

CONTROLLING OFFICER'S REPLY

EEB(F)118

(Question Serial No. 2303)

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 (Ms Irene YOUNG)

Director of Bureau: Secretary for Environment and Ecology

Question:

With regard to mosquito control, the Food and Environmental Hygiene Department has indicated that it will, in collaboration with various government departments, conduct a mosquito control campaign in 3 phases every year. The Department has also urged the respective District Councils to proactively take part in mosquito control work and organise various mosquito control operations through the participation by local organisations and mobilisation of their building management networks. In this connection, please advise this Committee of:

- 1) the number and effectiveness of the relevant operations conducted in Sha Tin and Tai Po Districts in the past 5 years;
- 2) the specific plans relating to the campaign for Sha Tin and Tai Po Districts in the coming year, the preparation work, resources and manpower required, as well as the expected effectiveness;
- 3) the estimated resources to be allocated for procurement of new equipment in the coming year;
- 4) the expenditure on mosquito control work in the past 5 years;
- 5) the amount and manpower involved for engaging outsourced service providers in the past 5 years;
- 6) the way by which the Department assesses the actual effectiveness of the technologies currently adopted for mosquito control; and
- 7) whether the Government has plans to introduce new mosquito control technologies; if yes, the details and the expenditure required.

Asked by: Hon LEE Tsz-king, Dominic (LegCo internal reference no.: 34)

Reply:

- 1) The crux of mosquito prevention and control work is to prevent and remove accumulation of water for curbing mosquito breeding. Each year, the Food and Environmental Hygiene Department conducts the territory-wide Anti-mosquito Campaign in 3 phases, usually around February to October. A territory-wide thematic mosquito prevention and control special operation is also launched between the phases, which focuses on enhanced mosquito control work at strategic areas with more serious mosquito infestation, such as construction sites.

To further enhance the effectiveness of mosquito control, the Department also conducts All-out Anti-mosquito Operations each year in collaboration with relevant bureaux/departments from around March and April until the end of the rainy season. The operations focus on eliminating potential breeding places in venues under the management of the relevant bureaux/departments, especially through repairing structural defects such as defective floor and surface channels, etc. Regular fogging operations are also carried out to suppress the density of adult mosquitoes in the venues under their respective management.

In the past 5 years (2018-2022), the Department conducted 5 territory-wide Anti-mosquito Campaigns and 5 All-out Anti-mosquito Operations across the territory (including Sha Tin District and Tai Po District) in collaboration with other departments and organisations. The statistics on the mosquito prevention and control work in Sha Tin District and Tai Po District and the Gravidtrap/Ovitrap Indices for *Aedes albopictus* recorded in the two districts in the same period are provided at **Annex 1** and **Annex 2** respectively. On the whole, the Gravidtrap/Ovitrap Indices for *Aedes albopictus* in the two districts have been maintained under the alert level of 20% for a long period, reflecting that the mosquito infestation in the two districts are generally under control.

- 2&3) In 2023-24, the Department will continue with the above-mentioned mosquito prevention and control work across the territory to consolidate the results of its anti-mosquito efforts and ensure the continuous control of mosquito infestation. The numbers of in-house staff and outsourced contractor staff engaged in pest control services (including the prevention and control of rodents and mosquitoes) under Sha Tin and Tai Po District Environmental Hygiene Offices are tabulated as follows:

District	In-house staff	Outsourced contractor staff
Sha Tin	43	135
Tai Po	30	105

In 2023-24, the Department's overall estimated expenditure on pest control services is \$797 million. The Department does not keep a separate breakdown of the expenditure of individual District Environmental Hygiene Offices on mosquito prevention and control services or that on the procurement of new equipment for mosquito control.

- 4) The overall expenditure of the Department on pest control services (including the prevention and control of rodents and mosquitoes) in the past 5 years (2018-19 to

2022-23) is tabulated as follows. The Department does not keep a separate breakdown of the expenditure on mosquito prevention and control work.

Year	Overall expenditure on pest control services^{Note} (\$ million)
2018-19	630
2019-20	663
2020-21	726
2021-22	762
2022-23 (Revised estimate)	796

Note : The overall expenditure on pest control services includes government staff expenditure, expenditure on service contracts in the year and other day-to-day operating expenses in this regard.

- 5) The numbers of outsourced staff engaged in pest control in the past 5 years (2018 to 2022) are provided as follows:

Year	Number of staff employed by pest control service contractors
2018	1 860
2019	1 970
2020	2 178
2021	2 232
2022	2 199

The expenditure of the Department on pest control service contracts in the past 5 years (2018-19 to 2022-23) is provided as follows:

Year	Expenditure on outsourced pest control service contracts (\$ million)
2018-19	329
2019-20	337
2020-21	393
2021-22	413
2022-23 (Revised estimate)	449

- 6) The integrated mosquito prevention and control approach adopted by the Department is mainly premised on the recommendations and technical guidelines of the World Health Organization, which includes the elimination of the mosquito breeding places to achieve the goal of mosquito prevention and control. The mosquito infestation situation remained under control in 2022. The overall trend of the Gravidtrap Index for *Aedes albopictus* throughout the year was similar to that of 2021. The relatively higher indices recorded in June and July 2022 were likely attributable to the exceptionally high rainfall in May.

- 7) The Department will continue to explore and try out different new technologies, equipment and methods to enhance the effectiveness of its mosquito prevention and control efforts. The information on the technological applications employed by the Department for enhancing mosquito prevention and control in the past 3 years, their effectiveness and the expenditure involved is provided at **Annex 3**.

Statistics on mosquito prevention and control work in Sha Tin District from 2018 to 2022

	2018	2019	2020	2021	2022
Number of fogging treatment conducted	100	324	669	1 662	1 616
Number of mosquito breeding places eliminated	9 869	9 652	9 912	10 355	10 098

Statistics on mosquito prevention and control work in Tai Po District from 2018 to 2022

	2018	2019	2020	2021	2022
Number of fogging treatment conducted	800	824	777	727	700
Number of mosquito breeding places eliminated	3 815	3 816	3 793	3 911	3 822

Ovitrap Index for *Aedes albopictus* in Sha Tin District in 2018^{Note 1}

Month	Tai Wai	Yuen Chau Kok	Ma On Shan	Wo Che ^{Note 2}
January	0.0%	0.0%	0.0%	N.A.
February	0.0%	0.0%	0.0%	
March	0.0%	0.0%	0.0%	
April	0.0%	0.0%	0.0%	
May	4.8%	0.0%	1.6%	
June	6.7%	1.7%	9.4%	
July	22.8%	11.9%	21.8%	42.6%
August	9.8%	2.5%	14.1%	17.8%
September	11.5%	1.7%	10.9%	14.6%
October	7.3%	1.7%	8.8%	7.1%
November	0.0%	0.0%	6.3%	0.9%
December	0.0%	0.0%	0.0%	0.0%

Note 1: When the Gravidtrap/Ovitrap Index for *Aedes albopictus* is higher than or equal to the alert level of 20%, it represents that the distribution of *Aedes albopictus* in the survey area is extensive or very extensive. Special operations are required to control the mosquito infestation.

Note 2: “Wo Che” has been included as a survey area since July 2018.

Ovitrap Index for *Aedes albopictus* in Sha Tin District in 2019^{Note 1}

Month	Tai Wai	Sha Tin East ^{Note 3}	Ma On Shan	Sha Tin Town Centre and Fo Tan ^{Note 3}
January	0.0%	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.8%	1.0%
March	0.0%	0.0%	0.0%	1.9%
April	6.3%	1.7%	2.3%	7.4%
May	12.0%	4.2%	9.4%	19.3%
June	20.2%	9.4%	42.2%	30.3%
July	12.7%	7.6%	23.4%	15.0%
August	11.3%	12.6%	19.5%	10.1%
September	9.7%	5.0%	11.7%	16.3%
October	5.6%	0.8%	10.3%	2.9%
November	3.2%	0.0%	3.9%	1.0%
December	0.0%	0.0%	0.0%	0.0%

Note 3 : The survey area “Yuen Chau Kok” has been renamed as “Sha Tin East” and “Wo Che” renamed as “Sha Tin Town Centre and Fo Tan” since July 2019.

Gravidtrap/Ovitrap Index for *Aedes albopictus* in Sha Tin District in 2020^{Note 1,4}

Month	Tai Wai	Sha Tin East	Ma On Shan	Sha Tin Town Centre and Fo Tan
January	0.0%	0.0%	0.8%	1.0%
February	0.0%	0.0%	0.0%	0.0%
March	0.0%	0.0%	0.0%	1.9%
April	10.5%	1.6%	8.1%	6.0%
May	10.4%	20.2%	12.1%	6.5%
June	18.5%	14.5%	28.1%	21.0%
July	10.7%	6.6%	8.6%	17.0%
August	7.1%	4.1%	8.1%	7.7%
September	3.2%	8.0%	5.6%	6.4%
October	2.4%	4.8%	4.8%	2.8%
November	3.3%	0.0%	0.0%	3.7%
December	0.8%	0.0%	1.6%	3.7%

Note 4 : The Department has replaced the ovitraps with the new gravidtraps for monitoring the dengue vector, *Aedes* mosquitoes, since April 2020.

Gravidtrap Index for *Aedes albopictus* in Sha Tin District in 2021^{Note 1}

Month	Tai Wai	Sha Tin East	Ma On Shan	Sha Tin Town Centre and Fo Tan
January	0.0%	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.8%	0.0%
March	0.8%	0.0%	0.0%	0.0%
April	11.3%	2.4%	11.7%	0.9%
May	9.1%	8.0%	28.1%	13.0%
June	11.4%	8.9%	43.1%	24.3%
July	10.7%	6.5%	22.8%	11.4%
August	3.2%	4.0%	10.3%	9.3%
September	6.5%	4.1%	21.4%	9.3%
October	4.8%	1.6%	5.6%	1.9%
November	2.4%	1.6%	10.7%	1.8%
December	0.0%	0.0%	0.0%	0.0%

Gravidtrap Index for *Aedes albopictus* in Sha Tin District in 2022^{Note 1}

Month	Tai Wai	Sha Tin East	Ma On Shan	Sha Tin Town Centre and Fo Tan
January	0.0%	0.0%	0.8%	1.9%
February	0.0%	0.0%	0.0%	0.0%
March	0.0%	0.0%	0.8%	0.0%
April	5.6%	0.8%	2.4%	1.9%
May	5.6%	5.7%	42.5%	5.7%
June	11.2%	9.1%	37.5%	27.4%
July	8.1%	9.0%	28.4%	10.5%
August	3.2%	6.6%	6.5%	6.8%
September	19.0%	2.5%	16.1%	5.0%
October	4.0%	0.0%	3.3%	5.0%
November	0.8%	0.0%	10.5%	0.9%
December	0.0%	0.0%	3.2%	3.7%

Gravidtrap/Ovitrap Index for *Aedes albopictus* in Tai Po District from 2018 to 2020^{Note 1, 5}

Month	2018	2019	2020
	Tai Po	Tai Po	Tai Po
January	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.0%
March	0.0%	0.9%	0.0%
April	0.0%	4.5%	1.7%
May	12.3%	18.0%	5.0%
June	8.9%	23.1%	19.2%
July	13.8%	10.7%	1.7%
August	3.5%	4.5%	5.9%
September	3.6%	3.5%	5.2%
October	0.0%	0.0%	3.4%
November	0.0%	0.0%	0.8%
December	0.0%	0.0%	0.0%

Note 5 : The Department has replaced the ovitraps with the new gravidtraps for monitoring the dengue vector, *Aedes* mosquitoes, since April 2020.

Ovitrap Index for *Aedes albopictus* in Tai Po District from 2021 to 2022^{Note 1}

Month	2021		2022	
	Tai Po West ^{Note 6}	Tai Po East ^{Note 6}	Tai Po West ^{Note 6}	Tai Po East ^{Note 6}
January	0.0%	1.0%	0.0%	0.0%
February	0.0%	0.0%	0.0%	0.0%
March	0.9%	1.9%	0.0%	0.0%
April	3.5%	2.0%	0.9%	1.9%
May	8.6%	8.9%	7.8%	15.7%
June	9.0%	16.0%	17.0%	21.4%
July	5.2%	8.7%	6.2%	9.0%
August	11.2%	16.2%	10.5%	3.9%
September	3.4%	3.1%	1.7%	3.0%
October	1.7%	4.9%	0.9%	1.0%
November	0.0%	0.0%	0.9%	0.0%
December	0.0%	0.0%	0.0%	0.0%

Note 6 : The survey area “Tai Po” has been divided into “Tai Po East” and “Tai Po West” since January 2021.

Technological applications for mosquito control and the expenditures incurred

Technological application for mosquito control	Effectiveness	Expenditure		
		2020-21	2021-22	2022-23
New mosquito trapping device	The Department tested the new mosquito trapping device in Tuen Mun and Tsim Sha Tsui in 2019. Test results showed that the new mosquito trapping device was effective in minimising the nuisance caused by <i>Aedes</i> mosquitoes. The Department has introduced the use of the device in its regular anti-mosquito work and recommended the technology to other departments.	Around \$610,000	Around \$640,000	Around \$640,000
Use of gravidtraps to monitor <i>Aedes albopictus</i>	The gravidtrap was tested in the laboratory and 10 districts from 2019 to 2020. Test results showed that the gravidtrap was effective in attracting and collecting adult <i>Aedes albopictus</i> 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 <i>Aedes albopictus</i> .	Around \$40,000	N.A. ^{Note}	Around \$250,000
Large ultra-low volume (ULV) fogger	The large ULV fogger was tested in Yuen Long District between April and July 2020. Test results showed that the large ULV fogger was suitable for conducting ULV space treatment over a large area, and its spray range was longer than the knapsack sprayer being used. The fogger was more effective in killing adult mosquitoes in the fogging treatments conducted in scrubby areas. The Department has introduced the use of large ULV foggers in its regular anti-mosquito work in the same year.	Around \$1.4 million	N.A. ^{Note}	N.A. ^{Note}

Robotics fogger	Field trials were conducted in Yuen Long, Sha Tin and Sai Kung Districts between April and November 2021. Test results showed that the robotics fogger, which could be driven to designated places to spray pesticides when installed on vehicles, was safe, effective and user-friendly. The range of the sprayer was wider than that of the knapsack sprayer being used. The robotics fogger could facilitate fogging operations in large areas and was particularly useful in killing adult mosquitoes in places that were difficult for workers to reach. The Department has introduced the use of robotics foggers in its regular anti-mosquito work since 2022. The technology has been recommended to other departments, and on-site demonstration on the operation of robotics foggers have been arranged.	N.A. ^{Note}	N.A. ^{Note}	Around \$1.19 million
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Note: The Department did not procure such equipment in that financial year.

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