stage 1 turned out to be better than expected, the impact on the Tsuen Wan beaches was not predicted to the extent observed. The Chairman, Ms Emily LAU and Mr Peter WONG all agreed that this reflected the need to review the existing procedures on Environment Impact Assessment (EIA) and appointment of consultants.

26. Mr LEE Wing-tat opined that the Administration had not learnt its lesson from Stage 1 and was still trying to mislead the public by painting a very rosy picture for Stage 2. He questioned why a picture of Shek O beach was shown in the Consultation Document but no picture of the closed Tsuen Wan beaches was shown. Expressing a similar view, Mr Martin LEE pointed out that Shek O beach had all along been one of the cleanest beaches in Hong Kong and its cleanliness was apparently not a result of Stage 1. In view of the divergent views received on the way forward for Stage 2, Mr LEE Wing-tat considered that more studies should be conducted, particularly on the feasibility of the proposed disinfection process, before implementation.

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27. In reply, DSETW(E)1 stressed that the Administration never had any intention to mislead the public. While a lot of improvement was made to the water quality, particularly in the middle and eastern Harbour where Shek O beach was located, after the full commissioning of Stage 1, the Administration had not overlooked its drawbacks and had included in the Consultation Document the adverse effects of discharging large volume of treated effluent off SCISTW. These included the increase in *E. coli* levels in the western Harbour and the Tsuen Wan beaches which also explained why disinfection was necessary to improve the situation. ADEP(WW)(Atg) confirmed that the water quality of eastern Harbour, including the waters off Shau Kei Wan and Chai Wan all the way to Shek O, was found to have improved upon the full commissioning of Stage 1.

28. Mr LEE Wing-tat was not convinced of the Administration's response. He pointed out that the increase in *E. coli* levels by 200% in the Tsuen Wan beaches had not been included in the Consultation Document. PASETW(E)1 said that as the Consultation Document was aimed at providing the public with a broad picture on the way forward for HATS Stage 2, a choice had to be made on the types of information to be included. For more comprehensive information and details, interested parties were invited to visit the website www.cleanharbour.gov.hk.

◆ *Disinfection*

29. Ms Emily LAU expressed concern on the use of chlorination/dechlorination for disinfection lest this would adversely affect the marine ecology. Ir Dr Raymond HO enquired if there was any overseas experience on the process and whether this could be obviated through upgrading of the Chemically Enhanced Primary Treatment (CEPT) process. In reply, ASETW(E)1A explained the chlorination/dechlorination process. Briefly, the ammonia in the effluent would react with free chlorine to form chloramines which had a lower oxidation power and would suppress the formation of chlorinated by-products (CBPs). Laboratory analysis indicated that the resulting CBP levels were below the drinking water standards set by the World Health Organisation. The literature review of a number of toxicity tests showed that the addition of thiosulphate to chlorinated effluent would significantly reduce effluent toxicity, and that sulphur dioxide overdose would completely remove all chlorination-induced toxicity. The excess sulphur dioxide residual appeared non-toxic to the test fish. Besides, toxicity tests using local marine species would be conducted under the detailed EIA Study.

30. As regards overseas experience, ASETW(E)1A said that according to the information collected from the Internet on some 150 sewage treatment plants worldwide, around 90 adopted chlorination/dechlorination and around 30 adopted ultraviolet light to disinfect treated effluent. There were also literature reporting over 500 sewage treatment plants in the United States which adopted chlorination/dechlorination for wastewater disinfection. On the use of ultraviolet light for disinfection, PASETW(E)1 advised that a large number of mercury lights would be required to disinfect the 2.8 million cubic metres of sewage generated per day. The cost and safety hazard associated with the need for handling the used mercury

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lights on such a large scale would be very high and might lead to environmental problems. Meanwhile, the use of the more costly ozonation process had not been tried out on a large scale. On balance, the chlorination/dechlorination process was considered more viable. He however stressed that Administration was open about the disinfection method, and that EIA studies would be conducted to assess the feasibility of the chlorination/dechlorination process. The Chairman held the view that it might be worthwhile to also try out ozonation as it was relatively new and might not have been put to use in overseas countries.

31. While agreeing that ozonation and ultraviolet light treatment might not be feasible disinfection methods, Ir Dr Raymond HO questioned whether the chlorination/dechlorination process, which was proposed in addition to the Biological Aerated Filter process recommended by IRP, was indeed necessary. He also pointed out overseas experience might not be directly applicable to Hong Kong since the difference in tidal flows would affect the diluting effects and hence the feasibility of the process. In the absence of such information, he asked how the Administration could have the confidence to proceed with the chlorination/dechlorination process which would incur a huge investment. PASETW(E)1 said that the chlorination/dechlorination facilities would not be wasted because even if secondary biological treatment was adopted at a later stage, the facilities were still required for disinfecting the secondarily treated effluent if the water quality of Tsuen Wan beaches was to be kept safe for swimming.

32. Mr Martin LEE enquired if any other countries in the world had successfully adopted a sewage treatment strategy similar to that in Hong Kong viz. sewage being treated with CEPT, followed by chlorination/dechlorination and subsequently secondary biological treatment. ASETW(E)1A confirmed that similar strategy had been successfully implemented in a number of overseas countries. In Montreal, a daily average flow of 2.5 million cubic metres sewage was conveyed by a deep tunnel system of 89.5 kilometres for centralized CEPT treatment before discharge. In Helsinki, 11 sewage treatment works (STWs) were replaced by a centralized treatment system in 1995. In Singapore, a 60-metre deep tunnel system was being constructed to connect two centralized STWs to replace the existing six STWs. Sydney had gone for a deep oceanic outfall system with primary treatment while Boston had implemented sewage treatment by stages i.e. CEPT to be followed by secondary biological treatment, similar to that of HATS Stage 2. All the STWs referred to had been operating satisfactorily. Through the chair, Dr John WONG/HKMCS pointed out that as the treated sewage from the STW in Montreal was discharged direct into a lake, a much higher level of treatment was required. Such a high level of treatment might not be required in the case of Hong Kong since the treated sewage was discharged to seawaters which had a high assimilation power.

◆ *HATS Stage 2B*

33. While commending the Administration's efforts in setting out the pros and cons of the different treatment options in the Consultation Document in a clear and concise

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manner to facilitate public understanding of this complicated subject, Ms Audrey EU noted that the concern expressed by Dr John WONG/HKMCS and Mr Peter WONG regarding the effect of pollution from the Pearl River Delta (PRD) Region had not been spelt out in the Consultation Document. She enquired about the extent of problem and the measures which the Administration would take to deal with the situation.

34. DSETW(E)1 explained that according to the tests and studies on the water quality of the Harbour, local discharge of untreated sewage into the Harbour was the main source of pollution. ADEP(WW)(Atg) added that the flow of the Pearl River estuary mainly went around the bottom of Lantau Island and thus affected the water quality to the south and west of Hong Kong rather than the central Harbour area. The effect of local pollution was evidenced by the notable improvement brought about by implementation of HATS Stage 1. When Stage 1 was implemented for the treatment of 70% of the sewage, there was an immediate improvement to the water quality of the Harbour. He said that while it was difficult to estimate the contribution of pollution from PRD Region, the difference in population between Hong Kong (about 7 million) and Pearl River catchment (about 70 million to 100 million) would provide an indication on the relative contribution to pollution load in the area since the amount of pollution was roughly proportional to the population, but he stressed that the effect of the contribution from Hong Kong was local. PASETW(E)1 supplemented that Hong Kong maintained close liaison with the Mainland authorities and had conducted some joint water modelling studies. To tackle the problem of water pollution in the PRD Region, the Mainland authorities had built many new sewage treatment works and extended the sewerage coverage over the past years. At the Chairman's request, the Administration undertook to provide the available information on the sewage infrastructure built in the PRD Region in recent years.

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35. Ms Audrey EU questioned if the investment in Stage 2B was worthwhile in the long run if a large proportion of pollution was from the PRD Region. Mr Peter WONG said that it would be up to Members to decide on what they wanted to achieve with the investments. He then quoted the recommendations in the IRP's Review which stated that "It is of great relevance also to note that with the full commissioning of HATS Stage 2A and 2B, the Hong Kong Harbour would be 'cleaned up' except for the regular occurrence of algal blooms and red tides in the wet season until such time the high background seasonal nutrient load was significantly reduced.", adding that even with the investment of \$11 billion for Stage 2B, algal blooms and red tides might still occur unless efforts were made to reduce the pollution load from PRD Region.

36. Through the Chair, ASETW(E)1A explained the seasonal variation of ocean currents and estuary currents in the PRD Region and the marine coastal ecosystem. He said that from September to May, the oceanic currents moved from west to east and the Pearl River discharge would mainly affect the waters south of Hong Kong. Meanwhile, the Pearl River discharges were mainly fresh water containing pollutants arising from sewage, irrigation and farming. Nevertheless, the organic pollutants were normally oxidized as the water passed down the Pearl River. As a result, the two key concerns were (a) the high nutrient levels which might give rise to algal

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blooms and red tides, and (b) the stratification of the lighter fresh water from the Pearl River and the heavier seawater containing low dissolved oxygen from the South China Sea. However, the two problems could not be resolved satisfactorily even if more resources were invested in the sewage treatment infrastructure because the nutrient load mainly came from fertilizers while the stratification was a natural phenomenon. As the pollution load affecting the Harbour was mainly from local effluent rather than effluent from the Pearl River estuary, there was a need to put in place a treatment system for local sewage.

37. Ms Emily LAU remained concerned on how the investment in Stage 2B should be made to achieve mutual environmental benefit and sustainable development. Mr Peter WONG said that as a member of the Greater PRD Business Council (the Council), he was aware that the Mainland authorities had done a lot in improving the situation. As neither Hong Kong nor the PRD authorities had considered how to cooperate with each other on a regional basis, the Council was exploring what could be done and how Hong Kong could complement the Mainland in resolving the pollution problem. He personally felt that the provision of financial assistance in the form of loans and grants to PRD authorities could help improve the environmental infrastructure and provide the necessary resources for them to enforce environmental legislation more quickly and effectively. It could also be used to educate the public, in particular the farmers who might be ignorant about the harmful effects of the cheap but effective pesticides on the Pearl River catchment. A Pearl River Commission should be set up to facilitate an exchange of views of both sides on how best to tackle the pollution problem of the Pearl River as in the case of the Rhine River Commission. Through the Chair, DSETW(E)1 said that Mr Peter WONG's idea of using the resources earmarked for Stage 2B as loans or grants to assist the PRD Region in improving the environmental infrastructure was quite original and would require further discussion.

38. On the technical side, the Chairman enquired about the applicability of the facilities under Stage 2A after the commissioning of Stage 2B. ASETW(E)1A said that upon the commissioning of Stage 2B, the sewage would first undergo CEPT and would then be conveyed to the biological plant for secondary treatment to be followed by chlorination/dechlorination before being discharged. Therefore, the sedimentation tanks and the disinfection facilities under Stage 2A would still be utilized. He added that while the type of secondary treatment for Stage 2B had yet to be decided having regard to the latest technology, an appropriate site had been identified but it had to be reserved for the purpose.

◆ *Public private partnership*

39. Dr KWOK Ka-ki noted that the public was generally supportive of cleaning the Harbour, but there were divergent views on the resources to be invested, particularly when the combined capital cost of Stage 2A and 2B amounted to \$19.5 billion. Given the scale and cost of the projects, the Administration should not rely on literature reviews but should conduct studies to assess the performance based on Hong Kong

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situation. These studies should include, among others, the choice of location of the outfall and the impact of the chlorination/dechlorination process, and should be completed before a final decision on the projects was reached. As the need and extent of disinfection under Stage 2A would hinge on whether and when Stage 2B would be implemented, he asked if public private partnership would help to expedite the implementation of Stage 2B.

40. DSETW(E)1 responded that since Stage 2B would involve the construction of a biological treatment plant to provide secondary treatment to all sewage in Hong Kong, it would be of an unprecedented large scale. As site investigations and land reservation would take time, the process could not be expedited even with the more efficient public private partnership. She added that following the recommendations of IRP, a number of studies on treatment technologies and choice of sites were performed. The Administration intended to adopt a “design and build” (DB) contract for the deep tunnels which required little or no maintenance and a “design, build and operate” (DBO) contract for the biological treatment plant which was more complicated to build, maintain and operate. Further studies on the mode of procurement arrangement would be conducted taking into account the views on the way forward for HATS collected from the consultation exercise. The Chief Engineer/Harbour Area Treatment Scheme (CE/HATS) supplemented that there were different forms of public private partnership, some of which might involve the procurement of design, construction and operation services in an integrated manner while some others might go further involving concessionary arrangements and/or capital investment by the private partner. He further pointed out that HATS Stage 2 was a complicated project requiring the completion of various statutory procedures, e.g., the creation of easement underneath private lands for the deep tunnel construction and the compliance with EIA requirements, before construction could commence. As such, a long lead time would be required irrespective of whether the project was to be undertaken by Government via a conventional approach or through public private partnership arrangements.

41. Ir Dr Raymond HO enquired about the interfacing arrangements between the proposed DBO procurements of Stage 2A and 2B which would involve different treatment technologies and might have different implementation programmes, and whether the Legislative Council (LegCo) would be further consulted on the public private partnership arrangements. CE/HATS said that various arrangements were being considered and the Administration would take into account the views gathered during the consultation exercise before making a decision on the partnership arrangements. He assured members that LegCo would be consulted in this respect.

◆ *Cost implications*

42. Noting that the existing average monthly sewage charge of \$11 for an ordinary household would be increased by 30% to \$14 and 50% to \$21 upon the commissioning of Stage 2A and Stage 2B respectively, Ms Miriam LAU enquired if the increases were meant to recover the recurrent cost but not the capital cost. DSETW(E)1 advised that according to the prevailing cost recovery policy, the sewage

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charge was meant to recover at least 50% of the operating cost of all sewage facilities, i.e. the subsidy to be provided by the Government should not exceed 50% of the recurrent cost of providing the sewage services. In response to Ms LAU's further question on the corresponding increase in Trade Effluent Surcharge, DSETW(E)1 said that this was still under review pending discussion with the trades.

◆ *Impact on marine ecology*

43. Mr WONG Yung-kan agreed with Dr John WONG/HKMCS on the need to protect the fishery resources. He was concerned that the accumulation of organic materials from local effluent and those from the Pearl River would not only affect the seabed but also have a detrimental effect on the marine ecology and fishery resources. He was dissatisfied that the Administration had not done enough to protect the marine ecology. By way of illustration, the Administration had failed to try out the use of biofilters and had recently closed one of the fisheries research laboratories. He then enquired about the measures which the Administration would take to protect the Harbour, adding that a dedicated authority should be set up for the purpose. The Chairman however pointed out that the setting up of the Harbour Authority fell within the purview of the Panel on Planning, Lands and Works.

44. DSETW(E)1 said that the Environmental Protection Department and the Agriculture, Fisheries and Conservation Department (AFCD) had been monitoring the water quality and the marine ecology of the Harbour. Judging from the increase in biodiversity of marine organisms in the Harbour, it was evident that HATS Stage 1 had achieved its intended effect. ADEP(WW)(Atg) supplemented that the Administration recognized the importance of biological monitoring. Comprehensive studies dating back from 1994 had been undertaken to track changes brought about by the commissioning of Stage 1 and this included biological monitoring studies by sampling the marine organisms at the seabed. Details of these studies had been uploaded onto the "Cleanharbour" website and reference would be made to such information in the planning of Stage 2A and 2B.

45. Mr WONG Yung-kan said that although the water quality of the Harbour had improved, similar improvements were not evident in the water bodies outside the Harbour. PASETW(E)1 said that monitoring results revealed that the indicators for water quality objectives such as dissolved oxygen were seen to have improved with the full commissioning of Stage 1 and the fishing trade had been informed of these results. Moreover, as HKMCS had reported that more marine organisms were found even around the location of the outfall, it showed that there were marked improvements in the general water quality. Meanwhile, AFCD was conducting studies on biofilters. Through the chair, Dr John WONG/HKMCS expressed support that investment should be made to restore the marine ecology, particularly at the seabed which had been damaged as a result of deposition of large amounts of organic materials over the years. The use of biofilters would not only help in the recovery of marine ecology but also enhance the natural disinfecting power of seawater. With the enhancement of the natural disinfecting power of seawater coupled with the disinfection effect under CEPT, there might not be a need to go for the chlorination/dechlorination process.

Action

46. The Chairman thanked the deputations for attending the meeting and sharing their valuable views. She reminded members that the consultation period on the way forward on HATS Stage 2 would expire on 20 November 2004, and that another meeting on the subject would be held in March 2005 for the Administration to report the outcome of consultation to the Panel.

Any other business

47. There being no other business, the meeting ended at 12:30 pm.

Council Business Division m1
Legislative Council Secretariat
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