

立法會 *Legislative Council*

LC Paper No. CB(1)230/19-20(08)

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Panel on Development

Meeting on 16 December 2019

Background brief on drinking water safety initiatives

Purpose

This paper provides background information on the drinking water safety initiatives implemented by the Administration and the major views and concerns expressed by Members of the Legislative Council on the subject.

Background

Action Plan for Enhancing Drinking Water Safety In Hong Kong

2. After the incidents of excess lead found in drinking water in 2015,¹ the Development Bureau ("DEVB") and Water Supplies Department ("WSD") have taken follow-up actions on the recommendations of the Commission of Inquiry into Excess Lead Found in Drinking Water ("CoI")² including

¹ Between July and November 2015, it was revealed that the lead level in the drinking water supply at consumers' taps in 11 public rental housing ("PRH") developments and some private residential buildings did not comply with the "Guidelines for Drinking-Water Quality" of the World Health Organization. The provisional guideline value is 10 micrograms per litre for lead in drinking water. Excess lead was also found in drinking water samples taken from insider services, water dispensers or wall-mounted dispensers from three secondary schools and eight kindergartens.

² CoI was appointed by the Chief Executive-in-Council under section 2 of the Commissions of Inquiry Ordinance (Cap. 86). Its terms of reference were to (a) ascertain the causes of excess lead found in drinking water in PRH developments; (b) review and evaluate the adequacy of the present regulatory and monitoring system in respect of drinking water in Hong Kong; and (c) make recommendations with regard to the safety of drinking water in Hong Kong. CoI submitted its report to the Chief Executive on 11 May 2016. A [redacted version](#) of the report was published on 31 May 2016.

launching the Action Plan for Enhancing Drinking Water Safety In Hong Kong ("the Action Plan") on 21 September 2017 to restore public confidence in drinking water safety.³ The Action Plan comprises the following five components:

- (a) establishing drinking water standards and implementing an enhanced water quality monitoring programme;
- (b) tightening up plumbing material control and commissioning requirements for new plumbing installations;
- (c) promoting Water Safety Plan ("WSP") for Buildings;
- (d) enhancing publicity and public education; and
- (e) developing a drinking water safety regulatory regime.

3. WSD has launched a dedicated webpage on the Action Plan for the public to access relevant information.

Water Safety Plan for Buildings

4. Among the initiatives under the Action Plan, WSD has followed the recommendations of the World Health Organization ("WHO") in promoting the development and implementation of WSP for Buildings, which provides a systematic and effective management framework for the internal plumbing systems in buildings including conducting risk assessment, implementing corresponding control measures and undertaking regular checking, inspections and maintenance together with regular audits and reviews.

5. In this connection, the Hong Kong Housing Authority has committed to implementing WSP for Buildings for all its 185 public rental housing estates⁴ in four years, starting from the fourth quarter of 2018, covering about 730 000 households or 28% of the total number of households in Hong Kong. According to the Administration, since the implementation of WSP for Buildings is not mandatory, the participation rate of private residential buildings is not satisfactory. As at end-August 2019, only 1 000 private residential buildings, covering about 212 000 households or 8% of the total number of households in Hong Kong, have implemented WSP for Buildings.

³ Details of the Action Plan are in Enclosure 16 to [LC Paper No. CB\(1\)235/17-18\(07\)](#).

⁴ Hong Kong Housing Authority Paper No. HA 32/2018 dated 26 November 2018.

6. In view of the low participation rate of private residential buildings, the Administration plans to allocate about \$440 million over five years starting from 2020-2021 for launching the Water Safety Plan Subsidy Scheme ("WSPSS") to promote the implementation of WSP for Buildings through provision of financial incentive with appropriate professional support to building owners in need. In devising the details of WSPSS, the Administration will model on the on-going "Operation Building Bright 2.0" and "Lift Modernization Subsidy Scheme" and adopt the same cap on the average rateable values of domestic units in a participating building as the eligibility criterion so as to benefit those building owners in need. It is estimated that WSPSS, planned to be implemented in the third quarter of 2020, will subsidize about 5 000 target buildings to take forward tasks required under WSP for Buildings.

Major views and concerns expressed by Members

7. Issues relating to the implementation of drinking water safety initiatives were discussed at meetings of the Panel on Development ("the Panel") and the Bills Committee on Waterworks (Amendment) Bill 2017 ("the Bills Committee"). The major views and concerns expressed by members are summarized in the ensuing paragraphs.

Progress of follow-up work on the review recommendations

8. Panel members expressed concerns time and again about the progress of the follow-up actions taken by DEVB and WSD in response to the CoI's recommendations.

9. The Administration provided an updated position on its follow-up actions to the recommendations by CoI as at November 2017 (reproduced in **Appendix I**). Among others, DEVB set up an International Expert Panel on Drinking Water Safety on 1 June 2016 comprising experts from Australia, Canada, United Kingdom and local experts to provide advice on issues related to drinking water safety. DEVB had also established an inter-bureau and inter-departmental working group and engaged a consultant to study the water safety regimes of leading jurisdictions. Based on the findings of the consultancy studies, DEVB would, in consultation with the working group, review the water safety regulatory regime, including deliberating on the need for introducing legislation on drinking water safety and developing a water quality regulatory framework which would involve the establishment of a Water Quality Regulator.

10. In the formulation of drinking water standards, sampling protocols and enhanced drinking water quality monitoring programme, WSD had engaged expert consultants to study WHO's "Guidelines for Drinking-Water Quality" and the drinking water quality standards and sampling protocols in overseas countries. It had also engaged an expert consultant to provide advice with regard to the development of WSPs. Moreover, WSD was drafting a Code of Practice for the plumbing industry with recommendations of engaging qualified personnel for site supervision and conducting random sample tests for material delivered to site.

Review of the Waterworks Ordinance (Cap. 102) and the Waterworks Regulations (Cap. 102A)

11. Members expressed particular concerns about the progress of reviewing the adequacy of the existing legislative framework and the regulatory regime in safeguarding the quality of drinking water in Hong Kong, as recommended in the report of CoI.

12. The Administration advised that while it was holistically reviewing the Waterworks Ordinance (Cap. 102) ("WVO") and the Waterworks Regulations (Cap. 102A) ("WVR"), it had decided to accord priority to legislative amendments to WVO and WVR in respect of the duties of licensed plumbers and standards of plumbing materials. In this regard, the Administration introduced the Waterworks (Amendment) Bill 2017 ("the Bill") to amend WVO and WVR to revise the requirements relating to the carrying out of works on fire services and inside services.⁵ The Waterworks (Amendment) Regulation 2017 (L.N. 81 of 2017) and the Waterworks (Amendment) (No. 2) Regulation 2017 (L.N. 165 of 2017) were gazetted on 19 May 2017 and 13 October 2017 respectively to revise the requirements in relation to pipes or fittings installed in fire services or inside services.

13. While expressing support for introducing legislation for safeguarding the quality of drinking water, members called on the Administration to also put in place a comprehensive programme for monitoring the safety and quality of drinking water from the source to consumers' taps. There was also a view that the Administration should explore introducing legislation for regulating wall-mounted thermostatic electric kettles, of which the inlet hose was connected to the inside service.

⁵ The Bill was passed on 8 February 2018 and enacted as Waterworks (Amendment) Ordinance 2018.

Monitoring the performance of Water Supplies Department

14. At the Panel meeting on 28 November 2017, the Administration consulted the Panel on the staffing proposals for DEVB and WSD in taking forward the new drinking water initiatives including the implementation of the Action Plan,⁶ and advised that it would set up (a) a dedicated team under DEVB to monitor the performance of WSD over drinking water safety issues and conduct detailed studies for establishing a drinking water safety regulatory regime suitable for Hong Kong; and (b) a mission-driven Special Duty Unit ("SDU") under WSD to take forward the Action Plan.

15. Some Panel members were disappointed that the Administration had proposed setting up the dedicated team under DEVB, instead of an independent body as recommended by CoI, to monitor the performance of WSD over drinking water safety issues. They considered that the proposed arrangement could involve potential role conflict.

16. The Administration assured members that to ensure impartiality, the dedicated team would not only perform by itself auditing and surprise checks of WSD's quality system in supplying potable water, but would also engage independent auditing firms to conduct additional external audits on the same as and when necessary. The Works Branch of DEVB would also set up a Drinking Water Safety Advisory Committee with members comprising academics and experts of related fields to give advice on various drinking water safety issues. In addition, the dedicated team would closely liaise with and seek input from the Department of Health to jointly monitor drinking water safety.

17. Members also expressed concerns about how the internal governance of WSD and its various operations could be enhanced by setting up SDU. The Administration advised that one of the main tasks of SDU was to review and re-engineer WSD's business processes, operational procedures and institutional structure to strengthen internal governance, with a view to enabling effective and efficient use of resources and adequate monitoring in the department's day-to-day operation. The Administration would review in due course the future arrangement of SDU taking into account the actual operational experience and its duties.

Training of licensed plumbers and plumbing workers

18. Some Panel members called on the Administration to strengthen the continuous professional training of licensed plumbers ("LPs") and plumbing

⁶ The Finance Committee approved the staffing proposals on 2 November 2018 ([FCR\(2018-19\)46](#)).

workers on drinking water safety. During the deliberations at the Bills Committee, some members suggested that the attendance of the relevant continuing professional development programmes/courses by LPs and plumbing workers should be made a prerequisite for them to seek/renew their licenses/registrations.

19. The Administration advised that the Vocational Training Council and the Construction Industry Council had been providing training courses for LPs and plumbing workers. These training courses covered topics on the potential causes and hazards of drinking water contaminations and the associated precautionary measures, thereby enhancing the awareness of the LPs and the plumbing workers on drinking water safety.

Regulating other relevant parties involved in plumbing projects

20. During the deliberations at the Bills Committee, some members stressed that as far as specified plumbing works were concerned, the roles, involvements and responsibilities of the developers, professionals and contractors apart from those of LPs and workers should also be clearly delineated by law.

21. The Administration advised that amendments to WWO and WWR would be prioritized and carried out in phases. The next phase of work in the review would address various areas of issues, namely, (a) examining the roles, involvements and responsibilities of relevant parties including the developers, contractors and other persons involved in works related to plumbing systems; (b) examining the licensing/registration regime for parties responsible for the construction, etc. of plumbing systems; (c) reviewing and streamlining the control process on design, construction and approval of plumbing systems; and (d) reviewing and strengthening the regulatory framework of plumbing materials, together with its relevant implementation timetable and progress.

Latest development

22. At the Panel meeting on 16 December 2019, the Administration will brief the Panel on the details of WSPSS.

Council motions and questions

23. At the Council meeting of 28 October 2015, Members passed a motion on "Legislating for safety of drinking water" urging the Government to, among others, immediately legislate for the safety of drinking water. Five

questions relating to the incidents and drinking water safety were raised at Council meetings of 4 and 18 November 2015, 30 November 2016, 14 December 2016 and 13 June 2018 respectively. The relevant hyperlinks are in **Appendix II**.

Relevant papers

24. A list of relevant papers with their hyperlink is in **Appendix II**.

Council Business Division 1
Legislative Council Secretariat
9 December 2019

Latest situation of follow up actions of Development Bureau and Water Supplies Department in response to recommendations made by the Commission of Inquiry into Excess Lead Found in Drinking Water

Recommendations by Commission of Inquiry ("CoI")	Latest situation of follow up actions (as in November 2017)
<p>1. The Government should undertake to test the drinking water of all Public Rental Housing ("PRH") estates again using an appropriate sampling protocol that would include the testing of stagnant water as well.</p>	<p>The International Expert Panel on Drinking Water Safety ("IEP") (see Item (4) below) has studied the previous water sampling test results for the PRH estates taken in 2015 and considered that it was in general effective in distinguishing the affected PRH estates from the unaffected ones due to the large number of water samples taken systematically from each PRH estate and the use of a stringent criterion for classification of a PRH estate as an affected estate. With regard to testing of lead for PRH estates again, the enhanced water quality monitoring programme ("Enhanced Programme") will cover all PRH estates. Given that copper pipes involving solder joints were in general used in post-2005 PRH developments and the risk of lead contamination was relatively higher, the Government will take additional water samples from these estates for testing of lead if such estates are not selected for testing under the first year of the Enhanced Programme.</p>
<p>2. The Government should, at the policy level, review the adequacy of the existing legislative framework and regulatory regime in safeguarding the safety and quality of drinking water in Hong Kong.</p> <p>3. The Government should set up an independent body to overlook the performance of the Water Supplies Department ("WSD") and water quality in Hong Kong generally.</p>	<p>The Development Bureau ("DEVB") will set up a dedicated team to monitor the performance of WSD over drinking water safety issues, and conduct detailed studies to establish a drinking water safety regulatory regime suitable for Hong Kong. Furthermore, DEVB will set up a Drinking Water Safety Advisory Committee with members from relevant sectors to provide advice on various water safety issues.</p>

Recommendations by Commission of Inquiry ("CoI")	Latest situation of follow up actions (as in November 2017)
<p>4. The Commission supports Water Authority ("WA")/WSD's proposal to set up an international expert panel on water safety.</p>	<p>With the support of CoI, DEVB established IEP on 1 June 2016, comprising five members viz. three overseas experts from Australia, Canada and the United Kingdom and two local experts, to provide expert advice on matters relating to drinking water safety.</p>
<p>5. WA/WSD should undertake a comprehensive study with a view to establishing the "Hong Kong Drinking Water Standards".</p>	<p>WSD has engaged an expert consultant from the United Kingdom to review international practice and methodology for formulating drinking water standards. Review for the World Health Organization ("WHO") metal parameters has been completed as a matter of priority. Based on the consultants' findings, IEP agreed that Guideline Values/Provisional Guideline Values of WHO Guidelines for Drinking-water Quality for metal parameters be adopted as Hong Kong's drinking water standards and existing water quality monitoring programme of WSD be enhanced to collect water samples from consumers' taps for testing six metals that could be present in the plumbing system. The standards for these parameters should be reviewed when three to five years' data from the Enhanced Programme are available. IEP further advised that a two-tier water sampling protocol (viz. Random Day Time ("RDT") involving the testing of stagnant water, followed by 30-Minute Stagnation water sampling if RDT test result fails) be adopted as the sampling protocol for taking water samples for testing six metal parameters. In regard to the non-metal parameters, pending completion of the review by the second quarter of 2018, IEP recommended that the WHO values be adopted as drinking water standards for compliance monitoring purpose.</p>
<p>6. WA/WSD should define the roles, involvements and responsibilities of other parties, who are in practice involved in the design, construction and maintenance of inside services.</p>	<p>WSD has set forth on a holistic review of the Waterworks Ordinance (Cap. 102) ("WVO") and Waterworks Regulations (Cap. 102A) ("WWR") in regard to, inter alia, the roles, involvements and responsibilities of relevant parties responsible for the design, construction and maintenance of the inside services, including possible introduction of a registration regime for plumbing contractors in the legislation. Prior</p>

Recommendations by Commission of Inquiry ("CoI")	Latest situation of follow up actions (as in November 2017)
	<p>to the completion of legislative review, WSD and Construction Industry Council jointly issued the "Good Practice Guide on Plumbing Works" in March 2017, clarifying the roles and responsibilities of relevant stakeholders in inside services.</p>
<p>7. WSD should establish and implement a Water Safety Plan ("WSP") for Hong Kong in general and WSPs specifically for other developments in Hong Kong (e.g. public and private housing developments, hospitals, elderly homes, schools).</p>	<p>With reference to the advice of an Australian expert consultant, WSD has enhanced its WSP and implemented since July 2017 a Drinking Water Quality Management System incorporating the enhanced WSP. A set of guidelines and templates have also been developed and piloted for use to assist building owners and property management agents in establishing and implementing WSP for their buildings. WSD has also promulgated the guidelines and WSP templates in conjunction with the announcement of the Action Plan for Enhancing Drinking Water Safety in Hong Kong on 21 September 2017. Training courses have been conducted for plumbing professionals and licensed plumbers with a view to building up and enhancing the industry capacity in developing WSPs. Public seminars and briefings on WSP have been conducted for publicising WSP for Buildings in Hong Kong. WSD has launched a Quality Water Supply Scheme for Buildings – Fresh Water (Management System) in November 2017 to encourage development and implementation of WSP for Buildings. WSD has also set up a dedicated hotline and helpdesk to provide assistance and advice to facilitate the development of WSP for Buildings.</p>
<p>8. WA/WSD should set out clearly the latest approved pipes and fittings as well as the latest standards for all plumbing material and components to be used in the construction of inside service, and update the same regularly and periodically.</p>	<p>WSD has uploaded to WSD's website lists of the latest approved pipes and fittings and will update the lists from time to time. DEVB/WSD has also amended the WWR (with effect from 14 July 2017) to make clear and update the applicable standards for plumbing materials and components to be used in the construction of inside services.</p>

Recommendations by Commission of Inquiry ("CoI")	Latest situation of follow up actions (as in November 2017)
<p>9. WA/WSD should devise and uphold a robust licensing/ registration regime for parties responsible for plumbing installations, including to:</p> <ul style="list-style-type: none"> (i) define the duties of licensed plumbers ("LPs") under WWO, taking into account the relevant provisions of the Construction Workers Registration Ordinance (Cap. 583) ("CWRO"), which allows skilled workers to perform plumbing installations; (ii) review the adequacy of the existing arrangement where an individual LP can be responsible for plumbing installations of any scale at any given time; (iii) review the competency and manpower development of LPs, and consider the need for continuous professional education for LPs on a compulsory basis as part of the conditions for renewal of licences; (iv) ensure that LPs and skilled plumbing workers under CWRO would be taught 	<p>The Waterworks (Amendment) Bill 2017 ("the Bill") submitted by DEVB/WSD is now under deliberation of a Bills Committee set up by the Legislative Council.¹ The Bill includes setting out clearly the persons designated for carrying out plumbing works (including LPs and workers registered under CWRO) and their respective role and responsibilities.</p> <p>In regard to the surveillance and inspection of inside services, WSD launched a pilot scheme of risk-based random inspection of plumbing works during construction stage of new plumbing installations with effect from 1 April 2017. The risk factors to be considered include the scale and nature of the projects, as well as the workload, past performance, experience and Continuing Professional Development Scheme credits of the LPs engaged, etc.</p> <p>In regard to the recommendations of CoI on strengthening the management and training of licensed plumbers, the training courses provided by the Vocational Training Council and the Construction Industry Council for licensed plumbers and plumbing workers have covered the potential causes and hazards of drinking water contaminations and the associated precautionary measures since September 2016, so as to enhance their awareness on drinking water safety. WSD has conducted a manpower study and confirmed adequate manpower to meet demand for LPs in the coming years whilst effort will continue to attract more people to join the plumbing trade to cope with future workload. In regard to the continuous professional education for LPs, WSD also launched the Voluntary Continuing Professional Development Scheme for LPs in October 2016 jointly with the plumbing industry stakeholders. From October 2016 to October 2017, 59 Continuing Professional Development programmes/courses have been accredited by WSD and around 45% of LPs active in the industry have attended at least one programme/course, while some of them have attended more than one programme/course. WSD will review the competency and</p>

Recommendations by Commission of Inquiry ("CoI")	Latest situation of follow up actions (as in November 2017)
the potential causes and hazards of drinking water contaminations, and precautionary measures; and (v) consider the need and feasibility to include other professionals and specialised contractors in the design and construction of inside service.	training criteria and requirements for renewal of licences for LPs as part of the holistic legislative review. DEVB/WSD is reviewing the need and feasibility of introducing registration regime for plumbing contractors and professionals in the legislation to take up and supervise the plumbing works especially those of a large scale.

(Source: Enclosure 1 to [LC Paper No. CB\(1\)235/17-18\(07\)](#) issued in November 2017)

¹ The Bill was then passed on 8 February 2018 and enacted as Waterworks (Amendment) Ordinance 2018.

Drinking water safety initiatives

List of relevant papers

Committee	Date of meeting	Paper
House Committee	1 September 2015 (Special meeting)	<p>Administration's paper on "Lead in drinking water incidents" [LC Paper No. CB(2)2051/14-15(01)]</p> <p>Background brief on lead in drinking water incidents prepared by the Legislative Council Secretariat [LC Paper No. CB(2)2051/14-15(02)]</p> <p>Verbatim record of the proceedings [LC Paper No. CB(2)2185/14-15]</p>
House Committee	8 October 2015 (Special meeting)	<p>Administration's paper on "Lead in drinking water incidents" [LC Paper No. CB(2)2195/14-15(01)]</p> <p>Updated background brief on lead in drinking water incidents prepared by the Legislative Council Secretariat [LC Paper No. CB(2)2195/14-15(02)]</p> <p>Verbatim record of the proceedings [LC Paper No. CB(2)287/15-16]</p>
House Committee	11 July 2016 (Special meeting)	<p>Administration's paper on "Lead in drinking water incidents" [LC Paper No. CB(2)1866/15-16(01)]</p> <p>Updated background brief on lead in drinking water incidents prepared by the Legislative Council Secretariat [LC Paper No. CB(2)1866/15-16(02)]</p> <p>Report of the Commission of Inquiry into Excess Lead Found in Drinking Water</p> <p>Verbatim record of the proceedings [LC Paper No. CB(2)2023/15-16]</p>

Committee	Date of meeting	Paper
Panel on Development	24 January 2017	<p>Administration's paper on "Initiatives of Development Bureau in the 2017 Policy Address and Policy Agenda" [LC Paper No. CB(1)439/16-17(03)]</p> <p>Administration's paper on "Proposed amendments to the Waterworks Ordinance (Cap. 102) and the Waterworks Regulations (Cap. 102A)" [LC Paper No. CB(1)439/16-17(05)]</p> <p>Minutes of meeting [LC Paper No. CB(1)700/16-17]</p> <p>Follow-up paper [LC Paper No. CB(1)618/16-17(01)]</p>
Panel on Development	24 October 2017	Administration's paper on "Initiatives of Development Bureau in the Chief Executive's 2017 Policy Address and Policy Agenda" [LC Paper No. CB(1)57/17-18(01)]
Bills Committee on Waterworks (Amendment) Bill 2017	--	<p>Legislative Council Brief [File Ref.: DEVB(CR)(W)1-10/49]</p> <p>Legal Service Division Report [LC Paper No. LS56/16-17]</p>
Subcommittee on Waterworks (Amendment) Regulation 2017	--	<p>Legislative Council Brief [File Ref. : DEVB(CR)(W)1-10/49]</p> <p>Legal Service Division Report [LC Paper No. LS69/16-17]</p> <p>Report of the Subcommittee [LC Paper No. CB(1)1255/16-17]</p>
Subcommittee on Waterworks (Amendment) (No. 2) Regulation 2017	--	<p>Legislative Council Brief [File Ref. : DEVB(CR)(W)1-10/49]</p> <p>Legal Service Division Report [LC Paper No. LS3/17-18]</p>

Committee	Date of meeting	Paper
Panel on Development	28 November 2017	<p>Administration's paper on "Staffing proposals of (a) the Works Branch of the Development Bureau to cope with increasing workload arising from new and on-going initiatives and (b) Water Supplies Department to take forward the new drinking water safety initiatives" [LC Paper No. CB(1)235/17-18(07)]</p> <p>Background brief on follow-up work on the incidents of excess lead found in drinking water [LC Paper No. CB(1)235/17-18(08)]</p> <p>Minutes of meeting [LC Paper No. CB(1)585/17-18]</p>
Bills Committee on Waterworks (Amendment) Bill 2017	--	Report of the Bills Committee [LC Paper No. CB(1)540/17-18]
Panel on Development	--	Administration's paper on "Initiatives of Development Bureau in the Chief Executive's 2019 Policy Address and Policy Address Supplement" [LC Paper No. CB(1)38/19-20(01)]

Hyperlinks to relevant Council questions/motions:

Date	Council question/motion
28 October 2015	<p>Motion on "Legislating for safety of drinking water"</p> <p>Progress report</p>
4 November 2015	Question raised by Hon LAM Tai-fai on " Incidents of excessive lead content in drinking water "
18 November 2015	Question raised by Dr Hon Helena WONG on " Safety of drinking water from wall-mounted dispensers "

Date	Council question/motion
30 November 2016	Question raised by Dr Hon Helena WONG on " Follow-up actions on incidents of excess lead in drinking water "
14 December 2016	Question raised by Dr Hon Elizabeth QUAT on " Water resources management and drinking water safety "
13 June 2018	Question raised by Hon Paul TSE on " Quality of drinking water in public rental housing estates "