CURRENT ANIMAL HEALTH SITUATION WORLDWIDE:
ANALYSIS OF EVENTS AND TRENDS

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This report has been prepared based on the notifications and reports that countries submitted to the OIE via the World Animal Health Information System (WAHIS) up to and including 8 January 2020. The report begins with an analysis of several indicators on Member Countries’ reporting and transparency. This is followed by a description of the global situation regarding four diseases and infections of major interest, for which epizootic situations were observed in 2019 and early 2020, namely infection with African swine fever virus (ASF), infection with koi herpesvirus, infection with infectious hypodermal and haematopoietic necrosis virus (infection with IHHNV) and infection with highly pathogenic avian influenza virus (HPAI). The report then continues with a description of the global situation regarding two diseases and infections with global control or eradication strategies, namely infection with foot and mouth disease virus (FMD) and infection with peste des petits ruminants virus (PPR). Please note that due to the transition to the new OIE-WAHIS platform, not all countries have had the possibility to submit information relating to the second semester of 2019. This explains why the current global distribution of the diseases appears incomplete, with several countries classified as “no information available”. As of 8 January, 146 countries and territories submitted at least one six-monthly report for 2019. Finally, the report ends with a progress report on OIE-WAHIS and feedback on the Conference on One Health for the Mediterranean Region in the Age of Big Data, which took place in Cagliari (Italy) on 1 and 2 October 2019.

1. Indicators

The new OIE-WAHIS includes new functionalities to facilitate reporting and improve the quality of the data reported (e.g. numerous fields have been standardized and business rules have been implemented to guide Focal Points when they are entering data). All these developments will help to ensure the reported data are more transparent, more detailed and more accurate and can be easily and widely used to inform animal and public health policy around the world and provide a reliable basis for risk-based decisions. Ultimately, the way countries or territories report animal health data, including the timeliness, completeness and accuracy of reporting, determines the quality and transparency of OIE data.

This section of the report evaluates the quality of WAHIS data in recent years (i.e. 2016 to 2019) using several indicators to evaluate the transparency of reporting, identify the main gaps, assess the impact of some OIE activities on reporting and suggest areas for improvement.
According to the Chapter 1.1. of the OIE Terrestrial Animal Health Code (Terrestrial Code) and the Aquatic Animal Health Code (Aquatic Code), OIE Members are required to send an immediate notification (IN) of any of the exceptional events described in the OIE Codes within 24 hours of confirmation of the event. However, this requirement is not always complied with. Since 2016, during the process of verification of the six-monthly reports (SMRs), the World Animal Health Information and Analysis Department (WAHIAD) has identified and kept track of the exceptional events unreported for each semester. These are animal disease events that should have resulted in the submission of an IN to the OIE but for which no IN was submitted at the appropriate time and were directly reported in the SMR after the end of the semester. The difference between the number of INs actually reported and the total number of events detected that should have given rise to an IN (i.e. Number detected – Number reported) is what we shall refer to hereafter as the number of “unreported INs”.

In the SMRs for the years 2016 to 2019, 175 unreported INs were identified by WAHIAD through this mechanism, with a yearly average of 52 events that were not properly reported in an IN but were subsequently reported by SMR. It is important to point out that the data for 2019 are still only partial as only 6% of the SMRs for the second semester 2019 had been verified and validated at the time of this analysis and, consequently, there may have been a higher number of unreported INs in that year. Most of the unreported INs (92%) related to terrestrial animal diseases.

In 2002, with the aim of minimising the number of unreported INs and improving the transparency and timeliness of the notifications, the OIE established active searching activities to track non-official information and rumours relating to animal health and public health events around the world. Since 2018, advanced software applications have been used to perform epidemiological intelligence activities. Currently, the OIE retrieves information from a variety of sources, using two platforms for automatic search (the International Biosecurity Intelligence System [IBIS], managed by the government of Australia, and Epidemic Intelligence from Open Sources [EIOS], managed by the World Health Organization [WHO]), as well as formal communications from the network of OIE Reference Laboratories and Collaborating Centres. Another important source of information is the Global Early Warning System (GLEWS) set up by the Tripartite members (OIE, Food and Agriculture Organization of the United Nations [FAO] and WHO) to enable early detection of high-risk and emergency situations, coordinate the response at the human–animal interface and share information between the three Organisations to ensure transparency. Whenever WAHIAD detects consolidated news from a proven source of information, the country concerned is contacted for clarifications and subsequent actions if appropriate (i.e. submission of an IN or follow-up report [FUR]).

In the period 2016 to 2019, 128 INs were reported in WAHIS after the Members concerned had been contacted following the detection of rumours as a result of active search activities. Figure 1 shows the evolution over time in the number of INs reported spontaneously (grey line), the total number of INs reported after tracking activities (red line [i.e. the total number of INs validated in WAHIS]) and the total number of events requiring an IN as detected by WAHIAD (orange line [i.e. reported + unreported]). The space between the number of INs reported spontaneously and the total number of INs reported after tracking corresponds to the “tracking impact” (shaded blue); the space between the total number of INs actually reported (i.e. whether before or after tracking) and the total number of detected events requiring an IN corresponds to the number of “unreported INs” (shaded yellow).
As shown in Figure 1, the number of INs detected and reported peaked in 2018, before decreasing slightly in 2019. As stated at the General Session of the World Assembly of the Delegates of the OIE in May 2019, the number of INs reported is strongly influenced by the global sanitary situation (e.g. in 2018 there was a big spread of ASF in Asia), but also by the transparency of Members in reporting. The impact of tracking activities clearly increased during the period analysed. The proportion of INs that were only reported after tracking activities increased from 9% to 15%, reaching a maximum in 2019, while the proportion of “unreported INs” among all detected events requiring an IN declined steadily throughout this period, from 30% to 5%. As previously mentioned, the data for events detected through SMR in 2019 are still only partial, as a number of the reports for the second semester 2019 were missing when this analysis was performed. For that reason, to minimise this limitation a moving average of two periods was plotted in Figure 1 (black dotted line) to simulate the forecast of the number of events detected in 2019 after the finalisation of the verification process. This positive trend could be the result of several factors: firstly, the introduction of advanced software applications for tracking in 2018, which considerably increased the capacity of the OIE to detect and filter rumours; secondly, the proactive approach adopted by WAHIAD to closely follow up on the events detected; and thirdly, Members’ increased awareness of this activity and their positive response.

**Figure 1: Evolution in the number of INs reported before and after tracking activities and the maximum number of INs that could have been reported, for the years 2016 to 2019.**

In addition to the impact of the tracking activities, the observed improvement in reporting could also be related to other activities developed by WAHIAD in recent years. Firstly, since 2016, as part of the verification process for SMRs, WAHIAD has provided continuous feedback to Members by email, highlighting any unreported INs and, where appropriate, emphasising the importance of submitting an IN as soon as the next outbreak occurs. Secondly, the face-to-face training sessions provided for Focal Points for Disease Notification to the OIE allow them not only to learn about the software functionalities, but also to review, clarify and explain the situations where Members need to report to the OIE and the proper means to do so. Nevertheless, there is still significant room for improvement to reduce the number of unreported INs and reach a perfect match between the events detected and those reported. This poses a challenge to the OIE to be able to detect these events in a timely manner through the use of advanced software. However, it is most important for Members to demonstrate their commitment and take responsibility for detecting these events rapidly and report them in a timely manner through the appropriate channels (by an IN and not through the SMR).

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A more detailed analysis of the active searching activities over time was performed to evaluate the response rates, identify the main topics and diseases detected by this activity and potential areas for improvement. Figure 2 shows the evolution of the active searching activities, including the total number of contacts (i.e. when a Member is contacted regarding a non-official report or rumour of an exceptional disease event in their territory) per year (full bar per year), subdivided by the type of response received from Members: a) Refuted: the Member responded but refuted the information provided by the OIE (grey); b) No answer received (yellow); and c) Confirmed but no report: the Member confirmed the event but took no action to resolve the reporting gap (green).

Figure 2 shows a clear trend for an increase in the number of contacts made with Member Countries, which reached a maximum in 2019 with 156 events traced and the relevant Member being contacted. This is a direct result of the improvement in the tracking tools and efforts invested in this activity by the OIE, as previously mentioned. Approximately half of these rumours (average of 52% over time) were confirmed by the Members concerned (green), with a positive trend being observed during the analysis period (from 45% to 58% of the rumours being confirmed). However, there were still many contacts that received no answer from the Members concerned (average of 19%), in some cases despite numerous contacts. Although the percentage seems to have decreased slightly, it is important to highlight the importance of Members responding to the OIE’s requests for clarifications with the minimum of delay in the interests of transparency. Finally, among the contacts made with Members regarding rumours, an average of 29% of the rumours were refuted or not accepted, with or without justification, sometimes replying that further investigations were needed.

**Figure 2: Evolution of active search contacts and type of responses received over time (2016 - 2019)**

Most of these active search contacts with Members concerned rumours about OIE-listed diseases of terrestrial animals (91% of communications in 2019), followed by emerging diseases in aquatic animals (4%) and OIE-listed diseases in aquatic animals (3%). Other categories, such as zoonoses or emerging diseases in terrestrial animals, accounted for only a small proportion of contacts (2%). However, in 2018, the percentage of contacts concerning aquatic animals was slightly higher (15% of the contacts), due in part to the rapid spread of an emerging disease, namely Tilapia lake virus disease.

In 2019, only three diseases accounted for 48% of the contacts with Members, namely infection with African swine fever virus (ASF) (27% of contacts), highly pathogenic avian influenza (HPAI) (11%) and infection with foot and mouth disease virus (FMD) (10%). Other diseases for which clarification was frequently requested were infection with Rift Valley fever virus (especially in 2019, due to the outbreaks in Eastern Africa), anthrax and equine influenza in 2018, as well as the already mentioned Tilapia lake virus disease which accounted for 4% of active search contacts with Members in 2018.
This concentration of a number of very specific diseases is a trend also observed in the notifications received in the early warning system in WAHIS. In recent years, an average of 70% of the INs received per year related to only 10 of the 117 OIE-listed diseases. As shown in Figure 3, HPAI, FMD and ASF were the diseases with the highest number of notifications throughout the period analysed. The graphs show the evolution of the trends in notification over time. For example, ASF has gradually increased in importance since 2016, becoming the disease most frequently notified in 2019. In 2017, HPAI was split into two diseases for reporting purposes through WAHIS (one for poultry and the other for non-poultry birds including wild birds), but the number of notifications did not vary when the figures for the two diseases were combined. The graphs also reveal the re-emergence of infection with lumpy skin disease virus (LSD), starting in 2016, and the increase in 2019 due to the notifications received following its spread in Asia.

Figure 3: Graphical representation of the 10 most commonly notified OIE-listed diseases through immediate notifications (INs) in recent years.
Box sizes are proportional to the number of INs received per year for each disease.

Conversely, for one third of OIE-listed diseases (39 out of 117) no INs were received during the years 2016 to 2019. This could be related to the absence of any events during this period that fulfilled the criteria described in Chapter 1.1 of the Terrestrial Code and Aquatic Code, or to the possibility of such events remaining undetected or, if detected, not

* Diseases from figure 3 and their abbreviations: African swine fever (ASF), Anthrax, Highly pathogenic avian influenza in poultry [HPAI (poultry)] and non-poultry birds (HPAI-non poultry), Low pathogenic avian influenza (LPAI), Lumpy skin disease (LSD), Newcastle disease (NCD) and West Nile fever (WNF).

2 Avian chlamydiosis, Avian infectious laryngotracheitis, Avian mycoplasmosis (M. synoviae), Bov. genital campylobacteriosis, Contagious agalactia, Contagious caprine pleuropneumonia, Crimean Congo haemorrhagic fever, Inf. with Echinococcus granulosus, Inf. with Echinococcus multilocularis, Inf. with Chlamydia abortus (Enzootic abortion of ewes, ovine chlamydiosis), Enzootic bovine leukosis, Inf. with epizootic haematopoietic necrosis virus, Inf. with epizootic haemorrhagic disease virus, Inf. with yellow head virus genotype 1, Inf. with abalone herpessivirus, Inf. with Batrachochytrium dendrobatidis, Inf. with Batrachochytrium salamandrivorans, Inf. with Bonamia ostreae, Inf. with Perkinsus marinus, Inf. with Perkinsus olseni, Inf. with salmonid alphavirus, Inf. with Xenohaliotis californiensis, Infestation of honey bees with Acarapis woodi, Japanese encephalitis, Nairobi sheep disease, Inf. with Hepatobacter penaei (necrotising hepatopancreatitis), Nipah virus encephalitis, Ovine epididymitis (B. ovis), Inf. with Taenia solium (Porcine cysticercosis), Q fever, Inf. with rinderpest virus, Salmonellosis (S. abortusovis), Inf. with Taura syndrome virus, Theileriosis. Transmissible gastroenteritis, Infection with Trichinella spp., Trichomonosis, Infestation of honey bees with Tropilaelaps sp., Turkey rhinotracheitis
being reported through the appropriate channels and being considered of lesser importance. This concentration of reports on only a few diseases could be interpreted as indicating Members report far more frequently by IN those diseases that have the highest impact on trade. These diseases, along with zoonoses, are also the ones that receive the most media coverage and are consequently the ones on which become the focus of tracking activities. As a result, the OIE most frequently requests information on these high impact diseases, which in turn leads to Members submitting more reports. The overall effect is that the quality of information gradually improves for certain diseases, while others potentially remain unreported.

- OIE-WAHIS will facilitate reporting, help to standardise the data and increase the use of the information reported. Nevertheless, the quality, transparency and timeliness of the reports depend solely on the Members.
- Since 2016, an improvement in reporting has been observed, with a reduction in the proportion of unreported INs.
- Tracking activities have had a positive impact in terms of better transparency, potentially due to the new active search tools implemented, the increasing efforts made by the OIE and effective collaboration with other organisations (e.g. GLEWS).
- Members’ response to the tracking activities has also improved over time, as the confirmations – and especially the submission of reports after confirmation of the event – have increased substantially since 2016. However, many requests for clarification (19% on average) still remain unanswered. The OIE strongly encourages its Members to respond to OIE inquiries as quickly as possible and provide the clarifications required and urges them to report OIE-listed disease events in accordance with the requirements stipulated in Chapter 1.1. of the Terrestrial Code and Aquatic Code.
- Active search communications with Members were concentrated on three OIE-listed diseases of terrestrial animals (ASF, FMD and HPAI). These diseases were also the ones most commonly reported in INs, while for 39 OIE-listed diseases no INs were received in the years 2016 to 2019.
- Although the notification of OIE-listed diseases by its Members improved each year, this analysis has shown that further efforts still need to be made by the OIE, and in particular by its Members to increase the detection and improve the reporting of all OIE-listed diseases, including those less commonly reported.

2. Global situation regarding four OIE-listed diseases and infections of major interest, for which epizootic situations were observed in 2019 and early 2020

2.1. Infection with African swine fever virus

ASF has been historically present in Africa (first described in East Africa in 1921) and it has been endemic in Sardinia (Italy) since its introduction in 1978. However, in 2007, an important change in ASF epidemiology occurred, as the disease was detected in Georgia. Since then, an escalation of ASF epidemics has been observed around the world. The disease has spread through Europe, reaching first Armenia and Russia the same year, then Azerbaijan in 2008, Ukraine in 2012, Belarus in 2013, Lithuania, Poland, Latvia and Estonia in 2014, Moldova in 2016, Czech Republic and Romania in 2017, Hungary, Bulgaria and Belgium in 2018 and finally Slovakia and Serbia in 2019. Since 2018, ASF has also spread in Asia, and has affected, as of 8 January 2020, 11 countries and territories. First, in August 2018, ASF was introduced into China (People’s Rep. of), and then, in 2019 spread to Mongolia, Vietnam, Cambodia, Hong Kong (SAR-PRC), Korea (Dem. People’s Rep. of), Laos, Philippines, Myanmar, Indonesia and Timor-Leste.

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This epizootic situation is a cause for grave concern to the international community. Meanwhile, ASF has continued to be present on the African continent, and several countries reported its first occurrence, such as Mauritius in 2007, Central African Republic and Chad in 2010 and Mali in 2016. In recent decades, ASF has been absent from the Americas and Oceania. According to the information collected by the OIE, the last occurrence of ASF in the Americas was in the early 1980s and the disease has never been detected in Oceania. This section reviews the recent ASF global situation and also its evolution since 2007.

The global geographical distribution of ASF, based on the information collected through WAHIS during the period from 1 January 2007 to 8 January 2020, is shown in Figure 4. The Figure consists of four maps showing the global situation in, respectively, 2007, 2017, 2018 and, most recently, 2019 and early 2020 (up to 8 January 2020).

For this most recent period, 150 countries and territories provided information on ASF, which was reported as present by 28% (42/150) of them. Twenty-two countries and territories reported ASF in both domestic pigs and wild boar, 17 reported ASF only in domestic pigs and three countries reported ASF only in wild boar.

During the same period, three Member Countries published self-declarations of freedom from ASF in compliance with the provisions of the Terrestrial Code. In April 2019, the Delegate of Belgium to the OIE declared that Belgium had been free from the disease in domestic pigs and captive feral pigs with effect from November 2007. Also in April 2019, the OIE Delegate of the Czech Republic declared that the country complied with the requirements for a country free from infection with ASF in all suids as of 19 April 2019. In making this declaration, the Czech Republic declared that the disease had successfully been eradicated in the country, which thus constitutes one of the rare positive experiences in the context of the global difficulties faced by Member Countries in trying to stop the spread of ASF. Finally, in July 2019, the Delegate of Canada to the OIE declared that Canada was a country historically free from ASF. These declarations were still active as of 8 January 2020.

5 Benin, Bulgaria, Burkina Faso, China (People’s Rep. of), Congo (Rep. of), Guinea-Bissau, Italy, Korea (Rep. of), Laos, Latvia, Lithuania, Moldova, Mozambique, Namibia, Nigeria, Poland, Romania, Russia, Slovakia, South Africa, Tanzania and Ukraine
6 Cambodia, Chad, Congo (Dem. Rep. of), Côte d’Ivoire, Hong Kong (SAR-PRC), Indonesia, Kenya, Korea (Dem. People’s Rep. of), Madagascar, Mongolia, Myanmar, Philippines, Senegal, Serbia, Timor Leste, Vietnam and Zimbabwe
7 Belgium, Estonia and Hungary
Out of the 42 countries and territories affected by ASF in 2019 and early 2020, 27 in Africa, Asia and Europe reported information to the OIE through immediate notifications and follow-up reports for exceptional events as described in Article 1.1.3. of the Terrestrial Code. In Africa⁸, all the outbreaks reported through these reports were in domestic pigs, most of them in villages or backyard pigs. In Asia⁹, 86% of the outbreaks reported in this way were in domestic pigs, most of them in villages; in Europe¹⁰, 77% of the outbreaks reported in this way were in wild boar and 21% were in domestic backyard pigs. These statistics on the dominant affected populations in each region illustrate the diversity of the regional dynamics and of surveillance strategies. The difference in the percentages of outbreaks reported in wild boar vs. domestic pigs is of particular interest. As presented during the fourteenth meeting of the Standing Group of Experts on African swine fever in Europe under the GF-TADs umbrella, which took place in Bulgaria in September 2019, several initiatives have been implemented in Europe to monitor the disease in the wild boar population, but some limitations of data collection on the disease in wild boar in Asia, and in the understanding of its role in the maintenance of ASF in the region were acknowledged. The distribution, ecology and management of wild boar and their epidemiological role in swine disease in domestic pigs was one of the priority topics identified in the region for the control of ASF¹¹.

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⁸ Côte d’Ivoire, Kenya, South Africa and Zimbabwe
⁹ Cambodia, China (People’s Rep. of), Hong Kong (SAR-PRC), Indonesia, Korea (Dem. People’s Rep. of), Korea (Rep. of), Laos, Mongolia, Philippines, Timor Leste and Vietnam
¹⁰ Belgium, Bulgaria, Hungary, Latvia, Moldova, Poland, Romania, Russia, Serbia, Slovakia and Ukraine
¹¹ Holley C., African swine fever in Asia & SGE ASF for Asia, Presented at the fourteenth meeting of the Standing Group of Experts on African swine fever in Europe (SGE ASF14, Sofia, Bulgaria, 10-11 September 2019)
As described in the first section of the report, ASF was among the diseases for which the highest number of immediate notifications were submitted in 2019 and for which the OIE had the highest number of contacts with countries in the context of its rumour tracking activity. Furthermore, as presented in the session “current animal health situation worldwide: analysis of events and trends” at the OIE 87th General Session in May 2019, ASF was the disease with the shortest times measured between event start and submission date of the corresponding immediate notifications for the period 2015 to 2018. It was also stated that ASF had largely contributed to the increase in the number of follow-up reports submitted to the OIE during the period. All these indicators tend to show that affected countries promptly notify the occurrence of cases and provide regular updates as part of their transparency obligations.

As presented in Technical Item 2 of the OIE 87th General Session in May 2019, and according to OIE international standards and best practices, effective control of ASF includes, among others, risk-based prevention and surveillance programmes, adequate biosecurity in pig production sectors and hunting grounds, pig traceability and movement control, effective official controls, wild pig management, safe culling and disposal of animals and their contaminated products, improved collaboration among the multiple sectors involved, and continuing education and awareness-raising programmes for all relevant parties. Although not all these measures are notifiable via WAHIS, reported data can give a good general idea of countries’ awareness and implementation of surveillance and control measures for ASF. Figure 5 shows the number of surveillance and control measures applied by countries in 2007 (year of ASF recurrence in Europe) vs. 2018 (most recent year for which complete information is available), among the following list: 1) ASF on the list of notifiable diseases in the country; 2) General surveillance for ASF; 3) Targeted surveillance for ASF; 4) ASF monitoring; 5) Screening for ASF; 6) Stamping out or selective killing and disposal in the event of ASF; 7) Movement control for pigs or wild boar; 8) Precautions at borders against ASF introduction.

For 2007, 181 countries and territories provided information on ASF. Among them, 66% (120/181) reported the implementation of surveillance or control measures for ASF, and the average number of measures implemented in each country that year (among the eight measures listed above) was 2.4. In 2018, 194 countries and territories provided information on the disease and 90% (175/194) reported the implementation of surveillance or control measures. In 2018, the average number of measures implemented in each country was 3.8 (among the eight measures listed above). This increase between 2007 and 2018 illustrates the reaction of Veterinary Services around the world to ASF spread and the increased awareness and concern among the international community. Figure 5 shows that the implementation of surveillance and control measures for ASF increased in all regions of the world. In 2018, ASF was notifiable in 81% of reporting countries and precautions at borders were implemented in 76% of reporting countries. In total, 67% of reporting countries notified the implementation of general (or passive) surveillance during the year, and only 26% of them notified targeted (or active) surveillance.

13 Plavšic B. et al., Strategic challenges to global control of African swine fever, presented during 87th General Session of the World Assembly of Delegates of the OIE, May 2019
In this context, the response must involve coordinated actions. The Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)\textsuperscript{14}, a joint initiative from FAO and OIE to provide coordination mechanism to achieve the prevention, detection and control of transboundary animal diseases and to address their regional dimensions, has been used first at regional level and then at global level. Under the umbrella of GF-TADs Europe, a Standing Group of Experts on ASF (SGE-ASF) was set up in 2014\textsuperscript{15} to build closer cooperation among countries affected by ASF and thereby enhancing transparency and addressing the disease in a more collaborative and harmonised manner across Europe. Based on the SGE-ASF Europe experience, similar initiatives, adapted to the regional context, were launched in Asia (Beijing, China [People’s Rep. of] April 2019\textsuperscript{16}) and the Americas (Bogota, Colombia, November 2019\textsuperscript{17}). In addition to addressing their regional concerns with ASF these initiatives also participated in bridging expertise from different regions. In the context of the European Union, the regional strategic approach was initially drafted in 2015\textsuperscript{18} and it has been regularly revised ever since. In 2017, the Regional strategy for the control of African swine fever in Africa was launched jointly by FAO, the African Union–Interaficn Bureau for Animal Resources (AU-IBAR) and the International Livestock Research Institute (ILRI).

\textsuperscript{14} http://www.gf-tads.org/
\textsuperscript{16} https://rr-asia.oie.int/en/events/launch-meeting-of-the-sge-on-asf-for-asia/
\textsuperscript{17} https://rr-americas.oie.int/en/events/standing-group-of-experts-on-asf/
The work of the GF-TADs Global Steering Committee in empowering global and regional alliances in the fight against transboundary animal diseases, providing capacity building and assisting countries with establishing prevention, preparedness and control programmes is of pivotal importance for the control and eradication of ASF at global and regional level. Furthermore, at the 87th OIE General Session, in May 2019, Resolution No. 33 was adopted unanimously. This Resolution lists 15 recommendations, including the recommendation that "A global initiative for the control of ASF be launched using the GF-TADs mechanism to develop, improve and harmonise national, regional and global partnership and coordination to address ASF at the source, enhance prevention and preparedness, minimise adverse impacts on animal health and welfare, international trade, and social wellbeing".

Member Countries are reminded that additional information about the disease and its epidemiological situation and geographical distribution is available on the OIE website, through the latest reports on ASF, and through the reports on ASF in Asia, which are updated on a regular basis and are based on WAHIS data. Furthermore, in addition to the multiple communication campaigns implemented by national Veterinary Services around the world, the OIE has developed a global awareness campaign, with communication tools available in several languages. With the objective of testing and practising national contingency plans, Member Countries implement disease introduction simulation exercises. The OIE encourages its Member Countries to share their experiences in preparing generic and/or disease-specific national contingency plans and has a dedicated web page for national contingency plans. As of 8 January 2020, the announcements of 12 ASF simulation exercises implemented in 2019 or early 2020 have been disseminated to OIE Delegates and to subscribers to the OIE-Info Distribution List. Member Countries are also reminded that the Terrestrial Code provides comprehensive guidance to Veterinary Authorities on establishing a country, zone or compartment free of ASF as well as recommendations relating to the trade of pork and pork products. These products, when handled in accordance with hygienic practices complying with international standards, are not a source of infection.

In conclusion, this section provided a retrospective summary of ASF spread in Africa, Asia and Europe since 2007, emphasising the escalation of ASF epidemics around the world. The analysis suggests that in response to this global threat, the percentage of countries implementing surveillance and control measures for ASF increased over the years, reaching 90% in 2018 (most recent year for which complete information is available). This observation is consistent with the regional initiatives for a coordinated response implemented in recent years, especially in the context of GF-TADs.

This section referred to the recommendations contained in Resolution No. 33 adopted unanimously at the 87th General Session of the OIE in May 2019. Since then, the OIE has been working closely with its Members and partners to make progress on addressing these recommendations.

Taken together, the OIE’s standards and the transparency of Members’ reporting through WAHIS provide the framework for Veterinary Services to implement effective surveillance, reporting, and control measures for ASF. The OIE continues to closely monitor the global ASF situation and report back to its Members. The launch of the modernised OIE-WAHIS in 2020 will help to further enhance ASF reporting and information display on its modern and dynamic web interface.

2.2. Infection with highly pathogenic avian influenza virus (HPAI)

Infection with avian influenza viruses (AI viruses) has been one of the most important animal diseases in recent years, due to its serious consequences for both livelihoods and international trade in many countries. Some AI subtypes, such as H5N1 and H7N9, can be transmitted to humans and have serious consequences.

References:
The AI virus constantly evolves by mutation and re-assortment, resulting in the emergence of new subtypes that can pose a significant threat to both animal and human health. In view of this situation, the OIE’s objectives of promoting transparency and understanding of the global animal disease situation continue to be a priority, both to protect public health and to ensure the safety of world trade in animals and animal products. For this reason, the OIE publishes on its website regular updates on the global situation regarding the circulation of AI viruses.

This section provides an overview of HPAI disease events (in poultry and non-poultry including wild birds) reported to the OIE’s early warning system by its Members during the period January 2019 to February 2020 through WAHIS. The temporal dynamics of outbreaks reported in poultry and non-poultry through immediate notifications and follow-up reports since January 2019 are presented in Figure 6. The stable situation reported in the six-monthly reports by two countries, namely Egypt and Indonesia, are not described in this report as the data for the second semester 2019 will be collected in the first half of 2020. After a period of low activity, there were signs of a trend for an increase in HPAI activity in January and February 2020.

**Figure 6. HPAI outbreaks described in poultry (HPAI) and non-poultry (HPAI wild) through immediate notifications and follow-up reports (January 2019 – February 2020)**

In this period, 327 outbreaks in poultry were notified in 24 countries (Figure 7).
During the period (i.e. January 2019 to February 2020), 20 countries submitted immediate notifications of HPAI in poultry (subtypes H5N1, H5N2, H5N5, H5N6, H5N8, H7N3) and nine countries submitted immediate notifications of HPAI in non-poultry (subtypes H5N1, H5N2, H5N6, H5N8, H7N9).

In particular, four countries reported the occurrence of a new strain in the country. In March 2019, Egypt reported the first occurrence of subtype H5N2. In April 2019, Cambodia reported the first occurrence of subtype H5N6. In September 2019, Chinese Taipei reported the first occurrence of subtype H5N5. In December 2019, Nigeria reported the first occurrence of H5N6. In February 2019, Namibia reported the first occurrence of HPAI in the country, in non-poultry (subtype H5N8).
The analysis of HPAI outbreak dynamics shows an increasing activity of the virus in the first months of 2020.

In general, most of the outbreaks since the beginning of 2019 have been reported in Europe and Asia, with only a limited number of events occurring in Africa, the Americas and the Middle East.

Veterinary Authorities in the affected countries have responded to contain outbreaks in poultry with stamping out measures, heightened surveillance and recommendations to poultry owners to increase biosecurity.

The OIE’s standards and the transparency of reporting through the OIE’s World Animal Health Information System, provide the framework for Veterinary Services to implement effective surveillance, reporting and controls for avian influenza.

Wild bird surveillance can indicate periods of heightened risk, and at these times measures to improve on-farm biosecurity may reduce the likelihood of poultry being exposed to the virus.

2.3. Infection with koi herpesvirus

As mentioned in the first section of this report, and in the session “current animal health situation worldwide: analysis of events and trends” at the OIE 87th General Session in May 2019, the OIE has observed gaps in reporting on aquatic animal diseases\(^2\). To address these gaps and support its Members, the OIE has put in place several measures including, among others: training for Focal Points; active search for non-official information; permanent communication with countries to accompany OIE Members in their notification activity; and development of new functionalities in OIE-WAHIS.

In 2019 and early 2020 (up to 8 January 2020), infection with koi herpesvirus was among the diseases with the highest number of immediate notifications submitted to the OIE. This section reviews its recent global situation.

Infection with koi herpesvirus can affect all varieties and subspecies of common carp, and common carp hybrids (cyprinid species). Following the first reports of infection with koi herpesvirus in Europe in the late 1990s\(^23,24\), the disease spread to many countries worldwide, predominantly through the trade in koi carp, before the current knowledge of the disease and the means to detect it were available. It is now known to occur in, or has been recorded in fish imported into, at least 28 different countries\(^25\).

The recent global distribution of infection with koi herpesvirus, based on the information collected through WAHIS during the period from 1 January 2019 to 8 January 2020, is shown in Figure 9. During this period, 94 countries and territories provided information on infection with koi herpesvirus. This number corresponds to about half of the countries and territories reporting to the OIE, the remainder having not yet sent their six-monthly report on aquatic animal diseases for the period of interest or having sent their reports with no information for this disease. As shown on the map, the most important gaps of information were observed in Africa, Western Asia and the Middle East.

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Infection with koi herpesvirus was reported as present by 23% (22/94) of the countries and territories that provided information for the period of interest. Four countries\(^{26}\) reported the disease in both farmed fish and fish from the wild, 17\(^{27}\) reported the disease in farmed fish only and one country, Slovakia, reported the disease in fish from the wild only.

As shown in Figure 9, the disease was present in several regions of the world, namely the Americas, Asia, Europe and the Middle East.

For the period from 1 January 2019 to 8 January 2020, infection with koi herpesvirus was reported by four countries by means of immediate notifications. Iraq also sent an immediate notification for the first occurrence of the disease in 2019 referring to an event that had started in 2018, before the period of interest.

Among the notifications for 2019 and early 2020, one concerned the first occurrence of the disease in the country: Norway reported that in July 2019, koi fish were imported from another country to a private pond. Since the fish had clinical signs, the owner notified a veterinarian who carried out a health check to determine the cause. No fish were removed from the pond other than for examination and testing. At the time of suspicion of the disease, the pond was emptied, washed, disinfected and then monitored. The event was declared resolved the same month.

In July 2019, Slovakia reported the first occurrence of the disease in the area of Banska Bystrica (west of the country) in a lake (fish from the wild). As of 8 January 2020, the event was still ongoing.

Recurrences were reported by Ireland (May 2019) and Romania (October 2019). Ireland reported one outbreak in farmed fish that were affected following the illegal introduction of new live animals. The appropriate control measures were applied, and the event was resolved in June 2019. Romania reported one outbreak in the area of Giurgiu (south of the country) in farmed fish. As of 8 January 2020, the event was still ongoing.

\(^{26}\) Canada, Japan, The Netherlands and United States of America

\(^{27}\) Belgium, China (People’s Rep. of), Chinese Taipei, Czech Republic, Denmark, Germany, Hong Kong (SAR-PRC), Indonesia, Iraq, Ireland, Israel, Italy, Norway, Poland, Romania, Singapore and United Kingdom
Cyprinids are economically valuable species in aquaculture. According to FAO data, in 2017 (most recent year for which information is available) their production represented 53% of the global annual fish tonnage in aquaculture and 44% of the global annual monetary value of fish aquaculture; production was mainly concentrated in Asia. However, cyprinids represent only a small percentage of the fish captured from the wild (2% of the tonnage in 2017 according to FAO data).

Methods to control and prevent the disease should mainly rely on avoiding exposure to the virus, coupled with good hygiene and biosecurity practices. Member Countries are reminded that the OIE Aquatic Code and Manual of Diagnostic Tests for Aquatic Animals provide comprehensive guidance to national authorities for importation or transit of aquatic animal products and for disease control and prevention. OIE standards and the transparency of reporting through WAHIS help to provide the framework for Member Countries to implement effective surveillance, reporting, and control measures for infection with koi herpesvirus.

### 2.4. Infection with infectious hypodermal and haematopoietic necrosis virus

In 2019 and early 2020 (up to 8 January 2020), infection with infectious hypodermal and haematopoietic necrosis virus (infection with IHHNV) was among the diseases with the highest number of immediate notifications submitted to the OIE. This section reviews the recent global situation of the disease. Species susceptible to IHHNV include yellowleg shrimp (*Penaeus californiensis*), giant tiger prawn (*Penaeus monodon*), northern white shrimp (*Penaeus setiferus*), blue shrimp (*Penaeus stylirostris*), and white leg shrimp (*Penaeus vannamei*). The disease appears to have a world-wide distribution in both wild and cultured penaeid shrimp.

The recent global geographical distribution of infection with IHHNV, based on the information collected through WAHIS during the period from 1 January 2019 to 8 January 2020, is shown in Figure 10. During this period, 97 countries and territories provided information on the disease.

Infection with IHHNV was reported as present by 14% (14/97) of the countries and territories that provided information for the period of interest. Two countries reported the disease in both farmed crustaceans and crustaceans from the wild, 11 reported the disease in farmed crustaceans only and one country, Papua New Guinea, reported the disease in crustaceans from the wild only. As shown in Figure 10, the disease was present in several regions of the world, including Africa, the Americas, Asia, Europe and Oceania.

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28 FAO - Fisheries and Aquaculture Information and Statistics Branch – accessed on 07/02/2020, [http://www.fao.org/figis/servlet/TabSelector](http://www.fao.org/figis/servlet/TabSelector)
29 Chapter 2.3.7., OIE Manual of Diagnostic Tests for Aquatic Animals, 2019
31 Brazil and Madagascar
32 Canada, China (People’s Rep. of), Costa Rica, Indonesia, Mexico, Nicaragua, Panama, Peru, Thailand, United Kingdom and United States of America
For the period from 1 January 2019 to 8 January 2020, infection with IHHNV was reported by three countries by means of immediate notifications.

The United States of America reported two disease events. The first event started in March 2019 and was a recurrence of infection with IHHNV in California and New Mexico in farmed white leg shrimp (Litopenaeus vannamei). As of 8 January 2020, the event was still on-going. The second event started in May 2019 and was for the first occurrence of IHHNV in new areas, Texas and Florida, detected through routine sampling. The event was resolved in August 2019.

In June 2019, Canada reported the first occurrence of IHHNV in the country. Four of the country’s five premises culturing white leg shrimp (Litopenaeus vannamei) were infected from a common source of imported post-larval shrimp. All these premises were land-based closed-contained recirculation operations with no effluent discharge. As of 8 January 2020, killing for commercial use or own use and disinfection were still to be applied and the event was still on-going.

In July 2019, the United Kingdom reported the first occurrence of infection with IHHNV in the country. Two premises culturing the same species were infected by imported live animals. One site was an experimental facility looking to prove a concept using an artificial environment. At the other site, the animals had been imported as specific pathogen-free post-larval shrimp and were being grown on for human consumption for the United Kingdom market only. At the first site, the national authorities reported high mortality, while the animals at the second site showed no clinical signs of disease or increased mortality associated with IHHNV; the reason for the investigation was because the Competent Authority had received a report that one of the exporting suppliers had become positive for IHHNV, prompting an investigation on the basis of suspicion. This event was resolved in December 2019.
This section has highlighted the fact that several disease events were due to legal imports of infected animals. Member Countries are reminded that the OIE Aquatic Code provides comprehensive guidance to national authorities for importation or transit of aquatic animal products, and for disease control and prevention. Proper implementation of the Code standards is essential to prevent the international spread of such epizootic diseases. In the recent situations described above, two countries in different regions of the world notified disease events resulting from legal trade within the space of only two months. The information provided by the United Kingdom illustrates how proper communication between countries can lead to a rapid investigation in the case of a suspicion. Once again, the OIE’s standards and the transparency of Members’ reporting through WAHIS help to provide the framework for countries to implement effective surveillance, reporting and control measures. The new functionalities being implemented in OIE-WAHIS, starting in 2020, will contribute to the enhancement of communication between countries and risk assessment of the international situation.

3. Global situation regarding two OIE-listed diseases and infections of major interest, for which global control or eradication strategies have been implemented

3.1. Infection with foot and mouth disease virus

Since 1996, the OIE officially recognises disease-free areas for relevant animal diseases. This procedure currently applies to six OIE-listed diseases, including FMD and PPR. This procedure has been expanded to include OIE endorsement of official control programmes. Six OIE Member Countries currently have an OIE-endorsed official control programme for FMD.33 This mechanism is designed to help Member Countries to progressively improve their sanitary situation and eventually attain disease free status. The OIE-FAO Global FMD Control Strategy was endorsed in 2012.34 The specific objective of the OIE-FAO Global FMD Control Strategy is to improve FMD control in regions where the disease is still endemic, thereby protecting the advanced animal disease control status in other regions of the world. The Global FMD Control Strategy therefore not only aims to reduce the burden of FMD on animal production in developing countries, but also to protect FMD-free countries.

As of 8 January 2020, a total of 156 countries and territories had provided information on FMD for 2019 and early 2020 through WAHIS. The disease was reported present in 33% (51/156) of these reporting countries and territories. The affected countries were mainly located in Africa, Asia and the Middle East (Figure 11). During this period, FMD was reported by means of immediate notifications by 14 countries. Comoros reported the first occurrence in a zone, while Pakistan and Uganda each reported new strains in the country. Pakistan reported the first occurrence of serotype O, and Uganda reported the first occurrence of serotype A. For all the other countries, the reason for notification was the recurrence of the disease. As of 8 January 2020, ten of the reported events were still ongoing while the event in Uganda was considered closed as the situation had been notified as “sufficiently stable” in April 2019. Currently, 68 Member Countries are recognised by the OIE as FMD free where vaccination is not practised and two as FMD free where vaccination is practised. In addition, 11 Member countries have an OIE-recognised FMD free zone where vaccination is not practised, and eight have an FMD free zone where vaccination is practised.36

33 https://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Resolutions/2019/A_R16_FMD_pregramme.pdf
34 https://www.oie.int/doc/ged/D11886.PDF
35 Afghanistan, Algeria, Bangladesh, Benin, Bhutan, Burkina Faso, Cambodia, China (People’s Rep. of), Comoros, Congo (Dem. Rep. of), Côte D’Ivoire, Egypt, Eritrea, Guinea-Bissau, Hong Kong (SAR-PRC), India, Iran, Iraq, Israel, Kenya, Laos, Libya, Malawi, Malaysia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Oman, Pakistan, Palestine, Qatar, Guinea (Rep. of), Russia, Saudi Arabia, Senegal, Somalia, South Africa, Sudan, Tanzania, Thailand, Tunisia, Turkey, Uganda, United Arab Emirates, Vietnam, Zambia, and Zimbabwe
In order to evaluate the global epidemiological situation of the disease and the evolution since 2012, year of the endorsement of the Global FMD Control Strategy, various indicators were analysed, and in particular:

- Changes in countries in terms of the quality of their FMD reporting: comparison between 2012 and 2018/2019. The data for 2018 and 2019 were aggregated due to the information available for 2019 being incomplete;
- Change in officially recognised disease status: comparison between 2012 and 2019, in terms of countries and/or zones with an officially recognised disease-free status (with/without vaccination);
- The evolution of quantitative information regarding i) the number of countries reporting the disease present, ii) the number of outbreaks reported since 2012.

**Changes in countries in terms of the quality of their FMD reporting (Table 1):** to better understand these changes from a quantitative perspective, an indicator was computed for each reporting country. Countries were classified as follows:

- ‘Better reporting’: if the disease epidemiological status changed from No Information to another status (either Present or Absent)
- ‘Worse reporting’: if the disease epidemiological status changed from Present or Absent to No Information
- ‘Better serotype’: if countries not reporting information on serotypes started reporting this information
- ‘Worse serotype’: if countries reporting information on serotype stopped reporting this information

The results of the classification are presented in Table 1. The analysis considered 201 countries. Six per cent of countries improved their reporting on FMD; 2% of countries improved the information on the circulating serotype(s). In contrast, 3% of the countries reduced the quality of the information reported on serotypes.

**Table 1. Evaluation of changes of countries (N=201) in terms of the quality of their FMD reporting over the period 2012 – 2018/2019 (Data based on reports received up to 8 January 2020)**

<table>
<thead>
<tr>
<th>No. of countries</th>
<th>Improvement</th>
<th>No. of countries</th>
<th>Deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (6%)</td>
<td>Better reporting</td>
<td>4 (2%)</td>
<td>Worse reporting</td>
</tr>
<tr>
<td>4 (2%)</td>
<td>Better serotype</td>
<td>7 (3%)</td>
<td>Worse serotype</td>
</tr>
</tbody>
</table>
Change in the official FMD status of OIE Member countries: the evolution of official FMD status is presented in Figure 12. The dynamics have been evaluated in terms of the absolute number of countries/zones officially recognised as free from the disease (with or without vaccination) since 2012. During this period most of the countries with an officially recognised disease status maintained their status (n=64), moreover three more countries were officially recognised as free from FMD (two countries free without vaccination and one country free with vaccination). The number of countries officially recognised as having free zones without vaccination increased from 10 to 11 and the number of countries officially recognised as having a free zone with vaccination increased from four to eight.

Figure 12. Evolution of FMD official disease status in OIE Member Countries during the period 2012 - 2019 (data based on reports received up to 8 January 2020)

Trend in quantitative indicators: the number of countries reporting the presence of the disease was quite stable over the period, ranging from 50 to 61 (Figure 13). The lower number of countries reporting the presence of the disease in the first semester of 2019 is due to incomplete submission of the reports.

Figure 13. Number of countries and territories for each semester between 2015 and 2019 that reported FMD present (data based on reports received up to 8 January 2020)

Regarding the other quantitative indicators, the number of outbreaks registered during the period was quite variable, ranging from 1500 to more than 3500 per semester, with no clear trend during the period (Figure 14).
Global FMD situation: the disease continues to be present in Africa, Asia and the Middle East; no countries in Europe or the Americas reported any outbreaks during the period 2019 and 2020 (up to 8 January 2020).

FMD serotype diversity is very high in Africa, compared to Asia and the Middle East, making the prevention and control of the disease in Africa more challenging.

Changes in countries in terms of the quality of their FMD reporting: since 2012, there has been a significant improvement in the quality of the information provided, in terms of the accuracy of the information provided on the occurrence of the disease and on the circulating serotypes.

Changes in officially recognised FMD status: during the period 2012–2019, almost all of the countries with an officially recognised FMD status were able to maintain their status, while several new countries or new zones in some countries were recognised as officially free, showing a very positive trend.

Quantitative indicators: in contrast to the above, the analysis of quantitative indicators (number of countries and number of outbreaks) during the same period did not show any significant trend. While the number of countries reporting the disease present remained quite stable, the number of outbreaks reported was highly variable throughout the period, raising questions as to whether this reflects the real epidemiological situation or is affected by incomplete reporting through the years. An analysis considering the dynamics of the affected countries at sub-national level would be necessary to distinguish these and other potential factors.

The OIE recommends that Member Countries continue their efforts, in accordance with the guidelines provided in the Global FMD Control Strategy, to implement well-structured control efforts and to maintain timely and comprehensive reporting to support monitoring of the global situation of the disease.

### 3.2. Infection with peste des petits ruminants virus

The Global Strategy for the Control and Eradication of PPR\(^\text{37}\) (PPR GCES) was developed by the OIE and FAO, under GF-TADs. The PPR GCES was endorsed in 2015. The purpose of this chapter is to describe the current epidemiological situation of the disease, as of 8 January 2020, and to evaluate retrospectively the dynamics of the disease at global level since the endorsement of the Global Strategy in 2015.

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As of 8 January 2020, a total of 146 countries and territories had provided information on PPR for 2019 and early 2020 through WAHIS. The disease was reported present in 25% (36/146) of these reporting countries and territories. The affected countries are mainly located in Africa, the Middle East and Asia. An outbreak outside the traditionally affected regions is still ongoing in Bulgaria. During this period, PPR was reported by means of immediate notifications by two countries (Israel and Libya). Libya reported the recurrence of the disease in April 2019 (date of previous occurrence: June 2018), with the date of start of the first outbreak in January 2019. The event was closed in May of the same year. In July 2019, Israel reported the recurrence of the disease in a herd that had been vaccinated in 2017 (date of previous occurrence in February 2019), and the event is still ongoing. Currently 56 Member Countries are recognised by the OIE as PPR free, and one country has a PPR-free zone.

Figure 15. Reported distribution of PPR in 2018/2019 (Data based on reports received up to 8 January 2020)

In order to evaluate the global epidemiological situation of the disease and the evolution since 2015, year of the endorsement of the Global Strategy, similar indicators to those in the chapter on FMD have been used and in particular:

- Changes in countries in terms of the quality of their PPR reporting: comparison between 2015 and 2018/2019. The data for 2018 and 2019 were aggregated due to the information available for 2019 being incomplete;
- Change in officially recognised disease status: comparison between 2015 and 2019, in terms of countries and/or zones with an officially recognised disease-free status;
- The evolution of quantitative information regarding i) the number of countries reporting the disease present, ii) the number of outbreaks reported since 2015.

Changes in countries in terms of the quality of their PPR reporting: to better understand the changes from a quantitative perspective, an indicator was computed for each country, using a similar approach to that described for FMD. i.e.

- ‘Better reporting’: if the disease epidemiological status changed from No Information to another status (either Present or Absent)
- ‘Worse reporting’: if the disease epidemiological status changed from Present or Absent to No Information.

The results of the classification are presented in Table 2. The analysis considered 200 countries: in general, the reporting of information on PPR improved during the period, with 11 countries providing better data to the OIE.

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88 Afghanistan, Algeria, Bangladesh, Benin, Bhutan, Bulgaria, Burkina Faso, Chad, Congo (Dem. Rep. of), Congo (Rep. of), Côte D’Ivoire, Djibouti, Egypt, Guinea Bissau, Iran, Iraq, Israel, Kenya, Kuwait, Libya, Nepal, Niger, Nigeria, Oman, Pakistan, Palestine, Guinea (Rep. of), Sao Tome and Principe, Saudi Arabia, Senegal, Somalia, Sudan, Tanzania, Tunisia, Turkey, and United Arab–Emirates

Table 2. Evaluation of changes in the status of countries in terms of the quality of their PPR reporting over the period 2015 – 2018/2019 (Data based on reports received up to 8 January 2020)

<table>
<thead>
<tr>
<th>No. of countries</th>
<th>Change in reporting status</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 (5%)</td>
<td>Better reporting</td>
</tr>
<tr>
<td>4 (2%)</td>
<td>Worse reporting</td>
</tr>
</tbody>
</table>

Change in the official PPR status of reporting countries: the evolution of PPR official status is presented in Figure 16. The dynamics have been evaluated in terms of the absolute number of countries/zones officially recognised as free from the disease since 2015. During this period, most of the countries with an officially recognised disease status maintained their status (n=51), moreover, six new countries were officially recognised as free from PPR, while for two countries the status has been withdrawn.

Figure 16. Evolution of PPR official disease status in the period 2015 - 2019 (data based on reports received up to 8 January 2020)

Trend in quantitative indicators: the total number of countries reporting the presence of the disease was quite stable over the period, ranging from 45 to 51 (Figure 17). The low number of countries in the first semester of 2019 is due to incomplete submission of the reports.
The number of outbreaks per semester varied between 1000 and 1800. Even if the first semester of 2019 is excluded from the analysis, a trend for a reduction in the number of outbreaks reported is quite evident (Figure 18).
According to the data reported by countries and territories through WAHIS, there have been some important changes in the global PPR situation since the endorsement of the Global Strategy for the Control and Eradication of PPR in 2015.

It is important to highlight a steady improvement in the reporting approach of countries and territories, with a marked increase in the number of countries and territories that reported more accurate and better quality information on the status of the disease.

Also, the number of countries officially recognised as PPR free has increased since the start of the implementation of the Global Strategy for the Control and Eradication of PPR. During this period, six more countries have been officially recognised as free from the disease.

Regarding the quantitative indicators, the percentage of countries reporting the disease present since 2015 seems to be quite stable. Nevertheless, this analysis lacks granularity, as it considers only the presence or absence of the disease at country level and does not consider the progressive improvements of the sanitary status at sub-national level.

A trend for a reduction in the number of PPR outbreaks reported to the OIE has also been highlighted. Considering the data presented in this chapter, our analysis implies that there is a tendency for an improvement in the global situation of the disease, but at the same time there is also room for countries and territories to step up their efforts to implement preventive and control measures. A greater commitment on the part of countries and territories is required if we are to achieve global eradication by 2030.

4. Progress on OIE-WAHIS

Since 2016, the OIE has set out to renovate the WAHIS platform, in collaboration with its users. Not only has the new OIE-WAHIS platform been developed taking into account feedback from its users, it also supports the principles of the Digital Pillar of the Seventh Strategic Plan to enable the OIE and its Members to adapt to the digital challenges of the future:

- **A fit-for-purpose Data Entry Portal**: simplified and user guided data entry will result in increased transparency.

- **Interoperability**: a fit-for-purpose Application Programming Interface (API) will allow exchange of data between OIE-WAHIS and other applications to improve data sharing and reduce the need for double data entry. The concept of interoperability will become a reality when data transfer becomes operational between the European Commission’s Animal Disease Information System (ADIS) and OIE-WAHIS. Future aspirations address interoperability with other local, national and regional surveillance systems, animal population data exchange with the future OIE antimicrobial resistance database and data exchanges with animal and public health databases of partner organisations.

- **Open access**: the new OIE-WAHIS incorporates validated data since 2005. The new Public Interface provides a state-of-the-art platform enabling easy data access and analysis. The homepage gives an overview of recent disease events. Filter capability and extraction of data are enhanced enabling combined searches. Dedicated dashboards enable users to search by disease, country or species. Additionally, our OIE team of veterinary epidemiologists has been trained to use business intelligence software to build new dashboards if required. The public interface and back office are supported by improved mapping capabilities. Further enhanced features are available at the back office for each country, enabling countries to analyse the evolution of events and use their own information for policy development and risk-based decisions. All information, including maps, can be exported in a variety of formats.
• **Data management:** OIE-WAHIS Phase 1 will enable the OIE to play an important role in the future Digital Strategy of animal health and public health management. To this end, the OIE will develop its role as a ‘data steward’, balancing open access principles against the need to protect personal and commercial data. The OIE has published its Data Privacy Policy setting out the principles of managing data responsibly. OIE-WAHIS is unique in that it only publishes officially validated data (i.e. endorsed by the OIE Delegate of the reporting country). The collaborative efforts by Members in providing good quality and transparent data in a timely manner, combined with a variety of other data of partners, public and private bodies, will underpin the OIE’s role in the Big Data era and enable us all to use this capability to develop the right animal health and veterinary public health policies to benefit the public good.

OIE-WAHIS is an evolving platform, and its development is determined by its users. In order to facilitate this complex process, the platform will go live in two releases:

• **Release 1** (going live in the third quarter of 2020): this will incorporate the main functionalities for immediate notifications/follow-up reports, six-monthly reports, mapping, interoperability, and public interface. Additionally, the OIE will launch its new alert app. Some limitations will still exist but enhancements will be included in Release 2. Feedback mechanisms are in place to consider improvements for the future.

• **Release 2** (estimated launch at the beginning of 2021): this will incorporate the main functionalities for the Annual Report (AR), the voluntary report on non-OIE listed wildlife diseases (WAR), a dedicated public interface, and enhancements to functionalities that were limited in Release 1.

Development and roll-out has been supported by a dedicated Change Management Process. Key User Meetings have been organised since October 2019 using digital technology. This will be repeated for Release 2. Existing e-learning modules have been redesigned and face-to-face training sessions were organised focusing on delivering a better learning experience for users. We acknowledge that this did not proceed without problems and we shall learn from the user registration issues we encountered. The face-to-face training in Tokyo had to be postponed due to the COVID-19 situation and we shall be exploring ways of supporting users in Asia in the future. Further e-learning modules will be developed for the AR and WAR. The OIE is also exploring opportunities for face-to-face training of Aquatic and Wildlife Focal Points, as well as the use of ‘bite size’ webinars to support users.

Ultimately, the success of the new platform depends on its users. We hope that countries will use the capabilities of the platform to enhance their decision making, rather than see it purely as a reporting tool. We also hope that users consulting the platform will be able to exploit the open access and data analysis capabilities. Your feedback is essential to enable the platform to evolve in the future. Please take the opportunity to inform the OIE-WAHIS project team of your own requirements, to inform our strategy on Phase 2.

5. **Feedback on the OIE conference One Health for the Mediterranean Region in the Age of Big Data**

Over 200 participants and 23 speakers from the private sector and intergovernmental organisations attended the OIE Conference ‘One Health for the Mediterranean Region in the Age of Big Data’, held in Sardinia (Italy), on 1 and 2 October 2019. The event was organised in cooperation with the Italian Government, through the Ministry of Labour, Health and Social Policy, and Italy’s Istituto Zooprofilattico Sperimentale. All presentations are available on the OIE website40.

40 [https://www.youtube.com/playlist?list=PLkBRs6XRUMCf6uZe8eIZL1na4Iy3Tf6Fx](https://www.youtube.com/playlist?list=PLkBRs6XRUMCf6uZe8eIZL1na4Iy3Tf6Fx)
The Conference focused on:

1. Changes in animal production systems and disease evolution, exploring how the One Health approach can assist in assessing and managing risks.
2. The impact of climate change and climate variability on disease epidemiology, including vector ecology and food production; and, the exploration of the increasing capacity of countries to apply One Health approaches when assessing risk and designing interventions.
3. The use of geospatial Big Data for disease monitoring and how international organisations are currently framing and responding to the challenge of transforming the exponential growth of data into intelligence-driven information for action, and how stakeholders can provide leadership and an enabling environment for a future-focused community-of-practice in One Health data analysis.

Dr Monique Éloit, OIE Director General, opened the Conference by highlighting how global experiences in the application of Big Data within the One Health approach present an opportunity to discuss the importance of data governance, management and stewardship in the context of the upcoming OIE Seventh Strategic Plan. This Plan will guide the activities of the organisation from 2021 to 2025 so that it will continue to respond effectively to major societal challenges.

Several exchanges took place during the conference on how systems and information can be applied to better understand and respond to the One Health challenges that threaten global health security, with a focus on the Mediterranean region. As part of the OIE digital solutions that will help combat these challenges, the new OIE World Animal Health Information System, known as OIE–WAHIS, was presented using a disease case scenario. This perspective allowed a better understanding of how the new tool will facilitate decision-making processes by granting easy access to the information provided as well as to powerful analytical tools. The new OIE–WAHIS, which is planned to go live in 2020, will facilitate reporting and improve the use and interpretation of the collected official information. In the long term, in addition to being a tool for animal health data reports, OIE–WAHIS could also provide countries with the option of using it as a central record of their own activities. The improved data accessibility will allow countries, as well as stakeholders, to use OIE data for their analysis and perusal, maximising the value of the information collected, as well as supporting the long-term view for which it has been designed.

During the two-day event, participants had the opportunity to interact with the speakers in the panel sessions. Additionally, a round table with experts from the OIE, the Food and Agriculture Organization of the United Nations (FAO) and the European Union (EU), among others, was formed to evaluate the future evolution of Big Data in the context of One Health. Some of the main interests of the participants were data privacy, the opportunities associated with new data collection systems (such as electronic animal identification and traceability), and the use of artificial intelligence for the integration of Big Data. The conference also encouraged collaboration between industry, government and intergovernmental organisations to find innovative solutions for improving global health using Big Data within the One Health approach.