

Extract from the minutes of Public Works Subcommittee meeting on 25.10.2000

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HEAD 709 - WATERWORKS

PWSC(2000-01)51

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**Replacement and rehabilitation
of water mains, stage 1 phase 1**

22. Mr TAM Yiu-chung expressed support for the proposed water mains replacement and rehabilitation programme. In reply to his enquiry, the Director of Water Services (DWS) said that while some mains replacement or rehabilitation works would still be carried out on an ad hoc basis in the wake of main bursts and leaks, there was a need to carry out a full scale replacement and rehabilitation programme on a territory-wide basis as there were signs of rapid deterioration of the water distribution system.

23. On the reasons for phasing the whole project over a 20-year period, DWS informed members that the Underground Asset Management Study on the water supplies network completed in 1997 had recommended a 20-year period as the optimum time frame for the project, having regard to various factors including the extent and rate of depreciation of the existing water mains, the need to minimize disruption of the mainlaying works and various resource constraints.

24. Noting from the discussion paper that the loss of fresh water would be reduced from 240 million to 180 million cubic metres per year upon completion of the 20-year replacement and rehabilitation programme, Mr IP Kwok-him enquired whether new water pipes would still be proof to the leakage problem. In reply, DWS advised that water main leakage was a worldwide problem. While new pipe materials were more resistant to corrosion, more flexible and less susceptible to the problems found in ageing iron pipes and cement pipes, the leakage problem was inevitable as water pipes were in continuous operation and would thus be subject to corrosion and disruption in the course of their service life. While total elimination of water main leakage was not possible, a leakage rate of 15% was considered very good performance among the water authorities worldwide. The 20-year replacement and rehabilitation programme in question would reduce the leakage of local water mains to less than 20%. The Chairman said that apart from pipe materials, workmanship was also an important factor relating to the extent of water main leakage.

25. Mr Albert CHAN said that according to some professionals in the field, the pipe materials used for local water mains were not among the best available

in the market. He sought the Administration's clarification and expressed concern that Hong Kong was lagging behind other countries in this regard.

26. In response, DWS assured members that the Water Supplies Department (WSD) kept in touch with both the local and overseas water supplies industry and was kept abreast of the latest pipe materials available in the market. He remarked that normally, it took some time before new pipe materials would be widely used in local waterworks projects as the Administration would need some time to test the performance of these new materials in local environmental conditions. WSD also conducted research on the suitability of new pipe materials for use in Hong Kong. The Assistant Director/New Works, Water Supplies Department (AD(NW),WSD) supplemented that generally speaking, the pipes constructed in the 60's and 70's were found to be susceptible to rapid deterioration. The quality of the mild steel and ductile iron pipes commonly used in the 80's were of a much better quality and had very good leakage-proof performance.

27. Mr Albert CHAN expressed serious concern about the disruption that might be caused by the proposed replacement works to the public and enquired about the co-ordination with other works departments and utility undertakers to minimize road openings. In reply, DWS advised that a mechanism was in place within the Administration to co-ordinate the projects of various works departments with a view to minimizing road openings and the resultant disruption to the public. The works under the present proposal would be packaged into four contracts and the one covering the works in Mong Kok would be incorporated into the works contract for the West Kowloon drainage improvement project overseen by the Drainage Services Department.

28. Mr Albert CHAN considered that in order to minimize road opening works, co-ordination of works projects at the early planning stage was necessary since once a works contract was awarded, it would be extremely difficult to change the scope of a project to incorporate other works. He thus sought further details on the mechanism to co-ordinate road opening works and asked whether the mechanism would be extended to cover private utility undertakers and the railway corporations.

29. In response, the Secretary for Works advised that all works departments had drawn up their respective five-year and 10-year works programmes and the information was consolidated and circulated among the works departments. The department responsible for a project involving road opening works would notify other works departments as well as private utility undertakers at the planning stage of the project. Where practicable, the works of two works departments would be included in a single contract, while private utility undertakers would be advised to schedule their works to tie in with the schedule of public works projects to minimize road openings. In this connection, Mr LAW Chi-kwong suggested that the Administration should not

permit private utility undertakers to carry out road opening works within a certain period of, say two years, from the time of the completion of the previous road opening works undertaken at the same site.

30. In response, S for W advised that under the existing policy, utility undertakers were not permitted to carry out road opening works at new roads within five years after the completion of the new roads. For existing roads where major improvement works had been undertaken, the restriction period was three years. S for W further advised that there was a standing committee under the Highways Department to vet applications for road opening works and to handle related issues. He understood that if an application was concerned with a road section where a public works project involving road opening works had been carried out recently and the utility undertaker could not provide good reasons for not having adjusted its works schedule accordingly, the application would be rejected. AD(NW), WSD informed members that the aforesaid restriction would not apply to the proposed mainlaying works as these works were undertaken in phases and only small sections of roads were involved at any one time.

31. Mr Albert CHAN considered that the mainlaying works under the present proposal covered extensive areas and thus repeated road openings in the same areas would indeed cause undue nuisance to the public. He opined that there was an urgent need to establish a clear and stringent mechanism to restrict repeated road opening works.

32. In response, DWS pointed out that co-ordination of road opening works was a complicated issue. It was often not feasible to make entrustment arrangements between different utility undertakers as the nature of their respective projects could be very different. On the other hand, requiring different utility undertakers to carry out their works concurrently on the same site might give rise to confusion and disputes. In this connection, the Chairman suggested that issues relating to road openings should be followed up at the relevant Panel(s) in due course.

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33. Miss Cyd HO recalled that when considering a previous sewerage project (PWSC(2000-01)8 discussed on 12 April 2000), members noted that the record drawings provided by utility undertakers were highly unreliable and this had caused project delay and additional costs. As the mainlaying works would be implemented under four re-measurement contracts and the contractors would be required to carry out trial pits/trenches prior to commencement of the works, Miss HO enquired about the effectiveness of these arrangements in reducing the risks associated with underground utilities and the cost implications of these arrangements.

34. DWS and AD(NW),WSD advised that to provide greater fairness to both the contractor and the Government, mainlaying works were usually

implemented in the form of re-measurement contracts as these works usually involved many uncertainties with the ground conditions. As regards the requirement on the contractor to make trial pits/trenches prior to commencement of works, DWS advised that trial pits/trenches formed an essential part of the mainlaying works and the cost associated with these works constituted only a small proportion, in the order of a few percent, of the total project cost. He remarked that more problems would probably arise if trial pits/trenches were not made in advance to investigate the ground conditions. The Chairman concurred that it was a common arrangement to carry out trial pits/trenches prior to commencement of drainage and water main works. Otherwise, interference with or obstruction by underground utilities might cause significant delay and additional works.

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35. In view of the problems associated with inaccurate record drawings of utility undertakers, Miss Cyd HO asked whether the Administration had established a central database of rectified records of underground utilities to facilitate future public works projects. In reply, DWS pointed out that even with accurate records in the first place, as many utility cables were flexible cables, they could often be relocated during road excavation works. Miss Cyd HO suggested and the Chairman agreed that the issues relating to the accuracy of records on underground utilities should be further discussed at the relevant Panel. The Chairman also requested the Administration to provide more information to members when the subject was discussed by the relevant Panel.

36. Mr LAU Kong-wah observed that the completion dates on the notice boards erected at the sites of road opening works were often not adhered to, and the repeated extensions of these works had caused much inconvenience to the public. He thus enquired whether a mechanism was in place to ensure that the completion dates as stated on the notice boards would be adhered to. In reply, DWS said that the commencement and completion dates on the notice boards were the dates specified in the relevant road opening permits to control the duration of road opening works. While he appreciated the inconvenience caused to the public, he explained that extension was sometimes necessary when unforeseen circumstances were encountered. He however assured members that WSD would closely monitor the progress of the proposed mainlaying works and would urge the contractors concerned to expedite works where practicable.

37. S for W advised that mainlaying works were carried out in small sections in order to minimize disruption to the public. The overall works programme was adjusted from time to time having regard to the works experience of completed sections. Extension of the completion date at individual sections might however be required when there were unforeseen difficulties with the ground conditions. He nevertheless added that works departments had been reminded to update the information on the notice boards

at road openings sites once it was known that an extension was required.

38. Mr Albert CHAN commented that the completion dates stated on the notice boards erected at road openings were misleading in that completion of the works at a road section was usually followed by the commencement of works at another road section nearby. He suggested that the completion date of all the road opening works in the area concerned should also be stated on the notice boards. The Administration took note of Mr CHAN's suggestion for consideration.

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39. Mr LAU Kong-wah enquired about the duration of suspension of water supply that might be required in the course of the proposed works. In reply, AD(NW), WSD said that upon completion of the mainlaying works, suspension of water supply would be required to facilitate connection of the new mains to the water distribution system. Where necessary, WSD would make temporary water supply arrangements for the affected residents. He envisaged that the duration of each occasion of suspension of water supply would be less than eight hours. In reply to Mr IP Kwok-him's enquiry on whether the relevant District Council(s) would be informed of any scheduled suspension of water supply. AD(NW), WSD confirmed that WSD would give notice to the affected residents as early as possible, and that this was a standing practice of WSD.

40. In reply to Mr TAM Yiu-chung's enquiry, DWS confirmed that because of the corrosive nature of salt water, salt water mains deteriorated at a faster rate than fresh water mains. Based on past records, about 50% of the main bursts in Hong Kong involved salt water mains and they constituted less than 20% of the overall water distribution system.

41. Pointing out that problems with water pipes within public housing estates often affected water supply, Mr TAM Yiu-chung enquired about the arrangement regarding the replacement and rehabilitation of water pipes within public housing estates. In reply, DWS advised that it was the responsibility of the management/property owners of public and private residential developments to ensure that the water distribution systems within their developments were up to standard and in good condition. Where significant deterioration of the water pipes within residential developments were detected by or reported to WSD, the department would raise the matter with the relevant property management to bring about necessary improvements.

42. Mr LAU Kong-wah sought clarification on the statement in the discussion paper that the notional increase in water charges brought about by this project was negligible. In response, DWS said that the proposed works, costing about \$115 million (at money-of-the-day prices), accounted for about 1% of the total estimated capital cost of the 20-year replacement and rehabilitation programme. The capital cost of the programme however would

be offset to some extent by the savings brought about by the proposed works; the works would bring about reduction in maintenance costs and other costs associated with ageing water mains such as interruption of water supply, closure of roads during bursts, water loss due to bursts and leaks etc. Taking these factors into account, the Administration considered that the direct effect of the proposed works on water charges would be negligible.

43. The item was voted on and endorsed.

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