CONTROLLING OFFICER'S REPLY

(Question Serial No. 3074)

Head: (49) Food and Environmental Hygiene Department

Subhead (No. & title): (-) Not specified

Programme: (1) Food Safety and Public Health

Controlling Officer: Director of Food and Environmental Hygiene (Miss Diane WONG)

Director of Bureau: Secretary for Food and Health

Question:

In recent years, the Food and Environmental Hygiene Department (the Department) has been frequently criticised for its deficiencies in pest control work which resulted in serious infestations of mosquitoes and rodents in various districts. In this connection, please advise this Committee of:

1. the staffing expenditure involved in pest control work in the past 3 years;

2. whether consultants or/and foreign experts have been engaged in the past 3 years; if yes, the costs;

3. apart from the existing technologies, whether the Department has any plan to introduce or employ new technologies to strengthen pest control work; if yes, the details; and

4. whether the Department has in place any mechanism to assess the effectiveness of pest control work to ensure the proper use of public funds; if yes, the details.

Asked by: Hon IP LAU Suk-yee, Regina (LegCo internal reference no.: 50)

Reply:

1. The overall expenditure on the provision of pest control services by the Food and Environmental Hygiene Department in 2018-19, 2019-20 and 2020-21 was $630 million, $663 million and $726 million (revised estimate) respectively. In 2018, 2019 and 2020, the total number of in-house staff responsible for pest control work was 699, 727 and 740 respectively and the total number of outsourced staff providing pest control services was about 1 860, 1 970 and 2 180 respectively.

2. The Department invited an expert in mosquito control from the World Health Organization (WHO) Regional Office for the Western Pacific and an expert in rodent control referred by the WHO to advise on the mosquito and rodent control work of Hong Kong in February and November 2019 respectively. The costs for the former

were paid by the WHO Regional Office for the Western Pacific, while the expenditure on the latter was around $160,000.

3. The Department has all along kept in view the pest control methods recommended by the WHO and those adopted by other places. The Department keeps an open mind on the new technologies/methods to be adopted for further enhancing the effectiveness of its pest control work, on the premise that they are suitable for use in local circumstances. Between 2018 and 2020, the technologies/technical projects on enhancing pest control that were tested by the Department are as follows:

Pest control method/technology	Effectiveness
Rodent control	
Using a non-poisonous bait having flavours of food for the Rodent Infestation Rate (RIR) surveys	The bait was tested in public rear lanes in 10 districts between February and September 2018. The results were unsatisfactory.
Rodent trapping device driven by pressurised gas	The rodent trapping device was tested in 4 public markets of the Department between October 2018 and June 2019. The devices installed failed to catch any rodents.
Night-vision camera surveillance system	The system was tested in public markets in Kowloon City District and rear lanes in Mong Kok District between April and July 2019. The results have shown that the system with artificial intelligence function is capable of identifying rodents in night-vision images and tracing their movements. It can be employed to monitor the areas and extent of rodent activities and is therefore conducive to quantifying and enhancing the effectiveness of anti-rodent measures.
Using a poisonous bait having flavours of food for rodent disinfestation	The bait was tested in the laboratory and public rear lanes in 7 districts respectively for its attractiveness to rodents and poisoning efficacy between October 2019 and July 2020. The results have shown that the poisonous bait is effective in attracting the consumption of rodents and poisoning them. The Department will introduce the use of the bait in its regular anti-rodent work.
New design snap trap	The snap trap was tested in 5 districts and 6 markets respectively between January and June 2020. The results have shown that the new design snap trap is effective in catching rodents. The Department will introduce the use of the snap trap in its regular anti-rodent work.

Rodent control	
Using a transparent plastic rodent trapping device to catch rodents	The rodent trapping device was tested in public places in 3 districts between September 2020 and February 2021. The results have shown that the rodent trapping device is not as effective as traditional cage traps in catching rodents.
Placing poisonous baits in a T-shaped bait box	The bait box was tested in Kwun Tong District between October and November 2020. The results have shown that the T-shaped bait box is more effective in attracting rodents to enter and consume the baits than ordinary rectangular bait boxes. The Department will introduce the use of the T-shaped bait box in its regular anti-rodent work.
Thermal imaging camera surveillance system	The Department conducted field trials on thermal imaging cameras with artificial intelligence analytical function in rear lanes in Kowloon City District and 9 target areas of the first round of anti-rodent operation in designated target areas in 2020. Both tests have shown that the new technology is quite effective in identifying places where rodents frequently visit and the time and pattern of rodent activities, as well as assessing and quantifying anti-rodent work. The Department installed thermal imaging cameras at the selected locations of all target areas during the second round of anti-rodent operation in designated target areas in November 2020. The Department plans for a wider use of thermal imaging cameras at suitable locations in all districts across the territory in the future (including during the anti-rodent operations in designated target areas) with a view to increasing the effectiveness of the operations, and will recommend the technology to other departments.
Mosquito control	
New mosquito trapping device	The new mosquito trapping device was tested in Tuen Mun and Tsim Sha Tsui between May and September 2019. The results have shown that the new mosquito trapping device is effective in minimising the nuisance caused by Aedes mosquitoes. The Department has introduced the use of the device in its regular anti-mosquito work and recommended the technology to other departments.

Mosquito control	
Using gravidtraps to monitor Aedes albopictus	The gravidtrap was tested in the laboratory and 10 districts between May 2019 and February 2020. The results have shown that the gravidtrap is effective in attracting and collecting adult Aedes albopictus mosquitoes, reducing the time required for surveillance, as well as providing a quantitative density index. Starting from April 2020, the gravidtrap has completely replaced the ovitrap previously used for monitoring Aedes albopictus.
Large ultra-low volume (ULV) fogger	The large ULV fogger was tested in Yuen Long District between April and July 2020. The results have shown that the large ULV fogger is suitable for conducting ULV space treatment over a large area, and its spray range is longer than the existing back-carried sprayer. The fogger is more effective in killing adult mosquitoes in scrubby areas by conducting fogging treatment. The Department has introduced the use of large ULV foggers in all districts.

4. The Department adopts an integrated management approach to the prevention and control of mosquitoes and rodents. Such approach, which is mainly premised on the recommendations and technical guidelines of the WHO, emphasises on fundamental control, i.e. eliminating mosquito breeding places and the 3 survival conditions of rodents, namely food, harbourage and passages, with the aim of prevention and control of pests.

To review the mosquito and rodent control work, the Department invited an expert in mosquito control from the WHO Regional Office for the Western Pacific and an expert in rodent control referred by the WHO to provide advice on the mosquito and rodent control work of Hong Kong in February and November 2019 respectively. The Department is actively following up on the recommendations of the experts. For rodent control, after conducting field trials, the Department will adopt the recommendations of the expert, including the use of different kinds of food at a time as baits and the adoption of a newly designed snap trap to enhance the effectiveness of anti-rodent efforts. The Department will also encourage community engagement in rodent prevention and control work and explore the application of various technologies on baits and traps with a view to improving the efficacy of rodent disinfestation work. In addition, the Department installed thermal imaging cameras in all target areas during the second round of anti-rodent operation in designated target areas, which commenced in November 2020, in order to evaluate the effectiveness of the anti-rodent work and provide a quantitative indicator. In addition, it plans for a wider use of thermal imaging cameras at other suitable locations with a view to increasing the effectiveness of the anti-rodent operations. Meanwhile, the Department will make enhancements to the existing RIR surveys in several aspects, including enhancing the sharing of survey data with the departments responsible for managing the relevant venues and facilities; releasing the RIR of all 50 survey areas to the

public; installing thermal imaging cameras at the survey locations with a persistently high RIR for deployment of more effective follow-up actions; and actively exploring various bait choices for improving the sensitivity of RIR.

For mosquito control, since April 2020, the Department has put in place newly designed gravidtraps to directly count the number of adult mosquitoes to enumerate the new Gravidtrap Index (GI) and to release the additional Density Index (DI). The GI reflects the extensiveness of distribution of Aedes albopictus mosquitoes in the survey area, whereas the new DI indicates the average number of adult Aedes albopictus mosquitoes collected in each positive gravidtrap to quantify their activity level. The above surveillance indices are conducive to reflecting the effectiveness of anti-mosquito work.

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