



WORLD ORGANISATION FOR ANIMAL HEALTH

Protecting animals, preserving our future

30th Conference of the
OIE Regional Commission for Asia,
the Far East and Oceania
Putrajaya, Malaysia, 20-24 November 2017

FINAL REPORT

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ABBREVIATIONS

AMAF:	ASEAN Ministers of Agriculture and Forestry
AMR:	Antimicrobial resistance
ASWGL:	ASEAN Sectoral Working Group on Livestock
ASEAN:	Association of Southeast Asian Nations
CSF:	Classical Swine Fever
CSIRO:	Commonwealth Scientific and Industrial Research Organisation
CVOs:	Chief Veterinary Officer
FAO:	Food and Agriculture Organization of the United Nations
FMD:	foot and mouth disease
GARC:	Global Alliance for Rabies Control
GAWS:	Global Animal Welfare Strategy
GF-TADs:	FAO/OIE Global Framework for the Progressive Control of Transboundary Animal Diseases
HPAI:	Highly Pathogenic Avian Influenza
IHR:	International Health Regulations
LPAI:	low pathogenic avian influenza
NACA:	Network of Aquaculture Centers in Asia-Pacific
NCBI:	National Center for Biotechnology Information
OIE:	World Organisation for Animal Health
PPP:	Public–private partnerships
PPR:	Peste des petits ruminants
PRRS:	Porcine reproductive and respiratory syndrome
PVS:	Performance of Veterinary Services
RAWS:	Regional Animal Welfare Strategy
SARE:	Stepwise Approach toward rabies elimination
SAR-PRC:	Special Administrative Region- People's Republic of China
SEACFMD:	South-East Asia and China Foot and Mouth Disease
TiLV:	Tilapia lake virus
VS:	Veterinary Services
WAHIS:	World Animal Health Information System
WHO:	World Health Organization

Introduction

1. Following the kind invitation of the Government of Malaysia, the 30th Conference of the OIE Regional Commission for Asia, the Far East and Oceania was held in Putrajaya from 20 to 24 November 2017.
2. A total of 119 participants, comprising OIE Delegates and/or representatives of 19 Members of the region and senior officers from regional and international organisations, attended the Conference. In addition, representatives of the private sector as well as private veterinary organisations from the region and from the host country were present (see list of participants in Annex 1).

Members of the Commission: Australia, Bhutan, China (People's Rep. of), Chinese Taipei, Fiji, Indonesia, Iran, Japan, Korea (Rep. of), Malaysia, Maldives, New Caledonia, New Zealand, Papua New Guinea, Russia, Singapore, Sri Lanka, Thailand, and Timor-Leste.

International/regional organisations: FAO¹, and WHO².

3. Dr Quaza Nizamuddin Bin Hassan Nizam, OIE Delegate of Malaysia, Dr Botlhe Michael Modisane, President of the OIE World Assembly of Delegates and Delegate of South Africa, Dr Monique Eloit, OIE Director General, Dr Zhang Zhongqiu, President of the OIE Regional Commission for Asia, the Far East and Oceania and Delegate of the People's Republic of China, Dr Hirofumi Kugita, OIE Regional Representative for Asia and the Pacific, Dr Ronello Abila, OIE Sub-Regional Representative for South-East Asia, Dr François Caya, Head of the OIE Regional Activities Department, and Dr John Stratton, Deputy Head of the OIE Regional Activities Department, also participated in the Conference. The speakers presenting Technical Items, namely Prof. Peter Windsor, Emeritus Professor at the University of Sydney, for Technical Item I, and Dr Hong Yin, General Director of the Lanzhou Veterinary Research Institute from the State Key laboratory of Veterinary Etiological Biology at the Chinese Academy of Agricultural Sciences, for Technical Item II, honoured the Conference with their presence.

MONDAY 20 NOVEMBER 2017

Opening Ceremony

4. The following authorities addressed welcome messages to all participants during the opening ceremony:
 - Dr Monique Eloit, OIE Director General;
 - Dr Botlhe Michael Modisane, President of the OIE World Assembly of Delegates and Delegate of South Africa;
 - Dr Zhang Zhongqiu, President of the OIE Regional Commission for Asia, the Far East and Oceania and Delegate of People's Republic of China;
 - His Excellency Datuk Seri Dr Ismail Hj Bakar, Secretary General of the Ministry of Agriculture and Agro Based Industry, who officially opened the Conference.
5. Dr Quaza Nizamuddin Bin Hassan Nizam, OIE Delegate of Malaysia, accompanied the above authorities during the opening ceremony.

¹ FAO: Food and Agriculture Organization of the United Nations

² WHO: World Health Organization

Approval of the Agenda and Programme

6. The Provisional Agenda and Timetable were adopted (Programme available in Annex 2).

The OIE Sixth Strategic Plan and its implementation in the Asia, the Far East and Oceania region

7. Dr Monique Eloit, OIE Director General, delivered a presentation on the OIE Sixth Strategic Plan and its implementation in the Asia, the Far East and Oceania region. She briefly reminded the Delegates of the Strategic Plan, its objectives and cross-cutting areas. Dr Eloit then indicated key issues relevant to the region for each strategic objective, underlining the positive aspects and commenting on issues that could be better addressed by OIE Members in the region. She also gave details of how the OIE can help its Members resolve these issues so as to achieve a better implementation of the OIE Strategic Plan at regional and global levels. Dr Eloit also reminded Members in the region of what is expected of them in terms of implementing OIE activities in the region so as to ensure compliance with the OIE's objectives.
8. Dr Eloit confirmed the commitment of the OIE Regional and Sub-Regional Representations and Headquarters in supporting the region. She highlighted and congratulated the region on the excellent coordination established, with the support of the OIE Regional Representation, between the members of the Bureau of the Regional Commission and the regional members of the Council (Core Group), as crucial OIE institutional bodies responsible for liaising with the Members of the region, so to ensure that all regional needs are well addressed by the OIE. Referring specifically to the Core Group approach established in the region, she commented that it was now being used as a model of work coordination by other OIE regions. She encouraged the region to continue to work in accordance with this approach.
9. Finally, Dr Eloit emphasised the OIE's aim to be a truly global organisation, fairly representing the interests of all its regions and Members. In this respect, she referred specifically to the financial situation of the Organisation which, despite strong financial management, needed to consider a restructuring of the regular budget, including a possible marketing strategy aiming at attracting more donors to support the work of the organisation. She pointed out that this was vital in order to ensure the sustainability of the Organisation and to respond to Members' requests. Dr Eloit finished her presentation by underlining the importance of Delegates sensitising high-level authorities on the importance of Members paying OIE contributions in a timely fashion and of considering, whenever possible, contributing in a higher contribution category.

Review of the "Regional Work Plan Framework 2016-2020"

10. As a complement to the presentation by the OIE Director General, in which key issues and the actions needed to tackle them were presented from an OIE Headquarters' perspective, Dr Tashi Samdup, OIE Delegate of Bhutan and Vice-President of the OIE Regional Commission for Asia, the Far East and Oceania, briefly reviewed the Regional Work Plan Framework 2016-2020 initially developed in 2015, which was established by the Regional Commission to guide prioritisation of activities within the region aligned with the OIE Sixth Strategic Plan. Dr Samdup presented the state of play on the regional objectives and specific activities as established in the work plan. He underlined the key issues and explained the actions needed to address these issues from a regional perspective.
11. Following these two presentations, by the OIE Director General and by Dr Tashi Samdup, a panel discussion involving the members of the Bureau of the OIE Regional Commission and the Council (Core Group). All the participants at the Conference were also invited to join the discussion.

12. Both presentations as well as discussions among participants led to the following conclusions:

Strategic Objective 1: Securing animal health and welfare by appropriate risk management

- Regarding animal welfare, OIE Members in the region should commit to the update and implementation of the Regional Animal Welfare Strategy (RAWS) and Action Plan in line with the Global Animal Welfare Strategy (GAWS). They could identify animal welfare priorities that align with other domestic priorities as a good starting point for focused effort, such as responsible dog ownership (alignment with rabies control) and animal welfare during transport and slaughter (alignment with livestock trade);
- The region should actively participate in the standard-setting process by providing quality written comments on Specialist Commission reports in a timely manner;
- The Specialist Commissions expect a full participation of Members in the standard-setting process not only for ensuring that OIE Standards be science-based but also be workable in the field;
- Identifying key issues at both national and regional levels regarding standard-setting and providing comments on them would constitute a good starting point for participation in the process. Identifying new regional issues relevant to standard-setting is also important. The region should also consider a stronger involvement in the scientific work of the OIE by providing the OIE with suggestions for experts for Specialist Commissions and *ad hoc* Groups, when appropriate;
- Delegates should take advantage of tools available in order to facilitate the standard-setting process such as teleconferences, Regional Delegates' Secure Access System, and the Coordination Procedure;
- Members should involve as much as possible the private sector in the standard-setting process, but this requires a greater level of coordination;
- The region should ensure a high level of responses to the questionnaire to be sent on Technical Item 1 for the General Session in 2018 in order to better support the development of the Observatory Project by the OIE;
- It is of paramount importance for the region to strengthen engagement in aquatic animal health issues;
- OIE Members in the region should enhance collaboration and communication between the Delegate and OIE National Focal Points, for better and effective utilisation of the Focal Point system;
- Members wishing to apply for official recognition of disease status should submit evidence-based dossiers in accordance with the relevant provisions in the *OIE Terrestrial Animal Health Code*;
- Members should take better advantage of the expertise available through OIE Reference Centres;
- Members should ensure harmonised approaches to disease control strategies through the Regional FAO/OIE Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs);
- South-East Asia and China Foot and Mouth Disease (SEACFMD) countries should take greater ownership of the Campaign, consider sustainable and more country-driven solutions and call for greater political engagement;
- With regard to rabies control, Members should consider applying the "One Health" approach, enhance regional coordination and increase political will and public awareness;
- Members should promote multi-sectoral collaboration at regional and national level mainly under the "One Health" approach;

Strategic Objective 2: Establishing trust through transparency and communication

- Regarding disease transparency and reporting, the region should ensure timely and quality disease reporting;

Strategic Objective 3: Ensuring the capacity and sustainability of Veterinary Services

- With regard to commitment to the PVS Pathway, OIE Members in the region should provide the OIE with PVS Pathway success stories, engage in helping the evolution of the PVS Pathway and explore the possibility of contributing to the OIE World Animal Health and Welfare Fund;
- With regard to the establishment of OIE Twinning projects, OIE Members in the region should take advantage of the OIE Twinning programme and support the candidate laboratories in the post-Twinning phase with a view to their eventually achieving OIE Reference Centre status;
- The National Focal Points system remains valid, including the related capacity building activities; however, Delegates, in collaboration with the OIE, must find ways to make a better use of their knowledge;

Cross-cutting Area C: Governance and resourcing

- The Regional Core Group should continue its active participation as a bridge between the region and the OIE in order to ensure that all regional needs are well addressed by the OIE;
- It is important that Delegates sensitise high level authorities on the importance of timely payment of OIE contributions;
- Inter-regional cooperation should be strengthened, especially with neighbouring regions;
- Delegates are invited to further reflect on the factors that would ensure a better level of participation of Members in the Conferences of the Regional Commissions;
- The Regional Core Group will continue to monitor the implementation of the Regional Work Plan Framework.

Presentation by Malaysia

13. Dr Quaza Nizamuddin Bin Hassan Nizam, Delegate of Malaysia, provided details on the animal health situation in his country as well as on animal disease control and animal welfare programmes, some being undertaken in collaboration with the industry.
14. He also briefly explained the structure of the Veterinary Authority of Malaysia and invited participants to get further details during the poster session.

TUESDAY 21 NOVEMBER 2017

Appointment of the Conference Committee

15. The Conference Committee was elected by participants as follows:

Chairperson:	Dr Quaza Nizamuddin Bin Hassan Nizam (Malaysia)
Vice-Chairperson:	Dr Kazuo Ito (Japan)
Rapporteur General:	Dr Valérie Campos (New Caledonia)

Appointment of Session Chairpersons and Rapporteurs

16. Chairpersons and Rapporteurs were designated for the Technical Items and the Analysis of the Animal Health Situation as follows:

Technical Item I:	Dr Gibasa Asiba (Papua New Guinea), (Chairperson) Dr Andre van Halderen (New Zealand), (Rapporteur)
Technical Item II:	Dr Tashi Samdup (Bhutan), (Chairperson) Dr Fadjar Sumping Tjatur (Indonesia), (Rapporteur)
Analysis of the Animal Health Situation:	Dr Mark Schipp (Australia), (Chairperson) Dr Ariyapala Katulandage (Sri Lanka), (Rapporteur)

Analysis of the animal health situation in Members in the region during 2016 and 2017

17. Following the presentation on the analysis of the animal health situation in the region by Dr Paolo Tizzani, veterinary epidemiologist at the OIE World Animal Health Information and Analysis Department (report available in Annex 3), the OIE Regional Commission for Asia, the Far East and Oceania noted that:

Highly Pathogenic Avian Influenza (HPAI)

- Members should, in accordance with OIE standards, continue the timely reporting of outbreaks of infection with avian influenza viruses, including outbreaks in wildlife, to ensure a clearer epidemiological understanding of the disease situation while avoiding any unjustified impact on trade in poultry and poultry products. An important message to Delegates was that the HPAI detections in wild birds should not result in unjustified trade barriers, as per the OIE *Code*. The WAHIS reporting systems had been changed during 2017 to minimise this risk;
- Wild bird migratory surveillance, and reporting to the OIE in particular, should be intensified as providing early warning;
- Regional and sub-regional cooperation, particularly in North and East Asia (given its high virus diversity), should be enhanced in order to ensure efficient disease surveillance and control. This cooperation should include sharing of detailed and timely information between Members on wild bird surveillance for early warning, as well as poultry surveillance and disease outbreaks including epidemiological data and disease control measures implemented;
- There are many different approaches to AI surveillance among the Members of the region, a mix of both passive and active surveillance in poultry and wild birds. The most important aspect is that each country ensures it is undertaking levels of surveillance to ensure rapid and early warning based on risks;
- There is a seasonal pattern of HPAI with its annual peak between December and March each year;
- OIE National Focal Points for Wildlife should be a key partner to foster cross-sectoral support to OIE Delegates in wild bird disease surveillance. Thus, when relevant, mechanisms for shared responsibilities between Veterinary Authorities and wildlife authorities should be developed;

Classical Swine Fever (CSF)

- There was a significantly improved epidemiological situation regarding infection with classical swine fever virus in the region between 2005 (44% countries reporting the disease present) and 2017 (23% countries reporting the disease present), with a positive correlation with increased vaccination in the region. However, given the potential role of wildlife as a reservoir host and the current lack of information on the regional situation of the disease in wildlife, Members should step up monitoring activities in wild animals and continue their efforts in applying prevention and control strategies, such as the Association of Southeast Asian Nations

(ASEAN) classical swine fever (CSF) plan, aimed at controlling and eventually eradicating the disease by 2020 in the sub-region;

Porcine Respiratory and Reproductive Syndrome (PRRS)

- Given the importance of porcine reproductive and respiratory syndrome, its diffusion and genetic diversity in the region, coupled with the limited information on strain characterisation that can currently be collected through WAHIS, the OIE should collect, through WAHIS, more information derived from genetic data, coupled with epidemiological information that would allow a better understanding of the current and potential evolution of the disease dynamic. The OIE has implemented the design and development of a genetic platform, using data from OIE Reference Laboratories and connected to WAHIS epidemiological information in the coming years;

Peste des petits ruminants (PPR)

- Considering that peste des petits ruminants (PPR) continues to spread to new countries, the recent massive PPR episode in wildlife reported in the region and the questions regarding the role of wildlife in the maintenance and spread of PPR, Members are encouraged to pursue their efforts to implement the FAO/OIE Global Strategy for the eradication of PPR virus by 2030, including improving communication between Members through timely notifications, ensuring the application of the recommended preventive and control measures and sharing scientific findings through WAHIS, as well as through scientific publications. The OIE will continue to provide feedback to Members and to gauge progress towards disease control and eradication at regional and global levels based on analyses of WAHIS data;

Aquatic animal diseases

- Despite the importance of aquatic animal diseases to the region and the obligation for all Members to reporting aquatic animal diseases, their level of reporting in the region is much lower than for terrestrial animal diseases. Therefore, Members are encouraged to ensure transparent and timely notifications by nominating National Focal Points for Aquatic Animals, providing them with access to WAHIS so that they can benefit from regular dedicated training, including through the WAHIS e-learning platform;
- Given the worldwide importance of tilapia farming and international trade in this species, the continuing reporting of the emerging disease Tilapia lake virus disease in new countries, the OIE encourages Members to investigate and notify mortality and morbidity events in tilapia. Given that the disease was not OIE listed due to a lack of information to meet diagnostic and epidemiological criteria and there was not an official OIE Reference Laboratory, Members of the region should report Tilapia Lake Virus suspicions or events and seek advice from the OIE Collaborating Centre on Emerging Infectious Diseases in the region, the Australian Animal Health Laboratory in Geelong, Australia;

WAHIS+ Update

- The upgraded version of the World Animal Health Information System (WAHIS+) will provide a more efficient and intuitive system for global animal disease reporting and analysis. New features will include extended data mining, customisable data queries, enhanced mapping capability, the capacity to link genomic and epidemiological data, and the capacity to be linked with other relevant systems. Thanks to the support of Members and donors, the project is currently progressing a tender process with five information technology companies' dossiers currently being assessed with an official start in January 2018;
- The WAHIS+ project governance will include a Strategic Advisory Committee comprising OIE Bureau representation from each region, as well as a Technical Committee or a User group, that will ensure the project is aligned with member and user needs. It is a long-term project that will require ongoing support from Members, donors and stakeholders.

**How to enhance the engagement of
aquatic animal sectors in the OIE activities?
A Member's perspective**

18. Dr Hong Liu, OIE Reference Laboratory expert from the People's Republic of China, gave a Member's perspective on how the region could enhance the engagement of aquatic animal sectors in the OIE's activities. The Regional Commission for Asia, the Far East and Oceania concluded that:
- The development of the fisheries industry makes a significant contribution to global nutrition;
 - The fisheries industry is critically important to global, national and rural economies. Members should attach great importance to it and join efforts for the sustainable development of the fisheries industry;
 - Members should comply with OIE standards, guidelines and recommendations on aquatic animal health and welfare as well as commit to the OIE's activities in this field in order to improve the prevention and control of aquatic animal diseases;
 - The region is facing severe aquatic animal health issues such as the threat from acute hepatopancreatic necrosis disease and tilapia lake virus. Members should work together by using appropriate international standards and ensuring regional harmonised approaches to disease control strategies in order to stop their spread, thus ensuring the development of international trade in the region;
 - Members recognised the need to work together with NACA and FAO on regionally significant threats to aquatic animal health, such as emerging diseases;
 - In the light of the growing aquaculture (especially in some small islands), the diversity of aquatic species and related diseases involved, and the lack of expertise faced by various Members, regional and inter-regional collaboration on capacity building and laboratory diagnostic support should be explored and further developed;
 - Participants noted the importance of fish feed (including live fish feed or plant-based feed) as a potential vector for introduction of aquatic animal diseases to intensive aquaculture systems.

**Disease Prevention and Control:
new and revised chapters of Section 4 of the OIE *Terrestrial Code***

19. Dr Masatsugu Okita, Member of the OIE *Terrestrial Animal Health Standards Commission*, provided details of the current work of the *Terrestrial Animal Health Standards Commission (Code Commission)*, and in particular Section 4 of the *Terrestrial Code* on Disease Prevention and Control, which will no longer consist solely of "general recommendations" but provide more detailed and practical guidance for Members.
20. Following the presentation by Dr Okita, the OIE Regional Commission for Asia, the Far East and Oceania concluded that:
- OIE standards should be workable as well as based on sound science. To achieve this, active participation of Member Countries in the development of standards is of paramount importance;
 - Members of the region are highly encouraged to provide as many comments as possible not only in number but also content-wise. With regard to Section 4 of the *Terrestrial Code* on Disease Prevention and Control, it is of paramount importance that Members provide as many comments as possible in order to strongly support the proposed texts;

- There is a need for the development of suitable tools to help Members implement these standards throughout their territories;
- Greater collaboration and cooperation between countries and regions and with international organisations involved in disease prevention and control, such as FAO and WHO, is essential to enhance the implementation of OIE standards;

The Regional Commission noted that:

- In regard to the drafting of new standards or revision of standards, ad hoc group experts are selected from the pool of experts that OIE has, e.g. OIE Reference Laboratories' experts. However, since the OIE standards should not only be based on science but also be workable in the field, experts are sometimes selected from Veterinary Services' officials who have the expertise in implementation of standards rather than purely scientific expertise. In order to better inform its Members, the OIE Headquarters will publish in advance the list of the *ad hoc* groups scheduled in the coming months, including the name of the experts, as well as their Terms of Reference;
- Regarding the rationale for the revision of Chapter 4.3, the revision was triggered by the need to better link the zoning and compartmentalisation concepts with specific diseases such as FMD and avian influenza, especially as these concepts are closely related to trade.

**Technical item I (with questionnaire)
How to implement farm biosecurity
the role of government and private sector**

21. Technical Item I, entitled “How to implement farm biosecurity: the role of government and private sector”, presented by Prof. Peter Windsor, Emeritus Professor at the University of Sydney, Australia, prompted stimulating discussions among participants, including representatives from the private sector, allowing the OIE Regional Commission for Asia, the Far East and Oceania to elaborate a recommendation in accordance with the OIE General Rules (see Recommendation 1 in Annex 4).

**Regional contribution to rabies control:
toward the global target of eliminating
dog-mediated human rabies by 2030**

22. Following the presentation by Dr Katinka de Balogh, FAO Senior Animal Health and Production Officer, on the regional contribution to rabies control and the global target of eliminating dog-mediated human rabies by 2030, the OIE Regional Commission for Asia, the Far East and Oceania noted:
- Addressing neglected zoonoses such as rabies is important to capture as part of a “One Health” approach, as well as for addressing the high-profile risks from emerging zoonoses;
 - The feasibility of ending human deaths from dog-transmitted rabies through the availability of the knowledge, technologies and vaccines that are needed to eliminate rabies;
 - The need to actively engage in “Zero by 30: The Global Strategic Plan to Prevent Human Deaths from Dog-Transmitted Rabies by 2030”, developed jointly by WHO, OIE, FAO and the Global Alliance for Rabies Control (GARC) and contribute to the elimination of dog-transmitted human rabies in the region by 2030;
 - There are benefits in using barrier or ring vaccination to protect dog and human populations, as long as such vaccination extend a sufficient distance from infected cases or areas with sufficient vaccination coverage (at least 70%). Factors such as cold chain and quality of vaccine are also crucial;
 - The willingness of the OIE to receive calls for assistance if countries faced a need for supply of emergency rabies vaccine.

23. The OIE Regional Commission for Asia, the Far East and Oceania also concluded that:
- Members of the Asia, Far East and Oceania region should promote World Rabies Day on 28 September of each year for creating awareness about rabies, advocate for its elimination and implement rabies prevention and control in countries across the region;
 - Members should apply the Stepwise Approach toward rabies elimination (SARE) and the rabies blueprint in developing and implementing their rabies control strategies;
 - Members should encourage the active involvement and contribution of human health authorities in dog vaccination or control programmes, noting that, in countries that have been successful in dog mediated rabies control or eradication, there has been strong support and funding from Ministries of Health;
 - Members should generally target resources in the first 2-3 years of a rabies programme to intensive dog vaccination (including with high profile, short term community based campaigns) given the potential for rapid and significant reductions in human and dog cases. The focus can then be on complementary activities such as dog population control and responsible dog ownership education;
 - Members should also consider the rabies risk from wildlife reservoirs in their rabies control and eradication programmes.

**SEACFMD update, including
its new governance and linkages across the region**

24. Dr Thanawat Tiensin, Representative of Thailand, and Dr Ronello Abila, OIE Sub-Regional Representative for South-East Asia, presented a report on the outcome of the 23rd Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South-East Asia and China, held on 9 and 10 March 2017 in Siem Reap, Cambodia, during which the new governance of the Sub-Commission and the performance of the SEACFMD programme and its progress against the SEACFMD Roadmap milestones, including the various challenges met, were reviewed.
25. The OIE Regional Commission for Asia, the Far East and Oceania noted that:
- The key recommendations of the Meeting were the endorsement of the revised Terms of Reference of the SEACFMD Sub-Commission that change the composition of the Sub-Commission to the OIE Delegates (CVOs) of the members, and that the Presidency would be elected from among the OIE Delegates of the SEACFMD members;
 - It was requested that the OIE Regional Commission for Asia, the Far East and Oceania endorse the revised Terms of Reference of the SEACFMD Sub-Commission;
 - With the new SEACFMD Sub-Commission governance mechanism, it was suggested that new political support be obtained from the ASEAN Ministers of Agriculture and Forestry (AMAF) through the ASEAN Sectoral Working Group on Livestock (ASWGL) in the form of a statement of support for the SEACFMD campaign;
 - It was further requested that the OIE Delegates of ASEAN Member States engage their ASWGL and AMAF representatives to support this process.
26. Finally, it was recommended that the SEACFMD Sub-Commission meeting be conducted every other year, alternating with the Conference of the OIE Regional Commission for AFEO. The next SEACFMD Sub-Commission meeting would be thus held in November 2018.

The implementation of the National Action Plan for AMR and the role of Veterinary Services

27. After the presentation by Dr Huang Weizhong, Deputy Director General, Veterinary Bureau, Ministry of Agriculture, China, regarding the implementation of the Chinese National Action Plan for AMR and the role of Veterinary Services, the Regional commission for Asia, the Far East and Oceania concluded that:
- Members in the region should prepare national action plans, in collaboration with public health and other relevant sectors, to address the issue of antimicrobial resistance in the most appropriate manner;
 - Members in the region should build their surveillance capacity in order to implement the OIE's standards on antimicrobial resistance;
 - It is vitally important to ensure appropriate legislation and systems for regulating prescribing practices and to collect data on resistance to antimicrobial agents;
 - It is important that all new and imported veterinary drugs be authorised only after an evaluation of their safety and efficacy and a control of their quality;
 - Good laboratory and clinical practices, good manufacturing practices and good marketing practices need to be implemented during the research and development, manufacturing and distribution stages, respectively, to ensure the standardised management from research and development to sale;
 - Veterinarians' and other stakeholders' awareness of antimicrobial resistance should be raised using OIE communication tools;
 - It is important to explore the need for a regional action plan, based on the "One Health" approach, and in line with the Global Action Plan on Antimicrobial Resistance and activities under the FAO/OIE/WHO Tripartite Agreement. This entails the ongoing development of national action plans, including awareness-raising campaigns for which the OIE has provided communication materials;
 - The Tripartite is the most appropriate platform for implementing antimicrobial resistance actions, with each partner organisation required to comply with its own scope and remit. Consideration should be given to strengthening the Tripartite at regional level before turning to other coordination mechanisms;
 - Without waiting for alternatives to the use of antimicrobial agents, such as vaccines and probiotics, the development of which is not guaranteed, countries should start to simply consider the implementation of good farming practices as the first step to reduce the use of these agents;
 - Several Members have national action plans on AMR at different stage of implementation and it was suggested that OIE could establish an informal regional network for Members to share their experiences and assist those whose action plans were still to be developed;
 - Members agreed there is a need to further understand and develop policies and regulations on prudent use of antimicrobial agents in livestock production whilst considering the impacts to the agriculture sector.

WEDNESDAY 22 NOVEMBER 2017

Open discussion on implementation of OIE standards

28. The Regional Commission for Asia, the Far East and Oceania undertook an open discussion on the implementation of OIE standards by Members. The discussion was co-chaired by Dr Mark Schipp, OIE Delegate for Australia and Vice-President of the OIE, and Dr Kazuo Ito, OIE Delegate of Japan and Vice-President of the OIE Regional Commission for Asia, the Far East and Oceania and involved all the Delegates of the region.

29. The Regional Commission concluded:

Capacity building activities on OIE standards

- The OIE should continue to provide capacity building on the OIE standard setting process to its Members, including their national Focal Points, such as what has been done thanks to a grant from Australia to the OIE on 'Strengthening capabilities to develop and implement OIE international animal health and welfare standards' funded by the Australian Government, Department of Agriculture and Water Resources through the Agricultural Trade and Market Access Cooperation Programme. Under this grant, the OIE organized a regional seminar on 'OIE standards – facilitating safe international trade' that took place on 13 to 15 June 2017 in Bangkok (Thailand) and for which participants that attended expressed their appreciation. The material used for this seminar has been made available to countries that did not participate to the seminar. Under this grant, the OIE is currently working on a series of short videos on OIE standards;

OIE Standard Setting Process

- The OIE Codes are not text books on specific diseases. They should be used to evaluate and determine measures to protect animal and public health while facilitating international trade in animals and animal products. They have to be used as the basis to develop national legislations and regulations;
- The factors impeding Members to be fully involved in the OIE standard setting process include, among others;
 - Poor understanding of the process
 - Poor understanding of the ways to provide comments
 - Lack of scientific expertise to make comments
 - Turnover of national Focal Points or other involved staff
 - Meetings' reports too lengthy
 - Period for providing comments is too short
 - Complex national internal procedure
- The Delegates should involve their national Focal Points in the OIE standard setting process and should also aim at a greater involvement of all relevant interested parties (private sector, ministry of health, etc.);
- The OIE should aim at a full participation of its Members in the standard setting process: the participation in such process leads to a greater ownership of the OIE standards;
- The *Code Commission* should continue to improve its practices and meetings' reports to facilitate participation in the standard setting process. Suggestions and advice from Members are appreciated and welcomed;
- The capacity of Veterinary Services is an essential component for successful implementation of OIE standards. Tools exist to support Members such as the PVS Pathway, including for PVS Tool Aquatic, and other capacity tools developed by various international organisations;
- The *Code Commission* should continue to improve the structure of its meeting reports so to make them more user-friendly. Currently, in the September meeting report of the *Code Commission*, the chapters that could be proposed for adoption in the upcoming General Session are indicated. Regarding the February meeting, the report is divided in part A and B depending if the Chapters are proposed for adoption at the General Session or not, respectively;
- The OIE Delegate should take advantage of the Regional Delegate Secure System to provide their comments on the OIE standards;
- The *Aquatic Code Commission* should work on providing clearer guidance on the duration of the surveillance period for self-declaration of freedom of aquatic animal diseases, pending the availability of scientific information

OIE Observatory Project

- The initiative of the OIE Observatory project, recently undertaken, will monitor Members' implementation of OIE standards with a focus on particular priority Code chapters and transboundary animal disease case studies, to identify challenges to implementation of standards and input to ongoing OIE capacity building activities, standards development, standards implementation guidance and/or dispute mediation;
- That the Members should actively input into the ongoing development of the Observatory project, including through providing complete and timely responses to the OIE questionnaire, shortly to be circulated, for Technical Item 1 of the General Session 2018 on 'Implementation of OIE Standards by Members, State of Play, and Specific Capacity Building Needs'.

Technical item II (without questionnaire) Surveillance and risk mitigation measures for illegal and unregulated movement of animals across borders or through markets

30. Technical Item II on "Surveillance and risk mitigation measures for illegal and unregulated movement of animals across borders or through markets" was presented by Dr Hong Yin, General Director of Lanzhou Veterinary Research Institute, Chinese Academy of Agricultural Sciences. The stimulating discussions that followed enabled the OIE Regional Commission for Asia, the Far East and Oceania to draft a recommendation in accordance with the OIE General Rules (see Recommendation 2 in Annex 5).

Update of the Regional Animal Welfare Strategy (RAWS)

31. Subsequent to the presentation by Dr Quaza Nizamuddin Bin Hassan Nizam, OIE Delegate of Malaysia, regarding the Update of the Regional Animal Welfare Strategy (RAWS), the OIE Regional Commission for Asia, the Far East and Oceania duly noted:
- The adoption by the World Assembly of Delegates in May 2017 of the OIE Global Animal Welfare Strategy as well as the already adopted OIE international standards on animal welfare for both terrestrial and aquatic animals, and the OIE Guidelines on disaster management and risk reduction;
 - The Regional Animal Welfare Strategy Advisory Group and national Focal Points for Animal Welfare have a supportive role in strengthening networks, sharing information and working for the implementation of OIE standards and guidelines;
 - Malaysia is implementing its National Animal Welfare Strategy and has started enforcing the Animal Welfare Act 2015, with effect from the 1 July 2017, in which the OIE standards have been incorporated in the Regulations;
 - Many members are actively working on advancing animal welfare standards in their countries in line with OIE Standards on animal welfare and the complexity of implementing standards, the range of stakeholders interested and the importance of engaging and working with all parties that are involved in animal welfare;
 - Members are encouraged to regularly provide information on the update of their animal welfare regulations and related initiatives to the RAWS Secretariat.
32. The OIE Regional Commission for Asia, the Far East and Oceania concluded that:
- It is recommended that OIE standards on animal welfare and the OIE Global Animal Welfare Strategy be supported; its implementation by all Members throughout Asia, the Far East and Oceania at national and regional level is highly encouraged;
 - OIE Members in the region should ensure continued and active participation in the development of global standards on animal welfare;

- The key priorities of the RAWs Advisory Group for 2017 are: to continue promoting the implementation of OIE standards and guidelines on animal welfare and the OIE Global Animal Welfare Strategy; to identify top priorities from the Action Plan for advancing animal welfare in the region, and associated sources of funding; to establish Key Performance Indicators for reporting to the OIE; to support national Focal Points for Animal Welfare; and to engage with national Focal Points for Animal Welfare as well as other stakeholders to share information on achievements and activities that are occurring throughout the region to promote the overall improvement of animal welfare.

**OIE PVS Pathway Evolution – Tailored PVS Solutions mark
a new era in OIE Veterinary Services support**

33. Dr John Stratton, Deputy Head of the OIE Regional Activities Department, updated participants on the active process of OIE PVS Pathway Evolution, which had culminated in a highly successful OIE PVS Pathway Think Tank Forum (the Forum) in April 2017, coinciding with the 10-year anniversary of the OIE PVS Pathway. The Forum Report had now been finalised and would soon be available on the OIE website. Dr Stratton stated that the aspect of PVS Pathway Evolution of most relevance to Members was the on-going development and piloting of new options for their PVS Pathway engagement, tailored to each Member own particular governance or technical priorities. He explained that these new options included: 1. Provision of PVS Training to Members (to develop PVS National Specialists and/or potentiate PVS Self-Evaluation); 2. PVS Strategic Planning Support; 3. PVS Specific Content (e.g. PPR/AMR); and 4. PVS Pathway/WHO International Health Regulations linkages. Dr Stratton then indicated that the OIE was currently delivering an intensive Preparation/Planning/Piloting phase with the intention to formally offer these new forms of PVS Pathway engagement to all Members after an official launch of PVS Evolution at the 2018 OIE General Session. The reduced external donor funding for PVS Pathway activities to the region was highlighted, with the OIE, its Members and Partners being encouraged to consider all possible forms of PVS Pathway financial support that may be available, including for a possible PVS Pathway training in the region in 2018. A PVS Evolution/Strengthening VS Business Case is being finalised for sharing with interested donors, and will be presented to the OIE World Fund Advisory Committee in December 2017.
34. The OIE Regional Commission for Asia, the Far East and Oceania noted and concluded that:
- The OIE is fully supported in its aim to continue working on evolving its PVS Pathway after more than 10 years of success, to avoid complacency and ensure the flagship OIE programme is adapted for the future;
 - The OIE is implementing the outcomes of a successful PVS Pathway Think Tank Forum in April 2017, which brought together 74 participants comprising OIE Member representatives, donors/partners, OIE staff and PVS experts to review the programme's successes, build on lessons learned and collectively plan for the strategic evolution of the PVS Pathway;
 - The OIE should publish the final Forum Report on the OIE website for all OIE Members and stakeholders to freely access, and should continue to prepare, plan and pilot PVS Pathway evolution over the coming months, targeting an official PVS Evolution launch at the 2018 OIE General Session;
 - The OIE should identify, train and provide PVS Pathway mission exposure for potentially new PVS Pathway Experts from the region, as part of PVS Pathway evolution;
 - The OIE should explore developing a (sub)-regional approach to PVS Pathway engagement that might comprise (sub)-regional PVS Pathway training, clustering of PVS Pathway missions (with the possibility of (sub)-regional national Veterinary Services observers), and a follow up (sub)-regional workshop to identify lessons learnt develop (sub)-regional priorities and action planning for strengthening animal health systems;

- Members should aim for the highest level of government engagement possible relating to its PVS Pathway related activities to maximise its impact in strengthening Veterinary Services, including using its contribution to global agendas such as global health security (links to IHR Monitoring and Evaluation Framework, and exploring terminology reflecting international animal health “regulations”, as with IHR), the United Nations’ Sustainable Development Goals, international trade, and rural development;
- Members should take note of the ongoing OIE development of new options for their PVS Pathway engagement, tailored to particular governance or technical priorities, such as: 1. Provision of PVS Training to Members (develop PVS National Specialists and/or potentiate PVS Self-Evaluation); 2. PVS Strategic Planning Support; 3. PVS Specific Content (e.g. PPR/AMR); and 4. PVS Pathway/WHO International Health Regulations linkages;
- Members should deliberate on such new options for their OIE PVS Pathway engagement, considering national and (sub)-regional needs, and should consider official requests to the OIE for PVS Pathway training and/or missions, noting choices available after the launch of PVS Pathway evolution at the 2018 OIE General Session;
- Members, the OIE and relevant Partners should take note of the need for ongoing funding for PVS Pathway activities in the region, and should be encouraged to consider all possible forms of PVS Pathway financial support that may be available, including for a possible PVS Pathway training in the region in late 2018.

**Coordination procedure for developing
a regional position for the OIE General Session**

35. Dr Him Hoo Yap, Secretary General of the OIE Regional Commission for Asia, the Far East and Oceania and OIE Delegate of Singapore, delivered a presentation on the procedure developed, following the initiative of the President of the OIE Regional Commission, in order to coordinate a regional position before attending OIE General Sessions. The procedure had been approved at the meeting of the Regional Commission during the 85th General Session held in Paris in May 2017.
36. Dr Him Hoo Yap briefly explained the procedure to Delegates.
37. Following the presentation by Dr Him Hoo Yap, the OIE Regional Commission for Asia, the Far East and Oceania concluded that:
 - The OIE Regional Commission for Asia, the Far East and Oceania should continue working to develop common positions thereby enabling harmonised comments to be presented during the General Sessions of the World Assembly of Delegates of the OIE;
 - Members should take advantage of the “Regional Delegates’ Secure Access System” launched in October 2015 to be involved in the standard setting process as well as to facilitate the process of developing a coordinated position among Members;
 - Members should strengthen coordination to enable them to develop regional or sub-regional common positions on key issues regarding OIE policies and programmes, where appropriate;
 - The Regional Core Group should hold a meeting at least once a year prior to the General Session to help determine regional or sub-regional common positions on key issues and, where appropriate, by e-mail or teleconference, to discuss and provide advice to the Regional Commission and the Regional and Sub-Regional Representations on their programmes and activities;
 - National Focal Points are key in supporting the OIE Delegates when it comes to participation in the standard-setting process; thus, Members should enhance collaboration and communication with their National Focal Points.

Discussion of recommendations

38. Draft Recommendations 1 and 2 on the two Technical Items of the Conference were presented to participants and put forward for discussion. Both draft Recommendations will be submitted for adoption at the Friday session with amendments as per participants' suggestions and discussions.
39. Following adoption by the Regional Commission, the Recommendations will be submitted for endorsement by the World Assembly of OIE Delegates in May 2018. Once endorsed by the Assembly, they will serve as an important guideline for Members of the OIE Regional Commission for Asia, the Far East and Oceania, as well as for the Organisation as a whole.

Proposal of date and venue for the 31st Conference of the OIE Regional Commission for Asia, the Far East and Oceania

40. The President of the Commission asked Delegates present if any of their countries wished to host the 31st Conference of the OIE Regional Commission for Asia, the Far East and Oceania.
41. On behalf of the Government of his country, the Delegate of Japan invited the Regional Commission to hold its 31st Conference in his country in 2019.
42. The proposal of Japan was endorsed unanimously.
43. Additional details will be provided later on.
44. The Representative of Thailand expressed the wish of his country to host the 32nd Conference of the OIE Regional Commission for Asia, the Far East and Oceania.

THURSDAY 23 NOVEMBER 2017

Technical and cultural visit

45. Participants greatly appreciated the technical and cultural visit organised for the day by the host country. Sincere thanks were extended to the organisers for their kind hospitality.

FRIDAY 24 NOVEMBER 2017

How to advocate on the "One Health" approach? (Panel discussion)

46. A panel discussion, co-chaired by Dr Katinka DeBalogh, Senior Officer from the FAO Regional Office for Asia and the Pacific, and Dr François Caya, Head of the OIE Regional Activities Department, brought together representatives from Malaysia, Indonesia, Sri Lanka, and Thailand including representatives from the public health services and the academic sector from Malaysia to discuss on the implementation of the "One Health" concept in their countries and how this concept could be better advocated.
47. Details regarding the "One Health" concept at global and regional level were commented, underlining the Tripartite commitment to ensure leadership in addressing health challenges. Countries participating in the panel had the opportunity to share their experiences with the national bridging workshops, the Joint External Evaluation (JEE) missions, and the intersectoral collaboration under the "One Health" concept.

48. Following the panel discussion, the OIE Regional Commission for Asia, the Far East and Oceania concluded that:

- Human health and animal health are interdependent and bound to the health of the ecosystems in which they exist;
- The “One Health” concept as a collaborative global approach to understanding risks for human and animal health (including both domestic animals and wildlife) and ecosystem health is of paramount importance;
- The implementation of the “One Health” concept should be viewed as added value to the daily work of the various sectors involved;
- Success factors for the “One Health” implementation include: understanding of the concept and its implementation in all sectors involved; identifying the challenges and formulating potential collaborative solutions; understanding the roles, responsibilities and capacities in all sectors involved and the way to better optimise the resources available, and developing an agreement on the coordination mechanism at the central level to the operational level, when needed.
- The OIE PVS Pathway and the WHO IHR Monitoring and Evaluation Framework are key programmes for countries to identify existing gaps in their health systems so to fix them and improve their capacity to prevent, detect and respond to health events.
- The animal health sector, and mainly the Veterinary Services and relevant OIE standards are meaningfully considered as contributors to the global health security obligations with most of the IHR Core competencies being relevant to their activities.
- The National Action Plan for Health security offers a good opportunity to use the PVS Gap Analysis reports’ outcomes;
- IHR/PVS National Bridging Workshops allow countries to increase awareness and understanding on the differences and connexions between the IHR Monitoring Framework and the PVS Pathway; to understand the contribution of the Veterinary Services to the IHR; understand the current strengths and weakness of the collaboration/coordination between the animal health and the public health services; use the results of the PVS Pathway and IHR MEF to explore strategic planning and capacity building needs; and identify activities and steps for the development and implementation of a joint national roadmap to strengthen the collaboration and coordination between both the animal and the public health sectors;
- Countries are invited to request IHR/PVS National Bridging Workshops, jointly with their public health counterparts;
- An active role should be played by the Veterinary Services in the JEE missions as those missions are a good opportunity for the Veterinary Services to communicate on their needs and gaps;
- The OIE should continue to work closely with WHO to implement concrete collaborative actions between veterinary and public health services. To this end, materials developed by the OIE and WHO are made available to Member Countries, including the Communication Handbook for Veterinary Services.

Adoption of the Draft Final Report and Recommendations

49. Dr Monique Eloit, OIE Director General, explained the procedures for adopting the report and recommendations of the Conference. Delegates were invited to submit comments or suggestions for consideration during the session dedicated to the adoption of the report. Further comments on the report received at the OIE Headquarters by 11 December 2017 would also be taken into consideration. However, the recommendations had to be adopted during the current session and could not be changed subsequently, only editing being accepted.

50. The two draft recommendations were adopted, with minor amendments considering participants’ suggestions and discussions.

Closing ceremony

51. Dr Monique Eloit, OIE Director General, thanked and congratulated all the staff from the Department of Veterinary Services of Malaysia for the excellent work done to ensure the success of such an important event for the region. She concluded that the conference was a great success. She thanked all participants for the animated and fruitful discussions along the week which permitted the adoption of two relevant recommendations on the main technical items presented, as well as the drafting of a report summarising the key ideas discussed during the week. She also thanked Delegates for their active participation in the poster session and highlighted the great involvement of Malaysian colleagues, who not only presented several posters but were also prepared and available to discuss with participants on all the different topics presented during the posters session. She thanked the speakers for their excellent work done and time devoted to the preparation of their presentations. She also thanked the host country for the interesting visit options proposed to participants, the nice dinner offered as well as the traditional dance and food that allowed participants to bring home wonderful memories from Malaysian culture and landscape.
52. Dr Eloit also encouraged Delegates to share all the information discussed during the Conference with their colleagues and teams in their respective countries so to allow Veterinary Services to benefit from such a fruitful information as well as to consider key issues mentioned to improve their work. She underlined that, Conferences of the OIE Regional Commissions were more than a week attending a meeting, as the information presented and discussions occurred during that week should go beyond the Conference room and reach the key actors in the daily work of the Veterinary Services to ensure it will bear fruits.
53. Dr Quaza Nizamuddin Bin Hassan Nizam, OIE Delegate of Malaysia, expressed his gratitude, on behalf of his government and on his own, to all the participants, the speakers and the OIE secretariat for the productive Conference. He wished participants a safe trip back home and hoped that the stay in Putrajaya was pleasant.
54. Dr Botlhe Michael Modisane, President of the OIE World Assembly of Delegates, reiterated his thanks and congratulations to the government of Malaysia for the excellent organisation of the Conference and the warm welcome and hospitality offered to all participants.
55. On behalf of the Bureau of the OIE Regional Commission for Asia, the Far East and Oceania, the OIE Headquarters and the Conference participants, Dr Zhang Zhongqiu, President of the OIE Regional Commission and Delegate of China, read the traditional motion of thanks addressed to the host country.
56. Dr Quaza Nizamuddin Bin Hassan Nizam declared the Conference officially ended at 12.30 p.m.

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PROGRAMME

MONDAY 20 NOVEMBER 2017

10: 00 a.m. – 2:00 p.m.	Registration of participants and document distribution
2:00 p.m.	Opening ceremony
2:40 p.m.	Approval of the Agenda and Programme
2:45 p.m.	Group Photo / Break
3:15 p.m.	The OIE Sixth Strategic Plan and its implementation in Asia, the Far East and Oceania region (Dr Monique Eloit, OIE Director General)
3:45 p.m.	Review of the “Regional Work Plan Framework 2016-2020” (Dr Tashi Samdup, OIE Delegate of Bhutan and Vice-president of the OIE Regional Commission for Asia, the Far East and Oceania)
4:15 p.m.	Panel discussion with the OIE Director General, the OIE Regional and Sub Regional Representatives, the Members of the Bureau and the Council
4:45 p.m.	Presentation by Malaysia
5:15 p.m.	Introduction to the Posters Session
5:30 p.m.	Posters Session

TUESDAY 21 NOVEMBER 2017

9:00 a.m.	- Appointment of the Conference Committee (Chairperson, Vice-Chairperson and General Rapporteur) - Appointment of Session Chairpersons and Rapporteurs (Technical items and Animal Health Situation)
9:15 a.m.	Analysis of the Animal Health Situation in Members in the region during 2016 and 2017 (Dr Paolo Tizzani, Veterinary Epidemiologist, OIE Animal Health Information and Analysis Department)
10:00 a.m.	Discussion
10:30 a.m.	Break
11:00 a.m.	How to enhance the engagement of aquatic animal sectors in the OIE activities? A Member’s perspective (Dr Hong Liu, OIE Reference Laboratory expert, People’s Republic of China)
11:30 a.m.	Discussion
12:00 p.m.	Disease Prevention and Control: new and revised chapters of Section 4 of the OIE Terrestrial Code (Dr Masatsugu Okita, Member of the OIE Terrestrial Animal Health Standards Commission)

- 12:30 p.m. Discussion
- 1:00 p.m. Lunch
- 2:15 p.m. Technical item I (with questionnaire)
How to implement farm biosecurity: the role of government and private sector
(Prof. Peter Windsor, Emeritus Professor, University of Sydney)
- 3:00 p.m. Discussion involving private sector's representatives
- 3:30 p.m. Regional contribution to the rabies control towards the global target of eliminating dog-mediated human rabies by 2030 (Dr Katinka DeBalogh, FAO Regional Office)
- 4:00 a.m. Discussion
- 4:15 p.m. Break
(Preparation of Recommendation No. 1 by designated small group)
- 4:45 p.m. SEACFMD update, including its new governance and linkages across the region
(Dr Thanawat Tiensin, Representative of Thailand / Dr Ronello Abila, OIE Sub Regional Representative for South East Asia)
- 5:15 p.m. Discussion
- 5:30 p.m. The implementation of National Action Plan for AMR and the role of Veterinary Services
(Dr Zhongqiu Zhang, OIE Delegate of People's Republic of China and President of the OIE Regional Commission for Asia, the Far East and Oceania)
- 6:00 p.m. Discussion
- 7:30 p.m. Reception hosted by the OIE

WEDNESDAY 22 NOVEMBER 2017

- 9:00 a.m. Open discussion on implementation of OIE standards
- 10: 30 a.m. Break
- 11:00 a.m. Technical item II (without questionnaire)
Surveillance and risk mitigation measures for illegal and unregulated movement of animals across borders or through markets (Dr Hong Yin, General Director of the Lanzhou Veterinary Research Institute, State Key laboratory of Veterinary Etiological Biology, Chinese Academy of Agricultural Sciences)
- 11:45 a.m. Discussion
- 12:15 a.m. Lunch
(Preparation of Recommendation No. 2 by designated small group)
- 1:30 p.m. Update of the Regional Animal Welfare Strategy (RAWS) (Dr Quaza Nizamuddin Bin Hassan Nizam, OIE Delegate of Malaysia)
- 2:00 p.m. Discussion
- 2:30 p.m. OIE PVS Pathway Evolution – Tailored PVS Solutions mark a new era in OIE Veterinary Services support (Dr John Stratton, Deputy Head, OIE Regional Activities Department)

- 3:00 p.m. Discussion
- 3:30 p.m. Coordination procedure for developing a regional position for the OIE General Session (Dr Him Hoo Yap, OIE Delegate of Singapore and Secretary General of the OIE Regional Commission)
- 4:00 p.m. Discussion
- 4:30 p.m. Break
- 5:00 p.m. Discussion of recommendations
- 5:45 p.m. Proposal of date and venue of the 31st Conference of the OIE Regional Commission for Asia, the Far East and Oceania
- 6:00 p.m. End of the Session
- 7:30 p.m. Reception hosted by Malaysia

THURSDAY 23 NOVEMBER 2017

Technical and cultural visit

FRIDAY 24 NOVEMBER 2017

- 09:00 a.m. How to advocate on the One Health approach? (Panel discussion)
- 10:30 a.m. Break
- 11:00 a.m. Adoption of the Draft Final Report and Recommendations
- 11:30 a.m. Closing ceremony

ANALYSIS OF THE ANIMAL HEALTH SITUATION IN MEMBERS IN THE REGION DURING 2016 AND 2017

This report is based on information obtained from six-monthly reports, annual reports and immediate notifications and follow-up reports submitted to the OIE by 44 countries and territories³ up to 15 September 2017. Special attention is given to the 2016 and 2017 reporting period.

The report reviews the situation in Asia, the Far East and Oceania regarding some specific diseases notified during this period: infection with influenza A viruses of high pathogenicity, infection with classical swine fever virus, porcine reproductive and respiratory syndrome, infection with peste des petits ruminants virus and one emerging disease, Tilapia lake virus disease.

1) Infection with influenza A viruses of high pathogenicity

Infection with influenza A viruses of high pathogenicity (HPAI) is a priority disease in the Region in view of the number of countries and territories affected, its economic impact and the number of circulating subtypes. Since 1997, HPAI has severely impacted the economy and public health in the Region⁴, with more than 200 million birds lost (dead or destroyed) and 470 human cases due to HPAI H5N1 as reported by the World Health Organization⁵.

The recent geographical distribution of HPAI in Asia, the Far East and Oceania, during the period from 1 January 2016 to 15 September 2017, is shown in Figure 1. During this period, a total of 43 countries and territories provided information on the disease, which was reported present by 46% of them (20⁶/43). Ten countries reported the presence of the disease in both domestic birds and wildlife, while 10 reported the presence of the disease in domestic birds only.

During the period from 1 January 2016 to 15 September 2017, HPAI was reported by means of immediate notifications by 18 countries and territories. In the province of Xinjiang, China (People's Rep. of), HPAI (subtype H5N6) was reported for the first time, with a starting date in December 2016. One farm was affected and about 60 000 poultry were destroyed. As of 15 September 2017, the event was still ongoing. The Philippines reported the first occurrence of HPAI in the country, with a starting date in July 2017. Subtype H5N6 was reported in the province of Pampanga. Later on, the disease spread to the province of Nueva Ecija and about 400 000 poultry were destroyed. As of 15 September 2017, the event was still ongoing.

Moreover, during the period of study, six countries and territories reported the occurrence of new subtypes. Three of them made notifications for H5N6. Myanmar reported the first occurrence of subtype H5N6 in poultry. The event, which occurred in Shan State, was reported to have started in March 2016. Samples taken from apparently healthy chickens in live bird markets tested positive. The event was resolved in April 2016.

³ 36 Members of the OIE Regional Commission of Asia, the Far East and Oceania, as well as Cook Islands, French Polynesia, Hong Kong (SAR-PRC), Kiribati, Marshall Islands, Palau, Samoa and Tonga

⁴ Xu, X., Subbarao, K., Cox, N.J., and Guo, Y. (1999). Genetic Characterization of the Pathogenic Influenza A/Goose/Guangdong/1/96 (H5N1) Virus: Similarity of Its Hemagglutinin Gene to Those of H5N1 Viruses from the 1997 Outbreaks in Hong Kong. *Virology*, 261, 15–19. doi:10.1006/viro.1999.9820

⁵ Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2017, http://www.who.int/influenza/human_animal_interface/2017_07_25_tableH5N1.pdf?ua=1

⁶ Bangladesh, Bhutan, Cambodia, China (People's Rep. of), Chinese Taipei, Hong Kong (SAR-PRC), India, Indonesia, Iran, Iraq, Japan, Korea (Dem. People's Rep. of), Korea (Rep. of), Laos, Malaysia, Myanmar, Nepal, Philippines, Vietnam and United States of America

Korea (Rep. of) reported the first occurrence in the country of subtype H5N6, with a starting date in November 2016. As of 15 September 2017, 343 outbreaks had been reported and the event was still ongoing.

Chinese Taipei reported the first occurrence of subtype H5N6 in Hualien County in poultry, with a starting date in February 2017. Sequencing of the virus showed high similarity (99%) with viruses previously detected in Korea (Rep. of) and Japan. The event was resolved in May 2017.

The Asian lineage H5N6 has become very important for the Region as it has caused severe clinical signs in poultry and associated mortality. These outbreaks have led to significant destruction of poultry, with more than 26 million birds being destroyed by the Veterinary Authorities to control the disease. This subtype was also detected in wild birds in Japan and Hong Kong (SAR-PRC), with most of the cases being detected in November 2016. The presence of HPAI H5N6 virus in migratory bird species poses a potential threat of dissemination of this virus by wild birds outside the Region⁷.

Three countries submitted immediate notifications for subtype H5N8. Iran reported the first occurrence of subtype H5N8 in the country, with a starting date in November 2016. The country reported 30 outbreaks in domestic and wild birds.

China (People's Rep. of) reported the first occurrence of subtype H5N8 in the province of Hubei, in wild birds, with a starting date in December 2016. As of 15 September 2017, the event was still ongoing.

Nepal reported the first occurrence of subtype H5N8, with a starting date in March 2017 and involving poultry. The event was resolved the same month.

Lastly, China (People's Rep. of) reported the first occurrence of subtype H7N9 in the province of Hunan, with a starting date in March 2017. Samples from live bird markets tested positive for the virus, indicating that the low pathogenic strain of H7N9 virus had mutated to become highly pathogenic. Experimentally the virus is very lethal in chickens and the intravenous pathogenicity index of the virus is 2.8 to 3⁸. As of 15 September 2017, the event was still ongoing.

Several countries submitted self-declarations of freedom from HPAI during the period, in compliance with Article 10.4.3. of the OIE *Terrestrial Animal Health Code (Terrestrial Code)*. Among these countries, three had not experienced any recurrence of HPAI since the declaration, as of 15 September 2017. The Delegate of Iran made a self-declaration that the country was free from infection with avian influenza viruses with effect from 1 May 2017⁹. The Delegates of Nepal and Malaysia also made self-declarations that their countries were free from HPAI, in June 2017¹⁰ and July 2017¹¹, respectively.

⁷ Si Y-J, Lee IW, Kim E-H, et al. Genetic characterisation of novel, highly pathogenic avian influenza (HPAI) H5N6 viruses isolated in birds, South Korea, November 2016. *Eurosurveillance*. 2017;22(1):30434. doi:10.2807/1560-7917.ES.2017.22.1.30434.

⁸ OIE Situation Report for Avian Influenza, September 2017, http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/OIE_AI_situation_report/OIE_SituationReport_AI_18September2017.pdf

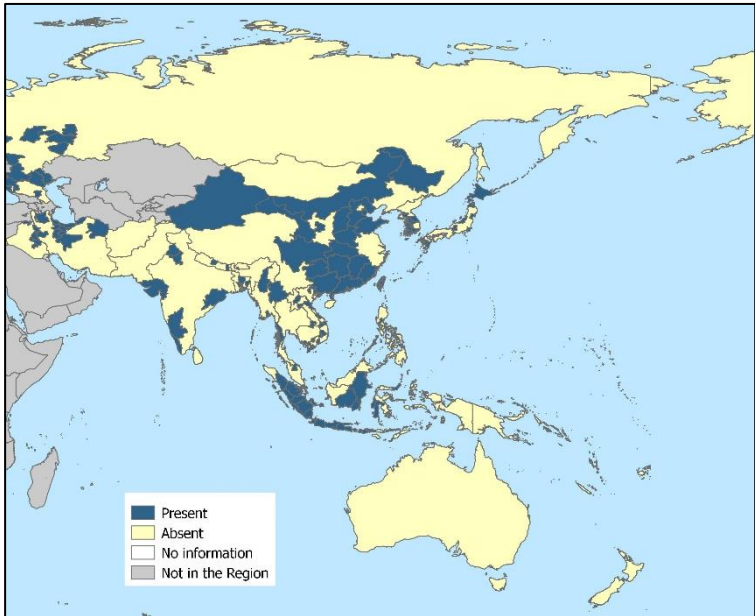
⁹ http://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?reportid=23659

¹⁰ http://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?reportid=24027

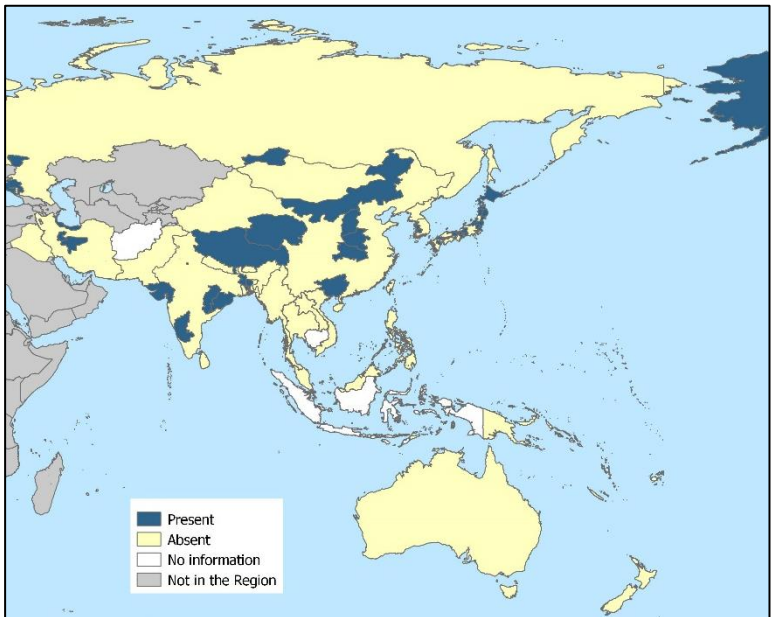
¹¹ http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Self-declarations/Malaysia_webversion.pdf

Figure 1. Distribution of HPAI in Asia, the Far East and Oceania in 2016 and 2017 (up to 15 September 2017)

Domestic birds



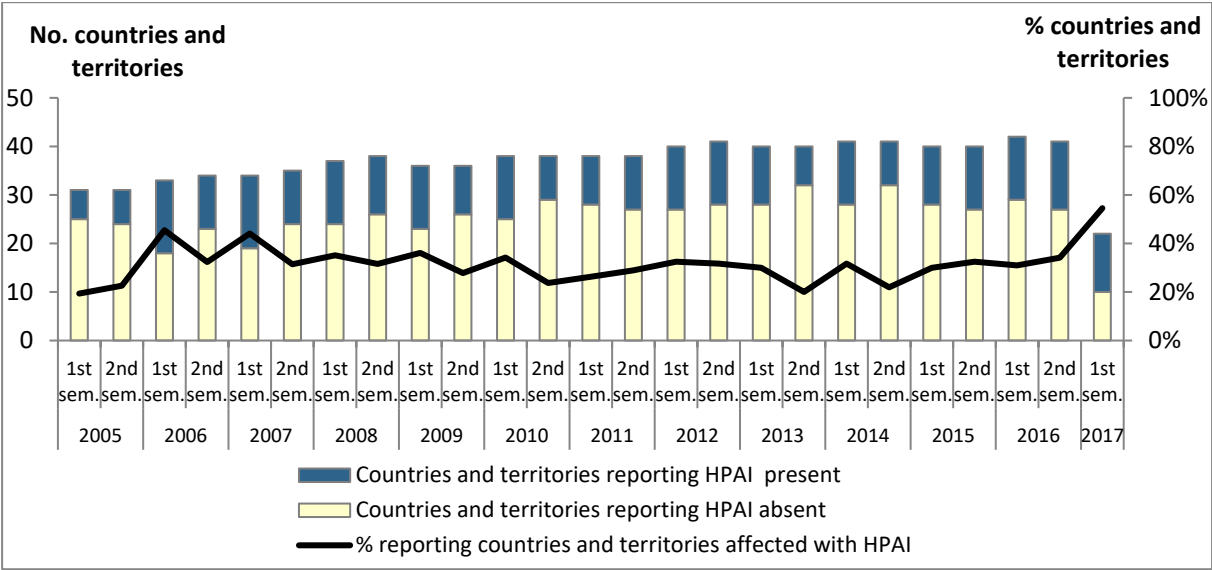
Wild birds



Following the description of the recent situation of HPAI in the Region, the next part of the analysis describes the trend in disease notifications for all subtypes of the disease since 2005, to provide more background historical information and illustrate the impact on OIE Members.

As shown in Figure 2, the trend in the percentage of reporting countries and territories that notified the disease present is very variable and no significant (positive or negative) trend was observed for the period 2005 – 2017. The percentage of reporting countries and territories that were affected was relatively low (23%) in 2005, but doubled (45%) in 2006 and 2007. Then, the virus had a period of lower activity, with a gradual reduction in the percentage of reporting countries and territories affected, which reached a minimum in 2013 (20%). In the following years, HPAI spread again in the Region, reaching in 2017 the highest value (55%) ever registered for the Region. However, as of 15 September 2017, the information for the first semester of 2017 was still only partially complete. On average, during the whole period of study, the disease was reported present by 32% of the countries and territories in the Region.

Figure 2. Percentage of the reporting countries and territories that notified HPAI present, by semester, between 2005 and the first semester of 2017 (data based on reports received up to 15 September 2017)



HPAI is a priority disease in the Region in view of the number of countries and territories affected its economic impact and the number of circulating subtypes. For these reasons, the analysis of the data provided by Members is very important in order to identify patterns that may affect disease control and monitoring. The following part of this chapter is aimed at evaluating the risk of occurrence of HPAI outbreaks in the Region, by applying temporal and spatial epidemiological analyses.

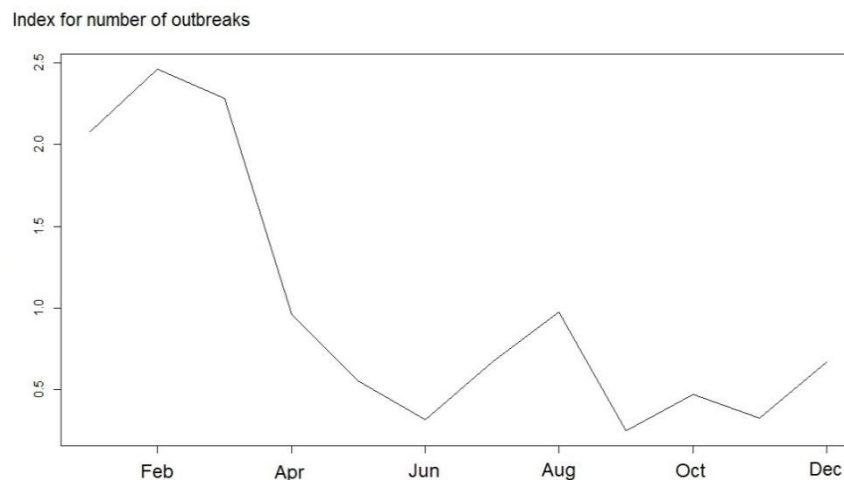
Temporal analysis

The seasonality of HPAI is of great interest to public health and animal health authorities as it provides useful information for preparedness purposes, highlighting periods of both high and low risk for disease occurrence. Considering that the majority of HPAI outbreaks (94%) were reported in the Region in poultry and little information was reported on wild birds, the temporal analysis was carried out taking into consideration only those outbreaks reported in poultry. To analyse the seasonal pattern, a dataset was prepared containing information on the number of HPAI outbreaks aggregated by month from 2005 to 2017, based on their starting dates. All affected countries and territories provided quantitative data. The figures included 2987 outbreaks, corresponding to all the outbreaks identified in domestic birds reported by countries from 2005 to 2017. Monthly outbreak incidences were formatted into time series. A seasonal decomposition by moving averages was applied¹². Multiplicative models were used, given that, in the raw data, variations increased with increasing incidence.

¹² Wynn, H.P. 1985. The advanced theory of statistics, Vol. 3, 4th Edition, Kendall, Sir Maurice, Stuart, A. and Ord, J. K., High Wycombe: Charles Griffin, 1983. Pages: 780. J. Forecast. 4, 315. doi:10.1002/for.3980040310

The results obtained show a bimodal seasonality pattern: HPAI incidence starts increasing each year in November, with a higher peak in February, a reduction in activity in May-June, and a lower peak in August (Figure 3). The February peak is consistent with findings described in other studies at global level¹³. The months of June, September and November seem to be lower risk periods, even if the activity of the virus in the Region never completely stops during the year. The August peak appears to be specific to some countries in the Region (in particular the HPAI H5N1 outbreaks reported in Russia in 2005).

Figure 3. Seasonal trend of HPAI outbreaks in domestic birds in Asia, the Far East and Oceania, from 2005 to 2017



Spatial analysis

Since 2005, eight HPAI subtypes have been reported in the Region (H5N1, H5N2, H5N3, H5N6, H5N8, H7N2, H7N7 and H7N9), and many of them have been found circulating in the same administrative divisions. As is already well known, HPAI virus has shown a huge capacity for mutation. For example, as observed for H5N8¹⁴, some strains have a high propensity to reassort with co-circulating low pathogenic avian influenza (LPAI) and HPAI viruses, causing the generation of new subtypes and genotypes¹⁵.

The detection of different subtypes notifiable to the OIE in the same area probably indicates the presence of risk factors that contribute to the occurrence of HPAI outbreaks detectable by the prevailing surveillance systems, for instance infected wild bird reservoir populations coming into contact with high density poultry populations of various species. This result could be taken into account by Veterinary and Public Health authorities for targeting monitoring and for preparedness purposes, although the finding may already be biased by higher sensitivity of surveillance systems operating in such locations.

In view of the above, an evaluation of the diversity of virus subtypes circulating at regional level was carried out, based on the data provided by countries and territories during the period 2005 – 2017.

For this purpose, each administrative division of countries and territories in the Region was categorised according to the number of subtypes reported and the results were plotted. Administrative divisions were classified as “high virus diversity” (three to four different subtypes circulating), “low virus diversity” (one to two different subtypes circulating) and “disease not reported”. The results of the analysis are shown

¹³ Zhang Z, Chen D, Chen Y, et al. Spatio-Temporal Data Comparisons for Global Highly Pathogenic Avian Influenza (HPAI) H5N1 Outbreaks. Brusich V, ed. *PLoS ONE*. 2010;5(12):e15314. doi:10.1371/journal.pone.0015314

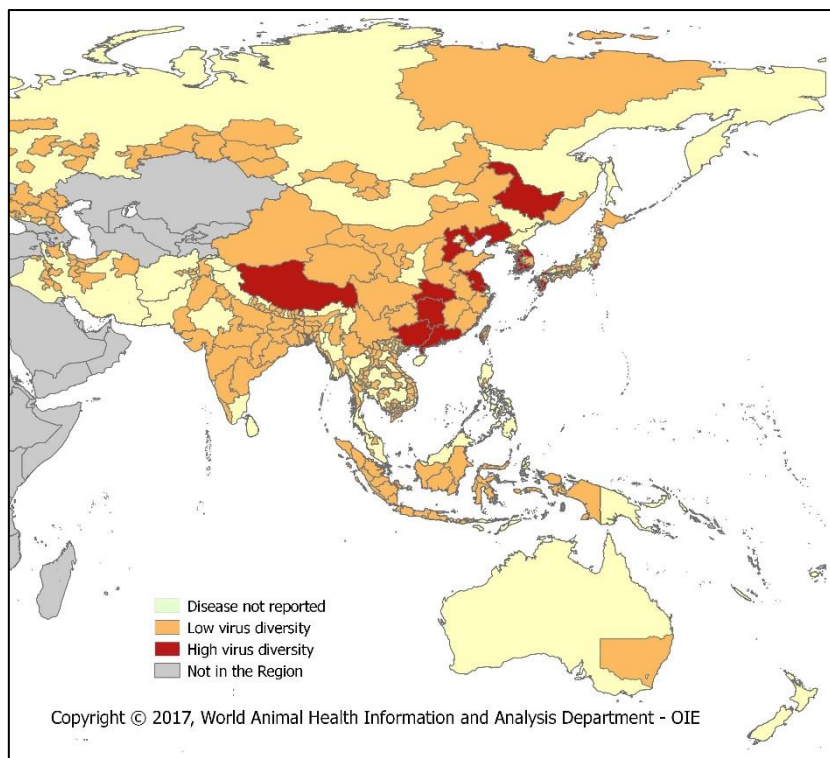
¹⁴ Hall JS, Dusek RJ, Spackman E. Rapidly expanding range of highly pathogenic avian influenza viruses. *Emerg Infect Dis*. 2015;21:1251–2. 10.3201/eid2107.150403

¹⁵ Fusaro A, Monne I, Mulatti P, et al. Genetic Diversity of Highly Pathogenic Avian Influenza A(H5N8/H5N5) Viruses in Italy, 2016–2017. *Emerging Infectious Diseases*. 2017;23(9):1543–1547. doi:10.3201/eid2309.170539.

in Figure 4. Critical areas with a high diversity of circulating subtypes are shown in red, while the areas with a lower diversity are shown in orange. High diversity areas are clustered mainly in eastern Asia.

During the period of study, the presence of at least one subtype was reported in 43% of the affected administrative divisions in the Region (354/828). Twenty-seven affected administrative division (8%), belonging to four countries and territories¹⁶, were classified as “high virus diversity”. Among the administrative divisions classified as “low virus diversity”, 77 (22%) were associated with two subtypes and 249 (70%) were associated with one subtype.

Figure 4. Distribution of HPAI subtype diversity, by administrative division of countries and territories in Asia, the Far East and Oceania in the period 2005 – 2017 (up to 15 September 2017)



The number of subtypes circulating in the Region has increased with time. During the period 2005 – 2011 only two HPAI subtypes were reported (H5N1 and H7N7). Their number increased to three (detection of H5N2) in 2012, four in 2013 (detection of H7N2), six in 2014 (detection of H5N6 and H5N8), seven in 2015 (detection of H5N3) and eight in 2017 (detection of H7N9).

The results provided in this chapter highlight once again the importance of providing the OIE with high precision data in order to allow production of epidemiological analyses that can be useful for a better understanding of the regional and global situation of diseases and for informing OIE Members' decision-making process.

The temporal analysis using seasonal decomposition methods highlights the higher risk periods and these results can help to improve countries and territories' preparedness. On the other hand, the spatial analysis identified the main critical areas for the detection of virus diversity and for the detection of new subtypes that may be circulating in the region. Further analyses, also including the circulation of LPAI strains, could be carried out in future.

¹⁶ China (People's Rep. of), Chinese Taipei, Japan and Korea (Rep. of)

As already highlighted during this year's General Session of the World Assembly of the Delegates of the OIE, the number of circulating avian influenza subtypes continues to increase at global and regional level, posing a serious threat to animal and public health. Potential critical impacts of new circulating subtypes are clearly demonstrated by the new variant of H5N8, with its increased spread capacity, and the new HPAI H7N9 strain, which has increased pathogenicity¹⁷. For this reason, it is crucial to be able to monitor changes in virus genotypes. However, the lack of sequences makes it difficult to determine when and where these genotypes emerged¹⁵. Scientific studies have highlighted the importance of generating complete viral genome sequences, which may help to monitor viral spread and define appropriate disease control strategies¹⁵.

Improved genetic information, coupled with intensified surveillance in wild birds, can improve our understanding of the virus dissemination routes and support early detection of viruses highly pathogenic to poultry or posing a possible threat to human health¹⁸.

More information derived from genetic data coupled with better epidemiological information will allow a better understanding of the current and potential evolution of the disease dynamic. For this reason the OIE has implemented the conception and development of a genetic platform, which will use data from OIE Reference Laboratories and be connected to WAHIS epidemiological information in the coming years.

Despite the crucial importance of HPAI monitoring in wild birds for early detection of HPAI events¹⁹, few such outbreaks were reported to the OIE by countries and territories in the Region from 2005 to 2016 compared to outbreaks in domestic birds (177 outbreaks in wild birds vs 2987 in poultry). The OIE therefore encourages countries and territories in the Region to improve surveillance in wildlife and to continue timely reporting of all outbreaks through WAHIS. It is very important to emphasise that the notification of HPAI in wildlife serves to ensure an epidemiological understanding of the current risk situation for preparedness purposes and should not, therefore, have an impact on trade in poultry and poultry products, in accordance with OIE standards. To this end, the OIE has implemented separate reporting through WAHIS for the disease in wildlife (under "Influenza A viruses of high pathogenicity (infection with) in birds other than poultry including wild birds"), with effect from the beginning of the 2017 reporting period.

Finally, Members should note that, in recognition of the challenges presented by the highly dynamic global epidemiology of avian influenza, the OIE has responded to requests from Members to initiate a review of Chapter 10.4. of the OIE *Terrestrial Code*.

2) Infection with classical swine fever virus

Classical swine fever (CSF) is a highly contagious and economically significant viral disease of pigs, which poses a significant threat to animal production and remains one of the most important transboundary viral diseases of swine worldwide²⁰. The disease is considered endemic in several countries of the Region.

¹⁷ Shao, W., Xinxin, L., Goraya, M.U., Wang, S., & Chen, J.-L. Evolution of Influenza A Virus by Mutation and Re-Assortment. *International Journal of Molecular Sciences* 18.8 (2017): 1650.

¹⁸ Pohlmann A, Starick E, Harder T, Grund C, Höper D, Globig A, et al. Outbreaks among wild birds and domestic poultry caused by reassorted influenza A(H5N8) clade 2.3.4.4 viruses, Germany, 2016. *Emerg Infect Dis.* 2017;23:633–6. 10.3201/eid2304.161949

¹⁹ The Global Consortium for H5N8 and Related Influenza Viruses, Role for migratory wild birds in the global spread of avian influenza H5N8, *Science* 2016;354(6309):213-217. DOI: 10.1126/science.aaf8852

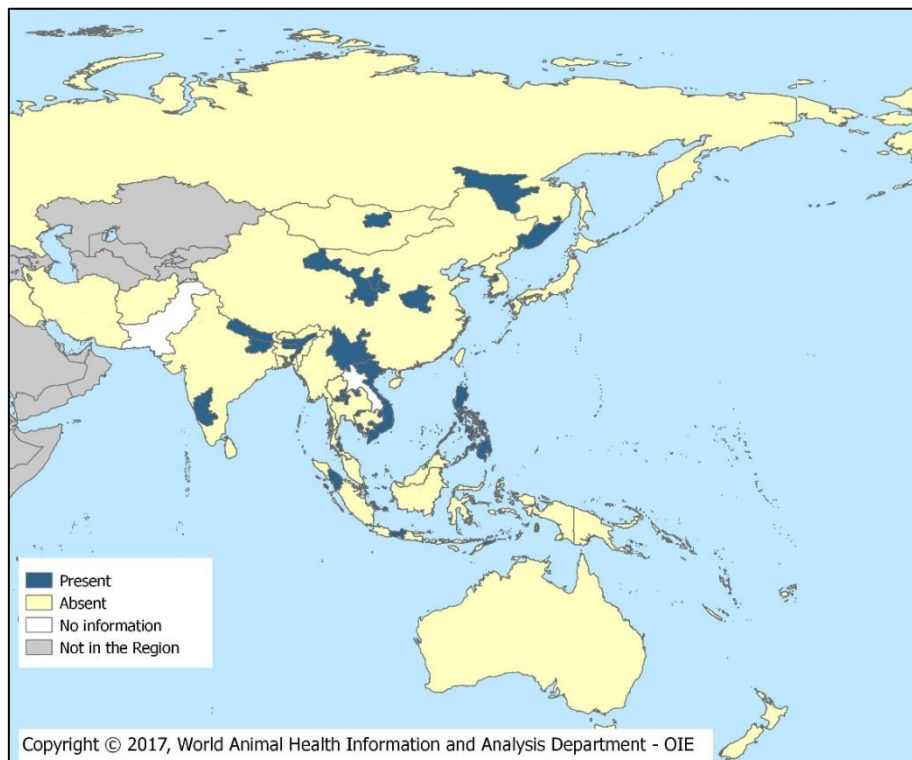
²⁰ Blome, S., Staubach, C., Henke, J., Carlson, J. & Beer, M. Classical Swine Fever—An Updated Review. *Viruses* 9.4 (2017): 86.

In 2013, under the terms of Resolution No. 29 adopted by the World Assembly of Delegates of the OIE at the 81st General Session, CSF was added to the list of diseases for which status can be officially recognised by the OIE. Four Members in the Region are officially recognised as free from CSF: Australia, Japan, New Caledonia and New Zealand²¹.

The recent geographical distribution of CSF in Asia, the Far East and Oceania, during the period 1 January 2016 to 15 September 2017, is shown in Figure 5. During this period, a total of 42 countries and territories provided information on the disease, which was reported present by 31% of them (13²²/42). It should be noted that not all countries were able to provide information on CSF within their reports to the OIE.

During this period, infection with CSF virus was reported by means of immediate notifications by three countries. Mongolia submitted an immediate notification for the recurrence of the disease in Dornod and Tuv administrative divisions, with a starting date in October 2015. Korea (Rep. of) submitted two immediate notifications. A recurrence of the disease was reported in the administrative division of Jeju-do, with a starting date in June 2016; the country also reported a recurrence of the disease in the administrative division of Gyeonggi-do, in September 2016. Russia reported a recurrence of the disease in the Amurskaya Oblast in wild boar (*Sus scrofa*), in June 2016.

Figure 5. Distribution of CSF in Asia, the Far East and Oceania in 2016 and 2017 (up to 15 September 2017)



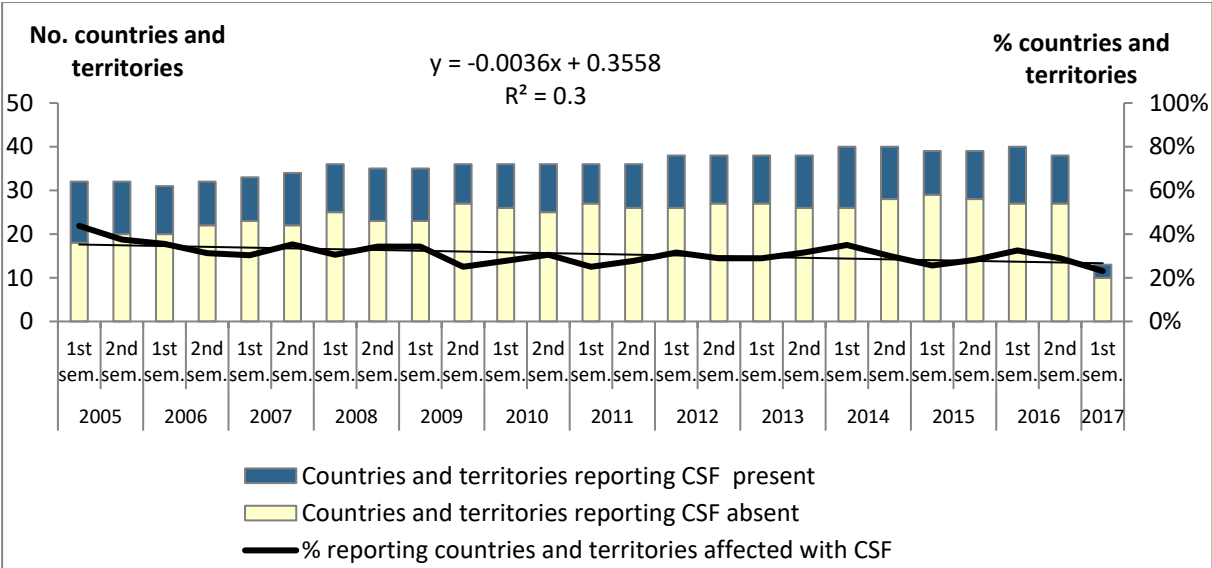
The percentage of reporting countries and territories that reported the disease present, by semester, between 2005 and the first semester of 2017 was analysed to assess the temporal dynamics of CSF in the Region (Figure 6).

²¹ <http://www.oie.int/animal-health-in-the-world/official-disease-status/classical-swine-fever/>

²² Bhutan, Cambodia, China (People's Rep. of), India, Indonesia, Korea (Rep. of), Mongolia, Nepal, Philippines, Russia, Thailand, Timor-Leste and Vietnam

As shown in the figure, the percentage of reporting countries and territories that reported the disease present decreased from 44% in 2005 to 23% in 2017, reflecting an improvement of the epidemiological situation in the Region (even if it should be noted that the information for the first semester of 2017 is still only partially complete). The decline in the percentage of countries reporting the disease present was regular during the whole period of the study and a significantly negative correlation ($\rho = -0.5$, $p = 0.05$) between the percentage and the semesters was measured using the Spearman rank correlation test. The trend is further described on the figure using a simple linear regression ($p < 0.05$).

Figure 6. Percentage of the reporting countries and territories that notified CSF present, by semester, between 2005 and the first semester of 2017 (data based on reports received up to 15 September 2017)



The analysis shows that even if Asia and the Far East is still considered an endemic area for CSF, there are signs of a small improvement in the epidemiological situation of the disease in the Region.

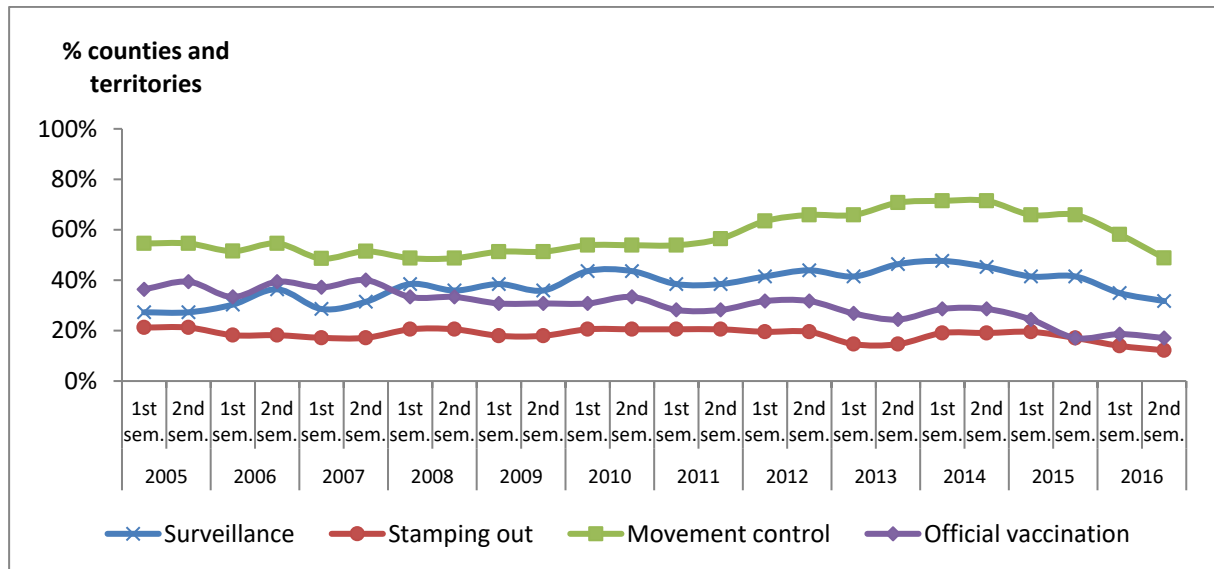
An effective CSF control strategy must include timely and reliable diagnosis of the outbreaks, stamping out, and establishment of a restriction zone and movement restrictions. Prophylactic vaccination is still in use to reduce the disease burden in endemically affected countries²⁰. In endemic countries with irregular vaccination, circulation of less virulent CSF strains can be masked and, in combination with management and biosecurity issues, virus circulation can be maintained over prolonged periods in the domestic pig population²⁰.

Considering the above, the next part of the analysis focused on the evaluation of the implementation of surveillance and control strategies in the Region since 2005. In particular the analysis evaluated the evolution of the main measures usually included in an effective strategy: i) surveillance (monitoring, targeted surveillance and screening); ii) stamping out (stamping out and selective killing and disposal²³); iii) movement control (control at the borders, movement control inside the country and zoning); and iv) official vaccination.

The evolution of the percentage of countries and territories applying the different groups of preventive and control measures since 2005 is shown in Figure 7.

²³ Previously referred to as “modified stamping out”

Figure 7. Evolution of the percentage of countries and territories applying surveillance and control strategies for CSF, by semester, between 2005 and the first semester of 2017 (data based on reports received up to 15 September 2017)

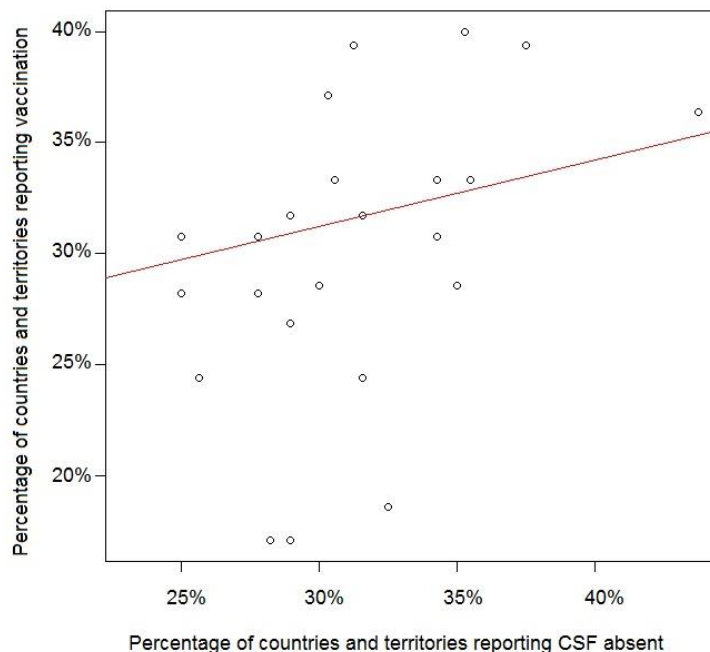


The Spearman correlation test highlighted a significant increase since 2005 in the percentage of countries applying surveillance ($\rho=0.6$, $p=0.006$) and movement control ($\rho=0.5$, $p=0.008$). On the other hand, there was a significant reduction in the percentage of countries applying official vaccination ($\rho=-0.9$, $p<0.001$) and stamping out ($\rho=-0.5$, $p=0.02$). The reduction in the percentage of countries applying vaccination and stamping out might be interpreted as further tentative evidence of the improved epidemiological situation of the disease in the Region.

Finally, a significant positive correlation was found between the percentage of countries implementing official vaccination and the percentage of countries declaring the disease absent ($\rho=0.5$, $p=0.02$) (Figure 8), suggesting that the use of vaccination is effective in suppressing the expression of disease. Hochberg's correction test was performed to all correlation tests, to counteract the problem of multiple comparisons.

The association is further described on the figure using a simple linear regression ($p<0.05$, $R^2=0.20$).

Figure 8. Correlation between the percentage of reporting countries notifying the disease absent and the percentage implementing official vaccination. Each data point represents a reporting semester. (data based on reports received up to 15 September 2017)



For effective control of the disease, surveillance and control measures have to be applied not only to domestic animals but also to wildlife, given that European wild boar (*Sus scrofa*) can serve as reservoir of the virus and represent a constant risk for spread to domestic pigs. Scientific evidence has demonstrated that, for example, in Germany, 60% of the primary CSF outbreaks between 1993 and 1998 were linked to infected wild boar and that this link was particularly important for holdings with low biosecurity²⁴.

WAHIS data show that on average, since 2005, 39% of the countries and territories in the Region have been unable to provide information about the status of the disease in wildlife. Moreover, since 2005, only 8% of the countries and territories in the Region have reported that they apply surveillance for the disease in wildlife.

To conclude, the analysis presented in this chapter confirms that CSF is still a disease with a high impact and is widespread in the Region with, on average, about one third of the countries having reported the presence of the disease since 2005 (31%).

Nevertheless, there are encouraging signs of an improvement in the epidemiological situation in the Region, with a slow but sustained reduction in the number of countries reporting the disease present.

The decrease in the percentage of affected countries and territories is a consequence of the improved prevention and control strategies applied by Members in the Region, following control and eradication strategies such as the Association of Southeast Asian Nations (ASEAN) CSF plan, implemented in 2010 with the aim of controlling and eventually eradicating the disease by 2020 in the sub-region.

Considering the potential role of wildlife as a reservoir for the disease and the current lack of information on the regional situation of the disease in these species, it will be important to step up monitoring activities in wild animals. Monitoring of wild boar populations is important not only for the control and eradication of CSF, but also to prevent the risk of further spread in the Region of African swine fever,

²⁴ Fritzemeier, J., Teuffert, J., Greiser-Wilke, I., Staubach, C., Schlüter, H.; Moennig, V. Epidemiology of classical swine fever in Germany in the 1990s. *Vet. Microbiol.* 2000, 77, 29–41.

which was detected in March 2017 in backyard swine in Irkutskaya Oblast (Russia), close to the border with Mongolia. Therefore, the application of appropriate biosecurity measures in this context appears to be very important, in particular to separate domestic and wild populations.

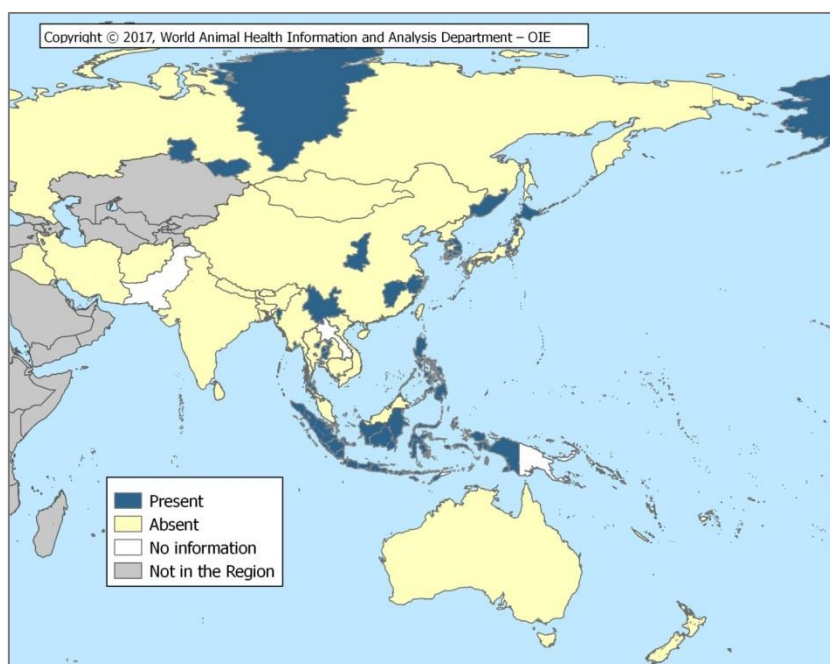
Finally, in this context the role of the WAHIS system in quickly sharing information on the occurrence or recurrence of the disease is of the utmost importance, and the OIE encourages its Members to continue their efforts and commitment to ensure transparency of the animal health situation in the Region.

3) Porcine reproductive and respiratory syndrome

Porcine reproductive and respiratory syndrome (PRRS) has been widespread and one of the leading causes of economic losses in the global pig industry for a long time^{25,26}. The disease is of particular importance in the Region, which accounts for more than 60% of the global live pig population according to the information provided through the latest WAHIS annual reports.

The recent geographical distribution of PRRS in Asia, the Far East and Oceania, during the period 1 January 2016 to 15 September 2017, is shown in Figure 9. During this period, a total of 40 countries and territories provided information on the disease, which was reported present by 35% of them (14²⁷/40). During this period, PRRS was reported by means of an immediate notification by Cambodia, which reported the recurrence of the disease in the province of Takeo, with a starting date in October 2016. Village backyard pigs were affected and the origin of the pathogenic agent is reported to be unknown.

Figure 9. Distribution of PRRS in Asia, the Far East and Oceania in 2016 and 2017 (up to 15 September 2017)



²⁵ J.K. Lunney, J.K., Fang, Y., Ladinig, A., Chen, N., Li, Y., Rowland, B., Renukaradhya, G.J. Porcine reproductive and respiratory syndrome virus (PRRSV): pathogenesis and interaction with the immune system. *Annu. Rev. Anim. Biosci.*, 4 (2016), pp. 129-154

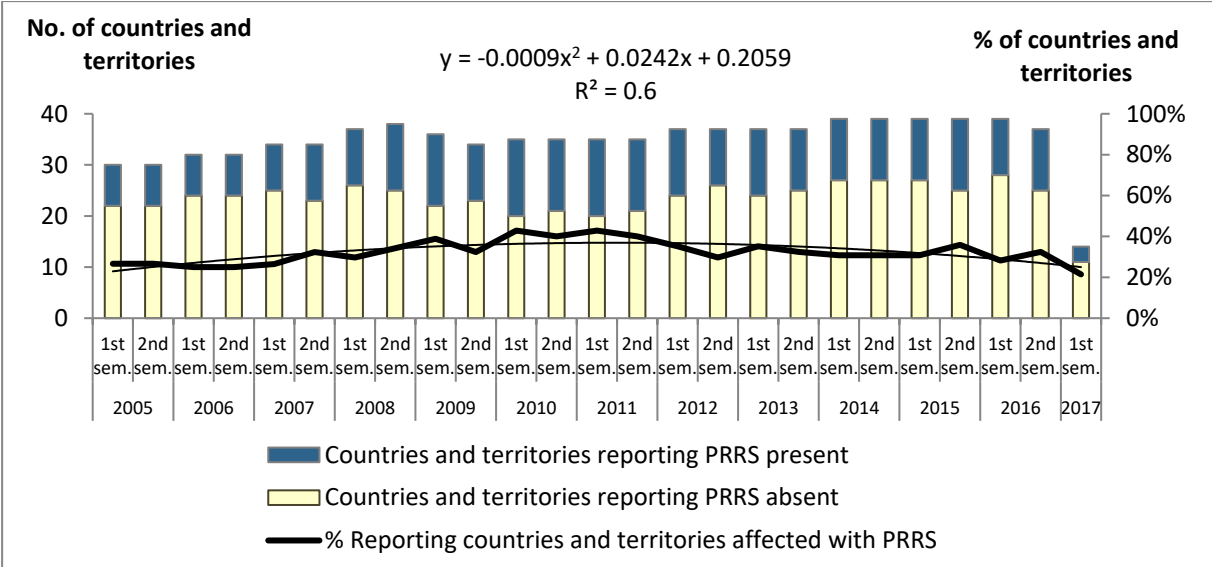
²⁶ Zhou L, Yang H (2010) Porcine reproductive and respiratory syndrome in China. *Virus Res* 154:31–37

²⁷ Cambodia, China (People's Rep. of), Chinese Taipei, French Polynesia (France), Hong Kong (SAR-PRC), India, Indonesia, Japan, Korea (Rep. of), Myanmar, Philippines, Russia, Thailand and United States of America

The following part of the analysis describes the trend in notifications of the disease since 2005 to provide more background historical information and to illustrate the impact on OIE Members. As shown in Figure 10, the percentage of reporting countries and territories affected by PRRS increased from 27% in 2005 to 43% in 2011. The percentage then decreased to 32% in 2016 and 21% in the first semester of 2017 (results still only partially complete for that semester). The significant variations in the percentage, as measured by the Spearman’s rank correlation test, show a deterioration of the epidemiological situation in the Region from 2005 to 2011 (i.e. an increase in the percentage, rho= 0.8, p<0.01), and an improvement from 2012 to 2016 (i.e. a decrease in the percentage, rho= -0.6, p=0.02). Results are further described on the figure using a quadratic regression (p<0.001).

These results are consistent with the PRRS spread observed in the Region from 2008 to 2011. The disease, which was present in several countries of southern and eastern Asia, spread during the period of analysis to new countries, such as Bhutan in 2008, Laos and Mongolia in 2009 (disease first suspected that year) and Myanmar in 2011. The disease was also first reported in India in 2013, but the regional trend had already started to improve.

Figure 10. Percentage of the reporting countries and territories that notified PRRS present, by semester, between 2005 and the first semester of 2017 (data based on reports received up to 15 September 2017)



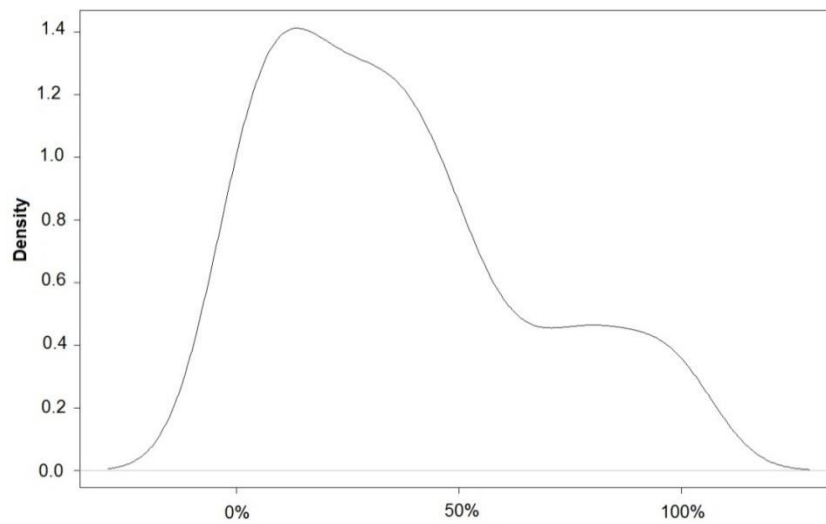
The next section of the analysis focuses on fatality rates (number of deaths during the semester/number of cases during the semester) reported in domestic pigs by countries and territories of the Region through six-monthly reports, from 2005 to the first semester of 2017. Out of the 19 countries and territories that reported the disease present at least once during the period, 12 provided information on fatality rates in their reports. In addition, it should be noted that not all of these countries and territories provided information on a regular basis. Taking into account these limitations, Figure 11 shows the distribution of six-monthly fatality rates reported by affected countries and territories of the Region from 2005 to the first semester of 2017.

The fatality rate ranged between 0% and 99%, with a median of 30%. The distribution has a bi-modal pattern, with a higher peak around 20% and a lower peak around 80%. Factors likely to affect the mortality rate during an outbreak include the stock class (in particular, age)^{28,29} of the herds affected, their PRRS immune status (i.e. through prior natural exposure or vaccination)²⁸, the strain of the PRRS

²⁸ Young B., Dewey C., Poljak Z., Rosendal T., & Carman S. Clinical signs and their association with herd demographics and porcine reproductive and respiratory syndrome (PRRS) control strategies in PRRS PCR-positive swine herds in Ontario. *Can J Vet Res.* 2010; 74(3): 170–177.

virus causing infection²⁹, co-infections with other pathogenic agents, and husbandry and management systems^{28,29}, including the management response to the outbreak²⁸. In particular, it would have been interesting to have more information on the strains associated with these fatality rates. However, this information is currently not provided through WAHIS. Indeed, PRRS virus has two recognised genotypes: type 1 or European-like (prototype Lelystad) and type 2 or North American-like (prototype VR-2332)³⁰. Within these two genotypes, new highly pathogenic PRRS strains periodically emerge in the Region. For example, in 2006, a highly pathogenic PRRS virus (HP-PRRSV) became endemic in Southeast Asia³¹ and in 2013 a new kind of highly pathogenic PRRSV strain emerged in China (People's Rep. of)³².

Figure 11. Density distribution of six-monthly fatality rates in pigs reported by countries and territories of the Region, from 2005 to first semester 2017 (data based on reports received up to 15 September 2017)



The genetic diversity of PRRS virus in the Region has greatly increased by rapid evolution or recombination events. Modified live-attenuated vaccines are widely used to control this disease but the risk and inefficacy of the vaccine has been reported³³.

²⁹ Goldberg TL., Weigel R.M., Hahn E.C., & Scherba G., Associations between genetics, farm characteristics and clinical disease in field outbreaks of porcine reproductive and respiratory syndrome virus. *Prev Vet Med.* 2000 Feb 29;43(4):293-302.

³⁰ Allende, R., Kutish, G.F., Laegreid, W., Lu, Z., Lewis, T.L., Rock, D.L., Friesen, J. Galeota, J.A. Doster, A.R., Osorio, F.A. (2000). Mutations in the genome of porcine reproductive and respiratory syndrome virus responsible for the attenuation phenotype. *Arch. Virol.* 145 (2000), pp.1149-1161

³¹ Leng, C.L., Tian, Z.J., Zhang, W.C., Zhang, H.L., Zhai, H.Y., An, T.Q., Peng, J.M., Ye, C., Sun, L., Wang, Q., Sun, Y., Li, L., Zhao, H.Y., Chang, D., Cai, X.H., Zhang, G.H., Tong, G.Z. Characterization of two newly emerged isolates of porcine reproductive and respiratory syndrome virus from Northeast China in 2013. *Veterinary Microbiology* 2014;171:41-52

³² Zhao, K., Ye, C., Chang, X.B., C.Jiang, .C.G., Wang, S.J., Cai, X.H., Tong, G.Z., Tian, Z.J., Shi, M., An, T.Q. Importation and recombination are responsible for the latest emergence of highly pathogenic porcine reproductive and respiratory syndrome virus in China, *J. Virol.* 2015;89: 10712-10716

³³ Zhao H., Han Q., Zhang L., Zhang Z., Wu Y., Shen H., Jiang P. Emergence of mosaic recombinant strains potentially associated with vaccine JXA1-R and predominant circulating strains of porcine reproductive and respiratory syndrome virus in different provinces of China. *Virology* 2017;14: 67. Published online 2017 Apr 4. doi: 10.1186/s12985-017-0735-3

Only limited information on strain characterisation can currently be collected through WAHIS. For PRRS, more information derived from genetic data, coupled with epidemiological information, would allow a better understanding of the current and potential evolution of the disease dynamic. As previously noted, the OIE has implemented the conception and development of a genetic platform, using data from OIE Reference Laboratories and connected to WAHIS epidemiological information in the coming years. This will allow better characterisation of pathogens and tracing their evolution and spread. Members are therefore encouraged to perform systematic sequencing of pathogens during exceptional events, with the support of the OIE's network of Reference Centres, such as the Veterinary Diagnostic Laboratory of China Animal Disease Control Centre, OIE Reference Laboratory for PRRS.

In addition, with the objective of providing useful guidance for Members in relation to commodity-based trade, surveillance, and requirements for freedom, a new chapter on PRRS for the *Terrestrial Code* was adopted in 2017. Members are encouraged to take advantage of the support provided by the OIE through this Chapter.

4) Infection with peste des petits ruminants virus

Infection with peste des petits ruminants (PPR) virus is one of the priority diseases indicated in the FAO³⁴-OIE Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs). The Global Strategy for the control and eradication of PPR was adopted in April 2015³⁵, with the vision to achieve global freedom by 2030. The OIE and FAO have established a PPR Joint Secretariat to coordinate activities within the programme. In this context, the aim of the present analysis was to describe the recent evolution of the disease in the Region.

The recent PPR geographical distribution in Asia, the Far East and Oceania, during the period 1 January 2016 to 15 September 2017, is shown in Figure 12. During this period, a total of 43 countries and territories provided information on the disease, which was reported present by 26% of them (11³⁶/43). As shown in the figure, all affected countries and territories were in Asia, while Oceania remained free from the disease. During this period, PPR was reported by means of immediate notifications by two countries. Maldives reported the recurrence of the disease in the atoll of Gaafu Aliff, with a starting date in March 2016. In October, the event was declared sufficiently stable for the disease to be reported through six-monthly reports.

In addition, Mongolia reported the first occurrence of PPR in the country, with a starting date in August 2016, indicating the further spread of the disease outside its traditional range. A total of 11 outbreaks were reported in sheep and goats and the event was declared resolved in November 2016, after extensive vaccination in response to the outbreaks had been implemented. Mongolia submitted another immediate notification in January 2017 for the recurrence of the disease in the province of Khovd. From December 2016 to September 2017, PPR caused nearly 6000 deaths in Mongolian saiga (*Saiga tatarica mongolica*) and, as of 15 September, the event was still ongoing.

Nine Members³⁷ in the Region are officially recognised as free from the disease, according to Resolution No. 28 (85th General Session of the World Assembly of Delegates of the OIE, May 2017). The list of Members of the Region officially free from PPR is the same as the one presented at the last Conference of the OIE Regional Commission for Asia, the Far East and Oceania in 2015.

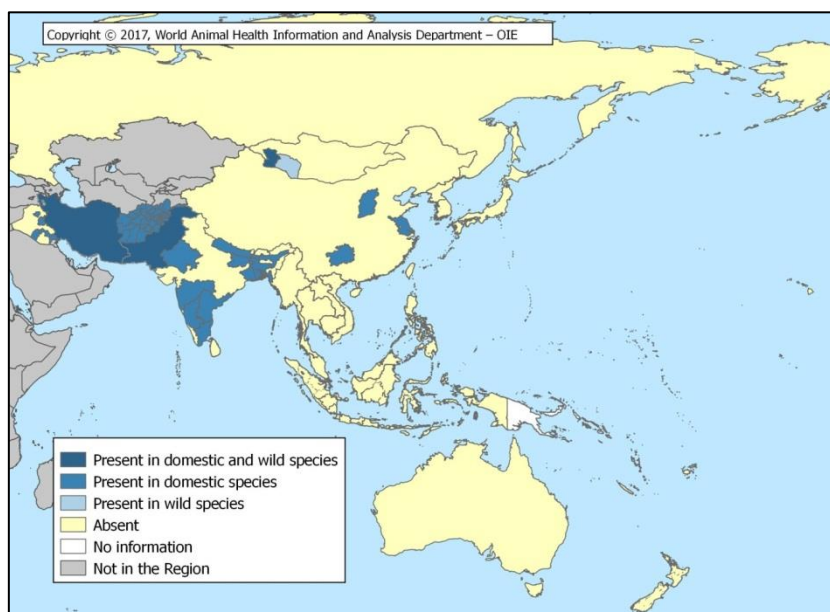
³⁴ Food and Agriculture Organization of the United Nations

³⁵ Global Strategy for the control and eradication of PPR, OIE and FAO 2015, <http://www.oie.int/eng/ppr2015/doc/PPR-Global-Strategy-2015-03-28.pdf>

³⁶ Afghanistan, Bangladesh, Bhutan, China (People's Rep. of), India, Iran, Iraq, Maldives, Mongolia, Nepal and Pakistan

³⁷ Australia, Chinese Taipei, Korea (Rep. of), Myanmar, New Caledonia, New Zealand, Philippines, Singapore and Thailand

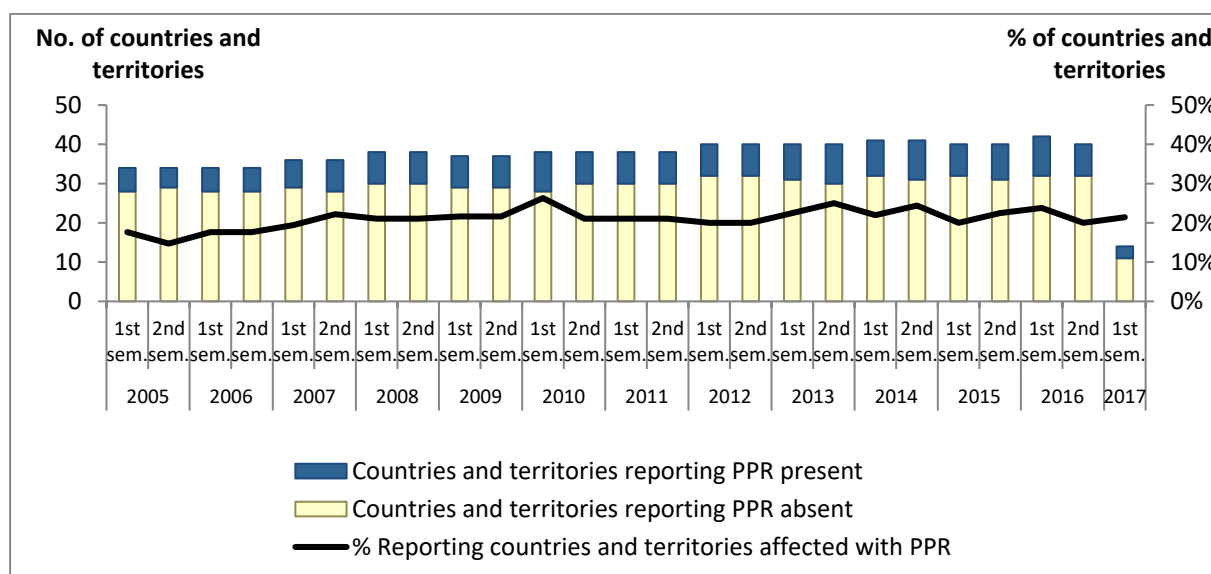
Figure 12. PPR distribution in Asia, the Far East and Oceania in 2016 and 2017 (up to 15 September 2017)



The following part of the analysis describes the trend in notifications of the disease since 2005 to provide more background historical information and to illustrate the impact on OIE Members. As shown in Figure 13, the percentage of reporting countries and territories affected by PPR increased from 16% in 2005 to 26% in 2010. The percentage then remained between 20% and 25% between 2011 and the first semester of 2017 (results still only partially complete for this semester). The significant increase in the percentage during the period of analysis, as measured by the Spearman's rank correlation test ($\rho = 0.5$, $p < 0.01$), shows a deterioration of the epidemiological situation in the Region during the period of analysis.

These results are consistent with the PPR spread observed in the Region during these years. The disease, which was present in several countries of western and southern Asia, spread during the period of analysis to new countries, such as China (People's Rep. of) in 2007, Maldives in 2009, Bhutan in 2010 and Mongolia in 2016, as described above.

Figure 13. Percentage of the reporting countries and territories that notified PPR present, by semester, between 2005 and the first semester of 2017 (data based on reports received up to 15 September 2017)



Asia, one of the regions in the world most affected by PPR, hosts about 50% of the world’s small ruminant population, according to the latest information collected by the OIE through the annual reports. The following part of the analysis focuses on the mortality associated with the disease in sheep and goats in the Region. The PPR morbidity rate can be up to 100% with a very high fatality rate in severe cases. However, morbidity and mortality may be much lower in milder outbreaks, and the disease may be overlooked³⁸.

Based on the information collected through WAHIS, the six-monthly mortality rate in sheep and goats was calculated for countries that reported the disease present at least once from 2005 to first semester 2017. The six-monthly mortality rate was calculated as being the ratio between reported deaths in sheep and goats during the semester and the reported susceptible sheep and goat population during the corresponding period. Out of the 48 countries and territories not within the Region that were affected at least once, 46 provided sufficient quantitative information to perform the calculation. Out of the 11 countries within the Region that were affected at least once, nine provided sufficient quantitative information to perform the calculation. It should be noted, however, that not all of these countries provided information on a regular basis.

Taking into account these limitations, Figure 14 shows the distribution of six-monthly mortality rates in the affected countries and territories of the Region from 2005 to the first semester of 2017, compared to those in affected countries and territories not within the Region.

³⁸ OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* 2017, Chapter 2.7.10. Peste des petits ruminants (infection with peste des petits ruminants virus) (NB: Version adopted in May 2013)

In affected countries not within the Region, the mortality rate ranged from 0% to 87.5%, with a median of 3.6%. This median result is consistent with what has been reported in the scientific literature: for example, mortality rates of 4.2% in Sudan from 2008 to 2009³⁹, 2.5% in Algeria in 2012⁴⁰, and 3% in Saudi Arabia in 2005⁴¹.

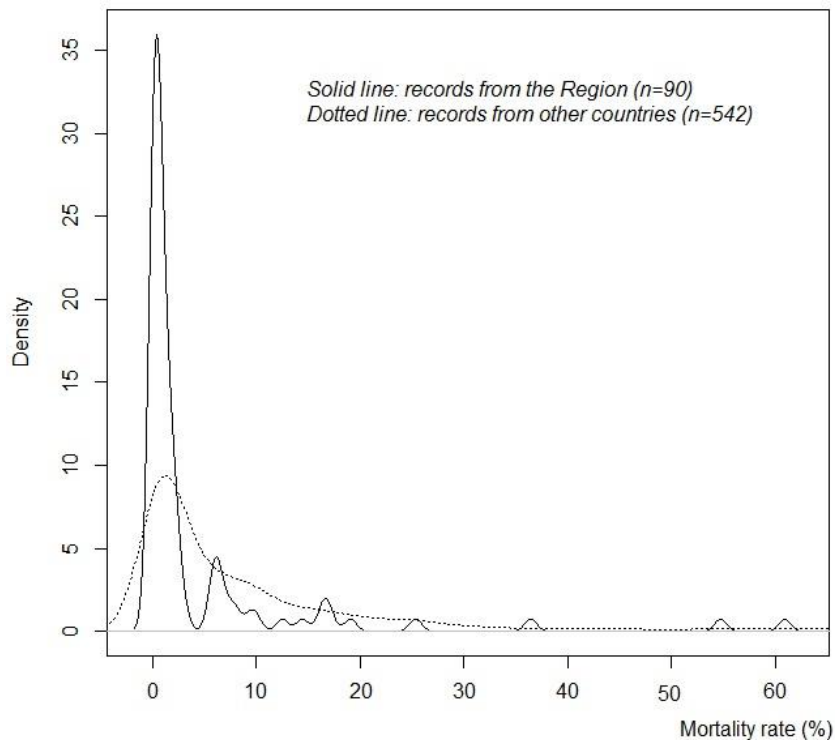
Within the Region, the mortality rate in affected countries and territories ranged from 0% to 60.9%, with a median of 0.7%. As shown in the figure, the mortality rates were most frequently lower than 5%, which is consistent with what has been reported in the scientific literature: annual mortality rate estimated at 3.7% in India, in a study published in 2017⁴², and 1.2% in Pakistan in 2009⁴³. However, several countries reported mortality rates above 10%, and even up to 60.9%, though mainly in situations where PPR was reported as an exceptional epidemiological event (first occurrences or recurrences). The median mortality rate was significantly higher for countries and semesters associated with exceptional epidemiological events, when compared to countries and semesters associated with stable situations (Wilcoxon rank sum test with continuity correction, $p = 0.05$).

The mortality rate in an affected flock is likely to be influenced by prior vaccination or immune status⁴⁴, farming systems conducive to within-flock transmission⁴⁵, and time elapsed since the introduction of the infection into the flock⁴⁶. This information is not available in the reporting from endemic countries to WAHIS, though in immediate reports in outbreak situations there is an opportunity to include epidemiological comments.

These results show that, despite the limited mortality from the disease in countries experiencing stable situations, the disease can be devastating in areas with a naïve population. They also illustrate the very low mortality rates usually observed in endemic areas. These low rates may make clinical surveillance difficult in certain areas, leading to an underestimation of PPR presence. Sero-surveillance is sometimes the only indicator of the infection⁴⁷.

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- ³⁹ Ishag OM, Saeed IK, Ali YH. Peste des petits ruminants outbreaks in White Nile State, Sudan. *Onderstepoort J Vet Res.* 2015 Aug 21;82(1):E1-4. doi: 10.4102/ojvr.v82i1.897.
- ⁴⁰ Kardjadj M, Ben-Mahdi MH, Luka PD. First serological and molecular evidence of PPRV occurrence in Ghardaïa district, center of Algeria. *Trop Anim Health Prod.* 2015 Oct;47(7):1279-84. doi: 10.1007/s11250-015-0860-1. Epub 2015 May 28.
- ⁴¹ Al-Dubaib MA. Peste des petits ruminants morbillivirus infection in lambs and young goats at Qassim region, Saudi Arabia. *Trop Anim Health Prod.* 2009 Feb;41(2):217-20. doi: 10.1007/s11250-008-9178-6. Epub 2008 May 27.
- ⁴² Bardhan D, Kumar S, Anandsekaran G, Chaudhury JK, Meraj M, Singh RK, Verma MR, Kumar D, Kumar PTN, Ahmed Lone S, Mishra V, Mohanty BS, Korade N, De UK. The economic impact of peste des petits ruminants in India. *Rev Sci Tech.* 2017 Apr;36(1):245-263. doi: 10.20506/rst.36.1.2626.
- ⁴³ Zahur AB., Ullah A., Irshad H., Farooq MS., Hussain M. and Jahangire M. Epidemiological investigations of a Peste des Petits Ruminants (PPR) outbreak in Afghan sheep in Pakistan. *Pakistan Veterinary Journal.* 2009, Vol. 29 Issue 4, p174-178. 5p. 10 Color Photographs, 2 Charts, 1 Graph.
- ⁴⁴ Balamurugan V., Saravanan P., Sen A., Rajak K.K., Venkatesan G., Krishnamoorthy P., Bhanuprakash V., & Singh R.K. Prevalence of peste des petits ruminants among sheep and goats in India. *J Vet Sci.* 2012 Sep;13(3):279-285
- ⁴⁵ Al-Majali A.M., Hussain N.O., Amarin N.M., Majok A.A. Seroprevalence of, and risk factors for, peste des petits ruminants in sheep and goats in Northern Jordan. *Preventive Veterinary Medicine*, Volume 85, Issues 1–2, 15 June 2008, Pages 1-8
- ⁴⁶ Couacy-Hymann E., Bodjo C., Danho T., Libeau G., Diallo A. Evaluation of the virulence of some strains of peste-des-petits-ruminants virus (PPRV) in experimentally infected West African dwarf goats. *The Veterinary Journal*, Volume 173, Issue 1, January 2007, Pages 178-183
- ⁴⁷ Roeder, P.L., Ubi, T.U. Recognizing Peste Des Petits Ruminants: A Field Manual. Animal Health Manual, Food and Agricultural Organization, Rome (1999)

Figure 14. Density distribution of six-monthly mortality rates in sheep and goats in affected countries and territories within the Region and those outside the Region, from 2005 to first semester 2017 (data based on reports received up to 15 September 2017)



Very high mortality was recently observed in the Region in wildlife. Since December 2016, PPR has caused nearly 6000 deaths in Mongolian saiga. This sub-species is only present in the Altai-Sayan ecoregion of Mongolia, and is classified as critically endangered by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species⁴⁸, as the population has shown an observed decline of over 80% during the last 10 years. This event was still continuing as of September 2017 and has had a serious impact from a conservation point of view; PPR has also caused several deaths in populations of goitered gazelle (*Gazella subgutturosa*), a vulnerable species⁴⁹. This event with such massive mortality raised the need to investigate further the exact role of wildlife in the epidemiology of the disease. The OIE has been working closely with FAO to assist the Government of Mongolia in dealing with the PPR outbreaks to protect both livestock and wildlife, in particular through Crisis Management Centre – Animal Health (CMC-AH) missions and follow-up of the resulting recommendations.

During the Conference of the OIE Regional Commission for Asia, the Far East and Oceania in 2015, the situation of PPR was described as alarming given the deterioration of the epidemiological situation observed in previous years. The findings are the same in 2017, as PPR continues to spread to new countries in the Region, and no additional OIE Member has been recognised as free in the Region since 2015.

As shown by the recent example of Mongolia, the risk of PPR spread to free areas represents a major threat for a further deterioration of the epidemiological situation of PPR in Asia. In this context, it is important that the recommendations developed in the Global Strategy are followed in order to reverse the trend and achieve the eradication of PPR by 2030. As indicated during the 85th General Session of the World Assembly of Delegates in May 2017, information collected by the OIE tends to show that the

⁴⁸ <http://www.iucnredlist.org/details/19832/0>, accessed on 28 August 2017

⁴⁹ <http://www.iucnredlist.org/details/8976/0>, accessed on 28 August 2017

spread of the disease through unregulated international animal movements could be an important factor in the global PPR situation and needs to be better controlled.

Moreover, the massive PPR episode in wildlife reported in Mongolia also raises the question of the role of wildlife in the maintenance and spread of PPR in the context of the Global Strategy for its control and eventual eradication. The Joint FAO-OIE PPR Secretariat has identified, with the assistance of the PPR Advisory Committee that this will be a key issue for the consideration of the PPR Global Research and Expertise Network. As part of its efforts to obtain the necessary information to answer this question, the OIE strongly encourages its Members to share scientific findings through WAHIS, as well as through scientific publications.

5) **Emerging disease: Tilapia lake virus disease**

Tilapia lake virus (TiLV), a novel orthomyxo-like virus first described in 2014, has been identified as the cause of mass die-offs of tilapia (mortality rate > 80%) in both farms and the wild environment, predominantly affecting tilapines^{50,51,52}.

According to FAO⁵³, tilapia production is expanding in Asia, South America and Africa, and the United States of America is the largest market for this species. Tilapia, among other freshwater species such as carp and catfish, are expected to account for most of the increase in aquaculture production and they are expected to represent about 60% of total aquaculture production by 2025.

Because of the potential impact of TiLV on global aquaculture production, the OIE *Aquatic Animal Health Standards Commission* (the Aquatic Animals Commission) has assessed the disease against the criteria for listing aquatic animal diseases. The Commission decided that TiLV still does not meet the criteria due to insufficient information, particularly concerning analytical and diagnostic specificity and sensitivity of the assay.

This disease meets the definition of an emerging disease as defined by the OIE *Aquatic Animal Health Code* and should be reported, in accordance with Chapter 1.1., through WAHIS. Providing information on such events occurring with significant mortality is of importance for the OIE and its Members. Therefore, all countries and territories in the Region are urged to comply with the requirements listed in Article 1.1.4. of the OIE *Aquatic Animal Health Code*, and report to the OIE any event of emerging disease, defined as “a disease, other than listed diseases, which has a significant impact on aquatic animal or public health resulting from 1) change of known pathogenic agent or its spread to a new geographic area or species; or 2) a newly recognised or suspected pathogenic agent”.

TiLV continues to be reported in new countries and poses a significant threat to many countries, given the worldwide importance of tilapia farming and international trade in this species. An understanding of the geographical distribution of TiLV is essential for efforts to control its possible spread. Members are therefore encouraged to investigate mortality and morbidity events in tilapines and submit isolates to the National Center for Biotechnology Information (NCBI) gene bank.

⁵⁰ Eyngor, M., Zamostiano, R., Tsofack, J. E. K., Berkowitz, A., Bercovier, H., Tinman, S., Lev, M., Huryitz, A., Galeotti, M., Bacharach, E., Eldar, A. (2014). Identification of a novel RNA virus lethal to tilapia. *Journal of Clinical Microbiology*, 52(12), 4137–4146.

⁵¹ Ferguson, H. W., Kabuusu, R., Beltran, S., Reyes, E., Lince, J. A., & del Pozo, J. (2014). Syncytial hepatitis of farmed tilapia, *Oreochromis niloticus* (L.): A case report. *Journal of Fish Diseases*, 37(6), 583–589.

⁵² Bacharach, E., Mishra, N., Briese, T., Zody, M.C., Kembou Tsofack, J. E., Zamostiano, R., Lipkin, W. I. (2016). Characterization of a Novel Orthomyxo-like Virus Causing Mass Die-Offs of Tilapia. *mBio*, 7(2), e00431-16.

⁵³ The State of World Fisheries and Aquaculture 2016, FAO. <http://www.fao.org/3/a-i5555e.pdf>

Based on scientific literature and on immediate notifications received in 2017, TiLV has been detected in Ecuador and Israel^{51,52,54} and, most recently, Thailand⁵⁵. Israel reported the disease to the OIE in May 2017. A partial genome from Thailand showed relatively high variation to strains from Israel (around 97% nucleotide identity).

In June 2017, Chinese Taipei submitted an immediate notification to the OIE for the detection of an emerging disease, TiLV disease, with a mortality rate of 6.4%. The owner of a tilapia farm in Taoyuan City found abnormal mortality in his farmed tilapia from 1 June 2017. On 12 June 2017, Samples tested by RT-PCR showed a positive reaction to nucleic acid of TiLV. Movement restrictions were imposed on the index farm. Surveillance within a 5-km radius of the first infected farm allowed the Services to identify eight additional farms positive for TiLV. However, no abnormal mortality was observed and the 6.4% mortality observed in the first TiLV-infected farm was considered to be caused by a secondary, bacterial (Francisella-like bacteria) infection. As of 15 September 2017, the event was still ongoing. The Delegate of Chinese Taipei informed the OIE that preliminary genetic and phylogenetic analyses of the genomic sequence of segment 3 genes showed that the virus shared 93% and 92% identity with the strains found in Israel in 2014 and Thailand in 2016, respectively⁵⁴.

A lack of thorough investigation of all mortality incidents means that the geographical distribution of TiLV may be wider⁵⁶ than the current notifications to the OIE would appear to indicate. In 2017, the OIE created a technical disease card for TiLV⁵⁷. In the absence of a Reference Laboratory for TiLV, Members investigating mortality and morbidity events in tilapines and requiring advice or assistance could contact the Collaborating Centre for New and Emerging Diseases (hosted by the Australian Animal Health Laboratory, Commonwealth Scientific and Industrial Research Organisation (CSIRO)⁵⁸). The *Aquatic Animals Commission* also encourages Members that do not have assays established for TiLV to take up an offer made by the Chilean OIE Reference Laboratory for Infection with HPR-deleted or HPRO infectious salmon anaemia virus⁵⁹ to assist Members in the diagnosis of TiLV.

Despite the importance of aquatic animal diseases to the Region, the level of reporting is much lower than for terrestrial animal diseases, and this has unfortunately been a stable trend for the past five years. No improvement has been observed, despite encouragement from the OIE. Indeed, reporting on aquatic animal diseases is an obligation for all Members, including diseases in both aquaculture and wild harvest fisheries. The OIE helps its Members to fulfil their obligations on notification of aquatic animal diseases by encouraging the nomination of National Focal Points for Aquatic Animals, and giving them access to WAHIS and providing regular dedicated training, including through the e-learning platform on WAHIS that was launched in 2017. Members are therefore encouraged to take advantage of the support provided by the OIE to ensure transparent and timely notifications, which are crucial for avoiding disease spread.

⁵⁴ Tsofack, J. E. K., Zamostiano, R. Watted, S., Berkowitz, E., Mishra, N., Briese, T., Lipkin, W.I., Kabuusu, R.M., Ferguson, H., del Pozo, J., Eldar, A., & Bacharach, E. (2016). Detection of Tilapia Lake Virus (TiLV) in Clinical Samples by Culturing and Nested RT-PCR. *J. Clin. Microbiology*, 55 (3): 759-767

⁵⁵ Dong, H.T., Siriroob, S., Meemetta, W., Santimanawong, W., Gangnonngiw, W., Pirarat, N., Khunrae, P., Rattanaojpong, T., Vanichviriyakit, R., Senapin, S. (2017). Emergence of tilapia lake virus in Thailand and an alternative semi-nested RT-PCR for detection. *Aquaculture*, advance online publication oi:10.1016/j.aquaculture.2017.04.019

⁵⁶ Dong, HT, Rattanaojpong T., Senapin,S. (2017). Urgent update on possible worldwide spread of tilapia lake virus (TiLV), <https://enaca.org/?id=870&title=urgent-update-on-possible-worldwide-spread-of-tilapia-lake-virus-tilv>

⁵⁷ OIE *Aquatic Animals Commission* (May 2017), Tilapia lake virus (TiLV)—a novel orthomyxo-like virus, http://www.oie.int/fileadmin/Home/eng/Internationa_Standard_Setting/docs/pdf/Aquatic_Commission/A_TiLV_diasease_card.pdf

⁵⁸ <http://www.oie.int/our-scientific-expertise/collaborating-centres/list-of-centres/>

⁵⁹ <http://www.oie.int/our-scientific-expertise/reference-laboratories/list-of-laboratories/>

Recommendation No. 1

How to implement farm biosecurity: the role of government and private sector

CONSIDERING THAT:

1. Farm biosecurity represents a suitable measure for public–private partnerships (PPP) given its potentially valuable contribution to the prevention and control of all diseases of livestock, with private sector benefits at both the individual and commercial farming level, as well as public sector benefits at the wider community, national and international levels;
2. Despite this potential, research indicates that in most rural sectors, livestock farmers generally have a poor understanding of biosecurity, the exception being some intensive commercial operations (mainly pigs, poultry and ruminant feed lots);
3. The implementation of biosecurity interventions suitable for livestock smallholders through to village-level practices, commercial operations, and via national or international programmes, is a complex process of education and behaviour change aimed at empowering people to make better personal and collective decisions that mitigate disease risks;
4. Biosecurity interventions need alignment with the motivations of all involved in the supply chain of livestock production, preferably offering clear short-term risk management benefits that elicit interest, investment and application;
5. As the practices of the commercial sector demonstrate, and public–private partnerships offer, the linking of biosecurity and disease control with improved livestock productivity and financial outcomes is important as it provides opportunities for sustainable improvements in livelihoods and economic development and more effective control and eradication strategies for foot and mouth disease (FMD) and other diseases;
6. Comprehensive farm biosecurity comprises a package of preventive measures and vaccination should not be a disincentive to engage in other necessary elements such as farm hygiene, quarantine, or feed and water safety given the general protection these measures provide;
7. Based on the response to the questionnaire provided to the Delegates of the Asia, the Far East and Oceania region for preparing this Technical Item, the use of systemic antibiotics for FMD cases appears common in the region and such practice is not recommended for viral diseases, unless there is evidence of secondary bacterial infection;
8. Based on the response to the questionnaire, livestock trader engagement is considered challenging, but an important area of work for achieving effective biosecurity in most Member Countries of the OIE Regional Commission for Asia, the Far East and Oceania;
9. Based on the response to the questionnaire, the role of government in livestock farm biosecurity is variable in Member Countries of the Asia, the Far East, and Oceania region, presumably reflecting the variations in legislation, availability of resources, including field Veterinary Services, and priorities of livestock farming to the economies and social fabric of individual countries;
10. Based on the response to the questionnaire, the role of the private sector in livestock biosecurity is stronger in the developed Member Countries of the region and those with large intensive pig and/or poultry industries;
11. Based on the response to the questionnaire, public-private partnerships for on-farm biosecurity were reported by the majority of the Member Countries in the region; and

12. Based on the response to the questionnaire, the majority of the Member Countries in the region indicated they were satisfied with the current OIE involvement in on-farm biosecurity, but would be open to more support from the OIE.

THE REGIONAL COMMISSION FOR ASIA, THE FAR EAST AND OCEANIA

RECOMMENDS THAT:

1. Member Country Veterinary Authorities, in collaboration with interested parties including from the private sector, explore the further development of systems/activities/programmes/training aimed at aligning farm biosecurity interventions with the motivations of all involved in the supply chain of livestock production, preferably offering clear and simple risk management measures that offer immediate and sustained benefits and protect and increase productivity and improve livelihoods;
2. Member Country Veterinary Authorities develop promotional messages on such biosecurity measures that could include, among others: improved hygiene, routine quarantine of new introductions, isolation of sick animals, identifying and applying options for managing the high risks of communal grazing and sale of non-vaccinated animals, managing the risks of feeding uncooked food scraps to pigs, promoting the importance of keeping accurate records of animal health events, and ensuring wild birds do not have access to water or feed used for commercial poultry;
3. Member Country Veterinary Authorities discourage the use of systemic antibiotics for FMD cases since it is ineffective, and due to the concerns of emergence of antimicrobial resistance;
4. Member Countries' Veterinary Authorities encourage the establishment of a Collaborating Centre on biosecurity, with a focus on farm biosecurity, which could provide and coordinate capacity-building activities on biosecurity to Member Countries;
5. Member Countries' Veterinary Authorities assess and share lessons learned and best practices on farm biosecurity, including the use of public-private partnership mechanisms, and including activities targeting aquatic animals and apiculture;
6. The OIE include references to farm biosecurity in the development of the competencies and model core curriculum for veterinary para-professionals;
7. The OIE develop further guidance on biosecurity at the farm level aligned with the relevant sections of both *Terrestrial* and *Aquatic Codes*, including for apiculture, and consider the development of templates for farm biosecurity planning in collaboration with relevant partners such as FAO; and
8. The OIE identify relevant experts that could be made available to Member Countries to work on developing resources and training capacity for farm biosecurity, such as through a train-the-trainer mechanism.

Recommendation No. 2

Surveillance and risk mitigation measures for illegal and unregulated movement of animals across borders or through markets

CONSIDERING THAT:

1. There has been a marked rise in demand for poultry meat, beef, lamb, pork, and aquatic animal products in recent years, due to the increasing population, continued economic development and the transition towards a more meat-rich diet in the Asia, the Far East and Oceania region;
2. Animal movements are considered a major factor in the transmission of transboundary animal diseases, including some important diseases that pose a threat to the livestock, poultry, and aquatic animal industries;
3. The distribution and spread of transboundary animal diseases in the region are a reflection of the market-driven movement of animals;
4. Illegal or unregulated movements of animals between or within countries have been reported in several countries of the region;
5. Livestock and poultry markets continue to be important components in the movement pathways of animals across the region;
6. Water ways, and particularly rivers, can be a source of transboundary animal diseases' spreads (e.g. African swine fever), such as through the dumping of infected carcasses;
7. Surveillance is essential to prevent diseases entering and moving along the livestock and poultry market chain, whereas the shortage of funding and the lack of; coverage of the field animal health network, well-equipped laboratories, experienced and skilled staff, and reliable and affordable reagents are constant constraints on surveillance activities in some countries of the region; and
8. The OIE Terrestrial Animal Health Code, in Section 4 on disease prevention and control, Section 5 on trade measures, import/export procedures and veterinary certification and in disease-specific chapters, and the OIE Aquatic Animal Health Code, in the corresponding Sections 4 and 5 and in disease-specific chapters, provide recommendations including mitigating measures to be implemented by OIE Members for the safe trade of animals and products of animal origin.

THE OIE REGIONAL COMMISSION FOR ASIA, THE FAR EAST AND OCEANIA

RECOMMENDS THAT

1. Members of the Asia, the Far East and Oceania region affected by illegal and unregulated movement of animals take joint actions aimed at better exchanging information on disease status, monitoring animal movements, identifying current and new movement routes and establishing movement protocols including joint check points and strategies to mitigate illegal movements;
2. Members of the region strengthen and implement their legislation on animal movements to reduce the risk of transboundary animal diseases being spread through movement of animals;
3. Members of the region establish buffer zones along borders where there is a known potential for animal movements;

4. Members of the region consider, bilaterally or multilaterally, and in collaboration with livestock and poultry dealers and traders, the establishment of orderly and efficient official pathways and risk-based cross-border protocols for animal movements, that would benefit livestock, poultry, and aquatic animal product traders, dealers, and producers (through safe but cost-effective transboundary movements); as well as governments (through reduced costs of disease control);
5. Members of the region apply for OIE official recognition of country or zone disease-free status or formally self-declare disease free status as appropriate;
6. Members of the region make their import/export regulations and protocols readily accessible to all stakeholders, including providing relevant contact details;
7. Members of the region ensure they have strong animal disease surveillance in place supported by adequate field animal health networks and laboratory capacity allowing for proper certification of animals destined for trade;
8. Members of the region improve their animal identification and traceability systems and consider how such systems can contribute to safer cross border animal movements, including through identifying vaccination status and minimising illegal movements;
9. Members of the region ensure that livestock and poultry markets and border checkpoints be provided with experienced veterinarians and/or veterinary paraprofessionals trained to perform inspection activity and respond to (or refer as appropriate) disease detections;
10. Members of the region establish cross-sectoral relationships with their national authorities in fields such as Customs, Border Police, and the Military to ensure there is cross-sectoral awareness of the risks and referral, with appropriate penalties, to minimise the risk of illegal or unregulated cross border animal movement;
11. Members of the region take advantage of the OIE PVS Pathway to evaluate and monitor their compliance with OIE standards, including those relevant to the movement of animals;
12. Members of the Region address risks of transboundary animal diseases' spread by water ways, such as from illegal dumping of contaminated carcasses;
13. The OIE encourage through its Reference Laboratories, the undertaking of inter-laboratory proficiency testing to make sure that laboratory diagnostic results are reliable;
14. The OIE continue to develop guidelines, recommendations and standards to support its Members in mitigating the risk of animal disease transmission through the movement of animals;
15. The OIE continue to provide training to its Members on the OIE official disease status recognition procedures; and
16. The OIE continue to support its Members in their efforts to monitor their compliance with OIE standards, including for transboundary animal movements, by providing PVS Pathway missions and related support.