

Strengthening the cooperation on African swine fever prevention and control in the Asia–Pacific region

Wantanee Kalpravidh¹ & Caitlin Holley²

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Introduction

The ongoing epidemic of African swine fever (ASF) in Asia has affected global pig production and the supply of pig meat. The epidemiological features of the disease are complex and are influenced by the nature of the virus, production and market systems, and the capacities of the authorities to contain outbreaks.

The African swine fever virus is relatively stable and is highly resistant. Suids are the only known natural non-arthropod host and the virus may be transmitted directly by direct contact with infected pigs, or indirectly through contaminated products such as swill or fomites or by certain soft tick vectors (not known to be present in Asia). The virus is not likely to mutate or infect other types of animals, and there is therefore no risk to human health. While this can be seen as positive, it also creates some challenges to controlling the disease given that contaminated pig meat can be transported and consumed with no impact on human health. When the price of pig meat rises and demand for meat is high, there is an economic incentive to sell potentially contaminated meat and risk further spread of the disease. When disposal of carcasses and disinfection are not carried out strictly, to effectively inactivate the virus, there is also the potential for long-term contamination of the environment. The virus could then be maintained in the environment and infect scavenger or wild pigs or re-infect a farm after restocking of domestic pigs.

As there is no vaccine available to protect pig populations from ASF virus (ASFv), all production systems are vulnerable to infection. Implementation of strict biosecurity measures is the only way to protect animal populations. However, as there is no zero risk, constant vigilance and awareness raising are needed to ensure the implementation of biosecurity measures and effective outbreak management, such as movement restriction, culling and carcass disposal. It will be essential to look at social and cultural practices, including the movements of certain ethnic groups across land borders and between islands, as well as the economic drivers that may influence further spread of ASFv beyond any expected natural local spread of the disease.

Role of the OIE and FAO and alignment with their respective strategic objectives

The World Organisation for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations (FAO) are recognised by national authorities and the international community as the key global organisations responsible for supporting their member countries in areas such as safeguarding livestock

1 Emergency Center for Transboundary Animal Diseases (ECTAD) Project Regional Manager, FAO Regional Office for Asia and the Pacific, Food and Agriculture Organization of the United Nations (FAO)

2 Regional Project Coordinator, OIE Regional Representation for Asia and the Pacific, World Organisation for Animal Health (OIE)

production, promoting safe trade in animals and animal products, protecting animal health, ensuring food safety and public health with regard to animals and animal products and also improving food security and economic growth relevant to livestock production.

The OIE and FAO have global and regional roles in ensuring that accurate and timely information is shared and in providing a platform where open discussion is encouraged and measured guidance can be provided with support from technical experts in the relevant fields. The animal disease situation is constantly evolving, and it is important to have regular discussions between international experts and the countries and territories preparing for or already experiencing outbreaks.

The OIE's Sixth Strategic Plan comprises three strategic objectives, all of which are highly relevant to the current challenges posed by ASFv:

1. *Securing animal health and welfare by appropriate risk management*

- Sections 1–5 of the *Terrestrial Animal Health Code* provide general information useful for disease prevention and control and safe trade of animals and animal products. By following the principles set out in these sections, the national Veterinary Services will be in the best position to reduce the risks of any introduction of ASF virus and to be adequately prepared should this occur. [1]
- Chapter 15.1. of the *Terrestrial Animal Health Code*, entitled 'Infection with African swine fever virus', provides general information on the disease as well as details on conducting surveillance for ASF, how to inactivate the virus and recommendations for safe trade of pigs and pig products. The recommendations given in this chapter are based on the scientific information known about the virus. [1]
- Chapter 7.6. of the *Terrestrial Animal Health Code* covers welfare considerations for the killing of animals for disease control purposes and includes biosecurity considerations. Following these recommendations will ensure the most humane methods are used when a decision to slaughter for disease control is made. [1]
- Chapter 3.8.1. of the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* gives detailed scientific information about ASFv and the recommended diagnostic techniques. [2]

The *Terrestrial Animal Health Code* and the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* provide internationally agreed standards and can be used by all OIE Members to inform national policies for disease prevention and control and manage the risk of entry and spread of ASFv.

2. *Establishing trust through transparency and communication*

- All OIE Members have an obligation to report disease outbreaks to the OIE when they occur. This information is then made publicly available through the OIE World Animal Health Information System (WAHIS). New and ongoing outbreaks of ASF can be monitored by anyone through WAHIS and with the smartphone application it is possible to receive notifications for reported disease events.
- The OIE also maintains a network of Reference Laboratories and technical experts to provide up to date information, advice and support to its Members. For ASF, there are currently three OIE Reference Laboratories, in Spain, the United Kingdom and South Africa. There are also several recognised international experts and institutes working on African swine fever providing support to countries and conducting research.
- The OIE has produced a range of communication tools designed specifically for awareness raising and these are available in the OIE's three working languages, English, French and Spanish, as well as in Chinese and Russian. They have also been adapted and translated into local languages with support from OIE and other partners.

3. *Ensuring the capacity and sustainability of Veterinary Services*

- The OIE Performance of Veterinary Services Pathway – the PVS Pathway – has been supporting OIE Members for many years and serves to strengthen the Veterinary Services through a

comprehensive independent evaluation that identifies their strengths as well as any gaps where more resources are needed. Trained and certified PVS Pathway experts can give recommendations and assist the Veterinary Services to target critical areas and advocate for allocation of resources where they are most needed.

- The PVS Pathway mission reports have also been used retrospectively regarding ASF in South-East Asia to assess the level of preparedness and identify risk hotspots for introduction and spread of the disease.

FAO has identified five key priorities in which it can best apply and leverage its knowledge, expertise and experience. Strategic Objectives are the main areas of FAO's work to address the priority areas to achieve a world without hunger, malnutrition and poverty in a sustainable manner, thereby contributing to the implementation of the United Nations' 2030 Agenda for Sustainable Development.

Managing ASF significantly contributes to at least two of FAO's Strategic Objectives, as follows:

1. Increasing the resilience of livelihoods to threats and crises

It is clear that ASF has led to the culling of millions of pigs in the Asia-Pacific region, posing a serious threat to the livelihoods and food security of large numbers of people reliant on the production and processing of pigs. For example, pig meat accounts for almost half of the quantity of meat produced in the East and South-East Asia sub-region and is a key source of animal protein and income. The continuing spread of ASF will lead to an increase in pig prices due to supply shortages. The disease is having a significant impact on global markets, not only for pig meat and products but also for animal feed, veterinary medicinal products and other related business.

Thus, FAO seeks to strengthen the resilience of pig-production-based livelihoods to ASF. This involves: supporting governments and communities to prepare for, mitigate and address ASF threats; monitoring risks and strengthening early warning systems at global, national and local levels, linking these to preventative action; actively working with communities to reduce risks and vulnerability; and providing immediate support to FAO Member Countries and laying the foundations for a more resilient future.

2. Enable inclusive and efficient agriculture and food systems

The pig value chain from production through to processing and sales is now highly concentrated, integrated and globalised. This poses a huge challenge for smallholder farmers in many developing countries as they can easily be excluded from important parts of the value chain, while they may also play an important role in the spread of ASF within and between countries due to their potentially lower level of biosecurity. Increasing their participation is critical to achieving ASF prevention and control and contributing to FAO's goal of a world without hunger.

Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) – a platform for OIE and FAO collaboration on African swine fever

In 2004, the OIE and FAO launched and implemented a joint initiative – the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs). The initiative combines the strengths of both organisations to achieve commonly agreed objectives and serves as a facilitating mechanism to empower regional alliances in the fight against transboundary animal diseases (TADs). The successful eradication of rinderpest was a key achievement which demanded great efforts through a coordinated and targeted approach. There are several other diseases of global importance where it has been shown that, through a coordinated and sustained effort, control or even eradication of a disease is possible.

Given the complicated epidemiological features of ASF, which recently spread in various countries in East and South-East Asia, the disease requires even greater coordination, using a multisectoral, multidisciplinary and multilateral approach. The control of the disease is a shared interest and must be considered a shared responsibility.

There has been a long collaboration on swine diseases between the OIE and FAO in the Asia-Pacific region, which has been supported by the People's Republic of China and has involved countries and territories where there is significant pig production and pig meat consumption. Before the introduction of ASF into the region, several other high-impact swine TADs, such as classical swine fever, porcine

reproductive and respiratory syndrome, porcine circovirus, porcine epidemic diarrhoea, and foot and mouth disease, were circulating and causing significant losses to the swine industry in the region. The complex and interconnected pig value chains operating across national borders in Asia have necessitated a regional approach to swine diseases. FAO and the OIE have been organising regular regional workshops to share information, discuss these swine diseases and develop regional strategies since 2010, at a time when highly pathogenic PRRS was spreading across Asia. The continued spread of ASF across Europe in recent years, and particularly in 2017 when the disease was reported in Eastern Russia, caused great concern for East Asia.

Global and regional strategy for African swine fever prevention and control

As the occurrence of ASF is not limited to Asia and has implications at a global level, it is crucial to harmonise all regional strategic initiatives and intersectoral collaboration at national, regional and global levels. To address this global threat, the World Assembly of Delegates of the OIE passed a resolution (Resolution No. 33) at the 87th General Session of the OIE calling for the establishment of a global initiative to control ASF [3].

This global initiative is being developed jointly between the OIE and FAO within the framework of GF-TADs, and will have a science-based approach considering, among others, ASF epidemiology, pig production practices, socio-economic factors, environmental aspects of each region or sub-region, the capacities of governments, public and private sectors, relevant OIE standards and guidelines, as well as recent lessons learnt among the regions in controlling ASF.

The initiative will put forward actions to strengthen Members' capability to control ASF, harmonise partnerships and coordination at national, regional and international levels, and minimise the impact of ASF through business continuity. FAO and the OIE would be tasked with providing support through activities such as the development of specific technical guidelines, support for research alliances, establishment of an ASF Reference Laboratory network, and working with development partners to promote investment for global control of ASF.

In South-East Asia, a regional strategy for the control of priority pig diseases, including ASF, is being developed by the Association of Southeast Asian Nations (ASEAN) Working Group on Livestock with support from FAO and the OIE. The strategy follows three principles: 1) strengthening capacities required for preparedness, prevention, detection and response; 2) advocacy and awareness raising among the key stakeholders to promote better practices and cooperation on disease control; and 3) multidisciplinary, multisectoral and multilateral collaboration, cooperation and coordination to promote not only specific disease control but also overall pig herd health management; both at country and at transboundary levels.

Regional collaboration in Asia-Pacific on African swine fever

Since the first outbreaks of ASF in Asia (August 2018), the disease has progressively spread in both Europe and Asia. The challenges associated with this disease have shown that its control cannot be achieved if national Veterinary Services work alone.

Under the GF-TADs umbrella, FAO and the OIE in the Asia-Pacific region have been collaborating closely with the Europe region since early 2018, learning from their experiences at dealing with ASF at a technical level and in terms of policy. The Europe region established a Standing Group of Experts on ASF in Europe, under the GF-TADs umbrella, to facilitate coordination and information sharing among infected and at-risk countries.

Learning from the European experience and using the existing collaboration with the OIE and FAO on swine diseases, a formalised Standing Group of Experts on ASF for Asia has been established to institutionalise and strengthen coordination.

The Standing Group of Experts on ASF (SGE-ASF) for Asia was launched in April 2019 to build closer cooperation among countries to address ASF in a more collaborative and harmonised manner across Asia. The SGE-ASF promotes the regular exchange of information and best-practices among risk managers and international and national experts with a view to coordinating disease control policies and building science-based national control strategies. It is considered to be a unique opportunity to engage affected countries in a fruitful regional dialogue and increase transparency and trust. So far, there have been two

SGE-ASF meetings, organised to discuss recommended actions for early detection, surveillance, biosecurity and border control.

Several priority topics have been identified for discussion and to develop recommendations based on existing knowledge and adapted to the situation in Asia-Pacific. These recommendations are intended to be practical and feasible to implement across a wide range of production systems. They take into account best practices and include measures that can be implemented in the short, medium and long term.

Priority topics

- ASF epidemiology, including risk-based surveillance
- Prevention and control strategies
- ASF laboratory diagnostics and potential research programmes including ASF vaccine development
- Biosecurity
- Wild boar – distribution, ecology, management and epidemiological role in swine disease in domestic pigs
- ASF risk communication
- Outbreak management
- The use of zoning and compartmentalisation
- Border control measures
- Socio-economics

As is the case with the Standing Group of Experts on ASF in Europe, it was agreed that each meeting of the ASF-SGE for Asia would focus on a specific topic to allow for in-depth discussion in that area, with the topic for the following meeting being confirmed at the close of each meeting.

So far, there have been two meetings of the SGE-ASF for Asia, organised to discuss recommended actions for early detection, surveillance, biosecurity and border control [4].

Risk communication will be the next topic for discussion at the 3rd Meeting of the SGE-ASF for Asia, to be held later in 2019.

Future actions needed

As a consequence of ASF, farming, trading, consumption, social and cultural practices in many countries and territories will need some major changes and adjustments if swine production is to survive in Asia.

There have been large losses already, particularly in the smaller farms with low biosecurity, where the human practices associated with keeping pigs are a major risk factor for the entry and spread of ASF virus. Changes will need to be made along the whole value chain for pig production systems for the sector to be able to survive and eventually recover. The Veterinary Services will need to work in collaboration with the private sector to build trust and understanding and enable an environment where control policies can be effectively implemented. While large-scale commercial farming has been increasing in Asia, there are many areas where the majority of pig farming is still on a small scale. These farms, with low biosecurity and often little engagement with veterinary professionals, present a high risk for the spread of ASF once it has been introduced. Partnerships between the public and private commercial sector to address this issue should be considered using the OIE guidelines for public-private partnerships in the veterinary domain – The OIE PPP Handbook [5].

The ASF virus is resilient and resistant in the environment and, with no cure or vaccine available, a clear understanding of the routes of transmission and communication of this information are extremely important. If there is to be effective control, all persons involved in the pig value chains, as well as members of the general public who may transport, use or consume pig products, need to understand the nature of the virus, how it is transmitted and how it can be effectively inactivated.

High-level political support is needed at national level among ministers and other politicians and at regional level with trade and economic groups, such as ASEAN, Asia-Pacific Economic Cooperation (APEC) and the G20, to raise understanding of the importance and impact of the disease. In the absence of a suitable level of understanding among the population and adequate resources to implement change, the disease will continue to spread via human activities. FAO will be working closely with Member Countries on evidence-based planning to identify policy options that ensure the reduction of viral load, minimisation of economic losses and the maintenance of food security in the short, medium and longer term.

The level of preparedness and readiness to prevent and control ASF is very heterogeneous in Asia. Despite communication and prevention campaigns, many farmers, traders, veterinarians, and veterinary paraprofessionals still have only a limited knowledge of this disease and its specific epidemiology and they are not well prepared for management and control if there is an incursion of ASF virus. Recognising that relevant and practical information on the key activities to prevent, prepare for and control ASF outbreaks needed to be urgently provided on a large scale, the OIE Sub-Regional Representation for South-East Asia (SRR-SEA) has been developing a series of webinars on ASF-related topics [3]. These webinars are intended to provide scientific information and share experience, tips and options for countries in South-East Asia. The webinars aim to reach a wide audience, including key staff of the Veterinary Services and pig industry professionals who may not be able to physically attend workshops during this crisis period. The first webinar was conducted in April 2019 and to date nine different topics have been covered: early detection and response; biosecurity in small-scale farms; biosecurity in large-scale farms; culling and safe disposal of carcasses; border control; treatment of swill; risk communication; role of wildlife; and the situation regarding soft ticks.

Other topics are planned, such as ASF-related welfare issues and solutions; establishment of pig compartments; biosecurity in markets and slaughterhouses; and sample collection.

While several studies have been conducted in South-East Asia on large ruminant value chains, including movement studies or risk assessments related to FMD spread, only a few studies have included pig production systems and pig diseases. This is an important area on which information should be collected to better understand the spread and assess the risk of ASF in Asian countries. To address this, the OIE SRR-SEA in coordination with FAO plans to conduct a series of activities at sub-regional level to better understand the situation.

Sustainability of African swine fever control rests at country and local levels

Sustainable disease control should be the sum of risk-based measures taken at the national and local levels by all relevant stakeholders under the overall management and quality assurance provided by the national Veterinary Authority. Unfortunately, it has to be admitted that many countries do not fulfil these criteria, and at local level livelihoods remain affected and producers may not receive adequate institutional support to allow them to protect their assets with feasible options.

At present, the situation in the majority of affected countries remains highly dynamic. The national policies implemented to control ASF have not always proved effective, partly because they are not evidence-based with regard to the disease ecology, and partly due to a lack of technical or financial capacities. As the disease continues to expand into new territories, preparedness and control activities need to be constantly adjusted to adapt to situations observed in the field where the disease may behave differently to what has been previously observed and described in scientific literature and guidelines. Due to such complex situations and challenges faced by the national Veterinary Services, regional and international support will continue to be needed to fill gaps in the capacity required for ASF control as well as to facilitate dialogue among the key stakeholders.

Strong Veterinary Services give confidence to private sector investment, leading to improved national economies and livelihoods. Engaging public and private funding partners through effective advocacy and demonstrating the value of ASF control will encourage sustainable investment and create an enabling policy context for ASF control.

Conclusions

The key areas that will be critical for the long-term control of ASF in the Asia–Pacific region include:

1. Transparency and sharing of information at district, national and regional level about the disease situation and challenges. This will lead to a better understanding of the epidemiology of ASF in the region.
2. A better understanding of the pig value chains and the drivers that influence movement of pigs and products, particularly the informal or unregulated movement pathways. For early detection and rapid management of outbreaks, a good knowledge of the risk pathways and risk hotspots is essential, which means there must be a comprehensive understanding of the value chains.
3. Multisectoral collaboration to implement the improvements in biosecurity and farming practices and control plans – particularly between the public sector and the private sector (including both the commercial and smallholder production systems) – will make plans more effective.
4. Looking towards longer term control, it may become important to include the wildlife/environment sector in any plans to better understand the role of wild boar.
5. Public awareness and fostering a sense of shared responsibility in the community to control ASF. Since ASF is spread mostly by human activities, there is a need to engage the general public in sharing the responsibility for preventing further spread.
6. Political support from governments and international organisations involved in farming, animal health and transportation to assist national Veterinary Services.

Having in mind the possible global socio-economic impact of ASF, the control of the disease is a shared interest and must be considered a shared responsibility. Political support is crucial to ensure a whole-of-society approach, with sufficient resources to enable all sectors concerned to assume responsibility for their respective fields. The Veterinary Services – including their public and private components – of both affected and unaffected countries have a mandate to safeguard animal health and welfare and should take the lead in implementing effective coordinated countermeasures to minimise the global impact of the disease. In the medium to longer term, good animal husbandry practices need to be promoted to ensure safer production of livestock along the market chains and it will be the responsibility of the pig producers to ensure their compliance. This will not only reduce the burden of ASF but will also contribute to alleviating poverty by improving the livelihoods of pig producers in low- and middle-income countries, protect free countries and ensure safe international trade of pigs and their products. Achieving such efforts would therefore contribute to the Sustainable Development Goals, in particular Goals 1 (no poverty) and 2 (zero hunger) [6].

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