# Fifth Asia Pacific Workshop on Multi-sectoral Collaboration for the Prevention and Control of Zoonoses, Bangkok, Thailand, 24 – 26 November 2014.

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# Abbreviations and acronyms

ACCAHZ	ASEAN Collaborating Center on Animal Health and Zoonoses
AMR	Antimicrobial Resistance
A-PBA	Asia-Pacific Biosafety Association
APSED	Asia-Pacific Strategy for Emerging Diseases
ASEAN	Association of Southeast Asian Nations
ARES	ASEAN Rabies Elimination Strategy
AMAF	ASEAN Ministers of Agriculture and Forestry
ASWGL	ASEAN Sectoral Working Group on Livestock
AIV	Avian Influenza Virus
BSE	Bovine Spongiform Encephalopathy
CBEP	Cooperative Biological Engagement Program
DLD	Department of Livestock Development
DTRA	Defence Threat Reduction Agency
ECTAD	Emergency Center for Transboundary Animal Diseases
EIDs	Emerging Infectious Diseases
EMPRES	Emergency Prevention System
EPT	Emerging Pandemic Threats
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO RAP	FAO Regional Office for Asia and the Pacific
FETP	Field Epidemiology Training Programme
FETPV	Field Epidemiology Training Programme for Veterinarians
FMD	Foot and Mouth Disease
4WL	4 way-linking
GF-TADs	Global Framework for Progressive Control of Transboundary Animal
	Diseases
GHSA	Global Health Security Agenda
HPAI	Highly Pathogenic Avian Influenza

HPED	Highly Pathogenic and Emerging and Re-emerging Diseases
	Programme
IBCM	Integrated Bite Case Management
ICAM	International Companion Animal Management Coalition
IHR	International Health Regulations (2005)
INGO	International Non Government Organization
LBM	Live Bird Market
MARD	Ministry of Agriculture and Rural Development
MDV	Mass Dog Vaccination
MERS- Cov	Middle East respiratory syndrome coronavirus
МОН	Ministry of Health
МОРН	Ministry of Public Health
NARST	National Antimicrobial Resistance Surveillance Center
OIE	World Organisation for Animal Health
PVS	Performance of Veterinary Services
QA	Quality Assurance
SAARC	South Asian Association for Regional Cooperation
SARS	Severe Acute Respiratory Syndrome
SEARO	Southeast Asia Regional Office
SPC	Secretariat of the Pacific Community
SRRT	Surveillance and Rapid Response Teams
STANDZ	Stop Transboundary Animal Diseases and Zoonoses
TADS	Transboundary Animal Diseases
USAID	United States Agency for International Development
WAHIS	World Animal Health Information System
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific

# **Executive summary**

The drivers of disease emergence and re-emergence have been well described at the global, regional and local scales. The subset of drivers that relates to zoonotic pathogens include changes in land use or agricultural practice, climate change, changes in human demographics, society and diet, and pathogen evolution. These categories of drivers do not act in isolation, but are interconnected. This of course makes developing a suite of prevention and control options to deal with significant threats to public health a complex challenge that requires ongoing attention from a wide range of stakeholders. To adequately address this complex challenge, a One Health approach is increasingly being advocated and implemented. This multidisciplinary and multi-sectoral approach requires the development of strong relationships and trust between people working within—and between—different disciplines and agencies at a range of scales.

This workshop was the fifth workshop organised by the tripartite of the World Health Organisation (WHO), the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE) to help maintain and build the critical relationships that help to support the evolving One Health arrangements in the region. The workshop brought together 95 stakeholders from governments, regional organisations, academic institutions, donors and development partners working on human health, animal health and wildlife issues.

The recent Ebola outbreak in West Africa acted as a potent reminder to participants at the workshop about the need for continued vigilance and adequate preparedness planning. In addition, other disease events during 2014 which highlighted the ongoing importance of zoonotic disease prevention and control that were discussed at the workshop included zoonotic influenza viruses, Middle East respiratory syndrome coronavirus and rabies.

The recommendations of the previous workshop and global updates on zoonoses were reviewed. There were poster presentations from the tripartite partners and 14 Asian countries. The country posters highlighted the current zoonoses situation, progress and updates on One Health Coordination Mechanisms, accomplishments that related to the 2013 workshop recommendations and key lessons learned. It was encouraging to note that significant progress has been made at country and regional levels on multi-sectoral collaboration to control zoonoses. However, political commitment and incentives to fully operationalize One Health at all levels still need to be improved.

The proportion of female participants at this workshop (33%) was less than at the 2013 workshop (40%). Participants greatly appreciated this workshop as a multi-sectoral platform to update ongoing acute public health events and progress made in operationalization of One Health including FAO, OIE, and WHO activities for prevention and control of zoonoses at the humananimal interface. The vast majority of participants were satisfied with the organizational and technical contents of the workshop.

The regional tripartite group acknowledged and thanked the donor agencies including the United States Agency for International Development (USAID), the European Union, the Australian Department of Foreign Affairs and Trade (DFAT) and Japan Official Development Assistance.

The workshop recommended that:

- All partners continue to advocate for political commitment and engagement to strengthen and consolidate ongoing regional and national efforts on multi-sectoral collaboration mechanisms to better understand and manage health risks.
- Regional organizations and international agencies through the tripartite should play a more proactive role in promoting timely sharing of disease information and intelligence as an international and regional public good.
- All partners should promote bilateral and multilateral cooperation to facilitate the sharing of experience and expertise among the member countries in the region including supporting relevant networking activities.
- Support should be made available to conduct targeted multi-sectoral studies in the region to improve understanding of the socio-economic and cultural constraints, translate into effective interventions, and mobilize resources to support implementation of intervention measures in live bird markets to reduce the animal and public health risks of zoonotic influenza.
- Relevant national authorities should undertake a situation analysis to improve understanding of usage patterns of antimicrobial agents, the roles and motivations of all stakeholders in antimicrobial value chains, as well as the nature and application of existing policies and support actions to implement responsible and prudent use of antimicrobial agents consistent with existing international standards.
- The tripartite, national governments, and development partners should work together on developing, resourcing, and implementing comprehensive evidence-based national action plans for rabies control, including mass dog vaccination, and dog population management to control the disease at its source.
- The tripartite and development partners should make available support to regional organizations' and member countries' internal mechanisms to control endemic and neglected zoonoses in the region.
- Countries, OIE and WHO should support improved understanding of the IHR-PVS Operational Framework through IHR-PVS workshops or equivalent events.

As a continuation of the regional tripartite activity, it was agreed that the next workshop would be organized by OIE in collaboration with FAO and WHO, to be held in Sapporo, Hokkaido, Japan during late October 2015.

# Introduction

Pathogens circulating in animal populations can threaten both animal and human health, and thus both the animal and human heath sectors have a stake in, and responsibility for, their control. Pathogens—viruses, bacteria or parasites—have evolved and perfected their life cycles in an environment that is more and more favorable to them and ensures their continuity through time by replicating and moving from diseased host to a susceptible new host.

While the integration of control systems across animal, food and human sectors has been attempted in some countries and regions, most country control systems are generally non-integrated with limited collaborative work. However, the recent efforts to control highly pathogenic avian influenza (HPAI) and contributions towards pandemic preparedness have re-emphasized the need for enhanced concentration on reducing risks associated with zoonotic pathogens and diseases of animal origin through cross-sectoral collaboration. Successful and sustained results are possible when functional collaborations are established—as has been shown in many countries and internationally.

The 'One Health' approach, which emphasizes multi-sectoral and multi- disciplinary work at various levels (international, regional, national and community levels), is increasingly being adopted. In order to ensure a multi-disciplinary approach, both human and animal health sectors need to further strengthen their own capacities, together with a robust animal - human health sector coordination mechanism. There have been various platforms, regulations, guidelines, strategies and tools at global and regional levels developed to support or facilitate a framework for member countries to effectively implement zoonosis prevention and control strategies. Critical elements of this framework include the International Health Regulations (IHR 2005), the Global Framework for Transboundary Animal Diseases (GF-TADs), the World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) Pathway and Tools, the Food and Agriculture Organization of the United Nations (FAO) Emergency Prevention System (EMPRES) for Animal Health and the World Health Organization (WHO) Asia Pacific Strategy for Emerging Diseases (APSED).

FAO, OIE and WHO have institutionalized a tripartite coordination mechanism at global and regional levels and the three organizations are working together at country level for surveillance, prevention and control of zoonoses and emerging diseases at the human, animal and ecosystem interfaces. As part of the arrangements, it was agreed that a tripartite regional workshop should be organised annually to review progress in prevention and control of zoonoses made by Member countries and FAO, OIE and WHO and to define the way forward to further strengthen multi-sectoral coordination and collaboration at the human, animal and ecosystem interfaces.

Since 2010, four regional workshops have been organized with participation of animal and human health as well as other relevant sectors to promote multi-sectoral and multidisciplinary collaboration for zoonoses prevention and control. Each workshop provided opportunities for member countries in Asia and Pacific region to update each other on the progress made in establishing a functional coordination mechanism for prevention and control of zoonoses and implementing a One Health approach at country level. In addition, the workshops allowed countries to share their experiences including problems and constraints that have been encountered. One of the recommendations from the meeting organized in Kathmandu, Nepal in November 2013 was that the member countries and partners continue to implement and explore ways to assess the benefits of using a One Health approach on the control of zoonoses, and emerging and re-emerging infectious diseases.

As a follow-up, FAO in collaboration with OIE and WHO held the 5th Asia Pacific Workshop on Multisectoral Collaboration for the Prevention and Control of Zoonoses during 24-26 November, 2014 in Bangkok, Thailand. The workshop also served as a wrap-up meeting for the European Union Highly Pathogenic and Emerging and Re-emerging Diseases (EU-HPED) project which has been a major source of financial support to strengthen the capacities of animal and human health sectors and their collaboration at the country and regional levels.

# **Objectives of the workshop**

The objectives of the workshop were to:

- i. Provide an update on the situation of zoonotic diseases at global, regional and country levels;
- ii. Review the progress, impacts, lessons learnt and gaps from the EU-HPED projects implemented by FAO, OIE, and WHO;
- iii. Review the progress according to the recommendations of the 4<sup>th</sup> Workshop, and identify opportunities, barriers and gaps in coordination and collaboration mechanisms between various relevant sectors at the international, regional and national levels for operationalization of 'One health';
- iv. Share the updated scientific information of recent emergence of zoonotic diseases that may have implications to Asia and Pacific such as various zoonotic influenzas, novel coronavirus in middle east countries, and Ebola haemorrhagic fever; and prepare plans to develop harmonized approaches for detecting, investigating and responding to future threats due to emerging zoonotic diseases;
- v. Make recommendations on the way to improve collaboration and coordination between human, animal, and environmental, as well as food safety sector for zoonoses prevention and control, focussing on unexpected emerging events.

The three-day workshop included seven sessions applying various modalities, such as presentations, panel discussions, poster presentations, questionnaire surveys, plenary and group discussions.

# **Session 1: Welcome and Opening remarks**

# Master of Ceremonies: Dr Kachen Wongsathapornchai, FAO RAP

# FAO

Mr Hiroyuki Konuma, Assistant Director-General (ADG) of FAO Regional Office for Asia and the Pacific (FAO RAP) delivered the opening remarks on behalf of FAO citing that the tripartite collaboration is becoming a robust framework in addressing zoonoses. He noted that the complementarities of skills and resources of the technical partners (FAO, OIE and WHO) combined with the strengths of the respective ministries of public health and agriculture, are providing positive synergies in controlling and preventing zoonoses. These partnerships are also contributing to improved capacity of regional organizations such as the Association of Southeast Asian Nations (ASEAN), South Asian Association for Regional Cooperation (SAARC) and Secretariat of the Pacific Community (SPC) in supporting regional approaches to emerging infectious diseases.

He noted that on the ground, the One Health approach for implementing disease control programmes is forging close alliances of ministries within governments, regional organizations, private stakeholders and development partners. Activities in the field by the partners whether conducted jointly or separately, are also increasingly engaging with the farming communities and the public from inception through to completion and evaluation to ensure their 'buy in'.

Mr Konuma however stressed the need for partners and countries to continue to be involved in conducting technical and policy level dialogue to ensure that the best and most appropriate strategies and corresponding disease control options are deployed given the diversity of farming systems and economic development of countries in the region. He therefore reaffirmed FAO's commitment to strengthen the tripartite collaboration to further assist in enhancing national and regional capacities to control and prevent zoonoses.

# OIE

Dr Hirofumi Kugita, Regional Representative of OIE Asia Pacific Region delivered the message on behalf of OIE. He noted that the presence of countries in the meeting testifies to the commitment of the countries to zoonoses control. Dr Kugita indicated that given the complexities of disease events and emerging risks such as avian influenza viruses (e.g. H5N1 and H7N9), antimicrobial resistance (AMR), effective strategies based on science are needed to better address the issues at the animal health and human health systems interface.

Dr Kugita referred to OIE as a standard setting body that is fully committed to prevent and control zoonoses and provide services needed by members to support and manage serious animal disease outbreaks. He emphasized that improving governance in both public and private sectors is an effective way to safeguard global health. However, to do this, collaboration between the animal health human health interface must be continually strengthened.

He cited current activities that contribute to strengthening collaboration, namely the work on rabies control and the rabies vaccine bank, the four-way linking project, the OIE PVS One Health assessment, and OFFLU, among others. He wished that participants be updated on emerging zoonoses and on One Health applications.

# WНO

Dr Richard Brown, Programme Officer based in WHO Thailand, delivered the message on behalf of WHO. He reinforced the need for sustained multi-sectoral collaboration as more emerging diseases are occurring. He cited such diseases as Severe Acute Respiratory Syndrome (SARS), avian influenza, Ebola virus infection and Middle East respiratory syndrome coronavirus (MERS COv). He further explained that H7N9 has caused a number of human cases and deaths and that H5N6 is now emerging in a number of countries. Ebola virus disease is now at the center of media attention and the current outbreak in West Africa is threatening international peace and security. MERS COv has resulted in 883 laboratory confirmed cases of infection and 319 related deaths.

Indeed, the increase in trade and travel is becoming a real threat and causing public health emergencies. WHO has put in place the IHR in which countries are required to report disease events. WHO recognizes that capacities of countries need to be strengthened in order to comply with the IHR. As a result, the APSED was developed to serve as a roadmap for countries to establish the necessary requirements to comply with the IHR.

Dr Brown urged and encouraged participants in the next three days, to promote One Health by identifying a combination of actions and approaches to manage the threat of emerging and reemerging zoonoses.

# Ministry of Public Health (MOPH), Thailand

Dr Opart Karnkawinpong, Deputy Director General of the Department of Disease Control delivered the message on behalf of the MOPH. He noted the implication of the current Ebola virus infection on the public and the economy of the countries affected by the disease. He stated that it was impossible to think of human health without factoring in animal health, economics and food systems. Thus, strengthening the interface between human health and animal health is important to control and prevent emerging and re-emerging zoonoses.

# Department of Livestock Development, Thailand

Dr Wimolporn Thitisak, Deputy Director General of the Department of Livestock Development (DLD) delivered the message on behalf of the DLD, Ministry of Agriculture and Cooperatives. She emphasized that given the emergence of zoonotic emerging diseases such as Bovine Spongiform Encephalopathy (BSE), Hendra virus infection, Nipah virus encephalitis, zoonotic influenza, Middle East respiratory syndrome coronavirus in many parts of the world, there is a need for enhanced efforts to reduce diseases of animal origin through cross-sectoral collaboration. Several initiatives at national and international levels have underscored the fact that successful and sustained results are possible.

In Thailand, she has witnessed the benefits of collaborative work on zoonoses prevention and control. The success of disease specific control activities can be attributed to multi-sectoral collaboration and meeting again for the fifth time will provide an opportunity for countries, regions, international organizations and partners to update the situation of zoonoses and activities for surveillance, prevention and control. It will also allow for a review of the progress made after the previous multi-sectoral workshops.

# Session 2: Update on Regional Disease Situation

Moderator: Dr Wacharapon Chotiyaputta, DLD, Thailand

# Introduction of Participants

Dr Wantanee Kalpravidh, the Regional Manager of Emergency Center for Transboundary Animal Diseases (ECTAD) FAO RAP, led the introduction of participants by identifying different clusters of participants in terms of profession, organization and country. This was followed by an ice-breaker session to encourage group interaction.

# Workshop objectives and review of recommendations:

Dr Gyanendra Gongal of the WHO South East Asia Regional Office (SEARO) gave a review of the recommendations issued during the fourth meeting held last year in Nepal. The recommendations dealt with promoting multi-sectoral and multidisciplinary action, functional and sustainable national coordination mechanisms, socio-economic impact of diseases, promotion of One Health and the use of tools such as risk assessment and communication for zoonoses control. He also introduced the workshop objectives, as previously listed.

# Regional updates on zoonoses

Dr Xu Zhen, Epidemiologist, Emerging Disease Surveillance and Response of the WHO Regional Office for the Western Pacific (WPRO) gave an update on zoonoses from the human health perspective. Emerging infectious diseases (EIDs) and zoonoses threats are still ongoing and the Asia Pacific is still a hot spot. The IHR and APSED play a central role for the control of these zoonoses. While much has been achieved through multi-sectoral collaboration, such collaboration needs to be further strengthened.

A joint presentation by OIE and FAO followed where Dr Tikiri Wijayathilaka, Regional Project Coordinator of the OIE Regional Representation - Asia and the Pacific in Tokyo, described how disease information is processed from countries to OIE through the World Animal Health Information System (WAHIS). He then gave an update of major zoonoses. H5N1 HPAI was reported in Cambodia, China, India, Republic of Korea, Democratic People's Republic Of Korea (DPRK) and Russia during the current year. H5N8 was reported in the United Kingdom, Germany and the Netherlands. Rabies is still present in most of Asia. New Zealand reported equine arteritis virus.

Dr Carolyn Benigno, Animal Health Officer of the FAO RAP reported on the joint activities conducted by FAO and OIE. These activities can be grouped as follows:

- Support to national efforts to control selected 'high impact' diseases present in their country;
- 'Generic' enhancement of national disease control systems;
- Fostering regional cooperation and the development of regional approaches and coordination capacity for the control of priority transboundary and emerging diseases;
- Promotion of Human Animal Health Sector collaboration; and
- Information generation and dissemination.

In conclusion, both Dr Wijayathilaka and Dr Benigno cited the following points to consider in the control of zoonoses:

- The importance of addressing the root causes of Transboundary Animal Diseases (TADS) and associated health risks—more prevention, less reaction;
- A holistic, interdisciplinary approach to agriculture and health research and risk management —horizontal cooperation and coordination; and
- Improved national early warning/disease reporting systems and disease control—vertical cooperation and coordination.

# Scientific updates on key emerging disease of international concern

# Zoonotic Influenzas:

Dr Malik Peris from the School of Public Health, University of Hong Kong gave a presentation on zoonotic influenzas, the highlights of which are listed below:

- H5N1 infection has resulted in 668 cases and 393 deaths across 60 countries. Currently there are eight epizones identified in Asia. The virus has evolved to be increasingly genetically diverse and is largely maintained through transmission in poultry;
- H7N9 is now endemic in poultry across south and southeast China. It is asymptomatic in poultry. It has potential to spread to other countries through poultry movements (NOT wild birds). It is currently the most important pandemic influenza threat and is likely to re-emerge this winter;
- HPAI H5N8 has not been reported in humans so far. It was reported in Southeast Asia in 2010. Since early 2014, poultry and wild bird outbreaks have been reported in the Republic of Korea, China and Japan. In November this year, it was reported in Germany and the Netherlands; and
- Other new avian influenza subtypes in east and southeast Asia since early 2013 include H10N8, H5N3 and H5N6.

There was also an explanation of the role of the enzootic H9N2 virus in poultry as a precursor virus for the evolution of other viruses such as H5N1,H10N8 and H7N9.

# MERS-CoV

Dr Elizabeth Mumford, from WHO Headquarters, reported that to date, there were 920 MERS–CoV confirmed cases with 331 deaths. More males were affected, with 46% of the cases reported as severe and fatal, and 26% as asymptomatic. The majority of the cases were reported from the Kingdom of Saudi Arabia and the United Arab Emirates. There is no evidence of sustained human to human transmission nor airborne transmission. The current focus is on identification and care of clinical patients and preventing onward spread in clinical settings.

Initial findings reveal MERS-CoV is circulating in camels in the region although the extent of the circulation in the camel population cannot be determined. A lot of uncertainties remain about the intra- and inter-species transmission of the virus.

The tripartite has provided guidance, protocols and technical support to animal and public health sectors to investigate events, strengthen surveillance, improve infection prevention and control in

healthcare settings, improve case detection and case management, enhance laboratory capacity, and improve public awareness and risk communication

# Ebola

Dr Richard Brown, from WHO Thailand, presented the scientific update on Ebola. The virus family Filoviridae includes 3 genera: Cuevavirus, Marburgvirus, and Ebolavirus. Five species of Ebola virus have been identified: Zaire, Bundibugyo, Sudan, Reston and Taï Forest. The first three have been associated with large outbreaks in Africa. The virus causing the 2014 west African outbreak belongs to the Zaire species.

Ebola virus is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. In Africa, infection has been documented through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found dead or ill in the rainforest. For Marburgvirus, human infection results from prolonged exposure to mines or caves inhabited by *Rousettus* bats colonies.

As of 21 November 2014, there were 15 351 reported Ebola cases in eight countries with 5 459 deaths (but with a case fatality rate probably of about 70%). Transmission remains intense in Guinea, Liberia, and Sierra Leone. Healthcare workers are heavily impacted with 588 cases and 337 deaths already reported.

Recommended components for control are a strong national leadership, community awareness and support, rapid response to stop transmission and prevention. National and Regional preparedness in the Asia Pacific is key, but should build on existing structures, strategies and collaborative mechanisms. This development represents an opportunity to revitalize efforts to strengthen capacities for zoonoses.

# *EU HPED Programme on One Health Approach – Impact and Lessons learned at regional and country levels*

Each of the tripartite partners presented the impact and lessons learned at regional and country levels under the EU-HPED programme.

**FAO** presented a video clip featuring the beneficiaries of the assistance. The ASEAN and SAARC secretariat officials expressed their appreciation on the progress made at the regional level citing the strategic frameworks developed through the respective regional support units. The ASEAN Collaborating Center on Animal Health and Zoonoses (ACCAHZ) will be in operation soon with ASEAN lead countries operating the center. Veterinary services staff from both South and Southeast Asian countries expressed their appreciation for the epidemiology and laboratory training they had received and noted that the learnings would be very beneficial to their work. An important lesson learned is that consultation of all stakeholders at the regional and national levels provides a more robust framework for collaboration and ownership.

**OIE** activities under the programme included the establishment of the vaccine bank for foot and mouth disease (FMD) and rabies, the conduct of PVS missions, capacity building and increased visibility on EU supported actions. Under the vaccine bank, countries had an opportunity to conduct large scale vaccination campaigns with high quality vaccines. Lao PDR has reported a reduced number of outbreaks following the vaccination campaigns. In addition, there has been increased country engagement in the fight against rabies at the animal source.

Under the PVS Pathway activity, Thailand has approved a recruitment plan for 1 000 veterinarians over 10 years. Myanmar authorised the recruitment of 366 veterinarians notwithstanding the

national recruitment cap. The threat of a shortage of veterinary staff in LAO PDR has been seriously considered and steps have been taken to address the problem.

Under the Laboratory Twinning Projects, the following outputs were recorded:

- The Malaysian Veterinary Research Institute is now integrated into the OFFLU network;
- Two beneficiary laboratories are now OIE Reference Centres; and
- Viet Nam now has a laboratory at the national level capable of performing Salmonella isolation.

Capacity building assistance allowed for improved reporting to WAHIS, and better understanding of roles and responsibilities as an OIE national delegate or as a focal point.

**WHO** requested four countries to share their experiences under the EU HPED programme. Indonesia, Lao PDR, Sri Lanka and Viet Nam made presentations and the main issues covered are described below.

*Indonesia* reported that an integrated zoonoses control center was established with the following objectives:

- Prevent the spread of zoonotic disease into the free area;
- Reduce endemic areas;
- Protect the public from zoonotic disease transmission to reduce mortality in humans;
- Reduce the incidence of zoonotic disease transmission by better disease control in animal populations; and
- Reduce the impact caused by zoonoses.

*Lao PDR* indicated that the HPED project contributed to the key APSED focus area of zoonosis/one health. There are four key components under this focus area namely: sharing of surveillance information, coordinated response, risk reduction and research.

*Sri Lanka* enhanced its capacities on laboratory diagnosis against EIDs and on epidemiology and laboratory networking. One health coordination at local and district levels has been improved and an increasing involvement of the wildlife sector has been noted.

**Viet Nam** reported that building on avian influenza efforts for a One Health approach to EIDs, the two national steering committees have brought together relevant ministries and official organizations to respond to emerging infectious diseases in humans and animals. Under the direction of these two steering committees, the Ministry of Health (MOH) and the Ministry of Agriculture and Rural Development (MARD) have achieved several joint initiatives including developing integrated operational program frameworks; organizing international and domestic conferences on One Health and conducting joint activities in areas of surveillance, rabies control and relevant studies on EIDs.

After the presentations, Dr Kalpravidh summarized the following points raised from the reports shared by FAO, OIE, WHO on the implementation of the EU-HPED programme:

- Capacity building is useful and truly effective if a follow up activity is included in the design;
- Coordination mechanisms at regional and national level are part of institution building that will ensure sustainability of such a mechanism. A step to national level coordination is to ensure that focal points of partners, or of both the human health and animal health sectors, communicate with each other regularly. At the regional level, the establishment of the regional vaccine bank and regional support units are demonstrations of regional coordination;

- The IHR and PVS are part of a long term capacity building plan where both WHO and OIE can synergize the strengths of each tool;
- Ownership of programmes by countries can only succeed if proper and thorough consultations have been undertaken amongst identified stakeholders; and
- Frameworks developed by regional support units must be recognized and supported by partners. A good example of this is the establishment of the ACCAHZ which would eventually be the regional support unit for ASEAN.

Ms Suthiya Chantawarangul of the EU closed the session by highlighting that for any project, one has to ask:

- what did I learn; and
- how can I move on.

This is especially important when the funding contribution comes to an end. This is why institutionalizing activities is so important so that the gains from the project can be sustained and even built on.

# Session 3: Updates on Facilitating One Health coordination at country level

# *Poster session (operationalizing One Health at country level pertaining to zoonoses prevention and control)*

To meet a number of the objectives of this workshop, countries were requested to prepare posters. The posters were to include *inter alia* a country update on the zoonotic disease situation and details on the progress of multi-sectoral coordination mechanisms.

Country participants viewed the posters and were guided by the following questions:

- Which particular **zoonotic event(s)** in the region did you find most interesting for 2014? Why?
- What key activities listed in the posters do you think most supported multi-sectoral collaboration?

After the poster viewing, all participants met in plenary to share their views on the questions raised. The following were the highlights of the discussion and a short summary of the elements outlined in the posters.

Zoonotic events discussion:

- Bhutan indicated leptospirosis as a zoonotic event of interest and expressed the view that this is a neglected zoonoses. Indonesia and Malaysia commented that they encounter cases of leptospirosis especially during the rainy season and Thailand agreed that leptospirosis is a zoonotic disease of interest; and
- Thailand also listed schistosomiasis as a zoonotic disease of interest.

From the posters, a total of 26 zoonoses and 71 zoonotic events for 2014 were reported by the 18 presenting countries from the region. As in 2013, rabies, avian influenza, anthrax, leptospirosis, and brucellosis appear to be the most commonly reported zoonoses in the region. Indeed, the majority of the reported events were zoonoses considered to be endemic in the countries. However, some countries reported atypical events for 2014 that involved new strains of a usual zoonotic pathogen or change in its usual distribution. For example, Korea reported 32 outbreaks of HPAI (H5N8) for 2014 and a total of 291 virus isolations from poultry, wild bird and environment samples.

Multi-sectoral collaboration discussion:

Key activities that supported multi-sectoral collaboration

- Rapid response team (Bhutan, Lao PDR);
- Prevention and assessment of rabies (Sri Lanka); and
- Other issues raised were the need for and/or need to strengthen legal provisions to implement multi-sectoral collaboration (Nepal, India, Philippines, Viet Nam)

From the posters, it was clear that almost every country has established a multi-sectoral coordination mechanism. In Thailand, the government has approved a strategy for emerging zoonoses and set up a coordination office. Importantly, the National strategic plan in Thailand is approved and has been allocated a budget. In contrast, the mechanism in some other countries is currently specific to avian influenza and in a couple of countries the mechanism is being developed. Generally, there has been real progress and as a group the commitment to multi-sectoral collaboration is clear. However, there are still numerous challenges to overcome to ensure that the mechanisms are maintained and actually perform well when required.

# Session 4: Strategic update for zoonotic influenza, rabies and antimicrobial resistance (AMR) in the Asia Pacific Region

# Moderator: Dr Gardner Murray, OIE special adviser, Australia

This session was composed of three distinct sub-sessions, which are reported separately below.

# Zoonotic influenza

# Session lead by Dr Subhash Morzaria (FAO consultant) and Dr Malik Peiris (University of Hong Kong)

This interactive 'clicker' sub-session was designed to:

- Identify major gaps, challenges and areas for improvement at the policy levels on operationalizing the One Health approach to controlling existing zoonotic influenzas; and
- Recommend actions to enhance multi-sectoral collaboration to support control of zoonotic influenzas.

Each country had to answer a number of questions with clickers and the results were shared with the whole group in plenary. Following this process, key themes or findings were shared with the group for discussion and clarification.

Again, the process showed that it was evident that improvements had been made in multi-sectoral collaboration at country level. On the issue of One Health strategy and national collaboration and

coordination mechanisms, most responding countries appeared to have a strategy in place or at least a good understanding of the One Health approach and the need for multi-sectoral collaboration. In general, it was considered that good progress had been made since the 4<sup>th</sup> Workshop on development of joint plans and One Health strategy at the country level.

However, there were few clear-cut financial incentives in place to practice One Health and little firm political commitment. In addition, it was noted that there is strong competition within ministries of health and agriculture for budgets and this inhibits the One Health approach. Significant political and financial problems remain to be overcome in a number of countries.

From the discussions that followed, the following conclusions were drawn for this zoonotic influenza session:

- It is encouraging to note that significant progress has been made at country level on multisectoral collaboration to control zoonoses. However, political commitment and incentives to fully operationalize One Health appear to be lacking. Therefore continued and sustained efforts should be made at country, regional and international levels to advocate for increased support from policy makers for enhancing multi-sectoral collaboration;
- Timely sharing of disease information within and between sectors is still a major constraint to preventing incursion of emerging and existing zoonotic influenzas. Regional organizations and international agencies through the tripartite should play a more proactive role in promoting sharing of disease information as an international and regional public good; and
- The role of poultry value chains and live bird markets in emergence and spread of zoonotic influenza viruses is recognized in the region. However, implementation of strategic interventions to minimize this risk is compromised by socio-economic and cultural practices. Therefore, targeted multi-sectoral studies are required in the region to improve understanding of economic and social constraints to effective interventions.

# Antimicrobial resistance (AMR)

Representatives from OIE, FAO and WHO gave presentations on AMR.

All three presenters (FAO – Dr Otte, OIE – Dr Corning, WHO – Dr Gongal) emphasised the gravity of AMR as a threat to public health and global health systems, and the need to address AMR using a holistic, multi-sectoral One Health approach. Problems related to AMR are linked to antimicrobial use in any environment, including human and non-human usages. It is critical to take action now to keep antimicrobial agents effective and useful to combat disease. This may be addressed by tripartite agencies' mechanisms such as setting standards, capacity building, situation assessment, information collection and sharing, and support to policy setting.

The WHO Global Action Plan for Antimicrobial Resistance proposes a coherent set of goals to address AMR, as follows:

- Optimise responsible use of antimicrobial medicines and make AMR containment a national & global priority;
- 2) **Reduce** incidence of **infection**;
- 3) Develop and endorse **regulations** and **policies and guidelines** for appropriate antimicrobial use;
- 4) Promote **public awareness** for responsible use;

- 5) Strengthen knowledge and evidence base;
- 6) Develop a **business case for investment** in new medicines, diagnostic tools, and vaccines, and ensure **no additional economic benefits to prescribers.**

From a regional perspective, Dr Ferdinal Fernando from ASEAN, informed the meeting that ASEAN had endorsed the post 2015 Health Development Agenda and he expected a regional collaboration plan on AMR to be developed as part of the response to all health hazards. It is expected that the regional plan will lead to the development of national AMR plans at country level. He added that greater collaboration with WHO, FAO and OIE is expected in the future.

Dr Murray, OIE special advisor and session moderator, noted that the presentations emphasised that:

- a strategic and multi-sectoral approach needs to be taken to AMR;
- that greater awareness of the problem needs to be raised;
- that science-based solutions should be sought; and
- that there were obvious issues at the human-animal interface.

It is now time for the decisions to be made about what can be done. The issue of incentives was raised because farmers need to produce food and make a profit and in the current environment there is an economic benefit for some to use antibiotics. If the use of antibiotics in the food system is to change, then there must be some incentives for farmers to alter their usage patterns. It may now be time to change the incentives. More data and reporting on the regular use of antibiotics in farming were needed. This data could then be incorporated into future AMR strategies. Dr Murray noted the mention of the need for more research and the fact that in some countries a serious policy disconnect exists in relation to the availability of antibiotics to farmers and appropriate usage patterns to address resistance issues. AMR is a key component of the Global Health Security Agenda (GHSA) and figures in the Prevent-1 Action Package. There are clear obligations to urgently address AMR both at the global and national level.

# **Rabies**

Representatives from OIE, FAO, WHO and World Animal Protection gave presentations on rabies.

Dr Wongsathapornchai from **FAO** showed the FAO-EU HPED video on the rabies control programme on Bali Island, Indonesia. The video showed the approach taken by the Indonesia Directorate of Animal Health and the Bali Livestock Service to control rabies following its introduction to Bali in 2008. The focus of the control programme was on mass island-wide vaccination of dogs with a high quality vaccine, awareness raising and community engagement, post vaccination surveillance based on recording of the number of dogs vaccinated, and the adoption the Integrated Bite Case Management (IBCM) protocol. The use of IBCM is considered an excellent example of a practical One Health approach to multi-sectoral collaboration for the control of a zoonotic disease.

Dr Abila from **OIE** presented an overview of rabies in the region and the role of the OIE component of the EU HPED project, in raising awareness of rabies and in providing 3 362 800 doses of high quality dog rabies vaccine to sixteen countries in the Asia region, with the largest distributions of vaccine going to the Philippines and Viet Nam. He indicated that some countries were using the OIE vaccine bank model to buy vaccine directly from the manufacturers.

Under the Stop Transboundary Animal Diseases and Zoonoses (STANDZ) project, supported by Australia, assistance had been provided to the development of a Southeast Asia dog rabies elimination strategy, in response to the 2008 ASEAN call for action towards the elimination of rabies by 2020 in the ASEAN Member States and the Plus Three Countries (China, Japan and Korea). Between 2008 and 2014 the ASEAN Rabies Elimination Strategy (ARES) was developed through a series of workshops and meetings. ARES is based on four pillars: viz. socio-cultural; technical; organizational; and political. ARES is expected to be endorsed by the ASEAN Ministers of Health and Agriculture during their meetings in September 2015.

Dr Fernando, ASEAN Secretariat, commented that ARES was a concrete document that could be used to develop or revise national rabies work plans for submission to Viet Nam as the ASEAN focal point for rabies control and elimination.

Dr Gongal from **WHO** reported that some of the issues surrounding rabies control in Asia were due to rabies not being a notifiable disease. In addition, many countries do not have a comprehensive rabies control programme, and motivation for animal rabies control is lacking due to competing priorities and poor advocacy with decision makers. Although more Non Government Organizations (NGOs) and International Non Government Organizations (INGOs) are more involved now in rabies control programmes, they are confined to limited areas.

WHO has been engaged in rabies prevention and control since its establishment, through its normative functions, through advocacy, capacity building and technology transfer. WHO supported a number of regional rabies control projects in Asia in the 1980's. Rabies elimination was discussed during the 67<sup>th</sup> World Health Assembly in May 2013. The goal of the Regional Strategic Framework for Elimination of Human Rabies Transmitted by Dogs is elimination of rabies in endemic countries and verification and maintenance of rabies freedom in free areas.

Dr. Gongal provided data on the impact of mass dog vaccination in Sri Lanka on the incidence of human rabies fatalities over the last forty years, and briefed the meeting on the proposed SAARC rabies elimination project (2014-2020).

Dr Tuckwell explained that **World Animal Protection** is a global organisation working in more than 50 countries, creating positive lasting change by pioneering sustainable solutions to animal suffering. World Animal Protection will continue to work closely with governments, the UN, businesses and other animal welfare organisations to help the world to protect animals. With respect to rabies, Mass Dog Vaccination (MDV) creates a barrier to transmission of rabies, protecting both animals and humans, and significant long-term savings are attributable to investing in MDV to eliminate rabies at its source, compared to providing human post exposure prophylaxis indefinitely. World Animal Protection has experience in delivering effective and humane rabies control via projects in Indonesia, the Philippines, Thailand and Viet Nam. World Animal Protection also support national rabies action planning and the ARES. They have published guides on MDV, including rabies data collection and reporting forms<sup>1</sup> with further guides planned on education and messaging, dog population management and a video on dog catching and handling.

World Animal Protection's new dog population management programme is currently in the planning phase and is expected to run from 2016 to 2020 in southeast Asia. The programme will be based on International Companion Animal Management Coalition (ICAM) Dog Population Management Guidance.

Following the four presentations, the moderator of the session, Dr Murray, asked the China participants if they had any comments on rabies in China. Dr Shichun Ma responded that the Ministry

<sup>&</sup>lt;sup>1</sup> (<u>http://www.animalmosaic.org/Forum/yaf\_postst2192\_Guidelines-for-Mass-Dog-Vaccination--MDV.aspx</u>)

of Agriculture conducts dog vaccination programmes in China funded by provincial administrations, but that it has not been possible to vaccinate all dogs due to the large size of the country. China is also conducting research on rabies and the development of effective vaccines.

Dr R G Bambal, Department of Animal Husbandry, India commented that rabies is a notifiable disease in India and that the MOH implements a national rabies control programme which contains an animal vaccination component. The programme is currently being piloted in two states before being replicated further. He suggested that a progressive control pathway approach would be useful to implement rabies control programmes.

Dr. Bounlay Phommasack, Director General of Communicable Disease Control Department, MOH, Lao PDR, stressed the need for partnership with INGOs and international organizations to make progress with effective rabies control programmes that would lead to elimination of the virus. He expected that only some provinces of Lao PDR would be able to reach rabies elimination by 2020. He pointed out that countries which could draft strong rabies proposals were more likely to receive support from development partners than those presenting weak plans. This was an inequitable situation and he would welcome closer working partnerships.

In conclusion, Dr Murray noted that the video proved that mass dog vaccination could have positive human health outcomes, but that it was not easy. The ARES strategy now exists and needs to be made to work and not remain just a slogan. Data has been shared that demonstrates which countries are meeting the OIE rabies standards and there are opportunities for improvement. To make the OIE regional vaccine bank sustainable, richer countries should purchase their rabies vaccine via this mechanism. Dr Gongal had raised cultural issues in relation to rabies control programmes and stressed the need to "never relax"! The SAARC proposal looks promising. The World Animal Protection presentation described the resource materials available and that rabies cannot be eliminated by working alone—we need to work together. China pointed out the importance of adequate funding for rabies control and the need to engage with development partners.

# Session 5: Enhancing zoonoses prevention and control Chair of session: Mr Ken Cokanasiga, Secretariat of the Pacific Community

Strengthening networks for the control and eradication of transboundary animal diseases and zoonoses in ASEAN

# Moderator: Dr Peter Black FAO RAP

Four presentations were given during this sub-session followed by questions from the floor. Representatives of FAO, the MOPH, Thailand and WHO gave the presentations.

Dr. Tum from **FAO** drew attention to the fact that the livestock sector makes key contributions to economic development, improved livelihoods, poverty reduction and food security in the Asia region against a backdrop of increasing emergence of infectious diseases. He explained the establishment of the ASEAN Regional Support Unit and the evolution of the ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ), incorporating the ASEAN Veterinary Epidemiology Group and the ASEAN Laboratory Directors' Forum. The full operationalization of ACCAHZ will be dependent on financial support being provided by the ASEAN member states.

Development of the ASEAN regional strategic framework for veterinary epidemiology commenced with a series of training courses (2004-2009) and networking, followed by the establishment of the Field Epidemiology Training Programme for Veterinarians (FETPV). The epidemiology framework was endorsed by the ASEAN Ministers of Agriculture and Forestry (AMAF) in 2013.

The ASEAN Laboratory Framework commenced with the establishment of the Laboratory Directors' Forum in 2009 as a response to HPAI. A regional collaborative framework was drafted in 2010 and expanded in subsequent years. In 2013 the ASEAN Sectoral Working Group on Livestock (ASWGL) supported the establishment of the ASEAN Laboratory Group; this was endorsed by AMAF in September 2013.

Dr Sopon Iamsirithaworn (**MOPH Thailand**) reported that Surveillance and Rapid Response Teams (SRRT) were established in Thailand in response to the 2004-2006 outbreaks of H5N1 HPAI. The SRRT teams included medical practitioners, veterinarians, laboratory scientists, pathologists and wildlife experts. The deployment of SRRT contributed to the successful control of HPAI H5N1 in Thailand.

The Field Epidemiology Training Programme (FETP) was established by the MOPH in Thailand in 1980 in collaboration with WHO and CDC, with 229 FETP trainees graduating to date. Disease surveillance under the One Health concept involves public health and animal health volunteers, and wildlife rangers / zoo keepers at the community level; SRRT staff operate at the provincial level, while medical and veterinary FETP graduates conduct more advanced surveillance at the national level. Short laboratory training is also provided for FETP trainees.

One Health Workforce development commenced with the formation of the SRRT teams and progressed through establishment of the FETP-V in 2005 resulting in improved surveillance and investigation of zoonoses and related applied research. One Health Epidemiology teams reinforce the existing capacity and structure of medical, public health professionals, veterinarians and wildlife veterinarians and prepare them for outbreak investigations and response to EIDs.

A series of One Health field projects were described addressing surveillance for various diseases ranging from brucellosis to West Nile virus.

Dr Nusara Satproedprai (**MOPH, Thailand**) made reference to the GHSA, launched in February 2014, and the 11 Action Packages under the Prevent-Detect-Respond framework. More specifically, Thailand is the lead country for the Detect-1 National Laboratory System action package, as well as a lead under the Detect-5 action package on Work Force Development.

Recognized as a WHO National Influenza Laboratory in 1972, the Thai National Influenza Center became the WHO Regional Influenza Reference laboratory for Southeast Asia following the HPAI H5N1 outbreaks in 2003. The Thai National Influenza Surveillance Network was established in 2005 in collaboration with US-CDC, incorporating ten networking hospitals in eight provinces. The Network was expanded to 12 hospitals in 2009. Network activities include updating/improving laboratory protocols, capacity and Quality Assurance (QA), training for laboratory identification of emerging respiratory infectious diseases, surveillance for epidemic strains epidemic, and identification of drug resistance.

The National Antimicrobial Resistance Surveillance Center (NARST) was established in 1997 and qualified as a WHO Collaborating Centre for AMR Surveillance and Training in 2005. NARST objectives are to monitor the magnitude and trend of antimicrobial resistance among bacteria isolated from humans; to disseminate information on a regular basis; and to standardize lab techniques and strengthen/support quality assurance in clinical microbiology laboratories.

A number of emerging zoonoses research projects are ongoing and periodic training workshops are conducted to strengthen laboratory diagnostic capacity for emerging human and animal infectious diseases.

Dr Mumford (**WHO**) explained the four – way linking (4WL) project concept as supporting evidencebased management of national health risks, based on cross-linkage of epidemiological and virological information from the public health and animal health sectors, leading to joint assessment of risk and effective risk communication to national decision makers.

4WL project launching includes an in-country review of national animal health and public health systems covering field to central government linkages; epidemiological and virological data collection, linking, and analysis; communication and identification of linkages and technical/administrative constraints. The review is followed by a national 4WL interactive and scenario-based workshop stressing the importance of intersectoral communication, qualitative joint risk assessment, identification of critical national data for sharing and country-based mechanisms for collaboration. The participants identify actions to be taken and responsible focal points from each sector.

4WL is committed to being a national project, building on existing national priorities, systems and mechanisms through continuous interactions with national human health and animal health authorities. Implementation of an action plan is the responsibility of the national government with technical and administrative support and follow-up provided from FAO-OIE-WHO as needed.

Following the four presentations, the moderator of the session, Dr Black commented that all presenters showed how people were working together to strengthen institutions for improved sustainability. Dr Abila from OIE Bangkok asked the meeting participants if there were countries with an existing animal health/human health collaboration mechanism or network, and if so, how they were operating. Dr Vijay Kant Jha, Deputy Director General, Department of Livestock Services, Nepal indicated that Nepal had an established laboratories network which included public health and private laboratories. Dr Chintana Chanthavisouk, FAO Lao PDR, stated that there is collaboration between the public health and animal health laboratories in Lao, including sharing of information and experiences across the sectors, and conducting training for each another. Dr Zabiullah Shahab, MOPH, Afghanistan said that a One Health approach had been initiated in Afghanistan last year by WHO. Functional zoonotic disease control committees had been established in all 24 provinces of the country and a memorandum of understanding had been established for the exchange of laboratory specimens between public health and animal health laboratories. Dr Mumford commented that lower level committees may be more effective than one central committee.

In conclusion, ASEAN promotes the sustainable development of institutional and human resource capacities, the development of enabling systems and the sharing of information and expertise among ASEAN Member States. FETP-V and One Health Epidemiology teams have resulted in improved surveillance and investigation of zoonotic disease outbreaks, reinforcing existing capacity of medical, public health professionals, veterinarians and wildlife veterinarians and preparing them for outbreak investigation and response to EIDs. In Thailand, the impacts of One Health collaboration have been increased capacity to respond to EIDs, improved sharing of surveillance information among human, animal and wildlife health sectors, and improved teamwork among public health, animal health and wildlife professionals involved with disease surveillance and outbreak detection and response.

The presence of a "crisis" also creates potential opportunities. Diseases of global public concern draw more opportunities as compared to endemic diseases. Strong partnerships from national, regional to global level are essential to appropriately address emerging disease threats. Continuous laboratory capacity building and good academic support are key ingredients to prepare for emerging diseases. The benefits of the 4WL framework include sustained information sharing, better understanding of disease epidemiology from both the public health and animal health sides, aligned risk assessment and communication, and balanced science-based risk management.

# Session 6: Tripartite initiatives and partnerships in operationalization of One Health in Zoonoses prevention and control

# Moderator: Dr Abila, OIE, Bangkok

This session comprised a number of presentations followed by discussion. The first presentation was a feedback presentation re-iterating and checking on the main messages from the workshop. Following this session, representatives from partner organizations were given the opportunity to share their activities and perspectives relevant to the operationalization of One Health in zoonoses prevention and control.

The feedback session was led by Dr Black, FAO RAP, who presented a synthesis of the participants' discussion during Day 1 and Day 2. The session was entitled 'What we heard you say'. It was noted that the synthesis was not intended to be an exhaustive list of the points discussed, but rather a starting point for the discussion in drawing out recommendations. Firstly, Dr. Black highlighted that there were still knowledge gaps in understanding the emerging infectious diseases such as MERS CoV, Ebola virus, Nipah virus in horses and zoonotic Influenza. The question was how these knowledge gaps would be addressed and who could provide support to undertake such research on EIDs. Secondly, it was noted that there had been a lot of progress, with various models and options shared for implementing the One Health approach at country level as evidenced during the Poster session (Session 3). While these One Health models and options were still to be reviewed and adapted to ensure these were fit for purpose and fit for country, there were useful lessons learnt. Thirdly, it was emphasized that the discussion on zoonotic Influenza in Session 4 highlighted that live bird markets (LBM) were a critical intervention point but socio-cultural practices were often obstacles to effective interventions. Therefore, it was necessary that more research on socioeconomic aspects be conducted and more evidence documented on the benefits of improving LBM management and biosecurity. Fourthly, Dr. Black highlighted that although One Health had become an acceptable approach there was still lack of political will and financial support in many countries. Lastly, it was highlighted that AMR was still not yet recognized as a priority in many countries and that there was often a 'policy disconnect'.

Dr John MacArthur from Thailand MOPH-US CDC Collaboration, CDC Southeast Asia Regional Office, made a presentation on the framework of the GHSA. Dr. MacArthur emphasized that the increasing health risks as a result of the increased trade, travel and migration and the current lack of capacity to detect and respond (by the June 2012 deadline, only 16% of the 194 countries committed to the IHR reported being fully prepared to detect and respond to pandemics) led to the commitment from the US together with another twenty-two countries under the GHSA. The US's commitment was to work with 30 countries covering approximately 4 billion people over the next five years (by 2020) to prevent, detect and respond to infectious disease threats. Dr MacArthur advised that, within the context of Asia and the Pacific, the GHSA would support the region in implementing APSED, in particular the three objectives of "prevent", "detect" and "respond". The GHSA would be delivered through eleven Action Packages and in collaboration with the regional leadership and also international organisations such as WHO, FAO, OIE and INTERPOL.

Dr. Kristina Boyd and Dr. Kim Leba from Cooperative Biological Engagement Program (CBEP) presented the CBEP's mission, approach and engagements in Southeast Asia. The presentation clarified that CBEP's mission had three areas of focus, which were biosurveillance, biosecurity-bioisafety and cooperative biological research. CBEP had established collaboration with a number of countries in the region including India, Thailand, Laos, Cambodia, Viet Nam, Singapore, Malaysia and the Philippines. Dr. Boyd and Dr. Leba emphasized that CBEP's approach was to leverage existing

relationships and partners including FAO, OIE, WHO and regional organisations such as ASEAN and Asia-Pacific Biosafety Association (A-PBA) to support multilateral collaborative efforts.

Dr Tuckwell from World Animal Protection noted that there would be difficulties in maintaining the momentum, political commitment—as well as funding—for rabies control, given the recent success in development of the regional rabies framework and implementation in a number of countries. Dr Tuckwell stressed that engaging with communities and the private sector would help to sustain the momentum and generate sustainable results. Dr Tuckwell also reiterated that the World Animal Protection organisation would be willing to partner with other organisations to contribute to rabies control, particularly with its expertise in rabies vaccination campaigns and experience in the region.

Dr Sudarat Damrongwatanapokin from USAID Regional Development Mission Asia (RDMA) shared her views on the multi-sectoral collaboration for prevention and control of zoonoses with recognition of the progress achieved and the opportunity for addressing the remained gaps through partnerships. Dr Damrongwatanapokin advised that USAID was in a transition phase to align its programme with the GHSA. The Emerging Pandemic Threats (EPT) Program was moving to the second phase (EPT-2) which would put a stronger focus on countries and supporting a multi-sectoral approach. She noted that an inception workshop on EPT-2 was to be held during the first week of December 2014. Dr Damrongwatanapokin emphasised that USAID continued to partner with many organisations, including with WHO and FAO, to maximize synergies. Dr Damrongwatanapokin also advised that Thailand would host the Asian meeting on GHSA in March 2015 and that there would be an opportunity for Asian countries to develop strategies toward compliance with IHR.

Ms. Shila Kaur from Health Action International Asia Pacific emphasised the important role of civil society and community engagement particularly in awareness raising and advocacy for policies on prevention and control of zoonoses. Ms. Kaur shared several examples of how civil society organisations like Health Action International would meaningfully participate in policy dialogue and in supporting national governments in developing policies on drugs and AMR.

Dr Fernando from ASEAN Secretariat noted that although considerable progress had been made with regard to One Health collaboration in ASEAN, the socio-economic impacts of zoonoses required further actions. Dr Fernando highlighted that ASEAN was preparing the plans for the ASEAN Economic Community's Post-2015 Agenda. It was therefore timely for ASEAN to discuss with development partners and civil society organisations about specific collaborations and expected targets in the framework of ASEAN.

Mr Ken Cokanasiga from the SPC commented that the SPC had not yet faced threats from the emerging diseases that had been discussed at the workshop. However, other zoonotic diseases such as leptospirosis and zoonotic tuberculosis were important to SPC. Mr Cokanasiga stressed that the Pacific Community recognised the importance of multi-sectoral collaboration in setting up disease prevention mechanisms and has put efforts into strengthening the multi-sectoral approach with support from WHO, FAO and other partners. He also pointed out that One Health was also an important approach to address disaster risk reduction for the Pacific Community.

Dr Peiris from University of Hong Kong remarked that experience from H5N1, SARS, H7N9 and other emerging disease outbreaks suggested that more research was needed. Dr Peiris shared that University of Hong Kong would contribute to the One Health collaboration through its training and research expertise, including socio-economic research such as studying behaviours in live bird markets.

As the chair of Session 6, Dr Abila from OIE invited tripartite partners and countries to further discuss issues raised during the workshop.

Dr Murray from OIE commented that the fact that AMR had not been sufficiently recognized as a priority suggested the complexity of the issue, which required better understanding of aspects such as behavior change, incentives and the policy agenda. Dr Murray noted that the complexity of the issue makes implementation difficult. The challenge with regard to AMR was observed in both developed and developing countries, and only recently had the WHO-FAO-OIE tripartite been advocating about the need to address AMR.

Dr Black asked participants to think about what key recommendations would be most useful for countries in efforts to enhance the multi-sectoral collaboration for zoonosis control.

Dr Syed Abol Hussain Qanee from Ministry of Agriculture, Irrigation and Livestock of Afghanistan made a suggestion that more support could be made to facilitate bilateral and multilateral sharing of experience among countries in the region with regard to applying the multi-sectoral approach in prevention and control of zoonotic diseases. Dr Qanee also emphasized that it would be practical to have an established group of national experts or resource people who would be available to share expertise and experience with other countries upon request.

Dr Vijay Kant Jha from the Department of Livestock Services, Ministry of Agriculture Development of Nepal commented that resource management and prioritization—for effective implementation of a multi-sectoral approach to prevention and control of zoonosis diseases—was essential. Dr Jha suggested that progress would still be made even if efforts were focused on a single issue of highest priority and if political commitment and technical resources were sufficiently mobilized.

Dr Karoon Chanachai from DLD Thailand shared his observation that diverse and innovative initiatives on multi-sectoral collaboration had been made as evidenced from the poster session. Dr Chanachai encouraged countries with less experience to experiment with their own model of multi-sectoral collaboration. Dr Chanachai also commented that although many issues would be well understood by technical officers, the challenge was to engage politicians and decisions-makers in the discussion. On the issue of AMR, Dr. Chanachai commented that although collaboration between public health and animal health sectors on AMR was necessary, there was not yet a mechanism for collaboration on AMR. Also the discussion on AMR so far had been mostly held within the public health sector.

Dr Fahmi Sembiring from WHO SEARO stated that he would like to know more information about the range of countries and support being provided by international partners in individual countries for future possible collaboration. The Defence Threat Reduction Agency (DTRA) representative responded to the question of Dr. Sembiring with a list of countries they would support and collaborate with in accordance with their mandate.

# Session 7: Way forward, conclusions and recommendations

# Moderator: Dr Kalpravidh from FAO RAP.

The Fifth Asia-Pacific Workshop on Multi-Sectoral Collaboration for the Prevention and Control of Zoonoses recommended that:

# 1. General

All partners continue to advocate for political commitment and engagement to strengthen and consolidate ongoing regional and national efforts on multi-sectoral collaboration mechanisms to better understand and manage health risks.

Regional organizations and international agencies through the tripartite should play a more proactive role in promoting timely sharing of disease information and intelligence as an international and regional public good.

All partners should promote bilateral and multilateral cooperation to facilitate the sharing of experience and expertise among the member countries in the region including supporting relevant networking activities.

# 2. Zoonotic Influenza

Support should be made available to conduct targeted multi-sectoral studies in the region to improve understanding of the socio-economic and cultural constraints, translate into effective interventions, and mobilize resources to support implementation of intervention measures in live bird markets to reduce the animal and public health risks of zoonotic influenza.

# 3. AMR

Relevant national authorities should undertake a situation analysis to improve understanding of usage patterns of antimicrobial agents, the roles and motivations of all stakeholders in antimicrobial value chains, as well as the nature and application of existing policies and support actions to implement responsible and prudent use of antimicrobial agents consistent with existing international standards.

# 4. Rabies

The tripartite, national governments, and development partners should work together on developing, resourcing, and implementing comprehensive evidence-based national action plans for rabies control, including mass dog vaccination, and dog population management to control the disease at its source.

# 5. Neglected Zoonoses

The tripartite and development partners should make available support to regional organizations' and member countries' internal mechanisms to control endemic and neglected zoonoses in the region.

# 6. IHR-PVS Operational Framework

Countries, OIE and WHO should support improved understanding of the IHR-PVS Operational Framework through IHR-PVS workshops or equivalent events.

# Annex 1

# Agenda

# Opening

- Update on regional disease situation
  - Workshop objectives and review of recommendations
  - Regional update on zoonoses
  - Scientific updates on key emerging disease of international concern
- EU HPED programme on One Health approach impact and lesson learned at regional and country levels
- > Updates on facilitating One Health co-ordination at country level poster session
- Strategic update for zoonotic influenza, rabies and antimicrobial resistance (AMR) in the Asia Pacific Region
- > Enhancing zoonoses prevention and control
  - o Laboratory and epidemiology networking to support zoonoses
  - WHO/OIE operational framework for good governance at the human and animal interface
  - OIE PVS pathway laboratory mission
- Tripartite initiatives and partnerships in operationalization of One Health in zoonoses prevention and control
- > Way forward, conclusions and recommendations
- Closing

# Annex 2

# List of participants

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