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Panel on Housing

Meeting on 5 December 2016

Updated background brief on "Excessive lead in drinking water in public rental housing estates incident"

Purpose

This paper provides updated background information on the excessive lead in drinking water in public rental housing ("PRH") incidents, and the major views and concerns expressed by Members of the Legislative Council ("LegCo") on the subject.

Background

Excess lead found in drinking water samples taken from PRH estates

2. Between April and June 2015, the Democratic Party collected drinking water samples from 13 public and private buildings in Kowloon West to test their contents of heavy metals including lead. Four water samples taken from Kai Ching Estate in Kowloon City were found to contain lead that exceeded the World Health Organization ("WHO")'s provisional guideline value¹ of not more than 10 micrograms per litre for lead ("the WHO value").

¹ As defined under the WHO's Guidelines for Drinking-water Quality published in 2011, a health-based guideline value represents the concentration of a constituent that does not exceed tolerable risk to the health of the consumer over a lifetime of consumption. For the contaminant of lead, the guideline value is designated as provisional because calculated guideline value is below the achievable quantification level as well as the level that can be achieved through practical treatment methods, source control, etc.

3. In July 2015, after conducting its own test, the Government announced that excessive lead was found in water samples from PRH estates including Kai Ching Estate, Kwai Luen Estate (Phase 2) and Shui Chuen O Estate and in samples of solder used on water pipe joints. In light of this, the Government began collecting water samples for testing from all PRH estates completed since 2013, and subsequently extended the scope to all 12 PRH estates completed in 2011 and 2012. Among these estates, 36 samples from five of these estates were found to have exceeded the WHO value and lead was found in samples of solder in these estates. In view of the development, the Government further extended the water sampling tests to PRH estates completed between 2005 and 2010. The systematic water sampling tests for PRH developments completed in and after 2005 was eventually completed in September 2015. Water samples from 72 PRH developments were found to comply with the WHO value and 11 PRH developments were found to contain lead content that exceeded the WHO value².

4. The Water Supplies Department ("WSD") further conducted water sampling tests for the 144 PRH estates completed before 2005 by batches. On 18 November 2015, the Government announced that all tests had been completed and all samples were found to meet the WHO's guideline limit.

5. HA announced on 11 November 2015 that from 1 January 2016, tenants in 11 PRH developments in which excess lead in drinking water had been found would receive a subsidy amount of \$660 for offsetting part of the water charges and sewage charges payable. The subsidy involved some \$20 million and would be provided by the four contractors concerned³.

Measures to assist affected tenants

6. For PRH estates where water samples were found to have exceeded the WHO value, the Housing Department ("HD") and WSD arranged for temporary water supply, including the supply of bottled water and the installation of temporary water tanks and pipes outside each block, to facilitate access to drinking water in each affected estate. Connection pipes

² The 11 PRH developments included the Kai Ching Estate, Kwai Luen Estate (Phase 2), Wing Cheong Estate, Lower Ngau Tau Kok Estate (Phase 1), Shek Kip Mei Estate (Phase 2), Hung Hom Estate (Phase 2), Tung Wui Estate, Yan On Estate, Choi Fook Estate, Un Chau Estate (Phases 2 and 4), and Ching Ho Estate (Phase 1).

³ The four contractors concerned were China State Construction Engineering (Hong Kong) Limited, Paul Y General Contractors Limited, Shui On Building Contractors Limited and Yau Lee Construction Company Limited.

were extended from the roof-top water tanks to each floor of the building, and lead-reducing water filters were installed for affected tenants.

7. In March 2016, HA announced that the four contractors concerned would replace non-compliant water pipes in the common areas in the 11 PRH developments with excess lead in water starting from 14 March 2016. HA further advised on 9 March 2016 that the four contractors had started to change or clean the filter cores for the affected tenants.

Public health measures adopted by the Administration

8. The Department of Health ("DH") has provided free blood tests for the more easily affected groups, namely infants, young children under six years of age (including those who were under six years old when moving into the PRH estates concerned), pregnant women and lactating women, and developed care plan for tenants whose blood lead level exceeded the reference value⁴. The scope of blood testing was later extended to children aged below eight, pregnant women and lactating women. DH also made special arrangements for children whose blood lead level exceeding the reference value to receive development assessment.

Investigations into the incidents and review recommendations

9. To investigate into the "lead-in-drinking-water" incidents, the Development Bureau ("DEVB") established a Task Force on Excessive Lead Content in Drinking Water ("the Task Force"), and HA formed a Review Committee on Quality Assurance Issues Relating to Lead in Fresh Water of Public Housing Estates ("the Review Committee"). The final report by the Task Force was submitted to and accepted by the Secretary for Development in October 2015, and the Review Committee's final report was submitted to and accepted by HA in January 2016. The Administration briefed the Panel of the findings of the Task Force's final report and the Review Committee's final report at the Panel meetings held on 2 November 2015 and 1 February 2016 respectively.

⁴ On 18 July 2015, the Secretary for Food and Health convened an inter-departmental meeting with experts of DH and the Hospital Authority to establish the reference value of lead in blood and care plan for residents of the affected PRH estates. The reference value of blood lead level for the more easily affected groups was 5µg per deciliter ("dL") and for adults aged 18 or above was 10 µg/dL.

10. A Commission of Inquiry ("CoI") was also set up on 13 August 2015 under the Commissions of Inquiry Ordinance (Cap. 86) to investigate into the matter. The CoI report, which was released to the public in May 2016, recommended that the Government should, inter alia, review the existing legislative and regulatory system, and establish the "Hong Kong Drinking Water Standards" by making reference to overseas experience and practices. To follow up with the recommendations of the CoI report, the DEVB established an International Expert Panel ("IEP") on 1 June 2016. The WSD also engaged expert consultants to review the drinking water standards and water sampling protocols of the WHO, the European Union and other developed countries and possible applications for investigating lead contamination in PRHs, and to provide advice on a Water Safety Plan.

11. The WSD has commenced a review of a legislative amendment to the Waterworks Ordinance (Cap. 102) ("WO"). The first stage of the amendment will involve delineating qualified persons such as those who take part in the construction and installation of inside services, and updating the pipe and fitting standards and the technical requirements. The WSD is currently conducting a public consultation exercise from September 2016 to November 2016 on the proposed amendment and has commenced the related law drafting work with a view to submitting the amendment to the LegCo for deliberation in this legislative session. It has also commenced a review of the remaining legislative amendment to the Ordinance and will take administrative measures to enhance the current system in the meantime.

Major views and concerns expressed by Members

12. The views and concerns expressed by LegCo Members on the subject at the meetings of the Panel on Housing, Panel on Health Services and the House Committee since July 2015 are summarized in the ensuing paragraphs.

Ascertaining the source of excess lead found in tap water

13. Members noted the Task Force's conclusion that leaded solder joints installed in the inside service were the cause of excess lead in drinking water in Kai Ching Estate and Kwai Luen Estate (Phase 2) and the Review Committee's view that the "lead-in-drinking-water" incidents were, to a large extent, caused by a "lack of awareness" in the industry as well as within HA and the Housing Department ("HD"). However, some Members considered that the crux of the problem was the absence of an effective mechanism for monitoring plumbing works.

Scope and validity of water sampling tests

14. Some Members queried the validity of the water sampling tests conducted by the Government as the water samples were collected after running the tap for a few minutes, and requested the Government to collect and test samples of stagnant water in pipes, with latest technologies such as X-ray fluorescence device and 3M petrifilms.

15. The Administration explained that the water sampling means and procedures varied across countries/cities depending on their unique situations. The current practice of collecting samples after running the taps for two to five minutes complied with the WHO standard, whereas samples of stagnant water in pipes were only indicative of the quality of drinking water upon remaining in the water pipes for a period of time, and did not reflect the quality of the water to be taken by an individual daily.

Measures to assist affected tenants

Water supply for the affected PRH estates

16. Members stressed the need for the Administration to ensure that the quality of temporary water supply to the affected PRH estates was up to standard, and to assist the elderly, infirm and persons with disabilities to get water from the temporary water supply points.

17. Some Members noted the Administration's advice that all the main contractors had undertaken to HA to install, for affected households, filters with U.S. National Sanitation Foundation's NSF 53 certification for lead reduction, and to replace the filter cores for them free-of-charge within two years, and requested the Administration to ensure that the undertakings would be honoured. Members also urged the Administration to replace sub-standard water taps/pipes of the affected PRH estates as soon as practicable.

Blood tests and medical follow-up for affected tenants

18. Members strongly urged the Administration to expand the scope of free blood tests to cover children who were under six years old when moving into the concerned PRH estates and residents suffering from chronic diseases. Some Members further considered that blood tests should also be provided for people who belonged to the three easily affected groups and were residing in the affected PRH estates even though they were not the family members of the PRH tenants of the affected estates.

19. Members were deeply concerned about the long waiting time of around three to four weeks for the blood testing services provided by the Hospital Authority and DH. In Members' view, the Administration should expedite collection and testing of blood samples, such as by way of portable devices, and/or deploying additional resources in collaboration with the private healthcare sector. Some Members considered that the Administration should enhance the overall blood lead testing capacity through public-private partnership, such as providing affected residents with "blood testing vouchers" for taking the tests in the private sector, arranging outreach blood-taking services, engaging more overseas laboratories and purchasing more equipment for blood testing.

20. The Administration advised that the Hospital Authority had arranged seven public hospitals to provide blood taking service at weekends, and made arrangement with two private hospitals in providing additional blood taking service. The Hospital Authority had endeavored to enhance the throughput of blood taking and testing with the purchase of new blood testing equipment, sending of blood samples to overseas laboratories for testing, and the deployment of the Hospital Authority healthcare personnel to work overtime.

21. Some Members were concerned that the current blood test might not be able to detect residue of lead contamination in the body, given that the half-life of lead in blood was approximately 30 days once the source of contamination had been eliminated. They suggested that other than blood test, hair and urine tests for lead should be considered. The Administration advised that whole blood lead level was internationally recognized as the most accurate and reliable method for screening and diagnosis to assess the risk of lead on health. Hair and urine tests for lead were not suitable for screening and diagnosis.

22. Members considered that the Administration should explain clearly to tenants the potential health impacts associated with taking lead-contaminated water, and provide medical assistance to affected tenants with an elevated blood lead level.

Supporting services and compensation

23. Members opined that the Administration should centralize dissemination of information by various bureaux/departments about the findings of water sampling tests and progress of follow-up measures. There was a suggestion that counselling and emotional support should be provided to affected tenants by setting up one-station service counters at the PRH estates concerned and stationing social workers thereat.

24. Some Members expressed concerns about the inconvenience caused to and expenses incurred by the affected tenants as they had to take water from temporary water supply joints and/or purchase bottled water for consumption. Besides, the tenants might use more water than before as they were advised by the Government to run tap water for a few minutes to flush faucets before using water for drinking or cooking. Members therefore requested the Administration to consider waiving the water charges and/or rentals of the households concerned for a certain period of time and paying the medical expenses for the affected tenants with an elevated blood lead level.

Monitoring of waterworks

25. Members considered it of paramount importance to enhance the plumbing trade's awareness of the use of lead-free soldering materials for fresh water pipes and to put in place preventive measures, such as stepping up training for the trade. Members also considered that the incident of excess lead found in drinking water reflected inadequacies in respect of waterworks monitoring and inspection, and urged the Administration to take rectification measures to ensure that the supply of water in new housing developments would be up to standard. In this connection, some Members suggested that the Administration should review the WO and the licensing requirements for Authorized Persons and licensed plumbers.

26. The Administration advised that subsequent to the incidents, HA had put in place measures to incorporate in all relevant HA contracts additional water sampling requirements and the checking of lead content, and to step up inspection on soldering materials used at water pipe joints of public housing estates. Noting the inadequacies in the past quality controls system of HA, HA would also actively follow up and implement enhancement measures to prevent recurrence of similar incidents.

Council Questions

27. Dr Hon LAM Tai-fai, Hon WU Chi-wai and Dr Hon Helena WONG Pik-wan raised questions related to the incident and the progress of rectifications to be implemented by the relevant authorities. Details of the questions are hyperlinked in the **Appendix**.

Latest development

28. The Administration will brief members on the latest updates related to the incident at the Panel meeting on 5 December 2016.

Relevant papers

29. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
30 November 2016

Excessive lead in drinking water in public rental housing estates incident

List of relevant papers

Papers issued for Committee meetings

Committee/ Date of meeting	Relevant papers
Panel on Housing (Special meeting on 22 July 2015)	<p>Paper provided by the Administration entitled "Excessive Lead in Fresh Water Supply in Public Housing Estates"</p> <p>Background brief prepared by the Legislative Council ("LegCo") Secretariat entitled "Excessive Lead found in Tap Water Samples from Public Rental Housing Estates"</p> <p>Speaking note of the Secretary for Transport and Housing (Chinese version only)</p> <p>Speaking note of the Acting Secretary for Development (Chinese version only)</p> <p>Speaking note of the Secretary for Food and Health ("SFH") (Chinese version only)</p> <p>Motion on "Excessive lead found in tap water samples from public rental housing estates" passed at the special meeting</p> <p>The Administration's response to the concerns and suggestions raised by Members at the special meeting</p>
Panel on Health Services (Special meeting on 24 August 2015)	<p>Paper provided by the Administration entitled "Public health measures for the lead in drinking water incidents"</p> <p>Background brief prepared by the LegCo Secretariat entitled "Public health measures for the lead in drinking water incidents"</p>
House Committee (Special meeting on 1 September 2015)	<p>Paper provided by the Administration entitled "Lead in drinking water incidents"</p> <p>Background brief prepared by the LegCo Secretariat entitled "Lead in drinking water incidents"</p>

Committee/ Date of meeting	Relevant papers
	<p>Information on the test results of blood lead level of public estate residents affected by lead in drinking water incidents (as at 1700 hours on 27 August 2015) provided by the Administration</p> <p>Speaking note of the Chief Secretary for Administration (Chinese version only)</p>
House Committee (Special meeting on 8 October 2015)	<p>Paper provided by the Administration entitled "Lead in drinking water incidents"</p> <p>Updated background brief prepared by the LegCo Secretariat entitled "Lead in drinking water incidents"</p> <p>Speaking note of the Chief Secretary for Administration (Chinese version only)</p> <p>Speaking note of the Acting Secretary for Transport and Housing (Chinese version only)</p>
House Committee (Meeting on 9 October 2015) Legislative Council (Meeting on 14 October 2015)	<p>Joint letter dated 14 August 2015 from 27 Members seeking the Council's authorization for the appointment of a select committee to inquire into lead in drinking water incidents and related issues (Chinese version only) <i>(for discussion at the House Committee meeting)</i></p> <p>Two motions moved by Hon Gary FAN Kwok-wai and Hon Cyd HO Sau-lan under the Legislative Council (Powers and Privileges) Ordinance (Cap. 382)</p>
Panel on Housing (Meeting on 2 November 2015)	<p>Paper provided by the Administration entitled "Excess lead in drinking water in public housing estates incident"</p> <p>Background brief prepared by the LegCo Secretariat entitled "Lead in drinking water incidents"</p> <p>Speaking note of the Under Secretary for Transport and Housing (Chinese version only)</p> <p>The Administration's response to the concerns and suggestions raised by members at the meeting</p>

Committee/ Date of meeting	Relevant papers
Panel on Housing (Meeting on 1 February 2016)	<p>Paper provided by the Administration entitled "Excess lead in drinking water in public housing estates incident"</p> <p>Background brief prepared by the LegCo Secretariat entitled "Lead in drinking water incidents"</p> <p>Speaking note of the Under Secretary for Transport and Housing (Chinese version only)</p>

Hyperlinks to relevant Council Questions

Date	Council Questions
4 November 2015	<p>Council question raised by Hon LAM Tai-fai</p> <p>http://www.info.gov.hk/gia/general/201511/04/P201511040362.htm</p>
18 May 2016	<p>Council question raised by Hon WU Chi-wai</p> <p>http://www.info.gov.hk/gia/general/201605/18/P201605180344.htm</p>
6 July 2016	<p>Council question raised by Dr Hon Helena WONG Pik-wan</p> <p>http://www.info.gov.hk/gia/general/201607/06/P201607060745.htm</p>

Government press releases

Press releases issued by the Government on the incidents of excess lead in drinking water are available on the following website:
<http://www.isd.gov.hk/drinkingwater/eng/press.html>.

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 30 November 2016