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Panel on Food Safety and Environmental Hygiene

**Background brief prepared by the Legislative Council Secretariat
for the meeting on 11 February 2020**

Administration's mosquito control work

Purpose

This paper provides background information on the Administration's mosquito control work, and summarizes major concerns of members of the Panel on Food Safety and Environmental Hygiene ("the Panel") on the subject.

Background

2. According to the Administration, it has all along accorded high priority to mosquito control work. In July 2018, the Anti-mosquito Steering Committee was re-organized and upgraded as the Pest Control Steering Committee ("PCSC"). Chaired by the Under Secretary for Food and Health, PCSC's terms of reference cover pest control issues, including mosquito prevention and control.

3. In response to the local dengue fever ("DF") outbreak in the summer of 2018, the Administration has strengthened, through PCSC, inter-departmental coordination to synergize the efforts of various bureaux and departments in pest control work. The Food and Environmental Hygiene Department ("FEHD") has been maintaining close liaison with other government departments (including the Housing Department, Highways Department and Home Affairs Department) and provided them with technical assistance in implementing effective anti-mosquito measures in their respective premises to prevent the spread of mosquito-borne diseases, such as DF, Japanese encephalitis ("JE") and malaria.

Mosquito surveillance programme

4. Since 2003, FEHD has put in place an enhanced dengue vector surveillance programme for monitoring the distribution of *Aedes albopictus* at selected areas and for evaluating the effectiveness of mosquito prevention and control work carried out by various parties. The surveillance data collected serve as a basis for adjustment to mosquito control strategies and measures. Under the surveillance programme, ovitraps are placed at selected locations for detecting the larval breeding rate of *Aedine* mosquitoes. The ovitrap index is the percentage of ovitraps that are found to have positive larval breeding result. Two indices, i.e. the Area Ovitrap Index ("AOI") and Monthly Ovitrap Index ("MOI"), are recorded. While AOI indicates the extensiveness of the distribution of *Aedine* mosquitoes in a particular surveyed area, MOI is the average of all AOIs within the same month reflecting the overall extensiveness of *Aedes albopictus* in Hong Kong.

5. To enhance the surveillance of dengue vector, FEHD has since July 2018 increased the number of surveyed areas under the mosquito surveillance programme to 57. The survey frequency has also been increased from one week per month to two weeks per month. To keep the public abreast of the latest situation of mosquito infestation and to facilitate their timely implementation of corresponding mosquito prevention and control measures, FEHD also releases two additional phased ovitrap indices apart from announcing AOIs and MOIs. It is also FEHD's established practice to notify relevant government departments of the above indices so that the government departments concerned can promptly carry out targeted mosquito prevention and control work.

Mosquito prevention and control

6. According to the Administration, it adopts early preparatory measures and liaises closely with stakeholders in the community (including District Councils and local communities) to contain as early as possible the mosquito problem. Mosquito prevention and control work targeting mosquito breeding places is strengthened before the rainy season. When the rainy season comes, relevant government departments will mobilize their staff to carry out enhanced fogging operations to eradicate adult mosquitoes. Besides, FEHD conducts territory-wide anti-mosquito campaign in three phases annually, during which FEHD and relevant departments will strengthen their mosquito prevention and control work. Immediately after each phase of the campaign, FEHD conducts special territory-wide thematic anti-mosquito operations so as to enhance the effectiveness of the campaign.

Members' concerns

7. Major views and concerns expressed by members at previous Panel meetings are summarized below.

Mosquito surveillance

8. Enquiries were raised about the criteria for selecting locations for setting up ovitraps in the surveyed areas and how data were collected for compiling AOIs and MOIs under the mosquito surveillance programme. To enhance monitoring of situation of mosquito breeding, members considered that the Administration should expand the surveillance coverage and set up more ovitraps in the surveyed areas, especially in places with higher human concentration, such as schools, parks and elderly homes.

9. According to the Administration, FEHD followed the relevant advice of the World Health Organization in setting up ovitraps. FEHD's pest control staff would identify places with higher human concentration and potential for becoming a mosquito breeding ground for the purpose of placing ovitraps. While the existing surveillance network covered housing estates, schools, hospitals and leisure venues, FEHD would review the locations for placing ovitraps from time to time and continue to keep in view the latest developments (such as the establishment of new housing estates) in deciding the coverage of the surveillance and the locations for placing ovitraps.

10. Some members expressed concern that ovitraps placed at selected locations could only detect the larval breeding rate of *Aedine* mosquitoes but not other mosquito species such as *Culex tritaeniorhynchus* and *Anopheles* mosquitoes which could respectively transmit JE and malaria. In members' view, the Administration should introduce different indices having regard to the behaviour of various mosquito species, so as to reflect more comprehensively the mosquito problem in the territory.

11. The Administration advised that other than placing ovitraps at selected locations to monitor the distribution of *Aedes albopictus* to guard against DF, FEHD also took preventive and control measures to minimize the risks of other mosquito-borne diseases. Since 2015, FEHD had scheduled monthly JE vector surveillance exercises covering seven districts with relatively higher risk of JE transmission. Trapping of adult mosquitoes, including *Culex tritaeniorhynchus*, was conducted in all the selected locations monthly throughout the years for test on JE virus. Besides, some 600 streams in the territory were covered under the malaria vector prevention programme for the prevention of *Anopheles* mosquitoes which could transmit malaria.

12. There was a view that FEHD should monitor and release real-time ovitrap indices for *Aedes albopictus* by applying technologies, as this would facilitate timely implementation of mosquito prevention and control measures. The Administration advised that to enhance the alert function of the ovitrap indices for *Aedes albopictus*, the arrangement for releasing the results of the indices had been improved with more frequent updates, so as to keep the public abreast of the latest situation of mosquito infestation. FEHD would also continue to announce the monthly AOI of various areas to give the public an overview of the infestation level of mosquitoes.

13. The Administration further advised that FEHD would strive to improve the existing surveillance system for mosquitoes by application of technologies and would make reference to overseas experience. FEHD was conducting studies on how to improve the design of the ovitraps, with a view to obtaining real-time quantitative data on *Aedes albopictus* through the collection of information of egg-laying adult mosquitoes. This would help avoid a time lag in reporting the findings due to the time needed for incubation of the eggs into larvae. With the use of the technology, direct surveillance of the adult mosquito density was also made possible. Control work could then be stepped up at targeted locations with high adult mosquito density. The field trial of the technology on gravitrap was expected to be carried out in August 2019.

Mosquito prevention and control measures

14. In response to members' questions on whether new measures/methods had been/would be introduced to control infestation of mosquitoes and whether relevant departments had deployed additional manpower resources to strengthen their pest control work under the coordination of PCSC, the Administration advised that FEHD had applied technologies to enhance mosquito control. For instance, it had since June 2019 put on trial ovitraps with improved design in Wong Tai Sin, Cheung Chau and Yau Tong to calculate the density of adult mosquitoes. FEHD had also introduced a new design of mosquito trap which involved the carrying of insect growth regulators by female mosquitoes to other water bodies, thus preventing mosquito larvae from hatching into adults. Regarding manpower resources deployed, in addition to the some 700 departmental staff deployed to perform pest control work, FEHD engaged service contractors to provide pest control services across the territory through 329 roving teams with a workforce of about 1 970.

15. Some members held the view that the Administration failed to tackle the pest problem in the community owing to a lack of coordination among various departments in their pest control efforts. The Administration was urged to enhance the inter-departmental coordination in implementing pest control

measures. In addition, FEHD should take a leading role in coordinating the pest control work of various departments.

16. The Administration advised that PCSC aimed to synergize the efforts of various bureaux and departments in pest control work. At its meeting held in January 2019, PCSC had discussed how to enhance the Administration's overall surveillance and response mechanism and mapped out the focus of pest control work and the work plan for 2019. PCSC had set objectives in three areas, namely strengthening prevention, coordination and surveillance. Under the coordination of PCSC, a number of departments had been allocated additional resources to enhance pest control work. Through enhanced inter-departmental coordination, the mosquito prevention and control work had been effective with MOIs for *Aedes albopictus* dropping significantly since June 2019.

Monitoring the infestation of and implementing control measures against biting midges

17. When following up with the Administration on mosquito control work, members also expressed concerns about the infestation of biting midges in Hong Kong. The Administration was called on to draw reference to the way of detecting the larval breeding rate of *Aedine* mosquitoes under the dengue vector surveillance programme (i.e. by compiling AOIs and MOIs) and formulate relevant indicators for monitoring the infestation of biting midges. To enhance public awareness about the problem and to alert relevant departments/members of the public to take preventive measures in response to index changes, members hoped that the Administration would regularly announce the surveillance results of biting midges in various districts.

18. According to the Administration, biting midges found in Hong Kong were not vectors of mosquito-borne diseases. Given that targeted environmental measures could reduce breeding of biting midges and effectively contain their infestation, the Administration considered that it might not be necessary to introduce a specific indicator reflecting the extensiveness of biting midges throughout the territory for the time being.

19. Notwithstanding the Administration's above explanation, some members considered that specific/different measures should be adopted in the control of mosquitoes and biting midges. For example, more insect trapping devices should be installed in parks for capturing biting midges. There was also a view that the Administration's work on the prevention and control of biting midges could be performed concurrently with its anti-mosquito work. The publicity and education work for the two types of insects might share a common goal with different emphases on the health risks posed by them.

20. According to the Administration, anti-mosquito and environmental improvement measures taken by various government departments could help reduce potential breeding places of biting midges. Relevant departments would closely monitor the biting midges situation in venues under their purview. Apart from regular plant pruning and clearance of decaying and broken branches, relevant departments would enhance control of biting midges where necessary, including the engagement of professional pest control contractors to carry out fogging, to apply residual insecticides in places where biting midges were prevalent and to install insect trapping devices in outdoor venues where biting midges were frequently found.

Recent developments

21. The Administration will brief members on various mosquito prevention and control measures as well as the work priorities in 2020 at the Panel meeting on 11 February 2020.

Relevant papers

22. A list of relevant papers on the Legislative Council website is in **Appendix**.

Council Business Division 2
Legislative Council Secretariat
5 February 2020

Relevant papers on the Administration's mosquito control work

Committee	Date of meeting	Paper
Panel on Food Safety and Environmental Hygiene	10.1.2017 (Item IV)	<u>Agenda</u> <u>Minutes</u>
	12.12.2017 (Item V)	<u>Agenda</u> <u>Minutes</u>
Legislative Council	30.5.2018	<u>Official Record of Proceedings</u> <u>Pages 10992 to 11002 (Oral</u> <u>question raised by Hon Vincent</u> <u>CHENG on "Prevention and</u> <u>control of mosquito and rodent</u> <u>problems")</u>
Panel on Food Safety and Environmental Hygiene	9.10.2018*	Administration's response to the letter from Hon Wilson OR dated 21 September 2018 concerning the Administration's mosquito prevention and control work (<u>LC Paper No. CB(2)2070/17-18(01)</u>)
	13.11.2018 (Item IV)	<u>Agenda</u> <u>Minutes</u>
	24.12.2018*	Administration's response to a motion passed at the meeting on 11 December 2018 in relation to the item "Mosquito and rodent control" discussed at the meeting on 13 November 2018 (<u>LC Paper No. CB(2)510/18-19(01)</u>)
	8.1.2019 (Item IV)	<u>Agenda</u> <u>Minutes</u>
	12.2.2019 (Item III)	<u>Agenda</u> <u>Minutes</u>
	29.10.2019 (Item I)	<u>Agenda</u> <u>Minutes</u>

* Issue date