



Pacific Horticultural &  
Agricultural Market Access  
Plus Program

Supported by Australia and New Zealand

## CASE STUDY

### African Swine Fever in PNG

A threat to the livelihoods of 340,000 rural households and how the National Agricultural and Quarantine Authority (NAQIA) responded

2021

# THE THREAT

African Swine Fever (ASF) is a highly contagious hemorrhagic viral disease of domestic and wild pigs. The disease is not harmful to humans, but it has a 95-100% case fatality rate in pigs. It is transboundary and can spread through live or dead pigs and pork products. It can also spread through contaminated feed and on shoes, clothes, vehicles, food scraps, knives, and other equipment. The experience of China, which has lost 50% of its national herd since the first case was detected in 2018, is illustrative of the potential impact of the disease (Piesse, M., 2021).

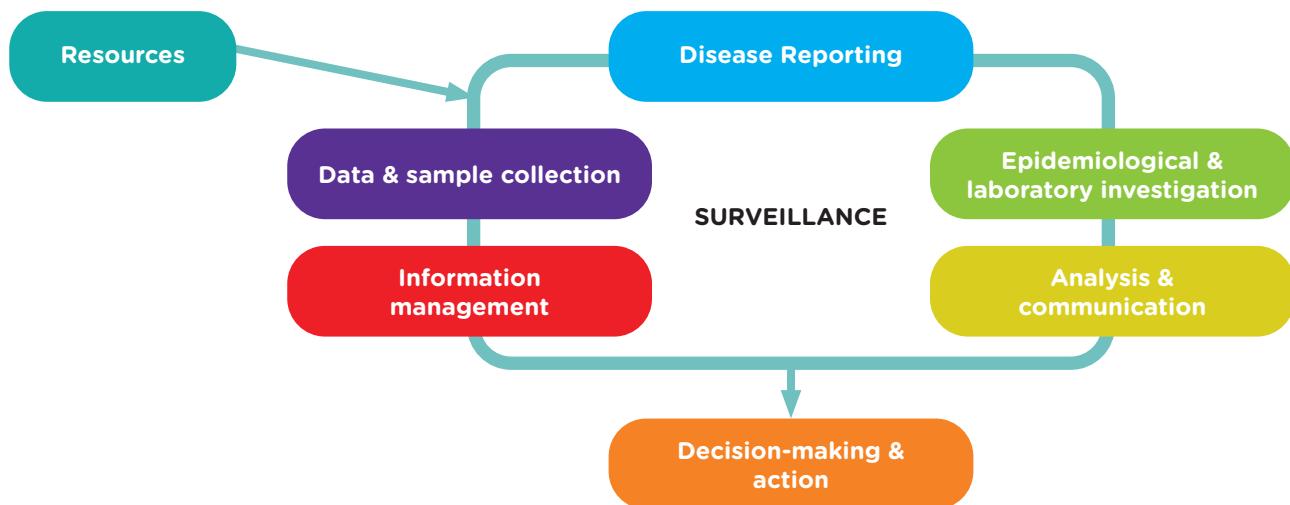
There is no approved treatment or vaccine available for ASF. During outbreaks, control can be difficult and must be adapted to the specific epidemiological situation of the affected area. Sanitary measures that can be applied include early detection and slaughter, zoning/compartmentalization, movement controls, strengthened surveillance and on-farm biosecurity practices. Prior to the outbreak, most pig farming households in rural Papua New Guinea were not aware of ASF, its symptoms, or how to manage the disease. This lack of knowledge led to rumors about the disease being *Sanguma (sorcery/witchcraft)* and created conditions that could trigger tribal fights in the volatile Highlands Region of the country.

# ASF ARRIVES IN PNG

On March 26, 2020, as most of the world was responding to COVID-19, the Australian Centre for Disease Preparedness (ACDP) laboratory at CSIRO<sup>1</sup>, confirmed cases of ASF in the Mendi-Munihu District of Southern Highlands Province in PNG. With an estimated 20,000 pigs infected, this significant outbreak was a cause of national concern, with an earlier PHAMA Plus study indicating that an uncontrolled ASF outbreak could reduce the pig population in PNG by up to 90% and put the livelihoods of 340,000 households at risk. (Young, D., 2020). A rapid and effective response was essential.

# THE RESPONSE

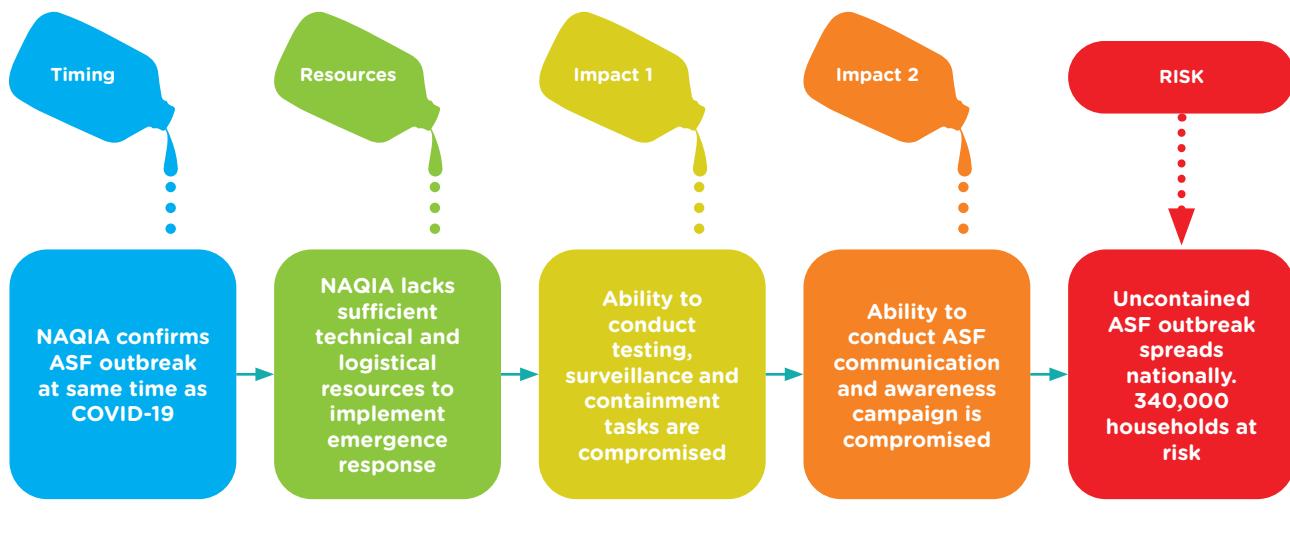
Figure 1: Essential elements of a surveillance system (from OIE)



1 Commonwealth Scientific and Industrial Research Organization

Prior to the outbreak, PNG's National Agricultural Quarantine and Inspection Authority (NAQIA) had been implementing ASF preparedness activities since October 2019 (with support from the Food and Agriculture Organization (FAO) Governments of Australia and New Zealand through PHAMA Plus and others). Once the March 2020 outbreak was confirmed, NAQIA activated its emergency animal disease response plan. This response involved tracing, containing, and eliminating the disease as it was detected. It required the immediate mobilization of NAQIA field teams to conduct delimiting surveys and the launch of a large-scale awareness-raising campaign amongst pig farmers and the wider community. Resourcing this response, which required additional technical, financial and logistical support, represented a major challenge to NAQIA. It also occurred at the same time that the Government of PNG was responding to the grave human health challenge and resource implications of COVID-19. Against this backdrop, NAQIA reached-out to international development partners for support. An agreement was reached with Australia and New Zealand to support NAQIA's emergency response work through the PHAMA Plus program. The prompt and coordinated response by NAQIA, supported by PHAMA Plus, meant that the country could contain and control the disease outbreak. This case study examines the steps taken to contain the disease and the impact of this on smallholder farmers and the broader livestock sector in PNG.

**Figure 2: 'Before' Scenario for NAQIA ASF response - without PHAMA Plus support**



## PHAMA PLUS SUPPORT TO NAQIA IN THE ASF RESPONSE

As a member of the ASF Inter-sectoral Consultative Committee and Technical Working Group, PHAMA Plus has been supporting NAQIA's ASF preparedness and response efforts since October 2019. As a result of the 2020 outbreak, PHAMA Plus signed a new Memorandum of Understanding with NAQIA to provide additional technical, logistical and communication support. To date, PHAMA Plus has invested AUD 3,090,000 in PNG's ASF response, matched by NAQIA co-investment of AUD 4,600,000 (cash and in-kind). Figure 2 outlines PHAMA Plus support to NAQIA's ASF response.

**Figure 3: PHAMA Plus support to ASF response**



# HAS PHAMA PLUS SUPPORT TO NAQIA'S ASF RESPONSE MADE A DIFFERENCE?



## PHAMA Plus support enabled NAQIA to perform its biosecurity functions more effectively

- ↗ PHAMA Plus coordinated all field logistics to facilitate the emergency response in 2020 and 2021. This enabled rapid deployment of NAQIA officers to trace and collect ASF. It allowed the CVO to make evidence-based decisions
- ↗ Investment in logistics and Personal Protective Equipment (PPE), consumables and equipment allowed NAQIA to conduct effective field work safely and supported the laboratory diagnostics that enabled rapid disease detection and response planning (at least 2,500 field and laboratory tests were conducted).
- ↗ An experienced animal health specialist provided real-time guidance and technical support to NAQIA field officers during delimiting surveys and in the formulation of six-month and strategic plans.
- ↗ Training of 133 stock inspectors, in collaboration with FAO, strengthened NAQIA field teams and response capacity.
- ↗ By establishing strategic checkpoints and conducting intensive awareness-raising and communication campaigns, further spread of the ASF outbreak Southern Highlands Province (SHP), Hela, Enga, Western Highlands Province (WHP) and Jiwaka was prevented.



'Personal protective equipment (PPE) and disinfection measures are vital in the fight against animal diseases such as African Swine Fever (ASF) and viral infections. In April 2021, PHAMA Plus provided essential items and equipment (disposable surgical gowns, aprons, overalls, shoe covers and hand gloves, needles, syringes and blood tubes) to PNG's National Agriculture Quarantine and Inspection Authority (NAQIA) for its ASF response.'

According to PNG's first female vet, NAQIA's Dr Tania Areori, 'Our work was limited by the shortage of available PPE. In the absence of PPE, the risk of staff spreading ASF from disease areas is high'.

'PPE, provided by PHAMA Plus significantly reduced the risk of staff spreading the disease between sites. Using PPE also helps farmers to have confidence in NAQIA, provincial staff and organisations. When people see that we are taking this seriously and have all these protocols that we need to follow to limit the transmission risk, they also realise the importance of biosecurity.'

**Dr. Tania Areori, NAQIA**



## PHAMA Plus support enabled NAQIA to improve its systems and processes for responding to biosecurity incursions – institutionalizing change

- ↗ NAQIA's information management system for emergency response has been strengthened through the field-based disease investigation, surveillance, and data capture experience that was gained during PHAMA Plus-supported activities. NAQIA is now developing an electronic data capture and web-based information management system, with support from the Department of Agriculture and Water Resources Australia (DAWE) and World Organization for Animal Health (OIE).
- ↗ The stock inspection training delivered to national and provincial livestock officers has strengthened the biosecurity capacity of NAQIA staff to supervise, investigate and inspect livestock movement, markets and other relevant establishments.
- ↗ NAQIA plans to review its finance and procurement systems, test them under routine disease investigation conditions and then institutionalize a rapid procurement system to deal with scenarios where emergency rapid-response is required. PHAMA Plus support has helped to provide valuable real-life experience to inform this planning process.



### Pig farmers gained knowledge of biosecurity measures through PHAMA Plus-supported communication and awareness activities

- PHAMA Plus invested AUD 1.2 million in the development of communication and awareness materials that were used by NAQIA across all channels (radio, television, Facebook and newspapers) to raise awareness amongst pig farmers and the general community on how to help contain ASF. This has created valuable experience for future information campaigns and longer-term behavior change communication that can help build resilience to future ASF outbreaks.
- NAQIA staff held awareness-raising sessions in villages, markets, and roadsides, gaining valuable experience in the use of word-of-mouth communication to create awareness amongst key stakeholders. This experience will inform future behavior change communication campaigns and represents a further positive impact of PHAMA Plus investment in capacity-building.



Key risk communications materials supported by PHAMA Plus till August 2021	
Biosecurity trifold brochure for disease symptom and management	110,000 units
ASF Visual symptom poster	44,000 units
Double sided flyer for disease symptom and management	44,000 units
Posters for disease symptom and management	462,000 units
Television advertisement on ASF awareness	2092 placements
Radio advertisement on ASF awareness	12,515 placements



### Extensive pig losses avoided

- ↗ PHAMA Plus has estimated that an uncontrolled outbreak with 90% mortality could cost seven Highlands Provinces in PNG (Hela, Enga, SHP, WHP, Jiwaka, Simbu and EHP) approximately AUD 1 billion from a single outbreak. The loss would be even more severe if the outbreak moved from sporadic to endemic level (Young. D, 2020).
- ↗ However, due to the biosecurity measures implemented, NAQIA has contained ASF outbreaks in five provinces (Hela, Enga, SHP, WHP and Jiwaka) and saved AUD 327 million worth of pigs.
- ↗ Additionally, if two non-affected provinces in the Highlands Region (Simbu and EHP) are considered, the cost saved in seven provinces is estimated to be AUD 670 million. (PHAMA Plus, 2021).
- ↗ It is estimated that to date, nearly 300,000 households in seven Highland Provinces have been exposed to the ASF awareness campaign organized by NAQIA. Of these, 66,257 households have been affected by ASF outbreak and 232,268 households are unaffected due to strong containment, movement control and awareness measures adopted by NAQIA. (Impact Assessment, 2021).
- ↗ A survey conducted by PHAMA Plus on 499 pig farmers covering over 300 villages across four provinces (SHP, Enga, WHP and Jiwaka) revealed that 95% of pig farmer-respondents had heard of ASF, 71% reported they knew what ASF was and 90% of respondents agreed or strongly agreed that ASF was not caused by Sanguma (sorcery/witchcraft).
- ↗ However, whilst many survey participants are aware of the measures required to reduce the risk of ASF, the application of this knowledge is not yet being fully applied to the required extent.

## Stories from the field: Grace Mark. Pig farmer

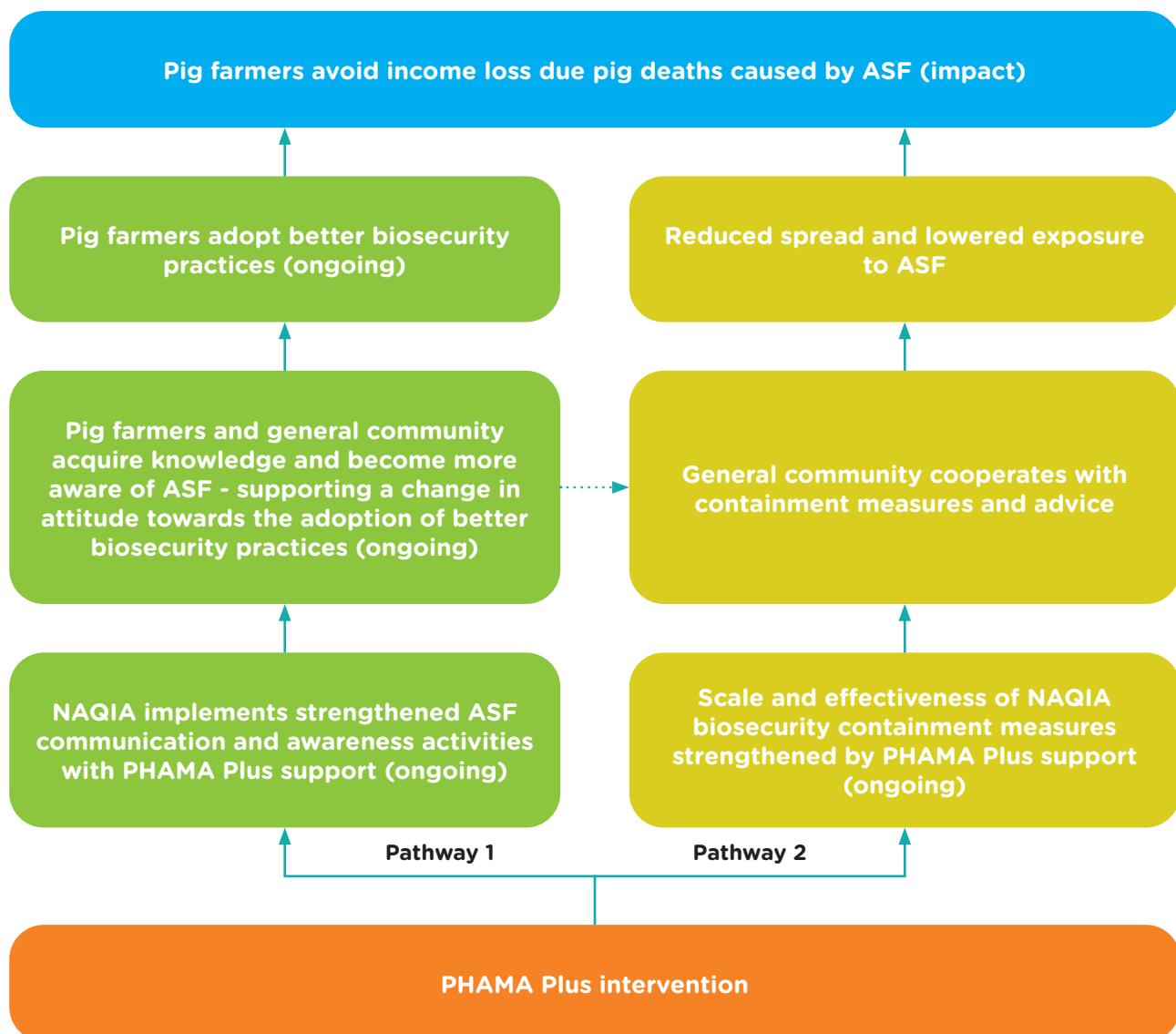
Like other pig farmers in the Upper Highlands, Grace Mark from Anglimp, South Waghi District, Jiwaka Province has started adopting the good husbandry practices that are critical for controlling the spread of ASF. A single mother with two children, Grace is also a coffee farmer but still operates at a subsistence level and relies on the income for pig sales to pay for school fees and other cultural obligations such as ‘bride price’.

Grace lost 6 out of her 9 pigs to ASF. Relatives and neighbours from her village and neighbouring community also lost pigs to the disease in late 2020. Grace initially thought her pigs were dying due to ‘sanguma’ or sorcery but had also heard that there was a pig disease in the area. After calling the ASF toll-free number, a NAQIA technical team came and tested her pigs. They gave her advice on the good husbandry practices and containment measures she should adopt.

Grace says: ‘My pigs are fenced-off now with a notice to members of my community to refrain from coming too close to them. It is my hope that this deadly disease is completely eliminated from my village’.

Before the ASF outbreak, the price of an average pig was PGK 4,000 or up to PGK 6,000 depending on the size. As the number of ASF cases increased in her community, Grace and her family assisted in raising awareness about the disease, especially during gatherings. She encourages everyone to implement the good husbandry practices taught to her by the NAQIA animal health officers and makes sure everyone is aware that the pig deaths are caused by an infectious disease and not by ‘sanguma’.

**After scenario of NAQIA with PHAMA Plus support (simplified impact logic)**



## ONGOING RISKS AND MITIGATION PLANS

- ↗ Since March 2021, no further spread of ASF from infected provinces has been observed. However, ASF persists in five provinces in the Highlands region and can still spread to other non-infected provinces. NAQIA is therefore continuing its awareness and risk communication work to help reduce the risk of virus transmission in the infected provinces. Controls on pig movements also remain in-place.
  - ↗ Whilst awareness-raising efforts have been successful, promoting longer-term behavior change amongst pig farming households is equally important. Targeted awareness campaigns on good biosecurity practices will need to cascade from provinces to districts and communities to help reduce and eliminate virus spread.
  - ↗ Individuals in positions of power (especially in the Highlands) may try to ignore quarantine checkpoints to obtain and trade pigs for ceremonial purposes. In this respect, the illegal movement of infected pigs and pig meat poses the most significant threat for future ASF outbreaks. To tackle this risk, NAQIA needs to realign its awareness campaign and reach-out to social elites to communicate the risks engage them in the overall risk communication campaign.
  - ↗ The upcoming national election in 2022 poses a further risk for ASF outbreaks, as pigs are used for cultural purposes during elections. NAQIA can mitigate this risk by engaging with key political parties and the national election commission and conducting awareness campaigns highlighting the risks of infected pig movement during the election period.
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## LESSONS LEARNED

- ↗ The benefits of the emergency response and containment outweigh costs – significantly. The pig stock cost saved in seven Highlands Provinces is estimated to be AUD 670 million, compared to the containment costs of AUD 7.7 million (minimum) paid out by the Government of PNG and its international development partners.
- ↗ An ASF recovery plan is urgently required for pig farmers who have lost pigs or are experiencing reduced sales opportunities due to movement controls. Once the disease is under control, pig re-stocking is required to restore pig production and use. A supply of clean stock and genetics needs to be established for this purpose.
- ↗ Knowledge gaps remain (e.g. ASF symptoms and transmission), even though awareness-raising and education activities have been ongoing in the provinces since early 2020. Hence, a ‘twin-track approach’ is recommended to reinforce the Knowledge, Attitude, Practice, Impact (KAPI) theory in the continued efforts in combatting ASF. Continued knowledge building through targeted education programs for pig farmers and investment in behavior change initiatives are still required.
- ↗ There is a better understanding in other areas, such as ASF being caused by a virus and not Sanguma. Such understanding should continue to be reinforced and disseminated via appropriate channels and connected to other gender-related issues.
- ↗ The roles of all market actors along the pig and pig meat value chain needs to be understood when responding to ASF. Feed producers, traders, butchers, commercial farms conduct transactions with smallholder farmers, and these market actors can play a vital role in preventing the spread of ASF. For example, downstream actors could take a lead and adopt business practices that contribute to ASF control and demonstrate to pig farmers that ASF is a shared concern that everyone must address.

ASF Awareness materials developed by PHAMA Plus for NAQIA Risk Communication Plan

**STOP ASF HELP ELIMINATE ASF**  
CALL 180 1332 TO REPORT SICK OR DEAD PIGS

**ASF QUESTIONS & ANSWERS**

**FREQUENTLY ASKED QUESTIONS (FAQ)**

- ☒ What is African Swine Fever (ASF)?
- ☒ Where did ASF come from?
- ☒ What are the symptoms of ASF?
- ☒ How is ASF spread?
- ☒ How do pigs catch ASF?
- ☒ Can ASF affect other animals?
- ☒ Is there a vaccine/cure/treatment for ASF?
- ☒ Is ASF caused by Sanguma?
- ☒ Are humans susceptible to ASF?
- ☒ Can you eat infected pigs?
- ☒ How can I check if my pig has a high fever?
- ☒ Can ASF survive the heat from mumu stones?
- ☒ What do ASF checkpoints look for?
- ☒ How many pigs have died from ASF?
- ☒ How can I protect my pigs from ASF?
- ☒ Can I move pigs from a clean area (i.e. rest of PNG other than Hela, SHP, Enga) into the disease area (Hela, SHP, Enga)?
- ☒ Who can I contact if my pigs are sick or have died?

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