Progress Report on
the Motion on "Legislating for safety of drinking water"
at the Legislative Council meeting of 28 October 2015

Purpose

A motion for "legislating for safety of drinking water", moved by Dr. Hon. KWOK Ka-ki and amended by Hon. CHAN Han-pan, was passed at the Legislative Council (LegCo) meeting of 28 October 2015. The wording of the motion was attached at Annex. The purpose of this paper is to report to Members on the work progress on the matter.

2. The Government has attached great importance to the lead in drinking water incident and promptly implemented a number of measures after the incident. In respect of water tests, we have completed water sampling tests including all public rental housing (PRH) estates, the public sector and Direct Subsidy Scheme schools built with public funding and completed in and after 2005, all the kindergartens in the territory, and the social welfare units serving children aged under six years old who have to stay for long hours and consume drinking water in these units. The Hospital Authority (HA) has also completed drinking water tests for paediatric wards with in-patients aged under six years old. On the whole, the work in respect of water tests has generally been completed.

3. As regards the inside services, 91 of the 4 740 drinking water samples taken from the PRH developments completed in and after 2005 were found to contain excess lead while all the 2 640 or so drinking water samples taken from the PRH estates completed before 2005 were found to be in compliance with the Guidelines of World Health Organisation (the WHO Guidelines). This means that 1.2% of the drinking water samples from PRH estates contain excess lead. Of the 587 drinking water samples taken from the inside services of schools, excess lead was found in 5 samples, which were taken from one secondary school. This amounts to 0.85% of the total number of samples in this category. All the 1 612 drinking water samples taken from the inside services of kindergartens, social welfare units and HA's paediatric wards were found to comply with the WHO Guidelines.

4. Regarding the assistance given to people affected by the lead issue, the Government and the Hong Kong Housing Authority (the Housing Authority) have acted promptly to reduce the inconvenience that might be encountered by the affected tenants in accessing safe drinking water. The measures include provision of bottled

water and standpipes as well as requiring the contractors concerned to install temporary water supply points on each floor of the building block and to install water filters and replace filter cores for free over a two-year period for the affected households. The Department of Health (DH) has also arranged to take blood samples and conduct blood lead tests for the PRH households, kindergartens and schools with drinking water samples containing excess lead, and residents of the affected PRH estates who belong to the groups of people that are more vulnerable to the effects of lead. Making reference to the relevant literature and experience from local medical sector and overseas health authorities, the HA and DH have derived the reference values of blood lead levels and formulated corresponding actions to be taken in various healthcare settings. For people whose test results revealed borderline raised blood lead levels, the DH has arranged lead exposure assessments to identify the alternative sources, if any, of lead exposure and provide appropriate health advice. For affected children under 12 years old in particular, the DH has also conducted preliminary developmental assessments and drawn up follow-up plans for them on an individual basis. On its part, the HA arranges health assessments and follow-up actions for the persons with borderline raised blood lead levels. They will be kept under monitoring until their blood lead levels return to normal. The Water Supplies Department (WSD) has taken immediate measures to strengthen the inspection and approval mechanism for inside services, including adding parameters for lead and three other types of heavy metals in the tests for water samples taken from newly installed water supply systems.

5. Professor Bellinger, a professor of neurology and psychology at the Harvard Medical School and a professor of environmental health at the Harvard School of Public Health, is the expert witness for the Commission of Inquiry into Excess Lead Found in Drinking Water (the Commission). During the Commission's hearings on 15 and 16 December 2015, he testified that the acceptance criteria specified by the WSD for lead and three other types of heavy metals were based on sound reasoning. The reference values selected by the Hong Kong government for prioritising individuals for follow-up based on blood lead level were appropriate and consistent with those identified by the international bodies. He remarked that the Government were taking totally appropriate steps to support the affected people, including developmental assessments for children with elevated blood lead levels, and to ensure that the residents would not be further exposed to lead in drinking water. He commended the Government for going beyond the guidelines of the United States Centers for Disease Control and Prevention in following up on the developmental issues of the affected children and was very impressed with the level of detail and the thought that had been invested in the different contingencies.

Safeguarding Drinking Water Safety

6. The Government is open to the proposal for legislating for safety of drinking water. We briefed the Members on our preliminary findings on overseas legislation relating to drinking water quality at the LegCo meeting of 28 October 2015. On legislating for drinking water quality, due consideration must be given to a wide array of factors. We need to examine the issue in detail and consider the legislative implications on different stakeholders, the economy as well as the society. In this connection, it is necessary to study in depth the overseas experience, including the background and the unique circumstances of the countries in enacting the legislation, the legislation focus and the difficulties encountered in implementation. The findings and recommendations of the Commission must also be considered as it was appointed by the Chief Executive in Council and tasked to make recommendations with regard to the safety of drinking water in Hong Kong in its terms of reference. The Government will conduct a study on legislating for safety of drinking water. Yet, even if both the findings of the future study and the community consensus at the time support enacting the legislation, the legislative process still takes time to complete. For the time being, we are proactively following up on the recommendations of the Task Force on Investigation of Excessive Lead Content in Drinking Water. They include stepping up control on the water pipe materials and fittings of inside services; enhancing inspections and approval mechanism for inside services; expanding the monitoring requirements and scope for water sampling; and studying for legislative amendments to the existing Waterworks Ordinance and its regulations.

Enhancing the regulatory measures for waterworks

Enhancing control of pipe materials and fittings of inside services

7. To step up control of the pipes and fittings installed and used in inside services and fire services, the WSD has made reference to the approval mechanism of UK's Water Regulations Advisory Scheme for pipes and fittings and set a five-year validity period for the approval status. On expiry of the validity period, the supplier or a relevant person must renew the approval status for the pipes and fittings to ensure that they are compliant with the latest statutory requirements. If soldering is used in the connection between copper pipes in the plumbing works, the licensed plumber concerned has to provide a supporting document for lead-free soldering materials and obtain approval from the Water Authority before commencing the works. The WSD has adopted a risk-based approach and gradually expanded the list of pipes and fittings that need to be submitted for approval in the Annex of WSD Form WWO 46.

8. For the long term, we will explore the feasibility of stepping up control of pipes and fittings through legislation, with a view to ensuring that the pipes and fittings in the market are compliant with the waterworks requirements. Currently, we are also studying the feasibility of establishing a product certification system for pipes and fittings to safeguard their quality.

Enhancing the inspection and approval mechanism for inside services

9. Plumbing works may only commence after permission is granted by the Water Authority (by way of Part III of the Waterworks Form WWO 46). For a new building project with at least one building of over three storeys, the licensed plumber concerned must install a sample board on site and, at the final inspection, provide certificates/test reports/catalogues and relevant supporting documents for the pipes and fittings to facilitate the inspection of the inside services or fire services by the Water Authority. For early detection of the irregularities in the plumbing works for all new building projects, the Water Authority will endeavour to inspect the on-going plumbing works on site, in addition to those reported to be completed, during the interim inspection. When inspecting new plumbing works, the Water Authority will ask for non-destructive tests to be conducted on solder joints to check for the presence of lead. The objective is to strengthen the monitoring of fresh water inside service works and ensure the safety of drinking water. Since July 2015, new parameters for four kinds of heavy metals (including lead) have been added to the tests of water samples.

Enhancing the Management Mechanism of Licensed Plumbers

10. According to the Waterworks Regulations, the role of Advisory Board on Licensing of Plumbers (the Board) is to advise the Licensing Authority on matters relating to the licensing of plumbers. To enhance the composition and the representativeness of the Board, the Water Authority expanded the Board's membership from 4 to 14 members in August 2015 and appointed a number of professionals, government officials and representatives from the following sectors, namely plumbing industry, contractors, property management and training institutions, into the Board.

11. The Board has discussed the issue of enhancing the plumbers' licensing regime, including stepping up monitoring of licensed plumbers by revising the Waterworks Form WWO 1008 and adding management elements into the courses for licensed plumbers.

12. The Water Authority assesses the performance of licensed plumbers through a point penalty system, which was revised in October 2015. The Waterworks Form WWO 1008, used for assessing the performance of licensed plumbers, was revised accordingly by adding new penalty items and modifying the existing ones. The aim is to draw the attention of licensed plumbers to the serious consequences caused by non-compliant plumbing materials and the importance of strictly discharging their responsibilities in supervising plumbing works.

Quality Water Supply Scheme for Buildings – Fresh Water

13. The WSD and the Advisory Committee on Water Resources and Quality of Water Supplies have completed a review of the existing Quality Water Supply Scheme for Buildings – Fresh Water (the Scheme), which currently covers about 45% of all the domestic accounts in Hong Kong. An enhanced version of the Scheme was launched on 27 December 2015. The enhanced Scheme expands the number and scope of water samples and adds four types of heavy metals, including lead, to the water quality test.

Relief measures for the affected PRH estates, schools, social welfare units and hospitals

Water tariff subsidy for affected PRH tenants

14. The Housing Authority announced on 11 November 2015 that the four contractors concerned in the incident would provide subsidies to the PRH tenants concerned to offset their water charges and sewage charges. Under the scheme, each non-domestic tenant in a domestic block and each domestic household of the 11 affected PRH developments will receive a subsidy amount of $660. From 1 January 2016 onwards, the subsidy will be allocated to a subsidy reserve for each of the tenants on a daily basis throughout the 366 days in 2016 and disbursed to pay for the tenant's water bills within a three-year period. If the subsidy amount is less than the sum of water charges and sewage charges payable, the shortfall will have to be paid by the tenants themselves. If the subsidy amount is in excess of the charges payable, the unutilised amount will remain in the subsidy reserve until the expiry of the three-year period. Together with the measures for installing temporary water points at each floor of the building blocks and installing filters/replacing filter cores for affected domestic households free of charge for a two-year period, the scheme will provide relief to the affected tenants to suit their different circumstances and different needs.

Drinking water sampling tests for the affected PRH tenants who have installed water filters

15. As one of the conditions for accepting the contractors' proposal for installing filters for domestic households, the Housing Authority has stipulated that the filter must be certified by National Sanitation Foundation to NSF 53 Standard as an effective device for reducing lead in water. To obtain the NSF certification from the Foundation, the product must pass through a set of rigorous procedures for verifying its effectiveness and sustainability in lead reduction, including performance tests in lead reduction and inspection of manufacturing process. The tests conducted by Government Laboratory also confirmed the effectiveness of these filters. Despite the filters installed by contractors, some PRH residents worried that the drinking water might still not comply with the WHO Guidelines. To ease their concerns, the Housing Authority announced on 14 October 2015 that water tests would be conducted again for the units in the 11 affected PRH estates found to have excess lead content in drinking water samples and thereafter installed with filters provided by the contractors. On 2 November 2015, the Housing Authority announced that the water tests, involving 76 units in total, had been completed and all the tests results met the WHO Guidelines.

Blood tests for residents from the affected PRH estates

16. After reviewing the relevant literature and research from local medical sector and overseas health authorities, the HA and the DH have derived the reference values of blood lead levels and formulated corresponding actions to be taken in various healthcare settings so as to effectively deploy medical resources according to a risk-based approach. Young children are at a rapid stage of growth. Their developing organs and tissues are more vulnerable to the effects of lead. Indeed, young children would absorb four to five times as much lead as adults from the same amount of lead in drinking water. As for pregnant women and lactating women, the lead they consumed may be indirectly absorbed by their fetuses and babies. Therefore, experts of the DH and the HA classified the children aged under six years old, pregnant women and lactating women as groups of people who are more vulnerable to the effects of lead. In response to the demand of the affected PRH tenants, the scope of blood testing was expanded on 21 July 2015 to cover children who were under six years old at the time when moving into Kai Ching Estate, Kwai Luen Estate Phase 2 and Wing Cheong Estate. It was further expanded to cover children aged under eight, pregnant women and lactating women in other affected PRH estates in the light of subsequent developments on 3 August 2015.

17. Since the Housing Department first announced in 10 July 2015 that the lead content in drinking water samples from Kai Ching Estate exceeded the WHO's provisional guideline value, the HA and the DH have deployed medical professionals from the related specialties to work overtime to provide extra dedicated services for blood taking and testing for people who are more vulnerable to the effects of lead. But these additional measures cannot be maintained in the long run lest the daily operation and clinical services of the HA and the DH would be affected. Indeed, the imminent arrival of the winter influenza season will further aggravate the pressure on the workload and manpower of the HA. Therefore, it is not advisable to further expand the scope of blood test service at the present stage.

18. As at 18 December 2015, the HA has completed 5 643 cases of blood lead level tests. Amongst them, 165 people were found to have borderline raised blood lead levels, ranging from 5 to 16.7 micrograms per deciliter. Though signifying potential health risk, these levels are far below the risk of poisoning. The medical sector generally agrees that, for people with borderline raised blood lead level, the priority is to identify and remove the source of lead. After ceasing exposure to lead, their blood lead level will gradually drop as the lead will be excreted in urine and bile. Since the advent of lead in water incident over five months ago, the Government has immediately rolled out a host of measures to provide safe drinking water to the affected PRH estates and advised people on ways to avoid drinking lead contaminated water. The WSD has also ascertained the causes of excess lead in drinking water in the PRH estates. Therefore, we do not see any positive gain from expanding the scope of blood tests in terms of protecting the health of the public.

Replacing problem pipes and/or fittings

19. The contractors concerned have all submitted proposals on a comprehensive investigation as well as replacement of non-compliant pipes. The Housing Department and the WSD are now studying the proposals in detail. As the pipe replacement works involve complex works procedures as well as technical and staffing arrangements, it will take time to complete. Therefore, the contractors plan to conduct trial works in some blocks of the affected PRH estates before proceeding to work out a more detailed work plan and timetable on the basis of the practical experience gained. In the meantime, they plan to replace the non-compliant pipes in the common areas first before replacing the pipes inside individual units. The Housing Authority will require the contractors to minimise the inconvenience caused by the works to the residents. Upon confirmation of the details, the Housing Authority will announce the arrangements as soon as possible.

20. For the aforementioned secondary school with excess lead in drinking water samples (including five samples taken from inside service and two samples from water dispensers), the Education Bureau (EDB) has immediately installed filters certified for lead reduction. As the school was built by the developer and the grantee as the works agent of the government accommodation, the EDB has been liaising with the responsible works agent, architectural consultant of the school building project, contractor and the school on the proposed arrangements for replacing the potable water pipeworks. The works will commence after the Christmas holiday as per the request of the school.

21. Apart from inside services, 506 and 53 drinking water samples were also taken from wall-mounted dispensers and fountain-type water dispensers respectively from the sources listed in the table below, including kindergartens, schools, social welfare units and hospitals. Excess lead was found in one sample taken from a wall-mounted dispenser of a hospital, two samples from wall-mounted dispensers of two secondary schools, two samples from the water dispensers of a secondary school and ten samples from wall-mounted dispensers of eight kindergartens respectively. All the other samples were found to be compliant with the WHO Guidelines.

	No. of Samples	
	Wall-mounted Dispensers	Fountain-type Dispensers
Kindergartens	328	26
Schools	75	5
Social welfare units	38	22
Hospitals	65	0
Total	506	53

22. The above-mentioned eight kindergartens and two secondary schools immediately stopped using their wall-mounted dispensers. As for the secondary school with excess lead found in drinking water samples taken from water dispensers, its leaded solder joints of inside service was found to be the source of excess lead after investigation and the remedial measures mentioned in paragraph 20 above will be adopted. The school has also stopped using the water dispenser in question. The HA has removed the problem installation and installed filter and wall-mounted dispenser with international certification to safeguard the safety of drinking water in hospitals. Furthermore, the HA has also procured a sufficient quantity of filters and wall-mounted dispensers with international certification as contingency replacements in case excess lead is found in drinking water samples from hospitals in future.

23. Given that samples from wall-mounted dispensers were found to contain excess lead, the Government conducted a study on wall-mounted dispensers. The findings, announced on 4 December 2015, confirmed that leaded soldering material in wall-mounted dispensers was the major source for excess lead in drinking water. On the basis of the study's conclusions, the Government made some recommendations in respect of the testing, purchase and use of wall-mounted dispensers and compiled a leaflet on the Tips for Using Wall-mounted Dispensers. The leaflet is made available to the trade practitioners and general public for downloading at the website of WSD, and through distribution at the Public Enquiry Service Centres of the Home Affairs Department and the Customer Enquiry Centres of the WSD. Copies of the leaflet have also been distributed to relevant organisations and trade associations such as schools, hospitals, social welfare units and associations of the catering industry.

Development Bureau
Education Bureau
Food and Health Bureau
Transport and Housing Bureau

December 2015

Annex

Motion on"Legislating for safety of drinking water"
moved by Dr Hon KWOK Ka-ki
at the Legislative Council meeting of 28 October 2015

Motion as amended by Hon CHAN Han-pan

That the safety of drinking water is an important livelihood issue, yet since the discovery of excess lead in drinking water at consumers' taps in some public rental housing estates in Hong Kong in early July this year, more and more cases of excess lead in drinking water samples have been uncovered, including samples taken from Home Ownership Scheme flats, private housing estates, hospitals and even schools, but the Government has shown its ineptitude in handling lead in drinking water incidents, causing distress to nearly 30 000 households in the public rental housing estates confirmed to have excess lead in drinking water, and also seriously affecting their daily lives, hence shattering Hong Kong people's confidence in the safety of drinking water; in addition, the relevant legislation on water supply in Hong Kong is outdated and unable to effectively regulate the drinking water quality in Hong Kong; in this connection, this Council urges the Government to immediately legislate for the safety of drinking water, so as to ensure that Hong Kong people are able to consume safe and reliable drinking water; in order to restore people's confidence in the safety of drinking water in the short run and compensate the affected public rental housing tenants, this Council also urges the Government to introduce the following measures:

(1) to reasonably waive water charges and rents for all the affected public rental housing tenants;

(2) to conduct drinking water sampling tests for the affected public rental housing tenants who have installed water filters, so as to ensure the effective functioning of such water filters;

(3) to expand the scope of priority blood testing for the affected public rental housing tenants to household members aged below six when moving into their flats;

(4) to clearly advise the affected public rental housing tenants of a timetable for the replacement of problem pipes and/or fittings, as well as the relevant

arrangements and progress, and to assist the affected tenants in seeking compensation; and

(5) to put forward proposals for assisting the affected schools and hospitals, etc. in replacing problem pipes and/or fittings.