

**For discussion on  
23 March 2021**

**Legislative Council Panel on Food Safety and Environmental Hygiene  
Subcommittee on Issues Relating to the Improvement of  
Environmental Hygiene and Cityscape**

**Enhanced Rodent Control Work**

**Purpose**

This paper briefs Members on the enhanced rodent control work undertaken by relevant government departments.

**Background**

2. The rodent control strategy of the Government is to take targeted measures to eliminate the fundamental survival conditions of rodents, namely food, harbourage and passages. Efforts have been made to eliminate rodents' food sources and hiding places as well as to block their dispersal routes.

**Division of Work and Inter-departmental Co-ordination**

3. As rodent movements are usually confined to specific areas<sup>1</sup>, government departments carry out targeted rodent control work in the venues under their purview. Rodent prevention and control work conducted by major departments concerned and the measures involving inter-departmental co-ordination are set out below.

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<sup>1</sup> In Hong Kong, the activity range of *Rattus norvegicus* and *Rattus rattus* is usually 30 to 50 metres, while that of *Mus musculus* is 5 to 10 metres.

*Rodent prevention, cleansing and disinfection work in Public Rental Housing Estates (PRHEs)*

4. The Hong Kong Housing Authority (HA) attaches great importance to the hygiene conditions of PRHEs. Apart from routine cleansing and pest control work, HA continues to carry out measures to improve environmental hygiene in PRHEs. Around 80 priority PRHEs will be selected for implementing more intensive rodent control measures and conducting promotional and education work in 2021. The relevant work include: conducting joint inspections of PRHEs with the Food and Environmental Hygiene Department (FEHD) to identify room for improvement in rodent control and carry out targeted disinfection work; promoting the messages of keeping clean and rodent prevention to residents and commercial tenants; and organising talks on pest control after the epidemic. Moreover, HA will call for community support and participation in all PRHEs, and appeal to residents and commercial tenants, other owners and relevant estate management personnel for their concerted efforts to maintain cleanliness and environmental hygiene in PRHEs by raising their awareness of rodent control through various channels such as Tai Ping Tei Cleaning Operations, joint anti-rodent operations, estate newsletters, the Housing Channel and social media, etc.

5. Besides, HA has installed rodent-proofing facilities, including rat guards and metal meshes or plates etc., in all PRHEs after making reference to the guidelines on rodent-proofing building design issued by the Buildings Department in May 2019. HA will continue to install rodent-proofing facilities at suitable locations when circumstances warrant to prevent rodent infestation in its estates<sup>2</sup>. Joint inspections have been conducted with FEHD at nine PRHEs. Apart from providing on-site advice on rodent proofing, the Pest Control Advisory Section of FEHD has subsequently prepared a set of guidelines on rodent prevention and control for the reference of HA. The guidelines summarise the findings of the inspections and provide specific recommendations on rodent proofing in PRHEs. With reference to FEHD's advice, HA will conduct further trial runs on the use of thermal imaging cameras in some PRHEs for rodent surveillance and better deployment of anti-rodent operations.

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<sup>2</sup> More than 16 900 rat guards had been installed at the external walls of PRHEs by HA as at the end of 2020.

## *Rodent prevention and control work in public places*

6. FEHD carries out routine rodent prevention and control work in the public places<sup>3</sup>. Over the past year, both the number of live rodents caught and the number of dead rodents collected by FEHD have increased, whereas the number of rodent-related complaints received has decreased. A comparison of the relevant figures is as follows:

	<b>2019</b>	<b>2020</b>
Number of poison treatments of rodent infestation in building blocks	98 322	100 101
Number of rodent trappings	68 490	81 830
Number of live rodents caught	23 727	28 872
Number of dead rodents collected	30 259	31 988
Number of rat holes filled	12 963	12 347
Number of rodent related complaints received	11 329	10 331

7. To implement the recommendations of a rodent expert, FEHD is conducting field trials to assess the effectiveness of placing different foods as baits at different areas, so as to enhance the efficacy of anti-rodent measures. In collaboration with the City University of Hong Kong and The Chinese University of Hong Kong, FEHD is conducting a research on the habitual behaviours of the rodents in Hong Kong, studying their genetic characteristics, food preference and rodenticide resistance etc. The study will assist FEHD in enhancing the effectiveness of using traps and rodenticides in rodent control.

8. FEHD has sought to strengthen rodent surveillance through the adoption of suitable technologies, with a view to enhancing the effectiveness of the measures on rodent prevention and control. Since the first half of 2020, FEHD has conducted field trials of thermal imaging cameras with artificial intelligence analytic function (thermal camera monitoring system) at a number of locations to record rodent activity and its extent. These trials help test the application and effectiveness of the system as well as collect data for analysis, so as to assist the deployment of rodent control work.

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<sup>3</sup> In 2020, a total of 740 in-house staff of the FEHD and 2 180 staff engaged by its contractors were involved in the provision of pest control services.

9. The trials indicate that the new technology is quite effective in detecting the places frequented by rodents, tracking their activity time and patterns, and evaluating rodent control operations. Specifically, by means of the thermal camera monitoring system, FEHD can identify and trace rodents' entry and exit points, their activity, as well as the location and time of foraging by rodents as reflected in the thermal images, thereby facilitating targeted deployment of rodenticides and traps. Rodent-proofing devices can also be installed in a targeted manner with reference to the finding to achieve a better rodent control result. Furthermore, comparing the rodent count recorded through the thermal images before and after the anti-rodent operations at the same location can provide an objective and quantitative evaluation of the effectiveness of the operations.

#### *Cleansing and anti-rodent work in public markets*

10. For public markets, FEHD has increased resources and piloted intensive anti-rodent operations<sup>4</sup> at 11 public markets since 2020. After summarising the experience and effectiveness of the operations as well as making reference to the views of a rodent expert, FEHD has decided to progressively extend the intensive anti-rodent operations to 73 markets with high patronage rate under its management from October 2020. Market stall tenants are encouraged to complement FEHD's efforts by conducting cleansing and disinfection at their stalls, clearing their disused articles, and putting their goods (especially food items) in proper storage, with a view to keeping their stalls and the common areas in a clean and sanitary condition as well as eliminating rodents' food sources and hiding places. Besides, since October 2020, FEHD has been conducting deep cleansing operations<sup>5</sup> at markets with a high patronage rate once every three months. On the day of the operation, the market is closed one hour earlier.

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<sup>4</sup> During the intensive anti-rodent operation, market staff will thoroughly clear the refuse and clean the passageways and drains in the markets every night after their opening hours so as to eliminate the food sources of rodents. Traps will also be placed extensively in market areas in the small hours to strengthen the anti-rodent efforts.

<sup>5</sup> When conducting deep cleansing and disinfection operations, FEHD will thoroughly cleanse and disinfect the common areas and communal facilities of the markets, and appeal to market stall tenants to cleanse and disinfect their stalls with a view to improving the overall hygiene condition of the markets. FEHD will also perform deep cleansing on the periphery of the markets and their nearby streets.

11. Eliminating rodents' food sources and hiding places by putting the food items in the stalls in proper storage and clearing disused articles is essential to the rodent control work in public markets. To sustain and enhance the effectiveness of anti-rodent and cleansing operations at public markets, FEHD will gauge tenants' views on the effectiveness of the intensive anti-rodent operations at the meetings of Market Management Consultative Committees and conduct questionnaire surveys targeted at the representatives of each category of stall tenants. It will also step up tenancy enforcement against non-compliant tenants in all public markets from January to April 2021. Warnings will be issued to stall tenants under the warning letter system for irregularities such as improper storage/disposal of refuse, with a view to maintaining cleanliness and environmental hygiene.

12. Moreover, the Pest Control Advisory Section of FEHD has provided advice on rodent control measures for newly-built or refurbished markets and cooked food hawker bazaars (including Skylight Market in Tin Shui Wai, Tai Wai Market in Sha Tin, Haiphong Road Temporary Cooked Food Hawker Bazaar in Tsim Sha Tsui and Woosung Street Temporary Cooked Food Bazaar in Jordan).

*Markets managed by HA and Link Asset Management Limited (Link)*

13. In addition to the 97 public markets under the FEHD, there are also 28 and 52 markets managed by HA and Link/other companies respectively. In the light of some market-related COVID-19 confirmed cases, HA has further enhanced the anti-epidemic efforts in its markets, including performing deep cleansing and disinfection in markets after their opening hours on a monthly basis, and stepping up inspection and cleansing of ventilating systems. FEHD will share its experience and good practices of the above-mentioned intensive anti-rodent operations with HA and Link for application to their markets. It will also conduct joint inspections/operations with them when needed, including coordinated rodent prevention and control work as well as joint operations under the "Designated Target Area"<sup>6</sup> approach.

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<sup>6</sup> FEHD conducts two rounds of anti-rodent operations in designated target areas throughout the year, and each round lasts for eight weeks. FEHD staff will enhance street cleansing services and cleaning of public markets and hawker bazaars in the target areas, strengthen rodent prevention and control work at problematic spots (such as rear lanes, refuse collection points, markets, hawker bazaars, cooked food markets and peripheral areas of construction sites), step up inspections of food premises and strengthen enforcement actions against food premises for causing poor environmental hygiene conditions, scullery and food preparation in rear lanes, and improper handling and disposal of rubbish.

*Enhancing cleanliness and law enforcement in rear lanes and improving the environment*

14. With a view to improving the condition of rear lanes, the Highways Department completed 233 improvement work items in rear lanes of public roads between June 2019 and mid-January 2021. The work included repairing damaged road surfaces and surface channels as well as local repaving. The relevant departments will continue to follow up the situation of rear lanes and carry out appropriate improvement works according to actual needs and circumstances.

15. To tackle the problem of junk and refuse accumulation in rear lanes in some districts, FEHD has stepped up sweeping and washing. It has substantially increased the resources for street cleansing work so as to combat the COVID-19 epidemic and maintain environmental hygiene. FEHD and its cleansing contractors have employed about 12 900 cleansing staff for the provision of various public cleansing services, including street sweeping and washing. Besides, FEHD has set up 24 additional dedicated cleansing teams to handle junk and refuse in rear lanes, increased the use of street washing vehicles and high pressure hot water cleaners for washing rear lanes, strengthened pest control work, and instituted prosecutions against breaches of cleansing legislation. In 2020, the dedicated rear lane cleansing teams stepped up their cleansing work, which involved the clearance of over 670 rear lanes over the territory.

16. On law enforcement, FEHD has set up 35 dedicated enforcement teams against public cleanliness offences to step up inspection and anti-littering enforcement actions at serious fly-tipping spots over the territory. In 2020, enforcement officers of FEHD issued over 680 fixed penalty notices against public cleanliness offences, including littering and spitting, in rear lanes. Targeting the irregularities of food premises in rear lanes, such as food preparation, cleaning of utensils, junk accumulation and illegal waste disposal, in December 2020, FEHD conducted an operation against improper waste disposal by food premises in rear lanes with more serious rodent infestation in Wan Chai, Kwun Tong, Kowloon City, Sham Shui Po and Yuen Long, and strengthened law enforcement after publicity and education. During the operation, 7 summonses, 23 fixed penalty notices, 39 Notices to Remove Litter/Waste and to Clean Areas and 125 verbal warnings were issued. FEHD will assess the effectiveness of the

operation in due course. If the results are satisfactory, it will consider extending the operation to more districts.

#### *Anti-rodent work in leisure facilities*

17. The Leisure and Cultural Services Department (LCSD) is responsible for anti-rodent work at leisure and cultural venues (such as major parks, sitting-out areas, sports grounds, beaches, playgrounds and cultural venues) under its purview. Such work mainly includes elimination of food sources as well as hiding places of rodents and blockage of their dispersal routes, supplemented by direct control measures including poisoning and trapping so as to enhance rodent prevention and control. Its staff will also inspect the venues regularly and keep in view whether traces of rodents are present. Targeting places where rodents frequent, LCSD will engage pest control contractors to carry out rodent prevention and control measures at the venues on a regular basis, and display posters at prominent positions of the venues to step up publicity about anti-rodent measures and the message of maintaining cleanliness at the venues.

18. LCSD has maintained a collaborative relationship with FEHD. The district management staff of LCSD maintains close liaison with the District Environmental Hygiene Offices of FEHD and exchanges with them views on district environmental hygiene issues including pest control work. FEHD provides technical support to assist LCSD in adopting effective rodent prevention and control measures at the venues under its purview. Besides, LCSD staff attend regular pest control courses and seminars organised by FEHD to enrich and update their knowledge on pest control work.

#### *Inter-departmental co-ordination and collaboration*

19. Established in July 2018<sup>7</sup>, the Pest Control Steering Committee (PCSC) promotes inter-departmental co-ordination and regularly reviews the effectiveness of the pest control measures carried out by bureaux and departments. It also provides a platform for departments to grasp the latest situation and adopt effective prevention and control measures at the venues under their purview. FEHD offers professional advice and technical support to the PCSC, and provides

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<sup>7</sup> The former Anti-mosquito Steering Committee was re-organised to form the Pest Control Steering Committee in July 2018. In addition to mosquito control, its terms of reference was expanded to cover other pest control work, such as the prevention and control of rodents and biting midges.

specific recommendations and guidelines on pest control work for other departments.

20. To strengthen the curb on rodent infestation in PRHEs, the Housing Department (HD) and FEHD have set up a Working Group on Rodent Prevention and Control in PRHEs managed by HA, which is co-chaired by the Deputy Directors of FEHD and HD, under the PCSC to formulate and implement more effective rodent prevention and control measures and provide relevant facilities in PRHEs. FEHD will render professional advice and technical support to HD on action plans regarding rodent prevention and control in PRHEs.

## **Way Forward**

### *Enhancing the effectiveness of anti-rodent work*

21. To enhance the effectiveness of anti-rodent work, FEHD will adopt a series of measures in various aspects, such as strengthened rodent trapping, training and experience sharing. These include:

- (a) placing different foods as baits in the course of rodent trapping – more than one kind of food will be placed as baits at a time to raise the effectiveness of rodent trapping;
- (b) introducing suitable rodent traps/bait boxes and deploy them to different settings – for instance, the poisoning bait having flavours of food can effectively attract rodents and kill them upon consumption. The new snap trap can effectively trap rodents. In comparison with traditional bait boxes, T-shaped bait boxes are more attractive to rodents, and a greater amount of poisonous baits can also be stored inside for long-term killing;
- (c) providing more training to frontline staff – in addition to providing training courses/seminars on rodent control for various government departments, FEHD has produced a series of videos on rodent control for reference by its frontline staff to ensure correct execution of the anti-rodent work; and



- (d) reinforcing communication/sharing with the industry, such as inviting representatives from the industry to share their expertise and experience in training courses/seminars, give views on the rodent control videos and share the videos with other members of the industry, so as to improve the overall standard of pest control services.

*Further application of technologies to improve anti-rodent work*

22. As mentioned in paragraphs 8 and 9 above, the thermal camera monitoring system can effectively show the locations frequented by rodents, identify the access points, and facilitate the assessment of the effectiveness of the anti-rodent operations. In the future, the system will be deployed in suitable locations to enhance the effectiveness of anti-rodent operations, such as the anti-rodent operations in designated target areas in all districts over the territory, and in survey locations where a high Rodent Infestation Rate (RIR) is constantly recorded (as set out in paragraph 25 below). Following the recommendations of FEHD, HA will further conduct a trial of the thermal imaging cameras in some PRHEs. The application of suitable tools will also be explored to monitor rodent activities and facilitate the deployment of anti-rodent operations.

23. Besides, FEHD is exploring the application of innovative technologies to enhance the effectiveness of anti-rodent work in public markets. It is working with the Electrical and Mechanical Services Department (EMSD) to launch a pilot scheme in Yeung Uk Road Market, Tsuen Wan to deploy wireless motion sensors<sup>8</sup>, rodent traps, bait boxes, etc. through the application of Internet of Things (IoT) solutions, so as to step up the monitoring of rodent prevention and control work in markets, and carry out focused improvements and follow-up work. To complement FEHD's effort, EMSD will introduce new types of rodent traps and bait boxes for testing. These devices, which either have built-in wireless sensors or can be equipped with such sensors, can remotely notify the market management staff once rodents are caught or the bait is depleted, thus ensuring timely treatment and bait refilling or replacement.

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<sup>8</sup> FEHD will install wireless motion sensors at strategic locations in markets. Data collected by these sensors can assist market management staff in monitoring the areas and the extent of rodent activities, thereby formulating targeted rodent prevention and control strategies. The relevant data can also be used to continuously monitor the effectiveness of rodent prevention and control work.

## *Enhancements to the Rodent Infestation Survey (RIS)*

24. Meanwhile, to enhance rodent surveillance, FEHD will refine various aspects of the RIS by strengthening follow-up actions, stepping up data sharing with other departments, improving the accuracy of the RIR and enhancing monitoring efforts.

25. To strengthen follow-up actions, FEHD will carry out rodent prevention and control work for a month in the survey locations with serious rodent infestation<sup>9</sup>. A re-assessment will be conducted thereafter to keep a close monitor on the situation. In survey locations where a high RIR is subsequently recorded, the thermal camera monitoring system will be deployed to facilitate the deployment of rodent control operations in identifying hotspots of rodent activities for targeted control actions and evaluating the effectiveness of such operations.

26. FEHD will also step up data sharing with other departments. In addition to the present arrangement where results of individual survey locations are sent to the relevant departments by e-mail, FEHD and the Lands Department are preparing for the release of detailed rodent infestation data recorded in each survey location covered by the RIS to other departments through the Government's Geospatial Information Hub by mid-2021, the details of which are being finalised. This will facilitate the preparation of various departments to carry out targeted anti-rodent operations in the venues within their purview.

27. Regarding improvement of the accuracy of the RIR, FEHD has been releasing the RIRs in each of the 18 districts in the territory on a half-yearly basis since 2006<sup>10</sup>. Survey locations cover public places and venues managed by various government departments (for examples, HD, LCSD, the Education Bureau and the Department of Health). Following the increase of survey locations covered by the RIS from 41 (around 2 300 baiting points) to 50 (around 2 700 baiting points) in 2020, FEHD will release the RIR of all 50 survey locations for 2020 to the public in the second quarter of 2021 to enhance transparency and better reflect the rodent infestation situation of particular

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<sup>9</sup> This includes survey locations with a RIR of 8% or above.

<sup>10</sup> At present, the district-based RIRs are enumerated by pooling the RIRs of each survey location in the same district. There are 50 survey locations covering three main kinds of biotopes, namely residential areas, rear lanes and industrial areas.

locations.

28. As for enhancement of monitoring efforts, FEHD will actively explore alternative choices of baits for replacement of the present ones, to improve the sensitivity of the RIS. It is working with the City University of Hong Kong and The Chinese University of Hong Kong on a study related to local rodents, with a view to obtaining further information on their food preferences and introducing baits that are more attractive to rodents and suitable for conducting rodent surveys. FEHD will also consider extending the surveillance coverage to cope with urban development.

### *Enhancing public participation*

29. Keeping Hong Kong clean is the crux of anti-rodent work. In addition to the above prevention and control measures targeting locations with serious rodent infestation undertaken by various departments and enhanced rodent surveillance work, a new dedicated website was launched by the FEHD in January 2021 to promote the message of “Keep Hong Kong Clean, We Can Do It!” to the public. Duties of the FEHD in relation to environmental hygiene and street cleansing are introduced, whereas useful information and recommendations to keep the environment hygienic are also provided to encourage public response and participation. Moreover, the relevant government departments will step up public engagement and education to encourage the public to keep the environment clean and eliminate the food source of rodents, with a view to tackling rodent infestation at source.

## **Conclusion**

30. Members are invited to note the Government’s rodent control work undertaken by various departments, inter-departmental collaboration efforts and the way forward, and provide comments on the above measures.

**Food and Health Bureau  
Food and Environmental Hygiene Department  
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