For information
on 13 July 2004

LegCo Panel on Food Safety and Environmental Hygiene

Dengue Vector Surveillance in Hong Kong

PURPOSE

At the meeting held on 29 June 2004, Members were briefed on the Government's efforts in mosquito control in the light of the rising ovitrap indices in recent months. This paper informs Members on the findings of the dengue vector surveillance work carried out in the first half of 2004 by the Food and Environmental Hygiene Department (FEHD) and report on the recent results and control measures taken.

FINDINGS OF THE DENGUE VECTOR SURVEILLANCE PROGRAMME IN 2004

Enhanced Surveillance Programme

2. Since 2000, FEHD has put in place a dengue vector surveillance programme to monitor the distribution of *Aedes albopictus* at selected locations, evaluate the effectiveness of mosquito prevention and control work carried out by various parties, and provide surveillance information for making timely adjustments to our mosquito control strategies and measures. A more comprehensive ovitrap survey had been introduced in 2003 and further enhanced in 2004 by including port areas. Two different indices, namely, Area Ovitrap Index (AOI) and Monthly Ovitrap Index (MOI), are recorded in the community surveillance which covered 38 strategic locations throughout the territory. AOI indicates the extensiveness of the distribution of Aedine mosquitoes in a surveyed area while the MOI is the average of all AOIs of the same month, which reflects the distribution and activity of *Aedes albopictus* in the whole territory. For port surveillance, the Port Ovitrap Index (POI) was categorized into 7 groups and a Monthly Port Ovitrap Index (MPOI) would be enumerated to indicate the overall situation of mosquito breeding in port areas and would be released monthly together with the MOI and AOIs.

Community Surveillance

3. The MOIs and AOIs recorded from January to June 2004 are shown in **Appendix 1**. It can be seen that the MOIs from January to April were lower than that of 2000-2003 (**Appendix 2**). MOI increased sharply from 11.9% in April to 31.6% in May. Although the rise followed the seasonal pattern observed in the last 4 years, the MOI in May had already exceeded the average of the past 4 years (26.8%). The higher rainfall recorded in March and April might be one of the contributing factors to the sharp rise observed in May. After a surge in May, the index declined to 22.0% which was lower than the 4-year average of 2000 to 2003, thanks to the mosquito control efforts of all parties concerned and the participation of the public at large. It was worth noting that rainfall in this May was the second driest since 2000.

4. In April, there were 8 areas with AOIs of over 20% where the indices of Aberdeen, Kwun Tong Central and Tseung Kwan O had exceeded 40%. However, in May, only 8 areas had AOIs below 20%. The number of areas with AOIs greater than 40% increased from three in April to ten in May. Five survey areas were found to have AOIs of over 50%. They include Lam Tin (50.0%), Fanling (55.1%), Ma On Shan (51.9%), Tai Wai (61.8%) and Yuen Kong (50.0%). In June, the number of areas with AOIs higher than 50% decreased to two, namely Diamond Hill (55.1%) and Tai Wai (51.0%). Fanling and Lam Tin had shown substantial improvement in June with AOIs lower than 20%. The number of areas with AOIs greater than 40% also decreased from ten in May to five in June.

5. Inter-department anti-mosquito mechanism had been activated in February to alert departments and organizations concerned. Task Force meeting led by FEHD was resumed in areas with AOIs exceeded 20% in 2004 for early implementation of effective mosquito prevention and control measures taken by the Government and other community organizations. To better co-ordinate effective mosquito control action amongst various government departments and organizations, 18 District Anti-Mosquito Task Forces formed under District Officers have taken up the leading role of the Task Force since middle of June. Intensive on-the-spot joint inspections with departments or organizations concerned were conducted in problematic areas, followed by elimination of breeding sources and application of larvicides to potential breeding grounds that were non-removable. Stringent adult mosquito control measure by weekly fogging was also carried out in strategic locations to suppress adult mosquito population whenever necessary.

6. It was observed that breeding or potential breeding places of Aedine mosquitoes were not uncommon in housing estates, both public and private, and parks as well as schools. Removable breeding sources in those locations were eliminated immediately. Larvicides were applied to breeding grounds that could not be eliminated. Management of property was notified and requested to carry out subsequent control measures. The effort had successfully brought down the AOIs of several areas, including Aberdeen, Tseung Kwan O, Kennedy Town, Lam Tin, Fanling, and Ma Wan, from Level 4 to Level 2.

Port Surveillance

7. In addition to the ovitrap survey in our community, the surveillance in port areas for monitoring the situation of mosquito infestation had been strengthened. A total of 30 port areas, shown in **Appendix 3**, have been selected for the surveillance and the neighbouring areas of every port would also be covered in the program. Ovitrap Indices of 7 groups of port areas recorded from January to June are tabulated in **Appendix 4**. The highest POI of 26.3% was detected in cross boundary check points on land during June 2004, decreased from 32.5% in May. MPOIs of January, February, March, April and May were 0.1%, 0.3%, 0.1%, 1.5% and 6.1% respectively.

8. For areas with high indices, district pest control offices, concerned government departments and other relevant organizations like Airport Authority, KCRC and freight forwarding companies would be informed and requested to conduct special control operations to lower the ovitrap indices.

SPECIAL OVITRAP SURVEY IN LIVING QUARTERS

9. The special ovitrap survey in living quarters were divided into 2 phases in 2004. The first phase, which aimed at collecting information on the discrepancy of the prevalence of breeding of *Aedes albopictus* in residential living quarters amongst 3 different housing types, namely, public housing estates, private housing estates and village type living quarters, was commenced in April and the field work was completed in June. A total of 1,226 living quarters were successfully visited, contributing to an overall response rate of about 69.1%. Analyzed results would be available by the

end of July. The second phase, which commences in July, serves to collect information on the prevalence of *Aedes albopictus* in residential living quarters of areas with persistently high AOIs from January to June of 2004. Similar information would also be collected for another area with persistently low AOIs within the same period to facilitate a comparison.

ADVICE SOUGHT

10. Members are invited to note the results of the dengue vector surveillance in the first half of 2004.

Health, Welfare and Food Bureau
Food and Environmental Hygiene Department
July 2004

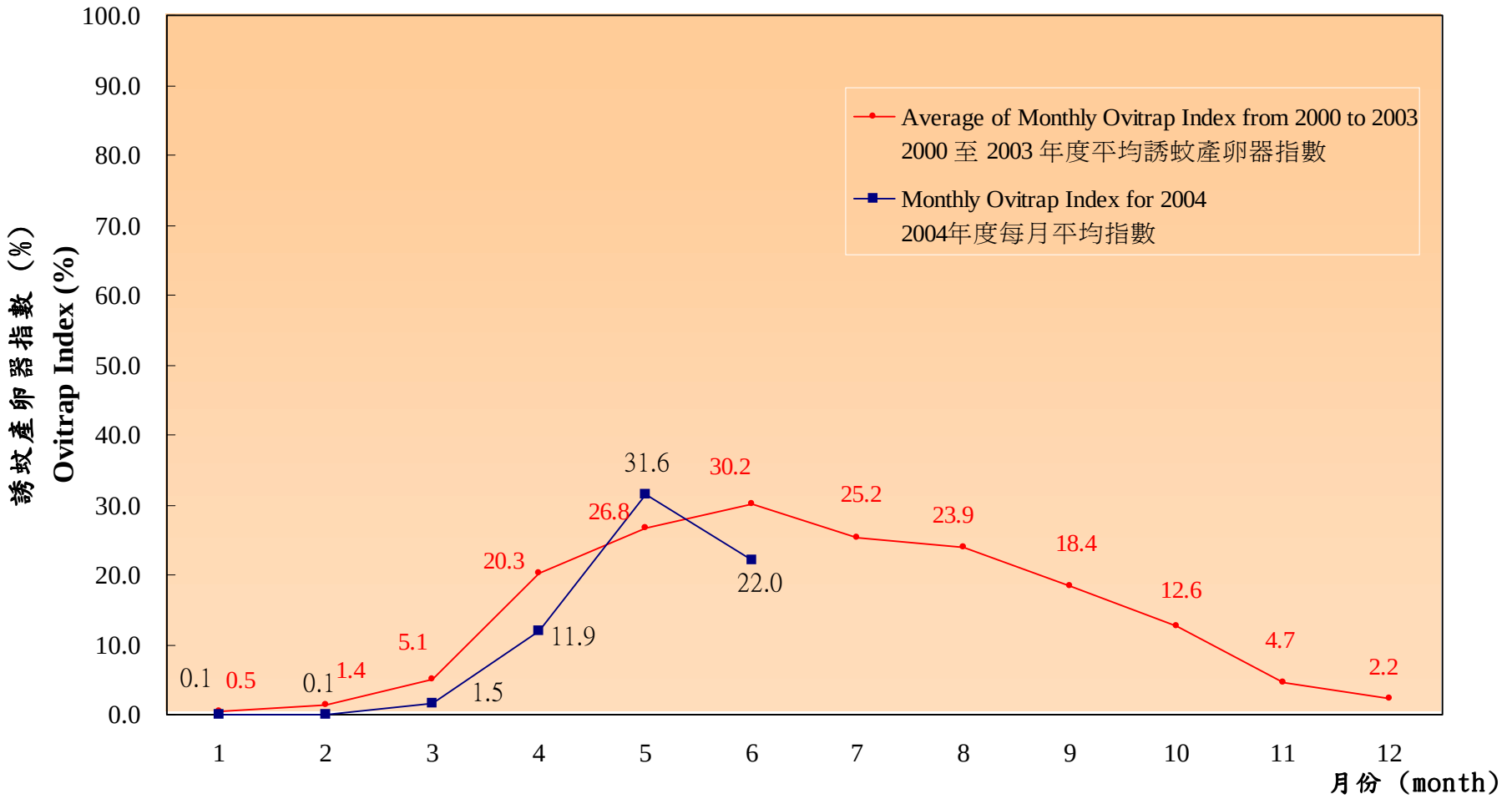
Ovitrap Indexes from Jan to Jun 2004

Appendix 1

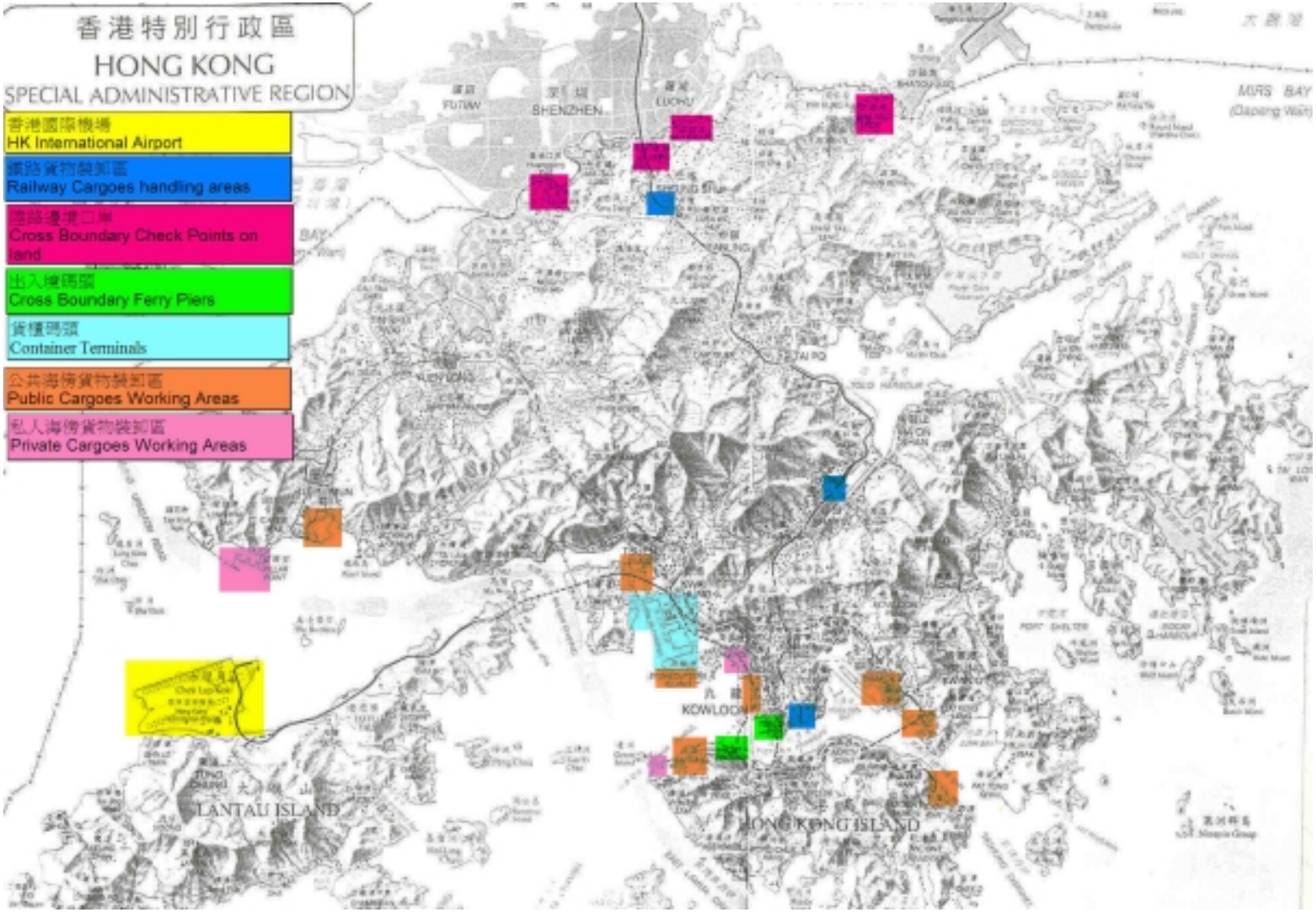
Area	Locations	Jan	Feb	Mar	Apr	May	Jun
Hong Kong Island &Outside Islands	Chai Wan West	**2.1%**	0.0%	0.0%	**1.9%**	**22.9%**	**9.8%**
	Wan Chai North	0.0%	0.0%	0.0%	0.0%	**4.3%**	**11.8%**
	Happy Valley	0.0%	0.0%	**1.9%**	**1.9%**	**39.6%**	**19.2%**
	Sheung Wan	0.0%	0.0%	0.0%	0.0%	**32.1%**	**36.0%**
	Kennedy Town	0.0%	0.0%	0.0%	**18.8%**	**43.1%**	**12.2%**
	North Point	0.0%	0.0%	0.0%	**6.0%**	**19.6%**	**20.4%**
	Aberdeen	0.0%	**2.2%**	0.0%	**44.7%**	**11.8%**	**6.8%**
	Pokfulam	0.0%	0.0%	**3.6%**	**34.0%**	**39.6%**	**16.7%**
	Cheung Chau	0.0%	0.0%	0.0%	0.0%	**22.2%**	**33.3%**
	Tung Chung	0.0%	0.0%	0.0%	**9.4%**	**28.6%**	**14.3%**
Kowloon	Tsim Sha Tsui	0.0%	0.0%	0.0%	0.0%	**6.3%**	**6.5%**
	Yau Ma Tei	0.0%	0.0%	**1.9%**	0.0%	**12.5%**	**9.8%**
	Lai Chi Kok	0.0%	0.0%	0.0%	**3.8%**	**32.1%**	**15.7%**
	Sham Shui Po (East)	0.0%	0.0%	0.0%	0.0%	**13.5%**	**43.1%**
	Cheung Sha Wan	**2.0%**	0.0%	**6.7%**	**13.5%**	**31.5%**	**23.5%**
	Kln City North	0.0%	0.0%	0.0%	0.0%	**27.8%**	**16.0%**
	Ho Man Tin	0.0%	0.0%	0.0%	0.0%	**16.0%**	**27.1%**
	Wong Tai Sin Central	0.0%	0.0%	**1.7%**	**16.7%**	**49.2%**	**23.3%**
	Diamond Hill	0.0%	0.0%	0.0%	**6.0%**	**30.8%**	**55.1%**
	Kwun Tong Central	0.0%	0.0%	**3.6%**	**44.8%**	**32.1%**	**13.2%**
	Lam Tin	0.0%	0.0%	0.0%	**34.7%**	**50.0%**	**13.5%**
New Territory East	Tseung Kwan O	0.0%	0.0%	0.0%	**44.8%**	**16.1%**	**16.4%**
	Ma On Shan	0.0%	0.0%	**2.0%**	**17.0%**	**51.9%**	**32.7%**
	Lek Yuen	0.0%	0.0%	**3.8%**	**7.4%**	**32.0%**	**20.4%**
	Tai Wai	0.0%	0.0%	0.0%	**12.0%**	**61.8%**	**51.0%**
	Tai Po North	0.0%	0.0%	0.0%	0.0%	**46.3%**	**26.2%**
	Fanling	0.0%	0.0%	0.0%	**1.9%**	**55.1%**	**18.5%**
	Sheung Shui	0.0%	0.0%	0.0%	0.0%	**43.1%**	**20.8%**
New Territory West	Tin Shui Wai	0.0%	0.0%	0.0%	**12.0%**	**23.1%**	**15.0%**
	Yuen Kong	0.0%	0.0%	0.0%	0.0%	**50.0%**	**45.8%**
	Yuen Long Town	0.0%	0.0%	**3.8%**	**30.4%**	**31.4%**	**22.9%**
	Tuen Mun (S)	0.0%	0.0%	**22.0%**	**26.9%**	**26.4%**	**9.4%**
	Tuen Mun (N)	0.0%	0.0%	0.0%	**3.6%**	**33.3%**	**16.7%**
	Tsuen Wan Town	0.0%	0.0%	0.0%	**35.2%**	**29.1%**	**17.5%**
	Ma Wan	0.0%	0.0%	0.0%	0.0%	**44.0%**	**16.0%**
	Kwai Chung	0.0%	0.0%	0.0%	0.0%	**23.1%**	**24.5%**
	Lai King	0.0%	0.0%	**5.9%**	**5.5%**	**33.3%**	**47.2%**
	Tsing Yi	0.0%	0.0%	0.0%	**1.8%**	**38.5%**	**18.5%**
Monthly Ovitrap Index (MOI)		**0.1%**	**0.1%**	**1.5%**	**11.9%**	**31.6%**	**22.0%**

Appendix 2

2000-03年與2004年白紋伊蚊誘蚊產卵器指數比較
Comparison of Monthly Average Ovitrap Index (2000-03 and 2004)



Port Locations under the Port Ovitrap Surveillance programme **Appendix 3**



Appendix 4

Results of Ovitrap Surveillance in Port Areas

Location	Jan	Feb	Mar	Apr	May	Jun
Hong Kong International Airport	0.0	0.0	0.0	0.6	1.2	4.8
Railway Cargoes handling areas	0.0	0.0	0.0	3.3	16.7	18.3
Cross Boundary Check Points on Land	0.0	2.5	0.0	5.0	32.5	26.3
Cross Boundary Ferry Piers	1.6	0.0	0.0	0.0	2.0	0.0
Container Terminals	0.0	0.0	0.6	2.3	5.0	1.1
Public Cargoes Working Areas	0.0	1.3	0.0	1.9	13.2	10.9
Private Cargoes Working Areas	0.0	0.0	0.0	1.8	1.7	3.3
MPOI	0.1	0.3	0.1	1.5	6.1	6.8