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Direct Investigation Report
Water Supplies Department's
Maintenance of Government Water Mains
and Risk Management

The Ombudsman has completed a direct investigation into the maintenance of water mains and risk management by the Water Supplies Department ("WSD").

In recent years, there have been frequent incidents of fresh and salt water main bursts. Those incidents have not only caused inconvenience to the public, but also resulted in huge waste of fresh and salt water. In addition, the leakage rate of water mains in Hong Kong stands at 15.2%, which falls significantly behind cities like Singapore (5%) and Lisbon (8%).

This direct investigation has identified a number of inadequacies on the part of WSD with regard to three aspects, namely: minimising water main bursts, follow-up actions on cases of main bursts, and reducing leakages. For example:

- failing to target recurrent cases of water main bursts for monitoring and follow-up actions; lack of deterring penalty against public works contractors for damaging water mains;

- lack of performance targets on resumption of salt water supply; performance targets on follow-up actions of main bursts too complicated to facilitate public monitoring;

- failing to set performance targets on reducing leakage rate; lack of comprehensive measures to ensure stability of water supply network after completion of the Replacement and Rehabilitation Programme of Water Mains.

In the light of the above, The Ombudsman has made ten improvement recommendations to WSD. The executive summary of the investigation report is at **Annex 1**.

Direct Investigation Report
Government Departments' Handling of the Problem of Air-conditioner Dripping

A direct investigation by the Office of The Ombudsman has found five inadequacies in the Food and Environmental Hygiene Department ("FEHD")'s handling of complaints about air-conditioner dripping, namely, failure to:

- conduct tests on air-conditioners after issuance of Nuisance Notices and ceasing investigation merely because the air-conditioners are not turned on when the weather turns cooler;
- set a standard duration for testing air-conditioners;
- conduct inspections at the occurrence time of dripping as reported by complainants;
- follow up cases closely in accordance with its operational guidelines; and
- properly record observations made in inspections.

Installation of communal drainage pipes at buildings for disposing of condensate from air-conditioners ("Communal Drainage Pipes") is a highly effective solution to the dripping problem. We consider that the Buildings Department can prompt/encourage building owners to include installation of Communal Drainage Pipes in the comprehensive maintenance programmes of their buildings through its Building Safety Loan and issuance of Practice Notes to building professionals.

The Ombudsman has made a total of eight recommendations for enhancing FEHD's enforcement actions and promoting the installation of Communal Drainage Pipes.

The investigation report is at **Annex 2**.

Full Investigation Report
Handling of a Complaint by Highways Department and Labour Department about Inadequate Safety Measures for Lifting Operations in a Government Infrastructure Project

The Highways Department ("HyD"), as a works department overseeing government infrastructure projects, is accountable for the safety of its construction sites while the Labour Department ("LD") enforces the laws relating to occupational safety and health, and monitors the provision of a safe working environment by employers and contractors.

Labour safety and health is of paramount importance. Recently, we concluded a complaint case about the safety of lifting operations at a government construction site and found vastly different views by HyD and LD about the adequacy or otherwise of safety measures there. It showed a serious lack of communication between the two departments on industrial safety. Moreover, HyD failed to pay heed to the opinions and warnings from LD as an enforcement authority.

The Ombudsman has made three improvement recommendations to HyD and LD, which include careful review of the mechanism for monitoring construction site safety and communication between the two departments to check whether there are any inadequacies.

The summary of the investigation report is at **Annex 3**.

Enquiries

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Office of The Ombudsman
17 April 2018

Annex 1

Executive Summary

Direct Investigation into Water Supplies Department's Maintenance of Government Water Mains and Risk Management

Foreword

Water is a very precious resource in Hong Kong. In recent years there have been frequent incidents of water main bursts (both fresh and salt water mains). Those incidents have not only caused inconvenience to the public, but also resulted in huge waste of fresh or salt water.

2. Moreover, while the leakage rate of water mains in Hong Kong has decreased from 25% in earlier years to the current 15.2%, it still falls significantly behind other cities (such as Singapore (5%) and Lisbon (8%)). In the past six years, the total consumption of fresh and salt water in Hong Kong amounted to 5.8 billion and 1.6 billion cubic metres respectively, averaging more than 960 million and 270 million cubic metres respectively per year. If the Water Supplies Department ("WSD") can manage to reduce the leakage rate in Hong Kong to, for example, Singapore's 5%, it would mean an annual reduction of fresh and salt water loss by 96 million and 27 million cubic metres respectively, equivalent to 38,429 (in terms of fresh water) and 10,883 (in terms of salt water) standard-size swimming pools. Based on the data of fresh water consumption per capita, the amount of fresh water loss saved mentioned above could meet the demand of some 2 million people in Hong Kong for a year. Using the average cost of Dongjiang water over the past three years (HK$5.5 per cubic metre), the expenditure saved would amount to HK$530 million.

Our Findings

3. In 2000, WSD launched the Replacement and Rehabilitation Programme of Water Mains ("Replacement Programme") to replace 3,000 kilometres of water mains in 15 years in phases. The number of water main bursts incidents have significantly reduced from 2,500 in 2000 to 88 in 2017. WSD's effort in this aspect is no doubt commendable. However, the Replacement Programme was substantially completed at the end of 2015, and would not be followed by other replacement programmes of such a massive scale. Instead, WSD will monitor water main leakages through the Water Intelligent Network ("WIN"). Yet, based on WSD's latest estimates, WIN will not be fully established until 2023.

4. This direct investigation reveals inadequacies on the part of WSD in three aspects, namely, minimising water main bursts, follow-up actions on cases of water main bursts, and reducing leakages.

(I) Minimising Water Main Bursts

(A) Failure to Target Hot Spots of Water Main Bursts for Monitoring and Follow-up Actions

5. At certain locations, incidents of water main bursts occurred several times within a few years. Shortly after WSD's repair works, the water mains burst again and seriously affected the residents in the neighbourhood. However, WSD has not targeted such recurrent bursts for intensive monitoring and follow-up actions.

6. Water main bursts are mainly attributable to aged water mains or quality of the pipes (accounting for 46.07% of all water main bursts). Nevertheless, it was not until December 2016 (i.e. over one year after commencement of this direct investigation) that WSD listed those locations with recurrent bursts as "hot spots" and started analysing the reasons behind and monitoring the progress in implementing improvement measures. We consider that WSD should continue to closely monitor those "hot spots" and prioritise its follow-up actions. For those "hot spots" located within major water supply zones, or where occurrence of water main burst could cause serious disruption to traffic, WSD should give a higher priority in taking follow-up actions.

(B) Lack of Deterring Penalty against Public Works Contractors for Damaging Water Mains

7. Between 2012 and 2017, WSD recovered compensation in 66 cases of damage to water mains caused by public works contractors. The total compensation amount was around $2.07 million, or $31,000 per case on average. We consider WSD's civil claims to be lacking in deterrent effect. It should remind all works departments concerned that for contractors who cause damage to water mains, such poor performance should be properly reflected under their existing evaluation systems for contractors. For those contractors who cause damage repeatedly, works departments should even consider rating their overall performance as poor, so as to limit their future opportunities of being awarded public works contracts.

(C) Ambiguous Assessment Criteria Regarding Risk of Damage of Water Mains

8. Using a risk-based approach, WSD's special inspection team selects road works projects into its inspection programmes. We have examined the relevant guidelines and found that WSD has not drawn up clear and objective criteria for assessing the risk of damage of water mains (e.g. whether the water mains concerned are prone to damage, the significance of the water mains). If the guidelines are unclear, inconsistencies may arise and some of the water mains that require inspection may be left out inadvertently.

(II) Following up on Cases of Main Bursts

(A) Lack of Performance Targets on Resumption of Salt Water Supply

9. While WSD has set performance targets on the time required for resuming fresh water supply, it has not done so for salt water main bursts. We noticed that the time required to resume salt water supply tended to last much longer than that for fresh water supply. In this light, we consider that WSD should study whether there is a need to set performance targets on the resumption of salt water supply and its feasibility. It should also examine the reasons behind the longer time required for resuming salt water supply, with a view to initiating and implementing improvement measures.

(B) Performance Targets Too Complicated

10. WSD's performance targets on handling cases of main bursts, and its performance in meeting those targets as presented on its website, are unclear and difficult to comprehend. For example, on the performance target of "maximum duration of supply interruption due to fresh water main burst", WSD's achievement rate of the target "85% cases within 8 hours" was 96.26%. The information looks baffling at first glance. What WSD actually meant was that only 81.82% (85% x 96.26%) of the cases could resume fresh water supply within 8 hours. We consider that Government departments should set and present clear performance targets for easy understanding to facilitate monitoring by the public.

(III) Reducing Leakages in Water Mains

(A) WSD Should Actively Examine and Introduce the Latest Leak Detection Technologies and Strengthen Water Pressure Management

11. In recent years, cities that excels in monitoring water supply facilities are using latest technologies in leak detection and water pressure management to minimise water main leakages. For example, Singapore adopts acoustic technology to proactively survey underground leaks. It also implements measures such as analysing leak data in preventing leaks in the water mains. We consider that WSD should keep abreast of the latest technologies and strive to double its efforts in the aspects of survey, leak detection technologies and water pressure management, so as to further reduce our leakage rate.

(B) WSD Should Set Performance Targets on Reducing Leakage Rate and Regularly Publish the Latest Leakage Rate to Facilitate Public Monitoring

12. WSD should set targets in further reducing the leakage rate of water mains (e.g. gradual reduction to 5% or even lower) and implement improvement measures for achieving the targets. Besides, WSD should publish regularly the latest leakage rate and its target leakage rate to facilitate public monitoring.

(C) No Comprehensive Measures Following the Replacement Programme to Ensure Stability of Water Supply Network

13. In 2015, WSD completed the Replacement Programme after replacing 3,000 kilometres of water mains. Thereafter, WSD will monitor water main leakages through WIN. However, based on WSD's latest estimates, WIN will not be fully established until 2023.

14. Water mains not covered in the Replacement Programme will further age and deteriorate. WSD should make reference to the successful experience of other cities in making ongoing assessment regarding risk of bursts and leakages and, where necessary, replace water mains with high risk or repeated bursts and leakages. Moreover, WSD should expedite the establishment of WIN and keep a close watch on its progress while implementing various measures to maintain the stability of our water supply network.

Recommendations

15. In light of the above, The Ombudsman makes ten improvement recommendations to WSD:

Minimising Water Main Bursts

(1) to monitor closely the main burst "hot spots", prioritise its follow up works, and actively carry out improvement works;

(2) to remind works departments of the need to reflect the poor performance of any contractors who have damaged water mains in their evaluation reports in order to exert a greater deterrent effect;

(3) to revise the guidelines for inspection of road works and set out objective criteria for planning inspections;

Following up on Water Main Bursts

(4) to examine the reasons for the longer time required for resuming salt water supply, and initiate and implement improvement measures;

(5) to consider setting performance targets on the time required for resuming salt water supply after main bursts;

(6) to review and simplify the performance targets for follow-up actions on cases of water main bursts;

Further Reducing Leakage Rate of Water Mains

(7) by making reference to the successful experience of other cities, to further reduce the leakage rate of water mains in Hong Kong;

(8) to set targets for reducing the leakage rate and publish regularly the latest leakage rate to facilitate public monitoring;

(9) during the establishment of WIN, to implement measures to maintain the stability of water supply network; and

(10) to expedite the full implementation of WIN.

Office of The Ombudsman
March 2018

Annex 2

CONTENTS

1

INTRODUCTION

BACKGROUND

1.1 High-rise buildings are ubiquitous in Hong Kong. As it is hot and humid in summer, most flats are fitted with air-conditioners. Where air-conditioners are not properly installed or maintained, dripping often occurs. Air-conditioner dripping not only affects residents of the lower floors and passers-by on the ground, but may also cause environmental hygiene nuisance. Between 2013 and 2017, this Office received 212 complaints, averaging 42 complaints per year, against the Food and Environmental Hygiene Department ("FEHD") for failing to properly follow up complaints about air-conditioner dripping. In handling those cases, we have found a number of inadequacies in FEHD's actions.

1.2 Against this background, The Ombudsman initiated a direct investigation on 15 September 2017 pursuant to section 7(1)(a)(ii) of The Ombudsman Ordinance, to probe how FEHD follows up cases of air-conditioner dripping, with a view to giving the Department recommendations for improvement. To better resolve the problem of air-conditioner dripping, we have also studied in this direct investigation the feasibility of the Buildings Department ("BD") introducing measures to prompt/encourage the inclusion of installation of communal drainage pipes for disposing of condensate from air-conditioners in the comprehensive maintenance programmes of buildings.

PROCESS OF INVESTIGATION

1.3 This Office has inquired of and requested information from FEHD and BD. We have also examined a number of complaint cases about air-conditioner dripping.

1.4 On 9 February 2018, we issued our draft investigation report to FEHD and BD for comments. After considering their comments, we completed this investigation report on 11 April 2018.

2

RELEVANT LEGISLATION AND OPERATIONAL GUIDELINES

PUBLIC HEALTH AND MUNICIPAL SERVICES ORDINANCE

2.1 Under the Public Health and Municipal Services Ordinance ("the Ordinance"):

(1) it is an offence to allow an air-conditioner to discharge water in such a manner as to be a nuisance;

(2) FEHD is empowered to enter any premises to check whether there is/has been water dripping from the air-conditioner(s) of the premises;

(3) FEHD can apply to the Court for a warrant to enter premises ("Warrant of Entry") in case it encounters difficulty in gaining entry into the premises concerned for investigating/following up cases of air-conditioner dripping;

(4) Where water dripping from an air-conditioner is confirmed, FEHD may issue a Nuisance Notice requiring the owner/occupier of the premises concerned to repair the air-conditioner and stop the dripping; and

(5) FEHD may institute prosecution against those who fail to comply with the Nuisance Notice; upon conviction, an offender is liable to a maximum penalty of $10,000 and a daily fine of $200.

RELEVANT OPERATIONAL GUIDELINES

2.2 According to FEHD's operational guidelines ("the Guidelines"), the District Environmental Hygiene Office ("DEHO") of the district concerned shall conduct site visit(s) upon receipt of a complaint.

On-site Investigation

2.3 DEHO staff should attempt to conduct site investigation at different hours of the day (including non-office hours, weekends and public holidays) and, as far as practicable, at the occurrence time of dripping as reported by the complainant.

2.4 When DEHO staff arrive at the premises suspected to have a dripping problem, they will observe whether water is dripping, if the air-conditioner is in operation, and exercise the power conferred under the Ordinance to switch on the air-conditioner for testing if it is not. Where DEHO staff are unable to enter the premises, they will make observation from outside the premises (including from the ground level of the building) or from other premises.

2.5 Where no one answers the door on their first visit to the premises concerned, DEHO staff should affix a Notice of Appointment in a conspicuous position outside the premises and put a copy in the mailbox of the premises, requiring the occupier to contact DEHO for their entry into the premises within four working days.

2.6 Where the occupier does not respond, DEHO staff should visit the premises again within seven working days after issuance of the Notice of Appointment.

2.7 In case there is still no one answering the door on that second visit, or the occupier refuses to let the DEHO staff enter the premises, they should issue a Notice of Intended Entry, requiring the occupier to contact them so that they can enter the premises for investigation within three working days.

2.8 If the door is still not answered on their next visit, DEHO staff should seek help from the caretaker of the building to check the occupier's usual schedule in order to arrange another visit.

2.9 If the occupier does not respond to the Notice of Intended Entry or refuses to let the DEHO staff enter the premises, they should issue a Notice of Intention to Apply

for Warrant of Entry. If the DEHO staff still cannot gain entry into the premises, they should consider applying to the Court for a Warrant of Entry (**para. 2.1(3)**).

Cases Where Dripping Air-conditioner Is Identified

2.10 Where an air-conditioner is confirmed to be dripping, DEHO will issue a Nuisance Notice (**para. 2.1(4)**), requiring the owner/occupier of the premises concerned to abate the nuisance by a specified date.

2.11 After the specified date, DEHO staff will follow up and check whether the Nuisance Notice is complied with. If the staff cannot gain entry into the premises concerned to test the air-conditioner, they will check the compliance of the Nuisance Notice by studying the on-site situation (e.g. observing from outside the premises, including from the ground level of the building or from other premises, or referring to the information provided by the complainant) and consider whether there is any ground to apply to the Court for a Warrant of Entry.

Cases Where Dripping Air-conditioner Cannot be Identified

2.12 For cases where the dripping air-conditioner cannot be identified, DEHO may issue advisory letters to the occupiers of all the premises suspected to be the source of dripping, reminding them to properly discharge the water from their air-conditioners if their air-conditioners have a dripping problem, so as to avoid causing nuisance to others.

3

CASE STUDIES

3.1 Every year, this Office receives many complaints about air-conditioner dripping (**para 1.1**). The following four cases highlight the inadequacies in FEHD's handling of the dripping problem.

CASE (1): FAILING TO ENTER THE PREMISES AND CONDUCT TEST ON THE AIR-CONDITIONER AFTER ISSUANCE OF NUISANCE NOTICE

3.2 In July 2016, citizen Ms A complained that there was dripping from the air-conditioner of the flat above hers ("Flat W"). After investigation, DEHO confirmed that her complaint was valid. In early September, DEHO issued a Nuisance Notice to the owner of Flat W. Around late September, Ms A alleged that the dripping problem persisted. From then until November, DEHO staff made four follow-up visits to Flat W, but each time the door was not answered. The staff left Notices of Appointment.

3.3 Meanwhile, observing from the ground level of the building and Ms A's flat, DEHO staff did not see any water dripping from the air-conditioner of Flat W. Considering that the average monthly temperatures in September and October were 27.9 and 26.8 degrees Celsius respectively, DEHO believed that households would still be using air-conditioners and concluded that the air-conditioner of Flat W had already been fixed and the Nuisance Notice complied with. Hence, DEHO considered it unnecessary to enter Flat W to test the air-conditioner or apply to the Court for a Warrant of Entry.

3.4 We find it ill-founded for DEHO to conclude that the air-conditioner of Flat W had been fixed merely based on its observation from outside the premises that no water was dripping from the air-conditioner. Suppose the air-conditioner had not actually been fixed and was merely not used at that time for one reason or another, the dripping problem would occur again in the ensuing summer.

3.5 We note that this was not an isolated incident. In investigating/following up cases of air-conditioner dripping between late summer and early autumn as in this case, FEHD tends to have the following shortcoming: once the weather turns cooler, its staff would not enter the premises to test the air-conditioner, as a result of which the dripping problem is not actually fixed and will recur in the following summer. The complainant will then have to lodge a complaint again and FEHD to start its investigation afresh.

3.6 Some complainants have pointed out that, with such handling, a dripping problem could remain unresolved for years.

CASE (2): FAILING TO SET A STANDARD DURATION FOR TESTING AIR-CONDITIONER

3.7 Citizen Mr B had complained to FEHD about water dripping from the air-conditioners of two upper floor flats ("Flat X" and "Flat Y"). DEHO staff visited Flat X and Flat Y respectively and observed their air-conditioners running for around five minutes. No water dripping was seen. DEHO concluded that the two air-conditioners had no dripping problem.

3.8 Subsequently, Mr B complained to DEHO that the dripping problem persisted. After our intervention, DEHO took our suggestion and conducted tests on the air-conditioners of Flat X and Flat Y for around 30 to 40 minutes. The tests showed that while the air-conditioner of Flat Y was not dripping, that of Flat X was.

3.9 FEHD explained to us that it had not set any standard duration for testing air-conditioners for the following reasons:

(1) Cases of air-conditioner dripping vary. The time taken for dripping to occur after an air-conditioner is switched on could be affected by the model, horsepower and type of the air-conditioner, whether a water pan is installed at or a drainage pipe is connected to the air-conditioner, and the air humidity and relative humidity at the time of testing.

(2) Investigation officers should take into account on-site situation, including the occurrence time of dripping, the position of the air-

conditioner's condensate drainage hole, whether any condensate drainage pipe is connected, and whether the air-conditioner is in operation, before deciding on the details of the investigation and a reasonable duration for testing.

3.10 We accept that the time needed for an air-conditioner test to produce a true result may vary from case to case. For cases where water dripping occurs shortly after a test begins, there is of course no need to carry on testing. However, for cases where water dripping does not occur shortly after the test begins, FEHD staff should continue with the test. In Case (2), it was most improper of DEHO to hastily conclude that both air-conditioners did not have a dripping problem after testing for merely five minutes. We consider that FEHD should set a reasonable standard duration for testing. Where dripping does not occur shortly after commencement of a test, the test should continue, say, for 30 minutes, in order to produce a more accurate and convincing test result. If after assessing the circumstances the FEHD staff decide that the test should be continued even further, they could certainly extend the duration of the test according to their judgement.

CASE (3): FAILING TO CONDUCT INSPECTIONS AT THE OCCURRENCE TIME OF THE DRIPPING AS REPORTED BY THE COMPLAINANT

3.11 Citizen Mr C's complaint concerned an old commercial-cum-residential tenement building. There were nearly a hundred air-conditioners at some forty flats of it facing the pavement. Mr C complained to FEHD that when he passed by the building at around 6:45 am, he found water dripping from the air-conditioners of some flats facing the pavement, causing a nuisance to passers-by.

3.12 While Mr C had specified that water dripping occurred in the early morning hours, only four of the nineteen inspections by DEHO were conducted in those hours, with the remaining three in the evening and twelve later in the morning or in the afternoon.

3.13 During those inspections conducted in the early morning hours and evening, DEHO found that the air-conditioners of four flats were dripping and those of another ten flats might have a similar problem. All the inspections conducted later in the morning or in the afternoon did not find water dripping from air-conditioners.

3.14 We note that Mr C had clearly stated in his complaint to FEHD that water dripping occurred in the early morning hours (**para. 3.11**), and yet DEHO conducted most of its inspections later in the morning or in the afternoon (**para. 3.12**). Indeed such act was destined to be futile and a waste of efforts (**para. 3.13**).

FAILING TO TAKE FOLLOW-UP ACTIONS IN ACCORDANCE WITH THE GUIDELINES AFTER ISSUING NOTICES OF APPOINTMENT

3.15 Regarding the aforementioned ten flats suspected of having air-conditioner dripping, DEHO only managed to enter one flat on the day of inspection. For the remaining nine flats into which they could not gain entry, Notices of Appointment (**para. 2.5**) were issued. However, after that, DEHO just repeatedly observed those flats from the outside, without taking any follow-up actions according to the Guidelines (including visiting the premises concerned again and, in case entry is still not possible, issuing to the occupiers Notices of Intended Entry followed by Notices of Intention to Apply for Warrant of Entry, and eventually applying to the Court for Warrants of Entry) (**paras. 2.6 to 2.9**).

3.16 DEHO conducted inspections again two months after issuing the Notices of Appointment. Out of the nine flats which DEHO could not gain entry, it still suspected that three of those flats had a dripping problem. But only until then did DEHO take the next step, namely, issuing Notices of Intended Entry (**para. 2.7**). At last, a month later, DEHO entered those flats for investigation.

3.17 In this case, DEHO had failed to take actions according to the Guidelines. After issuing the Notices of Appointment, it did not follow up in a timely manner to enter the flats to test if the air-conditioners had a dripping problem. As a result, the dripping problem remained unresolved for a prolonged period.

CASE (4): FAILING TO PROPERLY RECORD OBSERVATIONS MADE IN INSPECTIONS

3.18 Citizen Mr D made a number of complaints to FEHD about water dripping from the air-conditioner of an upper floor unit ("Unit Z"). In response to his complaints, DEHO staff conducted nine inspections at Unit Z. For four of those inspections, DEHO had no records about whether its staff had tested the air-conditioners

in the unit. The management of DEHO seemed to have turned a blind eye to this lack of record-keeping.

3.19 It is our view that FEHD staff should properly record any actions taken and any observations made during inspections for future reference. Otherwise, FEHD would not know whether inspections have been properly carried out. Moreover, their supervisors or the management should never allow them to make no records after conducting inspections.

3.20 In response to our recommendation, FEHD undertook to study whether a proforma could be provided in its Complaints Management Information System for its staff to record any observations made during their inspections, including such details as the time of switching on an air-conditioner for testing and the time of switching it off upon completion of testing.

4

NEED FOR INSTALLING COMMUNAL DRAINAGE PIPES IN BUILDINGS

4.1 As mentioned in paragraph 1.1, high-rise buildings are everywhere in Hong Kong and most households have air-conditioners in their flats. However, old buildings are generally not fitted with communal drainage pipes for disposing of condensate from air-conditioners ("Communal Drainage Pipes") with each air-conditioner connected to the Pipes by means of rubber tubing. Even if FEHD took rigorous enforcement actions, it would not be able to eradicate the dripping problem once and for all, as those buildings without Communal Drainage Pipes are prone to have dripping from air-conditioners, giving rise to environmental hygiene nuisance.

4.2 Currently, there is no law in Hong Kong that requires buildings to install Communal Drainage Pipes. In this light, we have in this direct investigation explored with BD whether there are ways to prompt/encourage the inclusion of installation of Communal Drainage Pipes in the comprehensive maintenance programmes of buildings.

4.3 Under BD's Building Safety Loan Scheme ("the Scheme"), building owners may apply for loans to carry out maintenance and repair works to their buildings (including external wall cladding), regardless of whether the works are done voluntarily or in compliance with statutory orders. We have asked BD whether it could prompt/encourage owners to install Communal Drainage Pipes at their buildings under the Scheme. BD agreed that it would be appropriate time-wise and cost-effective to take the opportunity of repair works on external walls to install Communal Drainage Pipes. BD also agreed to update its webpage on and application guidelines for the Scheme, to encourage building owners to install Communal Drainage Pipes when their buildings undergo comprehensive maintenance programmes with loans under the

Scheme.

4.4 Furthermore, we note that BD issues Practice Notes from time to time to the industry regarding the application and enforcement of the Buildings Ordinance and its subsidiary regulations. The Practice Notes may also cover administrative matters and suggestions relating to the execution of the Buildings Ordinance. Since many old buildings are likely to undergo comprehensive maintenance (including external wall repairs), we consider that BD can, by way of issuing Practice Notes, remind Authorised Persons ("APs") involved in such works to recommend building owners taking the opportunity of such works to install Communal Drainage Pipes.

4.5 FEHD also agrees with us that installation of Communal Drainage Pipes would better resolve the problem of air-conditioner dripping. The Department will write to the Owners' Corporations ("OCs") of buildings having such a problem, suggesting that they install Communal Drainage Pipes. In addition, FEHD would, in collaboration with other relevant Government departments such as the Home Affairs Department and BD, encourage building owners to install Communal Drainage Pipes and remind OCs and property management companies to regularly check and repair those Communal Drainage Pipes already installed. We consider that FEHD could also publicise through the media the benefits of installing Communal Drainage Pipes.

5

OUR COMMENTS AND RECOMMENDATIONS

5.1 The case studies in Chapter 3 have revealed the following inadequacies in FEHD's handling of complaints about air-conditioner dripping:

(1) not testing the air-conditioners in question once the weather turns cooler in the course of its investigating/following up complaint cases about air-conditioner dripping, as a result of which the problem is not actually fixed and will recur in the following summer (**Case (1)**, **paras. 3.2 to 3.6**);

(2) failing to set a reasonable standard duration for testing air-conditioners, such that test results may be unsound (**Case (2)**, **paras. 3.7 to 3.10**);

(3) failing to do more inspections at the occurrence time of dripping as reported by the complainants, resulting in futile inspections and a waste of efforts (**Case (3)**, **paras. 3.11 to 3.14**);

(4) failing to follow up air-conditioner dripping cases closely in accordance with the Guidelines, as a result of which the problem persists for a long time (**Case (3)**, **paras. 3.15 to 3.17**); and

(5) failing to properly record observations made in inspections (**Case (4)**, **paras. 3.18 and 3.19**).

5.2 As mentioned in paragraph 4.1 above, for buildings without Communal Drainage Pipes, FEHD's enforcement actions are unable to eradicate the air-conditioner

dripping problem once and for all. We consider that BD can, by way of the Scheme and issuance of Practice Notes, prompt/encourage buildings to include installation of Communal Drainage Pipes in the comprehensive maintenance programmes of the buildings (**paras. 4.3 and 4.4**).

RECOMMENDATIONS

5.3 Based on the above analysis, The Ombudsman makes the following recommendations to FEHD and BD:

FEHD

(1) In the course of investigating/following up cases of air-conditioner dripping (including cases where a Nuisance Notice has been issued), FEHD should require its staff to enter the premises to test the air-conditioners concerned, unless they could observe clearly from the outside that the air-conditioners are dripping. Where necessary, they should issue to the owners/occupiers of the premises notices for entering the premises, or even apply to the Court for a Warrant of Entry (**para. 5.1(1)**).

(2) For cases not yet concluded by late summer/early autumn, FEHD should always continue its investigations, so as to obviate the need for the complainants to lodge further complaints when summer comes again and for FEHD to spend extra resources to conduct investigations afresh (**para. 5.1(1)**).

(3) FEHD should set a reasonable standard duration for testing air-conditioners (**para. 5.1(2)**).

(4) FEHD should deploy staff flexibly and conduct inspections as far as possible at the occurrence time of dripping as reported by the complainant, and remind its staff to adhere strictly to the Guidelines in handling complaints about air-conditioner dripping (**paras 5.1(3) and 5.1(4)**).

(5) FEHD should provide a proforma in its Complaints Management

Information System for its staff to record observations made in inspections, and examine how to make use of the System to enhance its efficiency in following up complaints about air-conditioner dripping (**paras. 3.20 and 5.1(5)**).

(6) FEHD should consider publicising through the media the benefits of installing Communal Drainage Pipes at buildings, and consult BD on the contents of the publicity materials if necessary (**para. 4.5**).

BD

(7) BD should prompt/encourage building owners, through the Scheme, to include installation of Communal Drainage Pipes in the comprehensive maintenance programmes of their buildings (**para. 5.2**).

(8) BD should issue Practice Notes to remind APs involved in comprehensive building maintenance programmes or external wall repairs to recommend building owners taking the opportunity of such works to install Communal Drainage Pipes (**para. 5.2**).

ACKNOWLEDGEMENTS

5.4 The Ombudsman thanks FEHD and BD for their full cooperation during the course of this investigation.

Office of The Ombudsman
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Annex 3

Summary of Full Investigation Report
Handling of a Complaint by Highways Department and Labour Department about Inadequate Safety Measures for Lifting Operations in a Government Infrastructure Project

Foreword

In response to a complaint lodged by a construction worker, the Highways Department ("HyD") and the Labour Department ("LD") conducted investigations to examine whether or not a construction site ("the Site") of a government infrastructure project had implemented adequate safety measures for lifting operations. The complainant, dissatisfied that the two departments had failed to handle his complaints conscientiously, lodged a complaint with this Office.

2. Our investigation found that the two departments had vastly different views on the adequacy of safety measures at the same construction site. HyD considered the safety measures adopted by the contractor acceptable and in compliance with relevant legislation and contractual requirements. LD, on the contrary, considered that the contractor might have contravened occupational safety laws and demanded immediate rectification. Such divergence of judgements pointed to a grave lack of communication between the two departments regarding industrial safety issues, and HyD's failure to take seriously the opinions and warnings of LD as an enforcement authority.

Duties of the Departments and Legislation on Lifting Operations Safety

LD

3. LD enforces the *Occupational Safety and Health Ordinance* and the *Factories and Industrial Undertakings Ordinance* and its subsidiary legislation. Under the general duties provision (Section 6A) of the latter Ordinance, employers and their contractors have to provide as far as practicable safe systems of work for their workers in order to ensure the occupational safety and health of all the persons they employ.

4. So far as lifting operations are concerned, the *Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations* stipulate that an unobstructed passageway of not less than 600 millimetres wide must be maintained between any fixture (such as fences nearby) and any part of a lifting appliance liable to travel or slew. In case that is not practicable, the duty holder must ensure that all reasonable steps are taken to prevent persons from having access to that place when the lifting appliance is in use.

HyD

5. HyD, as a works department, is responsible for overseeing the operations of the Site. It should keep track of the site safety performance of contractors in accordance with the Project Administration Handbook for Civil Engineering Works and the Construction Site Safety Manual. The contracts between HyD and its contractors stipulate that contractors must comply with existing statutory requirements about lifting operations and maintain safety installations and systems of work.

Sequence of Main Events

2016

6. On 6 December, the complainant telephoned 1823 to lodge a complaint about inadequate safety measures for lifting operations at the Site, alleging that the lifting zones there had not been fenced off and no safety officer was assigned on site. His complaint was referred to HyD.

7. On 7 December, HyD officers, together with its site staff and the contractor, conducted an inspection at the Site. They found that an unobstructed passageway was already there for the complainant's use. HyD confirmed that the safety measures at the Site that day were acceptable.

8. On 8 December, HyD asked its site engineer and the contractor to conduct an internal investigation.

9. On 13 December, HyD's site engineer submitted an investigation report, explaining that a signaller and a lifting supervisor had been deployed to assist and oversee respectively the lifting operation in question. Site workers were also present to guard against unauthorised entry into the lifting zone. Since the current legislation does not stipulate that lifting zones must be fenced off during lifting operations, the investigation report concluded that the contractor had strictly complied with the laws and the contractual requirements during the construction works.

10. On 20 December, the complainant lodged the same complaint with LD, which then conducted a surprise inspection at the Site that day. LD officers found three mobile cranes there but the lifting zones had not been fenced off and that there were no warning notices. Nor were the cranes and the workers properly separated. The contractor, therefore, might have contravened the law. Since no lifting operation was going on at the time, LD did not institute prosecution against the duty holder.

11. On 21 December, HyD informed the complainant of its investigation result, indicating that it did not find the safety measures at the Site inadequate.

12. On 22 December, LD apprised the complainant of its inspection results by telephone. It undertook to urge the contractor to adopt relevant safety measures and that it would continue to conduct follow-up inspections.

13. On 23 December, LD issued a Construction Site Inspection Report ("Inspection Report") to the contractor, demanding immediate implementation of proper safety measures, including fencing off the lifting zones, posting warning notices, and proper separation of the cranes and workers. A copy of LD's Inspection Report was sent to HyD in accordance with established procedures.

14. On 28 December, the complainant lodged a complaint with this Office against the two departments for failing to handle his complaints conscientiously.

2017

15. On 26 January, LD officers conducted a follow-up inspection at the Site and found several mobile cranes there. However, the contractor still failed to adopt the said safety measures such as fencing off the lifting zones or posting warning notices.

16. On 27 January, in the light of its inspection results, LD issued an Improvement Notice to the contractor, pointing out that it had breached Section 6A of the *Factories and Industrial Undertakings Ordinance* and reiterating that safety measures as stated above must be taken. A copy of the Notice was also sent to HyD.

17. On 1 February, LD issued a second Inspection Report to the contractor with respect to its inspection results on 26 January, setting out details of the contravention found at the Site. A copy of this Report was sent to HyD.

18. On 7 February, LD conducted a follow-up inspection at the Site and did not find any lifting operations involving cranes going on.

19. On 1 March, LD conducted another follow-up inspection at the Site and found that the contractor had fenced off the lifting zones and posted warning notices.

HyD's Response

20. Neither the current legislation nor LD's prevailing Code of Practice for Safe Use of Mobile Cranes ("the Code of Practice") stipulate that lifting zones must be fenced off during lifting operations. Furthermore, LD did not indicate in the Inspection Report issued after its site inspection on 20 December 2016 (**paragraph 13 above**) that the contractor had contravened the law, but merely added a remark that "the lifting zone at the Site must be fenced off properly". According to HyD, it was the first time since the commencement of this government infrastructure project in 2012 that LD had ever required HyD's contractors to fence off lifting zones. Previously, LD had conducted many inspections at the sites of the project but never made such a requirement.

21. HyD also stated that it was not until September 2017 when the Code of Practice was updated that LD added the requirement to fence off all lifting zones at construction sites as far as practicable. The updated Code of Practice also indicated that other effective measures should be taken to prevent unauthorised entry if fencing off lifting zones was not feasible due to space constraints. HyD opined that such requirement in the updated Code of Practice, in other words, reflected that fencing off lifting zones was, while the preferred option, not the only acceptable measure under the law because the actual circumstances on site and feasibility must also be taken into account.

22. In this case, the contractor had already drawn up safety rules of lifting operations, and deployed signallers and lifting supervisors to provide assistance to guard against unauthorised entry into lifting zones. Such measures were deemed as effective as the passive measure of setting up fences to prevent workers from getting near lifting zones and were in line with current legal requirements.

LD's Response

23. LD enforces the laws on occupational safety of employees. In recent years, LD has issued various guidelines and publicity pamphlets on the safe use of mobile cranes, stating clearly that lifting zones must be demarcated and fenced off, with clear notices posted on site. Upon receipt of this complaint, LD's Occupational Safety Officers ("OSOs") conducted inspections at the Site to check the work procedures and system for lifting operations, the use of cranes, the environment of lifting zones and the loads to be lifted, and confirmed that there was sufficient space at the Site for fencing off lifting zones.

24. In addition to an Inspection Report, LD issued also an Improvement Notice to the contractor, clearly demanding the latter to fence off lifting zones, post warning notices, and separate the cranes and the workers. In its two follow-up inspections, LD confirmed that the contractor had complied with those requirements. Based on the follow-up inspection on 1 March 2017, without any significant changes to the environment of lifting zones, the contractor was able to comply with LD's requirements and fenced off the lifting zones, showing that fencing off the zones was indeed practicable.

25. LD explained that space constraint precluding the setting up of fences for lifting zones as noted in the updated Code of Practice (**paragraph 21 above**) mainly applies to temporary lifting operations on roadside where fencing off a large area of road surface is unfeasible. Fencing off lifting zones is generally feasible at construction sites. Moreover, fencing off lifting zones by setting up fences or barriers (like adding a protective guard to the dangerous part of a machine or setting up fences at the work platforms of scaffolding) is an engineering control for prevention of danger, while administrative controls such as posting of warning notices are safety measures aiming to prevent workers from entering lifting zones accidentally. Engineering controls, which do not involve human factors, are much more effective and reliable than administrative controls. Hence, unless fencing off lifting zones (which is an

engineering control) is not practicable, the contractor should not consider taking other safety measures. In LD's views, to ask signallers or lifting supervisors, who have their own specific duties, to also keep watch on work in the lifting zones would increase the risk of human errors and create potential hazards. It was, therefore, unacceptable.

Our Comments

26. LD stated clearly in its various publicity pamphlets and the Inspection Reports issued to the Site that lifting zones must be fenced off. HyD, however, considered the contractor's safety measures acceptable simply because LD had not specified in its first Inspection Report that the Site had contravened the law. HyD apparently failed to take heed of the advice given by LD as the enforcement department.

27. HyD contended that the current legislation does not explicitly require lifting zones to be fenced off. However, as LD has explained, the fencing requirements could only be waived in exceptional circumstances, such as lifting operations on roadside. It is perplexing that HyD, being the overseer of all large-scale road works in Hong Kong and hence having frequent contacts with LD regarding construction site safety, could still fail to fully understand the safety requirements on lifting operations.

28. Since both HyD's site staff and the contractor had participated in the safety inspections conducted by the OSOs, they should have adequately understood the safety concerns raised by LD. There should also be sufficient time and opportunities for them to clarify LD's requirements. Moreover, they could make enquiries under the existing liaison mechanism, such as inviting LD to attend Site Safety and Environmental Management Committee meetings. Despite ample means of communication, however, HyD still failed to fully appreciate the comments in LD's Inspection Reports. This shows a serious lack of communication between the two departments. HyD obviously had made no attempt to clarify the matter with LD. Yet, had the OSOs stated clearly during inspection their concerns about the safety problems at the Site, HyD would also not have been so unclear about whether the work procedures at the Site had contravened the law.

29. According to the information about accident investigation cases provided by LD and its records of warnings issued to construction sites, LD has all along actively required construction sites to fence off lifting zones and instituted prosecution against offenders. In particular, we noted that prior to this case, LD had already issued two warnings against construction sites of the same government infrastructure project, requiring them to fence off their lifting zones. This shows that HyD's argument that it was not until December 2016 that LD required any contractor of this infrastructure project to fence off lifting zones for the first time (**paragraph 20 above**) is untenable.

30. In the course of following up this case, LD inspected the Site immediately upon receipt of the complaint and issued written warnings to the contractor when safety problems in the lifting operations were found. LD also copied the warning documents

to HyD according to established procedures. Furthermore, as there were still some misunderstanding about the requirements on fencing off lifting zones, after our intervention LD revised the Code of Practice (**paragraph 21 above**) to prevent further misunderstanding.

Our Conclusion

31. In the light of the above, The Ombudsman considers the complaint against HyD **substantiated**, and the complaint against LD **unsubstantiated**, but there are **other inadequacies found**.

32. **We recommend that**: (1) HyD and LD review the current mechanism for monitoring construction site safety, examine why the two departments had such vastly different understanding of the Inspection Reports issued after the site inspections, and explore how to improve their existing communication mechanism to avoid recurrence of similar incidents; and (2) HyD steps up training for its management and site staff on the law on safety of lifting operations, such as inviting LD to speak at seminars or talks and explain the relevant legislation.

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