

OIE Collaborating Centres Reports Activities

Activities in 2021

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Title of collaborating centre:	Veterinary Services Capacity Building (Asia, the Far East and Oceania)
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Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr.Tongkorn Meeyam, Veterinary Public Health and Food Safety Centre for Asia Pacific, Chiang Mai, Thailand Dr.Watcharapon Chotiyatutta, Director of Division of International Livestock Cooperation, Department of Livestock Development, Bangkok
Name of writer:	Ms.Thanaporn Kunkong

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Sustainable and Participatory Community-Based Management of Free Roaming Dog Problems in Public Locations(Ma-CM)	The project aim to encourage the community to solve the problem of homeless dogs by reducing the overpopulation of street and temple dogs through sterilization, Improving the health status of homeless dogs through vaccinations and coordinating medical care in cooperation with our veterinary team through community participation.
Prevalence of Methicillin Resistance Staphylococcus aureus in dairy farms: A Systematic Review and Meta-Analysis	(on-going research) The purpose of this study is to use a systematic review to establish the overall prevalence of Methicillin-resistant Staphylococcus aureus in dairy farms around the world. The collected data will be subjected to meta-analysis in order to determine the pooled prevalence of MRSA and the heterogeneity of that prevalence in a dairy farms. The findings of this study will aid researchers in addressing a difficulty in primary research that should be addressed in future studies, as well as produce or assess theories about MRSA prevalence and epidemiology in general.
Analysis and forecast Lumpy skin disease in Thailand using time-series and machine learning models	(on-going research) The purpose of this study will be to determine trends, temporal pattern, and seasonally pattern of lumpy skin disease. To forecast the incidence of this disease in Thailand using time series modeling and machine learning techniques. Data analysis and time series modeling were performed using R statistical software and “dplyr”, “xts”, “tsbox”, “TSstudio” and “forecast” packages. Steps of time series analysis include 1) decomposition of time series data into several components 2) determination of candidate models through model development process, 3) evaluation of the performances of the final model developed 4) forecasting the rabies episodes from the final model.
Training, capacity building	
Title of activity	Scope
Introduction to Public Health and Veterinary Public Health Date 5-9 July 2021	Introduction to Public Health and Veterinary Public Health Workshop provide general aspects in Public Health (PH) and Veterinary Public Health (VPH), National and international cooperation in VPH, Structure of veterinary public health services. The role of investigation centers and laboratories, VPH in the primary health care system and food safety, VPH action in disaster situations, VPH and animal industries, and Economic impact of VPH problem.

<p>Food Safety and Security from Animal Origin: Strengthening the Network for Sustainability Date 2-20 August 2021</p>	<p>The aims of conducting the course are to develop and exchange knowledge and skill on food production, food safety in food chain, surveillance and monitor safety in food as well as international food regulations through the training course that provides participants to gain knowledge and experience from lectures, practices, and field visits. The course will be beneficial for food security challenge which has complexity and require multidimensional understanding including academic knowledge as well as socio-economic.</p>
<p>The 6th International Food Safety and Zoonoses Symposium for Asia Pacific: Current Update on Emerging Pandemic Diseases and Food System Date 26 - 27 August 2021</p>	<p>The symposium aims to enhance and update new researches, generate innovative knowledge and skills, and also share experiences among experts, private sector participants, academics and graduate students on emerging pandemic threat in human and animal interface, global food security in a pandemic, safety in food systems as well as antimicrobial resistance. The symposium will be beneficial for global health challenge which has complexity and require multidimensional understanding including academic knowledge as well as socio-economic.</p>
<p>International master program of Science program in Veterinary Public Health (the former Master of Veterinary Public Health (MVPH)</p>	<p>The program aims to produce graduates from different countries to have all-round competency in Veterinary Public Health as well as create the international expertise</p> <p>networks such as zoonotic disease prevention and control, and food hygiene, with an emphasis on quality control and safety of food from animal-origin along the food production chain including</p> <p>environmental hygiene in region level. The curriculum encourages the student-centered atmosphere</p> <p>and concentrates on universal knowledge to resolve the problems in their own countries and region. The curriculum also emphasizes on students' local problem area to carry out research study which will be supervised by professors and experts from Thailand and other collaborative countries. The research strengthens students to practice systematic manner by using Veterinary Public Health discipline in order to further develop the new body of knowledge.</p>
<p>Training on Laboratory Diagnosis Date 8-23 September 2021</p>	<p>This project aim to provide the knowledge about theoretical knowledge in microbiological and immunodiagnostic techniques, interpretation of sero-surveillance result, recombinant DNA technology and use in modern diagnosis, quality control and standardization of test laboratories.</p>
<p>Training on Laboratory Practical Date 20 September-1 October 2021</p>	<p>This project provide basic knowledge of using scientific laboratories. Participants able apply knowledge from the training and understand the benefit of use of scientific laboratories.</p>
<p>Veterinary Public Health System Approach Workshop Date 22 November- 3 December 2021</p>	<p>This workshop has organize for exchange experiences related to the structure of the veterinary health system at the national level and international veterinary health organizations.</p>

Training on Veterinary Public Health Regulatory Tasks Date 13 - 18 December 2021	This training provide an information about Risks related to international trade of animal and products of animal origin, components of safe trade in animals and products of animal origin, role of veterinary border inspection, constraints of veterinary border inspection, the importance of certification for international animal health, the necessity and role of uniform rules in international trade, basic custom procedures, efficiency and management of veterinary services and quality, animal quarantine.
Training on Veterinary Public Health Structure and Legislation Date 20-24 December 2021	The aim of conducting this training is to adapt the local VPH structures and legislation to international demands and make understand principles and management of VPH services development.
Food safety	
Title of activity	Scope
Improving food safety and quality in university and surrounding areas using integrated multidisciplinary approach (Food Safety CMU)	The Food Safety project is a project that promotes the Sustainable Development Goals (SDGs), also known as the Global Goals, to end hunger and promote good health and well-being. The project is developed in the university and aimed to promote safe of food for students and university personnel. This project aims to 1) create food safety in Chiang Mai University (CMU) 2) promote the consumption of safe food in CMU and 3) increase awareness and participation in food safety for students, staff, and safe food distribution of restaurant operators in CMU.
Prevalence of Extended-Spectrum β -Lactamase-Producing Escherichia Coli in Broiler: A Systematic Review and Meta-Analysis	(On-going research) This study aims to investigate prevalence of ESBL-producing E. coli in broiler farms from various parts of the world. The gleaned data will then perform meta-analysis to estimate pool prevalence and assess heterogeneity of the prevalence.
Detection of Extended Spectrum Beta Lactamase (ESBL) Producing Escherichia Coli From Broiler Farms in Kubu Raya District of West Kalimantan Province, Indonesia	(On-going research) This study aims to detect Extended Spectrum Beta Lactamase (ESBL)-producing Escherichia Coli contamination on Broiler farms and its antimicrobial resistance patterns

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
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The PODD (Participatory Onehealth Disease Detection) Project	To create one-health based surveillance system for animal infectious disease that can be carried to humans or affect income of villagers, to promote assigned volunteers in reporting incidents such as possible factors of disease outbreak in the community and to develop communication system and digital devices to be installed for surveillance of abnormalities in the community in Chiang Mai.	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
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ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Ecole interne de VetAgro Sup Ecole nationale des Services vétérinaires	Marcy-l'Etoile, FRANCE	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Development of E-learning Modules on Leadership in Veterinary Services
Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale"	Teramo, ITALY	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Development of E-learning Modules on Leadership in Veterinary Services
Centre National de Veille Zoosanitaire (CNVZ)	Tunis, TUNISIE	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Development of E-learning Modules on Leadership in Veterinary Services

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Reference Laboratory for Brucellosis (Brucella abortus)/ National Institute of Animal Health	Thailand	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Training on Laboratory Practical

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

No

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes

- a) Technical visits: 0
- b) Seminars: 0
- c) Hands-on training courses: 8
- d) Internships (>1 month): 1

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c	Introduction to Public Health and Veterinary Public Health Workshop	Indonesia, Nepal and Pakistan	3
c	Food Safety and Security from Animal Origin: Strengthening the Network for Sustainability	Algeria, Armenia, Azerbaijan, Bangladesh, Bhutan, Botswana, Brunei Darussalam, Cambodia, Columbia, Ghana, India, Indonesia, Malaysia, Mozambique, Myanmar, Nepal, Perú, Philippines, Qatar, Senegal, Sudan, Sultanat Of Oman, Tanzania, Thailand, United Arab Emirates, Uzbekistan, Bolivia, Samoa and Pakistan	88

c	The 6th International Food Safety and Zoonoses Symposium for Asia Pacific: Current Updates on Emerging Pandemic Diseases and Food System	India, Pakistan, Germany, Bangladesh, Cambodia, Vietnam, Indonesia, Malaysia, Philippines, Thailand, Myanmar and China	126
d	Master of Science program in Veterinary Public Health(former Master of Veterinary Public Health (MVPH)	Indonesia, Nepal and Pakistan	3
c	Training on Laboratory Diagnosis	Indonesia, Nepal and Pakistan	3
c	Training on Laboratory Practical	Indonesia, Nepal and Pakistan	3
c	Veterinary Public Health System Approach Workshop	Indonesia, Nepal and Pakistan	3
c	Training on Veterinary Public Health Regulatory Tasks	Indonesia, Nepal and Pakistan	3
c	Training on Veterinary Public Health and Legislation	Indonesia, Nepal and Pakistan	3

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	6th governance meeting	OIE Platform for the training of Veterinary Services	9-10 December 2021	virtual meeting	15
International	the 1st OIE Sub-Regional Virtual Workshop on VEE Accreditation	OIE Sub-Regional Representation for South-East Asia	27 August, 1 & 6 September 2021	virtual meeting	100
International	32nd Conference of the OIE Regional Commission for Asia, the Far East and Oceania	OIE Regional Representation for Asia and the Pacific	15-16 September 2021	virtual meeting	100

International	OIE Virtual Workshop for VEEs in India	OIE Regional Representation for Asia and the Pacific	7-9 June 2021	virtual meeting	100
International	6th governance meeting	OIE Platform for the training of Veterinary Services	29 April 2021	virtual meeting	15

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 21

1. Punyapornwithaya V, Jampachaisri K, Klaharn K, Sansamur C. Forecasting of Milk Production in Northern Thailand Using Seasonal Autoregressive Integrated Moving Average, Error Trend Seasonality, and Hybrid Models. *Front Vet Sci.* 2021 Nov 30;8:775114. doi: 10.3389/fvets.2021.775114. eCollection 2021.

2. Khemarach S, Yammuen-Art S, Punyapornwithaya V, Nithithanasilp S, Jaipolsaen N, Sangsritavong S. Improved reproductive performance achieved in tropical dairy cows by dietary beta-carotene supplementation. *Sci Rep.* 2021 Nov 30;11(1):23171. doi: 10.1038/s41598-021-02655-8.

3. Arjkumpa O, Suwannaboon M, Boonrawd M, Punyawan I, Laobannu P, Yantaphan S, Bungwai A, Ponyium V, Suwankitwat N, Boonpornprasert P, Nuansrichay B, Kaewkalong S, Ounpomma D, Charoenlarp W, Pamaranon N, Prakotcheo R, Buameetooop N, Punyapornwithaya V, Songkasupa T. First emergence of lumpy skin disease in cattle in Thailand, 2021. *Transbound Emerg Dis.* 2021 Jul 30. doi: 10.1111/tbed.14246.

4. Arjkumpa O, Picasso-Risso C, Perez A, Punyapornwithaya V. Subdistrict-Level Reproductive Number for Foot and Mouth Disease in Cattle in Northern Thailand. *Front Vet Sci.* 2021 Nov 10;8:757132. doi: 10.3389/fvets.2021.757132. eCollection 2021.

5. Yun Y, Sripiboon S, Pringproa K, Chuammitri P, Punyapornwithaya V, Boonprasert K, Tankaw P, Angkawanish T, Namwongprom K, Arjkumpa O, Brown JL, Thitaram. Clinical characteristics of elephant endotheliotropic herpesvirus (EEHV) cases in Asian elephants (*Elephas maximus*) in Thailand during 2006-2019. *Vet Q.* 2021 Dec;41(1):268-279. doi: 10.1080/01652176.2021.1980633.

6. Rittipornlertrak A, Nambooppha B, Muenthaisong A, Punyapornwithaya V, Tiwananthagorn S, Chung YT, Tuvshintulga B, Sivakumar T, Yokoyama N, Sthitmatee N. Structural and immunological characterization of an epitope within the PAN motif of ectodomain I in *Babesia bovis* apical membrane antigen 1 for vaccine development. *PeerJ.* 2021 Jul 16;9:e11765. doi: 10.7717/peerj.11765. eCollection 2021.

7. Boonprasert K, Yun Y, Kosaruk W, Towiboon P, Tankaw P, Punyapornwithaya V, Janyamathakul T, Muanghong P, Brown JL, Thitaram C, Somgird C. A Longitudinal Study of Hematology and Stress Biomarker Profiles in Young Asian Elephants (*Elephas Maximus*) in Relation to Elephant Endotheliotropic Herpesvirus (EEHV) in Thailand. *Animals (Basel).* 2021 Aug 28;11(9):2530. doi: 10.3390/ani11092530

8. Boonsri B, Nganvongpanit K, Buddhachat K, Punyapornwithaya V, Kongtueng P, Kaewmong P, Kittiwattanawong K. Morphometric analysis of cervical vertebrae in some marine and land mammals. *Anat Histol Embryol.* 2021 Jul 17. doi: 10.1111/ahel.12725

9. Chanayat Y, Akatvipat A, Bender JB, Punyapornwithaya V, Meeyam T, Anukool U, Pichpol D. The SCCmec Types and Antimicrobial Resistance among Methicillin-Resistant *Staphylococcus* Species Isolated from Dogs with Superficial Pyoderma. *Vet Sci.* 2021 May 13;8(5):85. doi: 10.3390/vetsci8050085.

10. Muenthaisong A, Rittipornlertrak A, Nambooppha B, Tankaew P, Varinrak T, Pumpuang M, Muangthai K, Atthikanyaphak K, Singhla T, Pringproa K, Punyapornwithaya V, Sawada T, Sthitmatee N. Immune response in dairy cattle against combined foot and mouth disease and haemorrhagic septicemia vaccine under field conditions. *BMC Vet Res.* 2021 May 5;17(1):186. doi: 10.1186/s12917-021-02889-8
11. Vannakovida C, Lampang KN, Chuammitri P, Punyapornwithaya V, Kreausukon K, Mektrirat R. Comparative occurrence and antibiogram of extended-spectrum β -lactamase-producing *Escherichia coli* among post-weaned calves and lactating cows from smallholder dairy farms in a parallel animal husbandry area. *Vet World.* 2021 May;14(5):1311-1318. doi: 10.14202/vetworld.2021.1311-1318. Epub 2021 May 26.
12. Klaharn K, Pichpol D, Meeyam T, Pfeiffer D, Moomon A, Lohaasukul P, Punyapornwithaya V. Analysis of nationwide survey data to determine bacterial contamination levels in meat from pig slaughterhouses in Thailand. *Food Control.* 2021. doi: 10.1016/j.foodcont.2021.108005
13. Kusnul Yuli Maulana, Duangporn Pichpol, Nur Rohmi Farhani, Dyah Ayu Widiasih, Fred Unger, Veerasak Punyapornwithaya, Tongkorn Meeyam. Antimicrobial resistance characteristics of Extended Spectrum Beta Lactamase (ESBL)- producing *Escherichia coli* from dairy farms in the Sleman district of Yogyakarta province, Indonesia. *Veterinary Integrative Sciences.* Vol. 19 No. 3 (2021)
14. Banthita Saengsitthisak, Veerasak Punyapornwithaya, Wasana Chaisri, Raktham Mektrirat, John K. Bernard, Surachai Pikulkaew. The current state of biosecurity and welfare of ornamental fish population in pet fish stores in Chiang Mai Province, Thailand. *Veterinary Integrative Sciences.* Vol. 19 No. 2 (2021)
15. Veerasak Punyapornwithaya, Kunnanut Klaharn, Chalutwan Sansamur, Warangkana Kitpipit. Trend and seasonality analysis of milk production from dairy cooperatives in Chiang Mai. *Veterinary Integrative Sciences.* Vol. 19 No. 1 (2021)
16. Homsombat T, Boonyayatra S, Awaiwanont N, Pichpol D. 2021. Effect of Temperature on the Expression of Classical Enterotoxin Genes among *Staphylococci* Associated with Bovine Mastitis. *Pathogens.* 2021; 10(8):975. <https://doi.org/10.3390/pathogens10080975>
17. Kiratitana-olan, K., Chaisowwong, W., Thongkorn, K., & Kreausukon, K. (2021). Keys to good knowledge, attitude and practice on rabies prevention in disease-free communities: <https://doi.org/10.12982/VIS.2021.034>. *Veterinary Integrative Sciences*, 19(3), 407-422. Retrieved from <https://he02.tci-thaijo.org/index.php/vis/article/view/251942>
18. Kamalika Ubeyratne, Lertrak Srikitjakarn, Dirk Pfeiffer, Fiona Kong, Narapity Sunil-Chandra Warangkhan Chaisowwong, Phonpat Hemwan. 2021. A Knowledge, Attitudes and Practices (KAP) survey on canine rabies prevention and control in four rural areas of Sri Lanka. *Transbound Emerg Dis.* 2021;68:3366-3380
19. Choonkham, W., Intanon, M., Chewonarin, T., Bernard, JK., Suriyasathaporn., 2021. Effects of supplemental *Bacillus subtilis*, injectable vitamin E plus selenium, or both on health parameters during the transition period in dairy cows in a tropical environment. *Trop Anim Health Prod* 53, 298 (2021). <https://doi.org/10.1007/s11250-021-02741-z>
20. Angkwanish T, Vernooij HJCM, Sirimalaisuwan A, Charernpan P, Nielen M and Rutten VPMG (2021) Prevalence and Demographic Risk Factors of *Mycobacterium tuberculosis* Infections in Captive Asian Elephants (*Elephas maximus*) Based on Serological Assays. *Front. Vet. Sci.* 8:713663. doi: 10.3389/fvets.2021.713663
21. Chawnan, N., Na Lampang, K., Mektrirat, R., Awaiwanont, N., & Thongkorn, K. (2021). Cultivation of bacterial pathogens and antimicrobial resistance in canine periapical tooth abscesses: <https://doi.org/10.12982/VIS.2021.040>. *Veterinary Integrative Sciences*, 19(3), 513-524. Retrieved from <https://he02.tci-thaijo.org/index.php/vis/article/view/252528>
- b) International conferences: 1
Experience sharing: Veterinary Public Health and Food Safety Centre for Asia Pacific (VPHCAP) in the AAVS-OIE-UGM Virtual Session on Collaboration between VEEs and international organizations on 29 March, 2021.
- c) National conferences: 2
1. Assoc. Prof. Dr. Veerasak Punyapornwithaya participated in Lumpy Skin online forum as a guest speaker to talk about Lumpy skin disease outbreaks in cattle farms in Northern Thailand on 17 September, 2021 at Faculty of

Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand.

2.Assoc.Prof.Dr.Veerarak Punyapornwithaya has been invited as a guest speaker to give a talk on topic Statistics and planning of scientific research in animals and humans during 16 - 17 December, 2021 at Mae Fah Luang University, Chiang Rai, Thailand

d) Other

(Provide website address or link to appropriate information): 0

9. Additional comments regarding your report: