Overseas Practice on（Field Epidemiology・Collaborative Research） 2017/02/22

report form（For Student） (Year/Month/Day)

Name	Bongkot SOONTHORNSATA
Laboratory	Unit of Risk Analysis and Management, Research Center for Zoonosis Control
Year (Grade)	D2
Place of practice	Bureau of Vector Borne Disease (BVBD), Department of Disease Control (DDC), Ministry of Public Health, Thailand
Period of practice	75 days (between November 18, 2016 and February 01, 2017)
Purpose	To participate in dengue vector surveillance and molecular detection of dengue virus in field-caught *aedes* mosquitoes in Thailand

Dengue is one of the most important mosquito-borne viral diseases prevalent in Thailand. *Aedes aegypti* mosquito is a primary vector of dengue virus (DENV) and vector surveillance is recommended by the World Health Organization in dengue-endemic countries worldwide including Thailand to provide useful data for the prediction of impending dengue transmission or outbreaks. During the visit to BVBD, I participated in a variety of activities relevant to vector surveillance as described below

- November 21st, 2016 arrived in BVBD and met with the director of BVBD, Dr. Nipon Chinanonwet, to discuss the extension of research fund for dengue vector surveillance until September 2017 which was already approved and current situation of mosquito borne diseases in Thailand especially dengue and Zika virus infection.

Dr. Nipon Chinanonwet, Director of BVBD (second left)

- November 21st -25th, 2016 developed an activity plan for each study sites with the team in BVBD including manpower needs from local offices in the study areas and budget needs for each activity of the 4th surveillance. Also, discussed with Mr. Boonserm Aumaung, the Deputy Director of BVBD and head of section of vector control and entomology, the potential data sharing and the study of insecticide resistant status of *Aedes* mosquitoes.
- November 28th – December 2nd, 2016 continued to work with senior entomologist to develop workplan for the investigation of insecticide resistance status of adult mosquitoes using new revision of WHO susceptibility test including the expansion of sampling localities.

Senior entomologist explains methods in laboratory rearing of Aedes aegypti

- December 6th – 9th, 2016 participated in training workshop in vector control, entomology, entomological surveillance and vector samples collection. The training was conducted by section of vector control and entomology of BVBD. Participants were entomologists from 12 Regional Offices of Disease Prevention and Control.

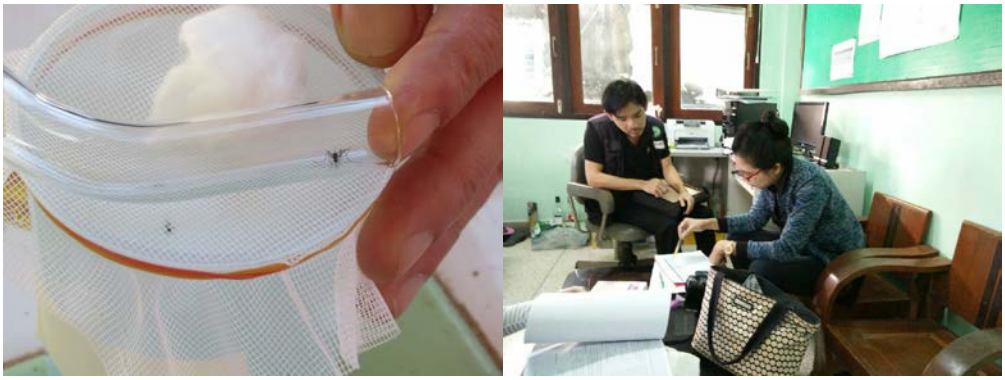
Senior entomologist from BVBD provides his expertise in chemical based vector control

- December 12th – 16th, 2016 conducted refresher training in molecular detection of DENV in field-caught *Aedes* mosquitos for 4 laboratory staff. The training content consisted of extraction of RNA from mosquito pool using RNA extraction kit, detection of dengue virus using RT-PCR protocol, identification of DENV serotypes from dengue positive pool using PCR methods, and gel electrophoresis.

Group photo with laboratory staff in BVBD

On-the-job training in molecular detection of dengue virus in field caught mosquitoes

- December 19th – 30th, 2016 participated in conducting the 4th entomological surveillance in Rayong and Ratchaburi provinces. Sampled *Aedes* mosquitos from the two study sites and worked with local officials to keep them alive and transported all mosquitoes to BVBD in Nonthaburi province. The total amount of 262 adult *Aedes* mosquitoes were collected from Rayong (female 92, male170) and female mosquitoes were sorted into 19 pools according to location. The total amount of 177 adult *Aedes* mosquitoes were collected from Ratchburi (female 80, male 97) and female mosquitoes were sorted into 18 pools according to location. Also, conducted larval survey with site staff, collected larval stages of *Aedes* mosquitos, and transported to BVBD for rearing in the laboratory.



Adult mosquito collection (left) and work with site staff on data collection (right)

Larval survey

- January 4th – 8th, 2017 all 37 pools of female mosquitos from Rayong and Ratchburi provinces were RNA extracted using RNA extraction kit and were assayed using RT-PCR protocol for dengue virus detection and all of them were negative for DENV.
- January 9th – 20th, 2017 participated in conducting the 4th entomological surveillance in Chiang mai and Ubonratchathani provinces. Sampled adult *Aedes* mosquitos from the two study sites and worked with local officials to keep them alive and transported them all to BVBD in Nonthaburi province. The total amount of 148 adult *Aedes* mosquitoes were collected from Chiang mai (female 45, male103) and female mosquitoes were sorted into 13 pools according to location. The total amount of 195 adult *Aedes* mosquitoes were

collected from Ubonratchathani (female 87, male 108) and female mosquitoes were sorted into 18 pools according to location. Collected dataset based on the House index (HI-percentage of houses infested with larvae and/or pupae) and the Container index (CI-percentage of water-holding containers infested with larvae and/or pupae). Also, conducted larval survey with site staff in Chiang mai and Ubonratchathani provinces, collected larval stages of *Aedes* mosquitos, and transported to BVBD for rearing in the laboratory.

Preparation of container for keeping mosquito samples

Collected mosquitoes were transferred from sweeping net to container

Site staff searching for resting mosquitoes in sampling area

- January 23rd – 27st, 2017 all 31 pools of female mosquitos from Chiang mai and Ubonratchathani provinces were RNA extracted using RNA extraction kit and were assayed using RT-PCR protocol for dengue virus detection and all of them were negative for DENV.
- January 30st – 31st, 2017 wrap-up meeting with the team in BVBD.

（Field Epidemiology・Collaborative Research）Evaluation by supervisor

Institution・Official title・Name	Associate Professor Norikazu Isoda 印
To facilitate the entomological survey, Ms Bongkot conducted the training workshop for the collaborators of Provincial Health Care Workers. This is very important activity to raise the efficacy of the survey so as to obtain the effective data from the field, and it should be evaluated that she is a person to conduct the training course for one of the national activities in Thailand. Data obtained through the survey will be further assessed as a research project of her doctor course, so I am glad to hear that the analyzed data will be shared from her soon.	

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