



## A BioZoonoSEA workshop

Biotechnology Platform for Research and Training on Parasitic Zoonoses in South East Asia



Department of Agriculture  
**PHILIPPINE CARABAO CENTER**  
CERTIFIED: ISO 9001 | ISO 14001 | OHSAS 18001



## Workshop & Training on Diagnosis and Control of Trypanosomes & Vectors in Animals & Humans in SEA

15-19<sup>th</sup> January 2018, Philippine Carabao Center, Science City of Muñoz, Nueva Ecija, Philippines.

### FINAL REPORT



Under the umbrella of the **BioZoonoSEA** Platform (Platform for Research and Training on parasitic Zoonoses in South East Asia), the Faculty of Veterinary Technology, Kasetsart University (**FVT/KU**), Bangkok, Thailand, jointly with *Centre de Coopération Internationale et de Recherche en Agriculture pour le Développement* (**CIRAD**), *Institut de Recherche pour le Développement* (**IRD**) (**InterTryp** joint unit), Philippines Carabao Center (**PCC**), Bureau of Animal Industry (**BAI**), and Central Mindanao University (**CMU**) organised an Open and a Registered Workshops on “Trypanosomes and their vectors in animals and humans in SEA”, at PCC, Science City of Muñoz, from 15<sup>th</sup> to 19<sup>th</sup> January 2018. These workshops were carried with in-kind and financial and human resources contributions from PCC, BAI, KU, CMU, IRCVS (Indonesian Research Center for Veterinary Sciences), UPM (University Putra Malaysia), CIRAD, and thanks to the financial support from the **French Embassy in Bangkok**, Thailand; additional support from the **French Embassy in Manila** and the **GREASE** network (*Gestion des Risques Émergents en Asie du Sud Est*), allowed to increase the number of participants.

# Open-Workshop on Diagnosis and Control of Trypanosomes & Vectors in Animals & Humans in SEA

15<sup>th</sup> January 2018, Philippine Carabao Center, Science City of Muñoz, Nueva Ecija, Philippines.

The Open Workshop / Conference gathered 87 participants and organisers (annex 1) from various horizons of universities, research centers, buffalo breeding centers, sanitary authorities and local government units (LGUs) from The Philippines, Thailand, Indonesia, Malaysia and France, for half day on 15<sup>th</sup> January 2018, on “Trypanosomes and their vectors in animals and humans in South East Asia”.



The Workshop addressed the problems linked with trypanosomes and their vectors in SEA. *Trypanosoma evansi*, an important animal pathogen that may occasionally infect humans (such as in a recent case described in Ho Chi Min, Vietnam), and *T. lewisi*, a rat parasite also occasionally affecting humans (as reported from Thailand) were discussed with other *Trypanosoma* species, including potential threats. Apart from these parasites, a strong interest was paid to the vectors, especially tabanids and stomoxine flies which are direct and important pests for livestock and humans, as well as mechanical vectors of trypanosomes and other pathogens such as viruses and bacteria. These aspects were enlarged to zoonotic parasitoses during the open workshop.

The OpenWorkshops was launched by welcoming and organisational speeches, by Dr Arnel, N Del Barrio, Executive director of PCC, Dr Ronnier Domingo,

Director of BAI, Dr Luzviminda T Simborio, Vice President for R, D & Extension at CMU, Pr Sathaporn Jittapalapong, associate coordinator of the *BioZoonoSEA* Platform (FVT/KU), Dr Alan P Dargantes, President of the GREASE network (CMU), and Dr Marc Desquesnes, general coordinator of the workshop, associate coordinator of the *BioZoonoSEA* platform (CIRAD).



Dr Sarah Sze (BAI)



Dr J.A. Escarlos (CMU)



Dr R Mercado  
(M.U.S.C.A.)



Dr M Desquesnes  
(CIRAD)



Dr Luzviminda  
Simborio CMU

8h45-12h30		Open Workshop Session
8h45-9h05	Dr Reuben Sharma (UPM): Situation of surra and its vectors in Malaysia	
9h05-9h25	Dr April Wardhana (IRCVS): A survey on <i>T. evansi</i> in Indonesia	
9h25-9h45	Prof Sathaporn Jittapalapong (KU): Zoonotic parasitoses in Thailand	
9h45-10h00		Coffee Break
10h00-10h20	Dr Ronnie Domingo (BAI): Current status of surra and its control in the Philippines	
10h20-10h40	Dr Alan Dargantes (CMU): Situation and impact of surra among livestock in Mindanao	
10h40-11h00	Dr Jose Escarlos Jr (CMU): Knowledge, Attitudes and Practices of village farmers in Mindanao for surra and its control	
11h00-11h20	Dr Rafael Mercado (DA): The Mindando Unified Surra Control Approach (MUSCA) Experience	
11h20-11h40	Dr Claro Mingala (PCC): Buffalo breeding program in the Philippines including the problem of surra and hematophagous flies	
11h40-12h00	Dr Marc Desquesnes (CIRAD): Atypical human infections by animal trypanosomes in SEA	
12h00-12h30	Discussion and Conclusion	



Group picture at the end of the Open Workshop on “Diagnosis and Control of Trypanosomes & Vectors in Animals & Humans in SEA”  
15<sup>th</sup> January 2018, Philippine Carabao Center, Science City of Muñoz,  
Nueva Ecija, Philippines.



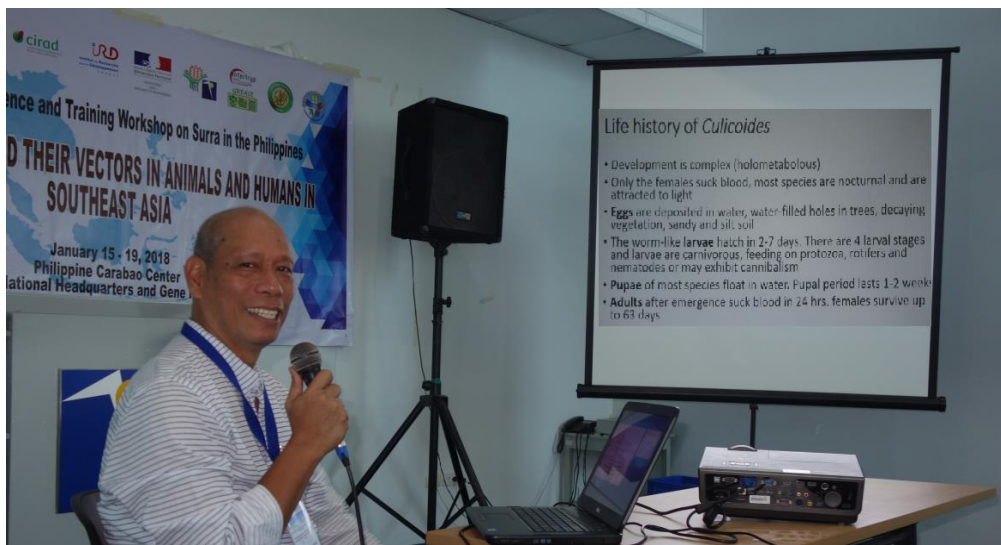
# Training-Workshop on Diagnosis and Control of Trypanosomes & Vectors in Carabao

15-19<sup>th</sup> January 2018, Philippine Carabao Center, Science City of Muñoz, Nueva Ecija, Philippines.

The Training-Workshop hosted 24 participants and 10 lecturers and facilitators from The Philippines, Thailand, Indonesia, Malaysia and France (Annex 2); the detailed schedule of this workshop is presented in annex 3.



This Training-Workshop addressed the problems linked with trypanosomes and their vectors in Carabao. *Trypanosoma evansi*, an important animal pathogen that is most often sub-clinical in Carabao, but can also be responsible of immunosuppression and abortion, and *T. lewisi*, a rat parasite also occasionally affecting humans (as reported from Thailand) were discussed with other *Trypanosoma* species, including potential threats. A strong interest was paid to haematophagous flies such as tabanids and stomoxine flies which are direct and important pests for livestock and humans, as well as mechanical vectors of trypanosomes and other pathogens such as viruses and bacteria. Epidemiology of surra was approach based on field and laboratory investigations focussing on biology, impact and control of *T. evansi* and its vectors.



Pr Jose Alexander Abella, CMU, teaching on Nematocera haematophagous insects



Dr Rounghip Masmeatathip, KU/KPS, Thailand



Dr April Wardhana, IRCVS, Indonesia

Presentations, laboratory practice, field activities and discussions aimed at:

(a) sharing knowledge and experience on trypanosomes and their vectors in South East Asia, including pathogenicity diagnosis, transmission, epidemiology, impact and control of the disease, especially in buffaloes (carabao) and under enzootic situations such as reported in most parts of the Philippines;



Dr Reuben Sharma, UPM, Malaysia



Dr Marvin Villanueva, PCC, Muñoz

(b) developing skills on various diagnostic techniques for trypanosomes including parasitological methods, Trypanosome identification, serological diagnosis through agglutination and ELISA techniques, parasite detection and identification by molecular techniques, including parasitological, serological and molecular diagnoses carried out on a set of 150 buffalo samples from the PCC and surrounding farms.



Miss Piangjai Chalermwong (KU, Bangkok) teaching laboratory techniques to the participants





Dr M Desquesnes (left) and Miss P Chalermwng (right) : basics of the practice are always good to remind so the laboratory training covered from blood smear preparation to PCR gel interpretation.

(c) developing skills on biting fly trapping and identification as well as understanding transmission mechanism, epidemiological impact of vectors and ways of control; it included trapping and identification of the hematophagous flies trapped during 2 days using 2 Vavoua, 2 Nzi and 1 Malaise traps, in the PCC breeding area;



Tabanid trapping using the Nzi trap



Stomoxes trapping using sticky film on a blue target



Stereomicroscope to show details on the insect identification;



Tabanids after pinning





All participants for a group picture in front of a Malaise trap at PCC

(d) Analysis of the laboratory results, discussion of the epidemiological situation, recommendations for control of surra (especially on the effects and the optimization of the use of trypanocides in various host species including buffaloes) and vector control by management and good practices;



Dr A Wardhana in discussion with CMU & PCC partners; Drs S Sze, A. Wardhana and A. Dargantes



Mr Eduardo Nastor Jr shows living trypanosomes on video; Dr R Masmeatathip identifying insects



(d) supporting the strengthening of the country's veterinary services to control Surra in accordance with international standards set by the World Organization for Animal Health (OIE); and, developing bases for joint research projects amongst French and SEA research institutions and universities in the future. Results of the tests carried out during the workshop showed that none of the 150 samples was positive by parasitology or PCR, however, 15% to 26% of the samples were positive respectively by CATT and ELISA, showing enzootic situation in these randomly selected animals. Management and treatment protocols were suggested accordingly to this situation.

This workshop was a great opportunity for participants to share general knowledge on surra and vectors, but also for training on basic laboratory diagnostic methods. Participants proved to be very active and inter-active during the workshop, with schedules always extended late in the evening but ended nicely at the PCC hostel and restaurant.



The Closing Ceremony gave an opportunity to the participants to give their point on the workshop and general situation of surra control in the Philippines; they shared their impressions on the workshop, in which they seemed to be very satisfied, and expecting what will come next !

Further collaborations are expected, providing the partners may find financial support, to travel to *BioZoonoSEA* platform for more specific training, and to conduct a national surra surveillance and control program.

A survey on biting insects as mechanical vectors will be organised by the PCC, happy to receive some traps to be used as model to build more in order to implement this study in several areas of the Philippines.



Riva Marie Gonzales BAI; Rolando Garduque USM; Emerson Tapdasan & Cecilio Castaneda PCC making appreciations and comments at the Closing Ceremony



Finally, lecturers and participants received their certificates from Dr Annabelle Sarabia (PCC), Dr Ronnie Domingo (BAI/DA) and Dr Arnel Del Barrio (ED, PCC)



Dr A. Wardhana (IRCVS)



Miss P. Chalermwong (KU)



Dr M. Villanueva (PCC)



From left to right, Dr Ronnie Domingo (Director of BAI), Dr Rounthip Masmearatthip (entomologist, KU/KPS), Dr Marvin Villanueva (coordinator of the workshop at PCC), Dr Arnel N Del Barrio (Executive Director of PCC Muñoz), Dr Marc Desquesnes (CIRAD, general coordinator of the workshop), and Dr Alan Dargantes (coordinator of the workshop at CMU; President of GREASE network) sharing insect traps with PCC, Muñoz.

As concerns laboratory techniques, Guidelines recently published under a twinning project of the OIE reference laboratory on Animal trypanosomoses of African origin were distributed to the main institutions present, and the pdf made available through a dropbox accessible to all participants, together with most of the power point presentations, protocols and main references used during the workshop.



After the workshop some of the lecturers and facilitators had a chance to visit some buffalo cooperatives and farms before moving to Manila for departure.





## Annex 1: List of participants to the Open Workshop 15<sup>th</sup> January 2018, PCC, Science City of Muñoz, Nueva Ecija, Philippines.











	Name	Position/Designation	Affiliation
1	Veatrix Myrtle Cruz	Student	Central Luzon State University
2	Joshua Allen D. Wisco	Student	Central Luzon State University
3	Zhaira Mae Santiago	Student	Central Luzon State University
4	Rellen Zander Castro	Student	Central Luzon State University
5	Leif Jimuel E. Candelaria	Veterinarian	Philippine Carabao Center National Headquarters and Gene Pool
6	Rafael T. Mercader	Farmer	Davao City
7	Milagros T. Managuit	Veterinarian	Dept. of Agriculture-Regional Field Office III
8	Luzviminda A. Simborio	Vice President for Research and Extension	Central Mindanao University
9	Sarah Sze	Veterinarian II	Bureau of Animal Industry
10	Meriam Cabling	Science Research Specialist II	Philippine Carabao Center at CLSU
11	Viralou L. Tuquib	Veterinarian II	Dept. of Agriculture-Regional Field Office X
12	Marcelina A. Alcazaren	Veterinarian III	Dept. of Agriculture-Regional Field Office IX
13	Zeena Rhanea Verona	Project Assistant	Philippine Carabao Center Nat'l Headquarters and Gene Pool
14	Oliver Celestino	Assistant Professor	Central Luzon State University
15	Daryl G. dela Cruz	Science Research Specialist I	Philippine Carabao Center National Headquarters and Gene Pool
16	Mary Rose D. Uy	Science Research Specialist I	Philippine Carabao Center National Headquarters and Gene Pool
17	Genaro S. Candelaria	Senior Reseach Technician II	Philippine Carabao Center National Headquarters and Gene Pool
18	Jane Camille A. Crisostomo	Instructor	Central Luzon State University
19	Ernesto P. Garillo	Professor	Central Luzon State University
20	Ernesto F. Romualdez	Provincial Veterinarian	Provincial Veterinary Unit- Nueva Ecija
21	Eulynne C. Eugenio	Science Research Assistant	Philippine Carabao Center National Headquarters and Gene Pool
22	Ma. Wynne Pagaduan	Training Specialist	Philippine Carabao Center National Headquarters and Gene Pool
23	Charito Gutierrez	Senior Laboratory Technician	Philippine Carabao Center National Headquarters and Gene Pool
24	Haidee E. Torio	Assistant Professor	Nueva Vizcaya State University
25	Rembert John Gapad	Instructor	Nueva Vizcaya State University
26	Mario M. Delizo	Project Development Officer II	Philippine Carabao Center National Headquarters and Gene Pool
27	Kristine Joy Prades	Science Research Specialist I	Philippine Carabao Center National Headquarters and Gene Pool
28	Cecilio R. Castañeda	Farm Superintendent	Philippine Carabao Center National Headquarters and Gene Pool
29	Clarissa A. Odsigue	Science Research Specialist II	Philippine Carabao Center National Headquarters and Gene Pool
30	Rogelio Antiquera	Farm Supervisor	Philippine Carabao Center National Headquarters and Gene Pool
31	Evelyn Fulgencio	Veterinarian I	Local Government Unit-Science City of Muñoz, Nueva Ecija
32	Francisco Palupuz	Driver	Local Government Unit-Science City of Muñoz, Nueva Ecija
33	Clarissa Yvonne Domingo	Professor VI	Central Luzon State University
34	Virginia Venturina	Dean	Central Luzon State University
35	Fredelon B. Sison	Assistant Professor	Central Luzon State University
36	Jaypee A. Abenoja	Instructor	Central Luzon State University
37	Reynaldo D. Amido	Science Research Assistant	Philippine Carabao Center National Headquarters and Gene Pool
38	Roungthip Masmeatathip	Lecturer	Kasetsart University
39	Piangjal Chalermwong	Researcher's Assistant	Kasetsart University
40	Marvin A. Villanueva	Senior Science Reseach Specialist	Philippine Carabao Center National Headquarters and Gene Pool
41	Gabriel Tubalinal	Science Research Specialist I	Philippine Carabao Center National Headquarters and Gene Pool
42	Alan Dargantes	Dean	Central Mindanao University
43	Jose A. Escarlos Jr.	Professor	Central Mindanao University
44	Reuben Sharma	Lecturer	Universiti Putra Malaysia
45	Virgilio V. Lopez	Farm Superintendent II	University of Southern Mindanao
46	Emerson Tapdasan	Senior Science Reseach Specialist	Philippine Carabao Center at Ubay Stock Farm
47	April H. Wardhana	Veterinarian	Bogor, Indonesia
48	Molin Begit	Instructor	Visayas State University
49	Leah S. Guizaran	Dean	Isabela State University
50	Jamiel A. Agruda	Instructor	Isabela State University
51	Kris Louwen dela Cerna	Senior Agriculturist	Dept. of Agriculture-Regional Field Office XI
52	Sheena Mae F. Julabar	Veterinarian I	Dept. of Agriculture-Regional Field Office XII
53	Eller C. Cortez	Student	Tarlac Agricultural University
54	Elen-rei Salonga	Student	Tarlac Agricultural University
55	Jomar S. Cadiente	Student	Tarlac Agricultural University
56	Rolando Y. Fajardo	Veterinarian	Department of Agriculture-National Livestock Program
57	Ted Aries Daguro	Veterinarian	Central Mindanao University
58	Ampie Magdalene Sua	Instructor I	Central Mindanao University
59	Shiela Mae Biñas	Veterinarian I	Department of Agriculture-National Livestock Program
60	Rolando J. Garduque	Associate Professor	University of Southern Mindanao
61	Cyril Baltazar	Farm Supervisor II	Philippine Carabao Center National Headquarters and Gene Pool
62	Riva Marie C. Gonzales	Veterinarian III	Bureau of Animal Industry
63	Aileen L. Bulusan	Science Research Assistant	Philippine Carabao Center at Cagayan State University
64	Karen Mae Grande	Veterinarian II	Bureau of Animal Industry
65	Ma. Asuncion Beltran	Dean	Tarlac Agricultural University
66	Elena S. Paraguas	Training Specialist III	Philippine Carabao Center at Central Mindanao University
67	Arren Christian M. de Guia	Science Research Assistant	Central Luzon State University
68	Asterlily P. Antolan	Veterinarian III	Dept. of Agriculture-Regional Field Office-CARAGA
69	Tristan Daniel Agustin	Student	University of the Philippines-Los Baños, Laguna
70	Ruth Ann Dunwan	Student	University of the Philippines-Los Baños, Laguna
71	Nina Celine M. Santos	Student	University of the Philippines-Los Baños, Laguna
72	Alona Badua	Associate Professor	Central Luzon State University
73	Jose Alexandrew Abella	Professor V	Central Mindanao University
74	Myra Reanita Lopez	Veterinarian	Local Government Unit-Guimba, Nueva Ecija
75	Eduardo Nastor Jr.	Project Assistant I	Philippine Carabao Center National Headquarters and Gene Pool
76	Virginia O. Madaje	Agriculturist I	Central Mindanao University
77	Arianne Bel D. Baluyut	Student	University of the Philippines-Los Baños, Laguna
78	Princess DLP. Collera	Student	University of the Philippines-Los Baños, Laguna
79	Jose Paulo T. Dino	Student	University of the Philippines-Los Baños, Laguna
80	Antero L. Armero III	Student	University of the Philippines-Los Baños, Laguna
81	Christine V. Mamauag	Veterinarian III	Dept. of Agriculture-Regional Field Office II
82	Roxan Grace C. Rubia	Agriculturist II	Dept. of Agriculture-Regional Field Office II
83	Anthony C. Moses	Student	Central Luzon State University
84	Blaire R. Alejandro	Student	Central Luzon State University
85	Marl Steven Castro	Student	Central Luzon State University
86	Alberto Emmanuel	Student	Central Luzon State University
87	Lolita Agustin	Veterinarian II	Local Government Unit-Science City of Muñoz, Nueva Ecija

**Annex 2: List of participants to the Training-Workshop on Diagnosis and Control of Trypanosomes & Vectors in Carabao  
15-19<sup>th</sup> January 2018, Philippine Carabao Center, Science City of Muñoz, Nueva Ecija, Philippines.**

	<b>Name</b>	<b>Position/Designation</b>	<b>Affiliation</b>	<b>Contact details</b>
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2	Luzviminda A. Simborio	Vice President for Research and Extensi	Central Mindanao University	<a href="mailto:luzsimborio@yahoo.com">luzsimborio@yahoo.com</a>
3	Sarah Sze	Veterinarian II	Bureau of Animal Industry	<a href="mailto:sarah.chiong.sze@gmail.com">sarah.chiong.sze@gmail.com</a>
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5	Viralou L. Tuquib	Veterinarian II	Dept. of Agriculture-Regional Field Office X	<a href="mailto:viraloutuquib@yahoo.com">viraloutuquib@yahoo.com</a>
6	Marcelina A. Alcazaren	Veterinarian III	Dept. of Agriculture-Regional Field Office IX	<a href="mailto:raddl9@yahoo.com">raddl9@yahoo.com</a>
7	Cecilio R. Castañeda	Farm Superintendent	Philippine Carabao Center National Headquarters and Gene	<a href="mailto:bjetcastaneda1989@gmail.com">bjetcastaneda1989@gmail.com</a>
8	Clarissa A. Odsigue	Science Research Specialist II	Philippine Carabao Center National Headquarters and Gene	<a href="mailto:claodsigue@gmail.com">claodsigue@gmail.com</a>
9	Virgilio V. Lopez	Farm Superintendent II	University of Southern Mindanao	<a href="mailto:virlop007@yahoo.com">virlop007@yahoo.com</a>
10	Emerson Tapdasan	Senior Science Reseach Specialist	Philippine Carabao Center at Ubay Stock Farm	<a href="mailto:emtapz@yahoo.com.ph">emtapz@yahoo.com.ph</a>
11	Kris Louwen dela Cerna	Senior Agriculturist	Dept. of Agriculture-Regional Field Office XI	<a href="mailto:daraddl11@gmail.com">daraddl11@gmail.com</a>
12	Sheena Mae F. Julabar	Veterinarian I	Dept. of Agriculture-Regional Field Office XII	<a href="mailto:sheenjulabar@gmail.com">sheenjulabar@gmail.com</a>
13	Rolando Y. Fajardo	Veterinarian	Department of Agriculture-National Livestock Program	<a href="mailto:ryfdvm@gmail.com">ryfdvm@gmail.com</a>
14	Ted Aries Daguro	Veterinarian	Central Mindanao University	<a href="mailto:ted_ariesau@yahoo.com">ted_ariesau@yahoo.com</a>
15	Ampie Magdalene Sua	Instructor I	Central Mindanao University	<a href="mailto:ampie_sua@ymail.com">ampie_sua@ymail.com</a>
16	Shiela Mae Biñas	Veterinarian I	Department of Agriculture-National Livestock Program	<a href="mailto:shielamaedvm@gmail.com">shielamaedvm@gmail.com</a>
17	Rolando J. Garduque	Associate Professor	University of Southern Mindanao	<a href="mailto:rigarduque@yahoo.com">rigarduque@yahoo.com</a>
18	Riva Marie C. Gonzales	Veterinarian III	Bureau of Animal Industry	<a href="mailto:ivescacho@yahoo.com">ivescacho@yahoo.com</a>
19	Aileen L. Bulusan	Science Research Assistant	Philippine Carabao Center at Cagayan State University	<a href="mailto:albulusan28@gmail.com">albulusan28@gmail.com</a>
20	Karen Mae Grande	Veterinarian II	Bureau of Animal Industry	<a href="mailto:dockarenggrande@gmail.com">dockarenggrande@gmail.com</a>
21	Elena S. Paraguas	Training Specialist III	Philippine Carabao Center at Central Mindanao University	<a href="mailto:paraguasesp@yahoo.com">paraguasesp@yahoo.com</a>
22	Asterlily P. Antolan	Veterinarian III	Dept. of Agriculture-Regional Field Office-CARAGA	<a href="mailto:apenaloga@yahoo.com">apenaloga@yahoo.com</a>
23	Virginia O. Madaje	Agriculturist I	Central Mindanao University	<a href="mailto:madaigir@gmail.com">madaigir@gmail.com</a>
24	Melvin Bagot	Instructor I	Visayas State University	<a href="mailto:melvin.bagot@vsu.edu.ph">melvin.bagot@vsu.edu.ph</a>



### Annex 3: Schedule of the Training Workshop

<div>           </div>						
Workshop-Training on Diagnosis and control of trypanosomes and their vectors in Carabaos Muñoz, Nueva Ecija, Philippines, 15-19 January 2018						
Workshop schedule	Monday 15th January 2018	Tuesday 16th January 2018	Wednesday 17th January 2018	Thursday 18th January 2018	Friday 19th January 2018	Experts
8h00-8H30		Serology <b>ELISA</b> : Blocking <b>Joy</b> Dilution of serum samples	<b>Supervising Joy, Marc, Alan, Bong, April</b>	<b>Change the cages of traps (sub-group A)</b>	<b>Removal of traps (all)</b>	<b>Dr Reuben Sharma:</b> PCR
8H30-9h30	Welcome to open workshop		<b>PCR:</b> preparation of reagents Master mixt, thermocycling <b>Parasitology:</b> blood smear readings <b>April, Abella, Alan, Joy, Marc</b>	Biology of <b>Stomoxys</b> flies <b>Dr. R. Masmeatathip</b>	Identification of biting insects: <b>practice Marc, Oh, Alan, Abella</b>	<b>Dr April Wardhana:</b> & <b>Dr Jose Alexander Abella:</b> parasitology
9H30-10H15	open-workshop	Transfer of samples <b>Joy, Marc</b>		Biology of other haematophagous dipters <b>Dr Jose Alexander Abella</b>		<b>Dr Marc Desquesnes:</b> Parasitology, Serology & biting flies control
10H15-10H30	coffee break	coffee break	coffee break	coffee break	coffee break	<b>Joy:</b> Laboratory practice
10H30-11H30	open-workshop	Dry blood samples for diagnosis; <b>Dr A Wardhana</b> <b>ELISA</b> : washing, conjugate, incubation, washing, substrate <b>Joy Parasitology:</b> direct observation* & HCT** <b>April, Alan, Abella, Marc</b>	<b>PCR:</b> gel preparation and loading of samples, electrophoresis <b>Parasitology:</b> blood smear readings**  Theory and practice on cryopreservative process to preserve <i>Z. evansi</i> <b>Dr. A Wardhana</b>	<b>General identification of</b> haematophagous flies <b>Dr. M. Desquesnes</b>	<b>Drug trial</b> for surra among buffaloes in Mindanao & evaluation of control strategies <b>Dr. A Dargantes</b>	<b>Dr Rounghip Masmeatathip:</b> Muscidae identification
11H30-12H30				Identification of <i>Musca</i> and stomoxys flies <b>Dr. R. Masmeatathip</b>	<b>Tabanid studies in Mindanao</b> <b>Dr Alan P. Dargantes</b>	<b>Dr Alan Dargantes</b> and <b>Dr Jose Alexander Abella:</b> Tabanid identification
12H30-13H30	Lunch time	Lunch time	Lunch time	Lunch time	Lunch time	
13H30-15H00	<b>Generalities</b> on trypanosomes; <b>Parasitological</b> diagnosis <b>Dr. M. Desquesnes</b>	<b>Parasitology:</b> Blood smears preparation <b>ELISA:</b> reading and interpretation of results	<b>PCR:</b> reading, interpretation and discussion <b>April &amp; Marc</b>	<b>Mechanical transmission</b> of pathogens by insects; Identification of <b>Tabanids</b> <b>Dr. M. Desquesnes</b>	Biting flies control <b>M. Desquesnes</b> <b>Général discoussion</b> on biting fly control	<b>Dr Claro "Bong" Mingala:</b> surra in carabao <b>Dr Jose Alexander Abella:</b> biology of hematophagous insects
15H00-15H15	coffee break	coffee break	coffee break	coffee break	coffee break	
15H15-16H30	<b>Molecular</b> diagnosis of trypanosomes by <b>PCR</b> <b>Dr. R. Sharma</b>	Serological test: <b>CATT</b> practice <b>Joy, Alan, Marc</b>	Interpretation of laboratory diagnosis: interest and limits	<b>Change the cages of traps (sub-group B)</b> Identification of biting insects: <b>practice Oh, Alan, Escarlos, Marc</b>	<b>General discussions</b> on diagnosis and control of surra in buffaloes	<b>Dr Jose A. Escarlos:</b> surra in Mindanao/ serology
16h30-17h00	Serological diagnosis by <b>CATT &amp; ELISA</b> <b>Dr. M. Desquesnes</b>	DNA sample preparation theory and Chelex preparation <b>Joy (Alan, April, Marc)</b>	Biting insects <b>trapping</b> technologies <b>Marc</b>		<b>Conclusions and evaluation</b>	
17h00-17h30			<b>Set up of traps with participants in the field</b> <b>Oh, Alan, Escarlos, Joy, Marc,</b>		<b>Closing ceremony</b>	
17H30-18H00	<b>Serology ELISA:</b> coating <b>P Chalermwong</b>			<b>Change the cages of traps (all)</b>		