Advisory Committee on Water Supplies (2022-2024)
Minutes of Fourth Meeting

Date: 4 August 2023 (Friday)

Time: 2:30 p.m.

Venue: Room 4819, Water Supplies Department, 48/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Hong Kong

Present

Prof KWAN Kai Cho, Joseph	Chairman
Mr CHEUNG Hau Wai	Working Group Chairman
Ir NG Chun Keung	Working Group Chairman
Mr LAU Che Feng, Edwin	Working Group Chairman
Mr LAM Yat Fung, James	Working Group Vice-Chairman
Ms CHUNG Lai Kam, Kathy	Member
Dr DUAN Huan Feng	Member
Mr LI Kam Wong, Arthur	Member
Mr WONG Kwun Kit, William	Member
Dr YU Yuen Ping, William	Member
Mr YAU Kwok Ting, Tony	Member (Water Supplies Department)
Mr SEN Hok Bunn, Paul	Member's Representative (Development Bureau)
Ms HO Kit Yee, Kitty	Member (Architectural Services Department)
Mr LAU Shing Cheong, Edwin	Member (Drainage Services Department)
Dr AU Wing Yee, Winnie	Member (Department of Health)
Mr YEUNG Wong Pan, Antony	Member's Representative (Housing Department)
Ms FUNG Bo Yin, Anthea	Secretary (Water Supplies Department)

Water Supplies Department Representatives in Attendance

Mr MA Hon Wing, Wilson	Assistant Director
Mr CHOY Tak Yip	Chief Chemist
Mr LIN Tang Tai	Chief Engineer
Mr CHIU Man Fat	Senior Engineer
Mr KAN Ka Man, Raymond	Senior Engineer
Mr LEE Hong Nin, Kevin	Senior Engineer
Mr YUEN Tik Hong	Senior Engineer
Mr CHAN Chi Kit	Engineer
Mr LAM Ho Lun, Alan	Engineer
Mr POON Fung, Calvin	Engineer (Note-Taker)

Absent with Apologies

Dr CHENG Kam Wah, Edmond	Working Group Vice-Chairman
Ir TANG Ming Sum, Michelle	Working Group Vice-Chairman
Prof CHE Chi Ming	Member
Ms CHOW Ka Wing, Rachel	Member
Prof SHANG Chii	Member
Prof SHIH Kaimin	Member
Prof TSE Lap Ah, Shelly	Member
Dr WANG Peng	Member
Sr WONG Kwok Leung, Paul	Member
Mr YAU Kam Wing, Kelvin	Member
Mr YIU Ming, Jeff	Member
Ms YUEN Yan Ling, Elaine	Member
Dr YANG Rong, Ron	Member (Environmental Protection Department)

Item

1. Opening Remarks

1.1 The Chairman welcomed all Members and representatives of Water Supplies Department (WSD) to the meeting.

1.2 The Chairman informed the meeting that Dr CHENG Kam Wah, Edmond, Ir TANG Ming Sum, Michelle, Prof CHE Chi Ming, Ms CHOW Ka Wing, Rachel, Prof SHANG Chii, Prof SHIH Kaimin, Prof TSE Lap Ah, Shelly, Dr WANG Peng, Sr WONG Kwok Leung, Paul, Mr YAU Kam Wing, Kelvin, Mr YIU Ming, Jeff, Ms YUEN Yan Ling, Elaine and Dr YANG Rong, Ron were unable to attend the meeting and had sent in their apologies.

Agenda Items

2. Confirmation of Minutes of Last Meeting

2.1 The Chairman advised that the draft minutes for last meeting had been circulated to the Members on 14 July 2023 with no comments received. As no further amendments were proposed at the meeting, the draft minutes were confirmed.

3. Report of Working Group on Operational Matters

3.1 The Chairman invited Mr CHEUNG Hau Wai, the Chairman of the Working Group (WG) on Operational Matters, to report the key issues discussed at the 3rd WG meeting held on 6 June 2023.

Hydropower Generation Plant in Water Treatment Works

3.2 Mr CHEUNG Hau Wai reported the following:

- WSD introduced the development of hydropower generation system and its requirements, and the current hydropower generation plants in water treatment works in Hong Kong.
- WG Members appreciated WSD's contribution to carbon neutrality by adopting hydropower generation in water treatment works.

Update on Development of New Water Sources - Recycled Water and Desalinated Water

3.3 Mr CHEUNG Hau Wai reported the following:

- WSD presented an update on the development of new water sources – recycled water and desalinated water in Hong Kong.
- WG Members appreciated WSD's work to adopt new water resources with associated green initiatives and features for public education.

3.4 Mr YAU Kwok Ting, Tony of WSD supplemented that at present, the electricity generated would be consumed at WSD facilities in view of its limited amount and technical challenges to connect the electricity grid. With the implementation of large scale renewable energy projects in future, WSD would explore with electricity companies for possible transmission of surplus electricity via grid connection. For new water resources, the Tseung Kwan O Desalination Plant (TKODP) would be commissioned by end 2023, while the Shek Wu Hui Water Reclamation Plant (SWHRP) and the Anderson Road Grey Water Recycling System (ARGWPS) would be completed in 2024. WSD would continue to enhance promotion to the public to cherish water and energy resources. Mr LAM Yat FUNG, James expressed that the revenue generated from electricity sales might attract public concerns and Mr LAU Che Fung, Edwin opined that the electricity generated, whether it would be sold or not, could lead to public concerns and this issue would need to be considered and handled with due caution. The Chairman enquired if visits to the upcoming facilities could be arranged for Members. Mr Tony YAU of WSD responded

that WSD welcomed the Members to visit TKODP, SHWRP and ARGWPS upon their completion and the visits would be arranged in due course. Mr LIN Tang Tai of WSD further supplemented that regarding the progress of TKODP, upon completion of infrastructure works, testing of components and fire services systems would be carried out at the plant before commissioning.

3.5 The Chairman enquired about the use of renewable energy at TKODP. Mr LIN Tang Tai of WSD advised that photovoltaic panels were installed on the roof of buildings and a BEAM Plus Provisional Platinum rating was achieved for the project. WSD would work with Environmental Protection Department (EPD) on the planning of a large scale solar farm at South East New Territories Landfill to supply renewable energy for plant operation.

4. Report of Working Group on Government Network and Inside Service

4.1 The Chairman invited Ir NG Chun Keung, the Chairman of the WG on Government Network and Inside Service, to report the key issues discussed at the 3rd WG meeting held on 12 June 2023.

Overview of Risk-Based Improvement Works to Water Mains and Mains Burst Hot Spots

4.2 Ir NG Chun Keung reported the following:

- WSD gave a presentation on the "Risk-based Improvement Programme of Water Mains and Mains Burst Hot Spots".
- WSD implemented the "Risk-based water main asset management strategy" to assess the risks of individual water mains and accord priorities to those with high risks for continuous improvement works. The operational performance of the water supply network would be monitored continuously and additional pipes would be considered to be included in the programme if deterioration was observed. Pipes with high risks of burst, such as those in the vicinity of water mains with repeated pipes bursts observed, would be injected into the risk-based term contracts for replacement or rehabilitation.
- WG Members in general appreciated WSD's effort in improving water mains to maintain the healthiness of the water supply network, and exchanged views with WSD regarding the programme, progress, mechanism of risk assessment for water mains and also technical details of the Risk-based Improvement Programme of Water Mains. WSD would continue to take forward the Risk-based Improvement Programme of Water

Mains for continuous improvement of the water supply network.

4.3 Dr YU Yuen Ping, William enquired if there were any measures before the commencement of works to mitigate the conflicts with existing underground utilities and safety concerns with accumulated poisonous gases in underground pipes. Ir NG Chun Keung advised that utility detection would be required to prevent damage to existing utilities and air testing would be carried out at confined spaces beforehand. Mr Tony YAU of WSD supplemented that safety is of first priority during construction and maintenance works. A competent person would be required to monitor the works near high-risk utilities. Risk assessments would be required before entering confined spaces and suitable safety provisions such as ventilation, breathing apparatus and standby person have been set out in relevant regulations. DEVB had launched the "Smart Site Safety System" that use smart safety devices to collect real-time data and transfer the data to a centralized management platform for continuous monitoring of high-risk construction activities. Mr SEN Hok Bunn, Paul of DEVB further supplemented that apart from the workers, all stakeholders including government departments, site supervisory staff and contractors had the responsibility to ensure safety and health at work.

4.4 Dr DUAN Huan Feng enquired whether there were smart systems to oversee and manage the water supply system in Hong Kong. Ir NG Chun Keung advised that WSD had been using a geographic information system that allowed viewing of mains record plans and adopting Building Information Modelling in their new projects. Mr Tony YAU of WSD advised that WSD was working diligently to prepare the digital transformation roadmap, which includes building a Central Operation Support System at the new headquarters enabling integration of different existing/new operation systems to facilitate real time monitoring and decision making with a view to enhancing operation efficiency and dealing with water supply incidents promptly.

5. Report of Working Group on Water Conservation and Education

5.1 The Chairman invited Mr Edwin LAU, the Chairman of the WG on Water Conservation and Education, to report the key issues discussed at the 3rd WG meeting held on 29 May 2023.

Installation of Flow Controllers in Private Housing Estates

5.2 Mr Edwin LAU reported the following:

- WSD presented the progress of Installation of Flow Controllers in Private Housing Estates to members.
- WG Members appreciated the efforts of WSD and supported WSD to continue the programme.

"Cherish Water Campus" – Water Saving Week 2023

5.3 Mr Edwin LAU reported the following:

- WSD briefed the Members that two activities were organised during the "Cherish Water Campus" - Water Saving Week 2023, namely the "Water Saving BINGO" Challenge and the "My Ideal Water Saving City" Drawing Competition. Souvenirs and certificates were presented to students who successfully completed the "Water Saving BINGO" challenge, while the winners of "My Ideal Water Saving City" Drawing Competition were announced in July 2023 and presented with book coupons and certificates.
- WG Members appreciated the efforts of WSD for the series of activities to promote water conservation to students.

"Cherish Water Campus" – Kindergarten Teaching Materials Revamp

5.4 Mr Edwin LAU reported the following:

- WSD briefed the Members about the "Cherish Water Campus" – Kindergarten Teaching Materials Revamp. Existing teaching materials were revamped in 2018, which included a storybook, teacher resource book and activity book. By distributing questionnaires to kindergartens, feedback on the existing teaching materials would be collected from the users' perspective. The teaching materials would be revamped by first half of 2024 and training workshops would be organised for teachers after the revamp.
- WG Members supported the revamp of teaching materials to enhance student's engagement in learning and understanding on the importance of water conservation.

Cherish Water Ambassador Scheme 2023/24

5.5 Mr Edwin LAU reported the following:

- WSD briefed the members that the Cherish Water Ambassador 2023/24 programme would be launched by WSD in the coming school year. Students from secondary schools would be recruited to join a water-saving cooking competition, with the aim to understand how to save water during cooking.

- WG Members supported the programme which could promote water saving cooking and the concept of virtual water to students.

6. Grey Water Recycling System for Development of Anderson Road Quarry Site

6.1 Mr CHAN Chi Kit of WSD gave a presentation on the "Grey Water Recycling System at Development of Anderson Road Quarry".

6.2 Ms HO Kit Yee, Kitty enquired whether the treated grey water would fulfil the Technical Specifications on Grey Water Reuse and Rainwater Harvesting. Mr CHAN Chi Kit of WSD replied that the water quality would comply with the standards listed in the Technical Specifications on Grey Water Reuse and Rainwater Harvesting. Ms CHUNG Lai Kam, Kathy opined that the grey water recycling system could provide an opportunity for school students to understand more about the latest development of waterworks and the need for sustainable development of water resources. She enquired whether the facility would be opened to the public and different organisations. Dr William YU added that Singapore had been developing rainwater harvesting apart from desalination and enquired if Hong Kong would consider rain harvesting as well. Mr LIN Tang Tai of WSD advised that the Drainage Services Department (DSD) had stormwater retention facilities at Anderson Road Quarry site and WSD would work with them to study the feasibility to arrange tours for both the grey water recycling system and adjacent stormwater retention facilities. WSD had been collecting rainwater from water gathering grounds which mainly fall within Country Parks and there was strict control to ensure the water quality of the collected rainwater.

6.3 Mr James LAM suggested to use videos and photos of the construction progress to formulate a virtual tour. Mr LIN Tang Tai of WSD advised that aerial photos showing the construction progress were taken regularly and project videos would be prepared. Mr Tony YAU of WSD supplemented that recycling of grey water for non-potable use could minimise pumping cost from using seawater and reduce the loading of sewage treatment works. To raise public understanding of the latest development of water resources, interactive exhibits could be placed at these new facilities to enhance engagement. WSD would keep abreast of the latest technology development for continuous enhancement of sustainability of water resources. Mr LAU Shing Cheong, Edwin of DSD supplemented that water harvesting system for collection of rainwater, groundwater and irrigation water was established at the Happy Valley

Underground Stormwater Storage Scheme of DSD, rainwater harvesting would be considered in DSD's new facilities as well. There would be an underground stormwater storage tank and an artificial flood lake at Anderson Road Quarry site, DSD would collaborate with WSD to present the water cycle and importance of water resources to the public.

6.4 Mr Edwin LAU expressed that Israel had built desalination plants with new technology that could lower the energy consumption and suggested that WSD could consider to adopt state-of-the-art technology in future to enhance sustainability. The Chairman enquired when the scheme for the Grey Water Recycling System at Anderson Road was formulated and whether there were any upcoming projects. Mr LIN Tang Tai of WSD advised that the grey water recycling system was formulated around 2016 and it provided a cost effective and energy efficient solution for flushing water supply. Mr Tony YAU of WSD supplemented that the water supply schemes for upcoming new developments such as Northern Metropolis and Kau Yi Chau Artificial Islands were being formulated and WSD would keep track of the development of latest technologies for possible adoption in forthcoming projects.

7. WSD's Actions in response to the Main Burst at Kwai Chung on 4 March 2023

7.1 Mr LAM Ho Lun, Alan of WSD gave a presentation on "WSD's Actions in response to the Main Burst at Kwai Chung on 4 March 2023".

7.2 The Chairman enquired about the reason for the failed gate valve and Ms Kitty HO enquired about the amount of asbestos cement pipes that were still in service. Mr Alan Lam of WSD advised that the gate valve failure was mainly due to aging, and added that gate valves and water mains approaching the end of their service life would be arranged to be replaced. Most asbestos cement pipes had been replaced under the previous Replacement and Rehabilitation Programme and the risks of the remaining sections would be constantly reviewed with a view to identifying the high risk ones for inclusion in the Risk-Based Improvement Programme, if necessary. Ms Kitty HO further enquired about the procedures for handling asbestos cement pipes and whether WSD had information on the location of asbestos cement pipes that could be made available. Mr Alan Lam of WSD advised that the removal procedures of asbestos cement pipes complied with the requirements outlined by EPD and other associated regulations. The water mains of asbestos cement and their locations are recorded in the WSD's mains record plan, which could be

provided upon request.

7.3 Ir NG Chun Keung enquired whether the Risk-Based Improvement Programme would also cover salt water mains and if there were measures to minimize gate valve failure, such as regular checking, condition monitoring and changing to electrical valves. Mr Alan Lam of WSD advised that salt water mains were also covered by the Risk-Based Improvement Programme and would undergo improvement if the water mains had been assessed to have high risks of bursts and leaks. Gate valves at critical locations were identified and regular valve exercising carried out to ensure proper functioning. Electrical valves were mainly installed at service reservoirs as there were constraints to provide electricity supply if they were installed at public roads.

7.4 Ir NG Chun Keung enquired if diversion works could be carried out to minimise the affected area once main bursts occur. Mr Alan Lam of WSD advised that a supply zone would source its supply from multiple service reservoirs for supply resilience. For supply zones with only one service reservoir as supply source, supply diversion by providing additional water mains as an alternative route was being studied.

7.5 Mr James LAM enquired if there were any special arrangements in case there was a fire during the water suspension period. Mr Alan Lam of WSD advised that WSD had a notification mechanism with the Fire Services Department and Home Affairs Department to inform them of the water suspension plan so that they could make suitable arrangements in case there was an emergency situation during the period. In addition, salt water fire hydrants in the affected area could also be used for fire-fighting purpose during an emergency situation.

7.6 Dr DUAN Huan Feng enquired whether there was any sudden change in pressure in the water mains that led to the main burst apart from the deteriorating pipe material. Mr Alan LAM of WSD advised that district metering areas and pressure management areas had been set up at the distribution networks with monitoring and sensing equipment to collect flow and pressure data in the concerned area. When there was a sudden change of pressure i.e. due to another main burst incident at nearby area, the pressure of the network would be recorded. Mr Tony YAU of WSD supplemented that the main burst this time was mainly due to aging of the asbestos cement pipe.

[Post meeting note: Mr Alan LAM of WSD reported that no sudden change of

pressure was recorded before the incident.]

7.7 Mr Edwin LAU suggested to increase the number of gate valves along the concerned water main which would facilitate isolation in the similar event of main burst when one gate valve has failed. Mr Alan LAM of WSD advised that WSD would review the feasibility of the suggestion. However, it was also important to strike a balance and ensure that the number of gate valve remains reasonable to avoid excessive number of connections along the water main, which could potentially create new weak points.

8. Any Other Business

8.1 The Secretary advised that the annual visit to the Dongjiang Water Supply System this year would be a two-day visit scheduled in either November or December 2023 and would inform Members once there were further details.

8.2 There being no other business, the Chairman adjourned the meeting at 4:35 p.m.