

Economic Impact and Cost-benefit Analysis of ASF Prevention and Control in Timor-Leste

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Experts on African Swine Fever for Asia and
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**World Organisation
for Animal Health**



**Food and Agriculture
Organization of the
United Nations**



Pigs death, 2024

Introduction

- ASF is a highly contagious viral disease of pigs.
- No effective commercial treatment.
- High mortality can reach nearly 100% in susceptible pigs.
- Pig production is important for rural livelihoods and food security in Timor-Leste.



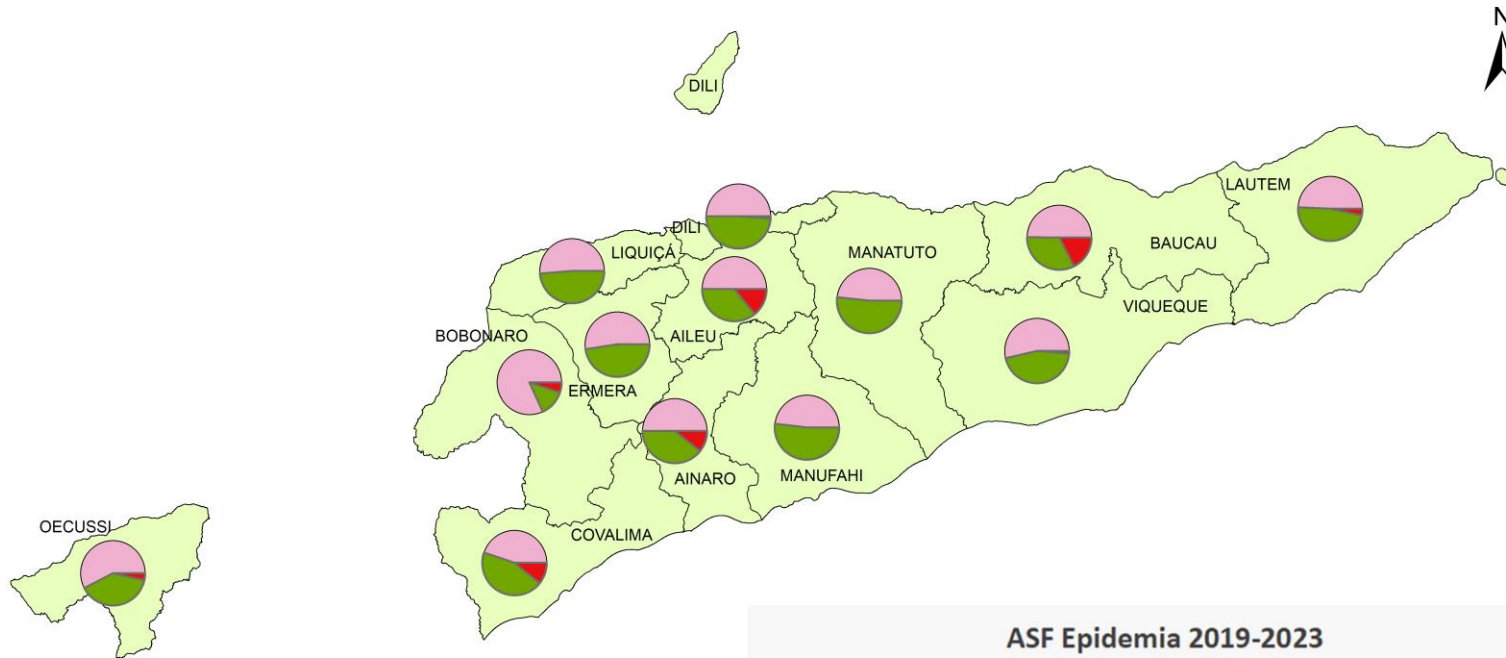
Community awareness, 2024

Pig Sector in Timor-Leste

- **Number of pig-raising households:** Pig farming is widely practiced, with **more than 70% of rural households** raising pigs, mainly under smallholder and backyard production systems.
- **Importance to rural income:** Pigs are an important source of household income, providing cash through the sale of live pigs and pork, especially during times of financial need.
- **Cultural importance:** Pigs play a central role in **traditional ceremonies**, including weddings, funerals, customary exchanges (*barlake*), and other cultural and community events.
- **Contribution to food security:** Pig production provides an important source of **animal protein, nutrition, and livelihood**, contributing to food security and resilience for rural families.



Timor-Leste African Swine Fever (ASF) Epidemia 2019-2023

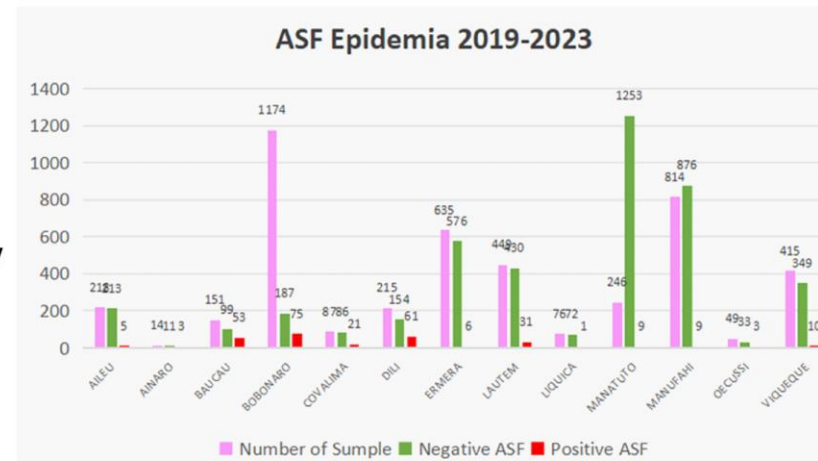


Legend :

Graph by Municipality



Number of Sample
Negative ASF
Positive ASF



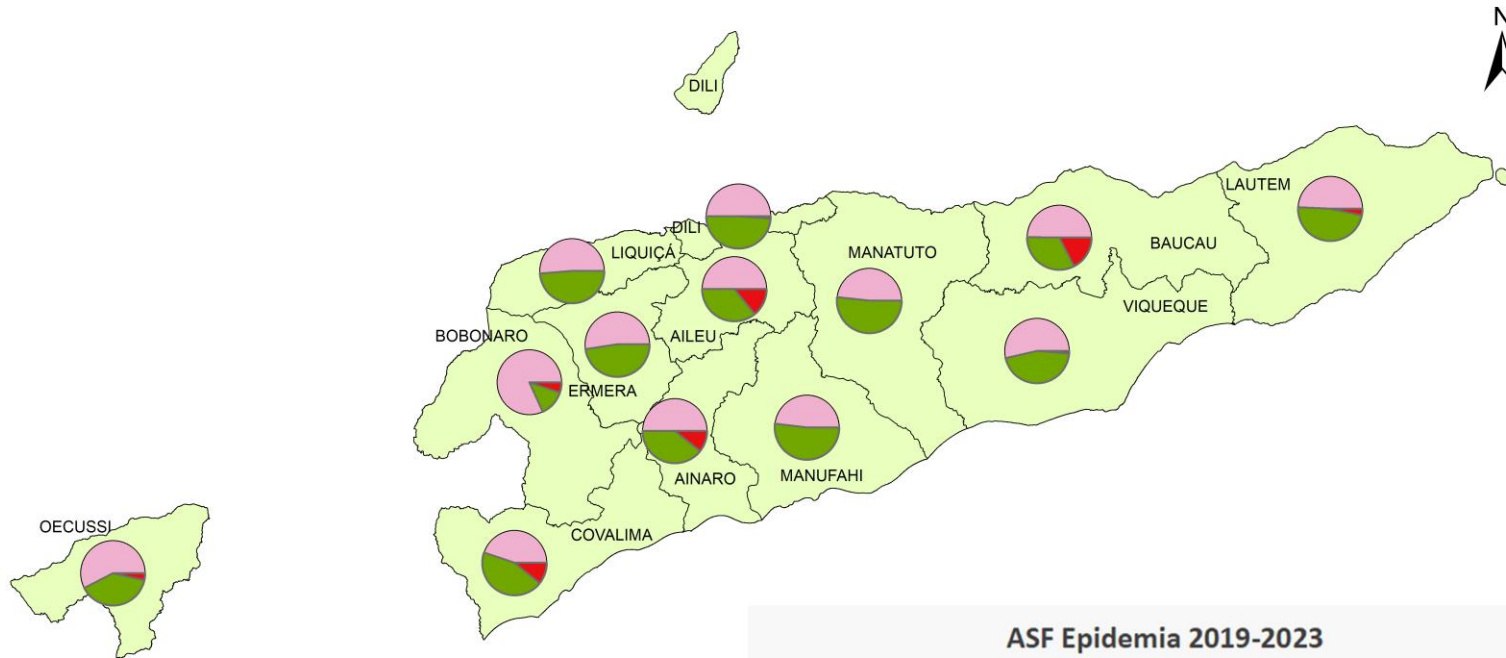
ASF Situation in Timor-Leste

- 2019 → First ASF outbreak
- 2020–2025
 - Continued surveillance
 - Laboratory diagnosis
 - Biosecurity campaigns
 - Farmer awareness



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Departamento Laboratório Diagnóstico da Veterinária

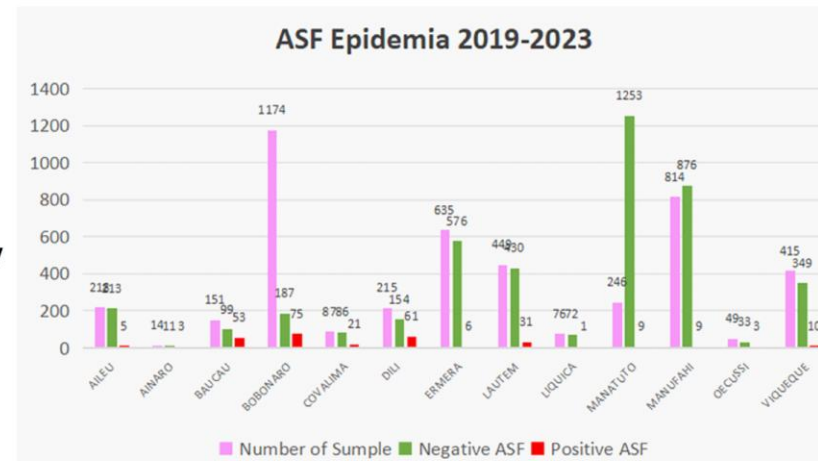
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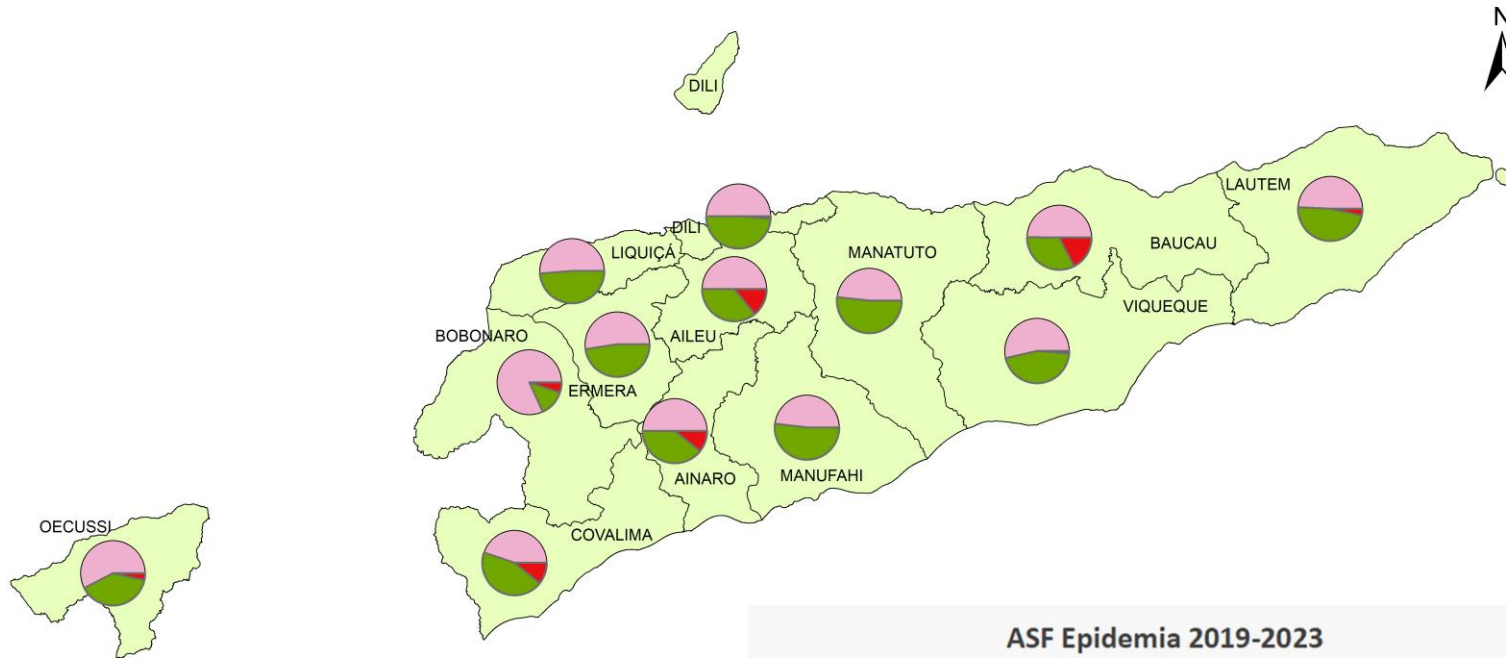
ASF Situation in Timor-Leste

"Since the ASF outbreak began in 2019, an estimated 150,000 pigs have died in Timor-Leste by 2022 (total population was : 453,444 pigs), causing economic losses of approximately US\$90 million and impacting more than 40,000 farming households."



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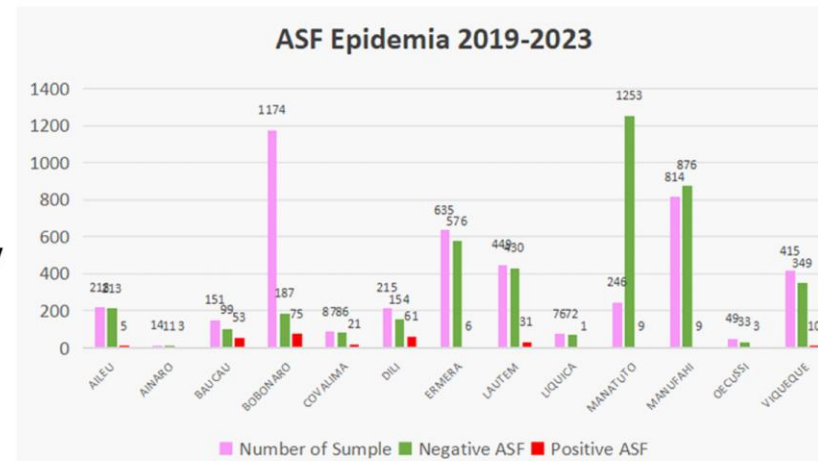


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ASF Situation in Timor-Leste

Initial population: 453,444
(100%)

Deaths due to ASF: 150,000
(33.08%)

Remaining population: 303,444
(66.92%)



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Community awareness, 2026



Sample collection, 2026

Economic Impact of ASF

Direct losses

- Pig deaths
- Reduced production
- Reduced breeding stock
- Carcass disposal

Indirect losses

- Reduced household income
- Higher pork prices
- Trade restrictions
- Reduced farmer confidence
- Government response costs

Estimated Costs of an ASF Outbreak In Timor-Leste per house

Cost Item	Example
Pig mortality	\$660.00 USD
Surveillance	\$480.00 USD
Laboratory diagnosis	\$500.00 USD
Transport	\$100.00 USD
Farmer compensation	\$\$
Public awareness	\$150.00 USD
Disinfection	\$100.00 USD
Total	\$1.990,00 USD



Community awareness, 2026



Sample collection, 2026

ASF Prevention Measures

- ✓ Biosecurity
- ✓ Farmer awareness
- ✓ Surveillance
- ✓ Rapid reporting
- ✓ Laboratory diagnosis
- ✓ Movement control
- ✓ Quarantine
- ✓ Safe disposal
- ✓ Capacity building

Cost of Prevention (annual investment)

Item	Cost needed
Biosecurity training	\$\$
Laboratory equipment	\$\$
Sample collection	\$\$
Field surveillance	\$\$
Community awareness	\$\$
Emergency preparedness	\$\$

Budgeting support by the Government

Item	Cost approval (annually)
Vaccination	\$20.000,00 USD
Local Travel	\$12.000,00 USD





Cost-Benefit Analysis

Prevention costs much less than outbreak response.

“Community education”

Prevention :

- Low Cost
- Stabel production
- Farmer income maintained
- Food security
- Lower government spending

Outbreak:

- Very high cost
- Pig deaths
- Income loss
- Food security
- Emergency response

Example scenario

Economic Impact and Cost-benefit Analysis of ASF Prevention and Control in Timor-Leste

No	Item	Activities	Cost (\$ USD)/year
1	Prevention	• Strict biosecurity on the farm. • Restricting pig movement. • Surveillance and reporting. • Cleaning and disinfection of pens. • Prohibition of swill feeding. • Control of vectors such as ticks and pests. • Stamping out. • Safe disposal of carcasses. • Vaccination	\$20.000,00
2	Control	• Quarantine • Surveillances • Control of vectors • Stamping out	\$8.000,00
3	Public Awareness	• Sharing information • Desinfection	\$10.000,00
4	Surveillances	• Sampling • Data Collection	\$25.000,00
Total			\$63.000,00

With the support from :

- Agriculture Victoria Research (AVR)
- Food and Agriculture Organization (FAO)
- Market Development Facilities (MDF)
- Government TL
- Future Budget : Pandemic Fund for TL : 10,5 Million in total
- MoH : 7,9 Million USD
- MALFF : 2,6 Million USD

Example scenario

Economic Impact and Cost-benefit Analysis of ASF Prevention and Control in Timor-Leste

- Cost invest per year : \$63.000,00
- Pigs Population before outbreak 2019 : 453,444 pigs (100%)
- Pigs Deaths due to ASF: 150,000 (33.08%)
- After outbreak Pig Population : 303,444 pigs remain (66.92%)



Prevention and Control

- Mortality rate become : 20% 
- New population rate : 30% 



- Total population after prevention and control : 91.033
- Number of Mortality : 60.689



- Total population per year : 394.477
- Difference in pigs that can be saved: 91.033 = Benefit first year



- Average price pigs \$: \$500.00 USD
- Benefit cost first year : \$45.516,500 USD = Benefit cost



- $BCR = TB/TC$
- $45.516,500/63.000,00$
- 1 : \$ 722 USD



Pigs death, 2024

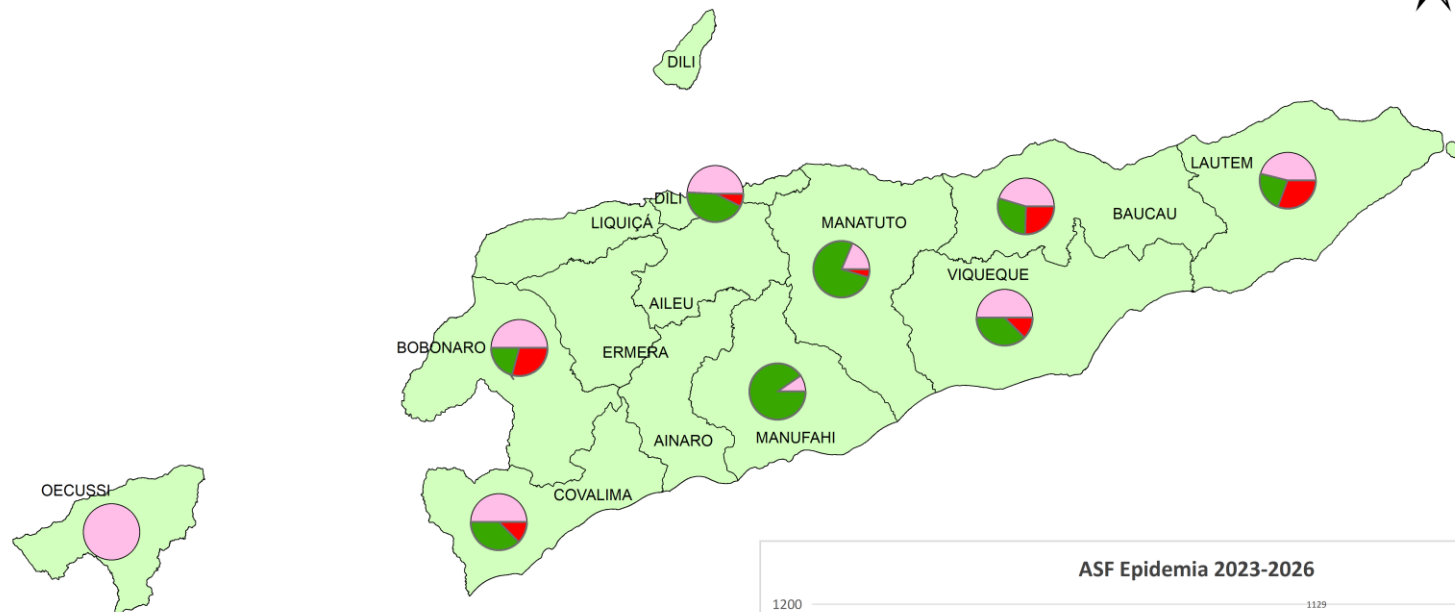
Investigating the Socio-Economic and Livelihoods Impacts of African Swine Fever in Timor-Leste: An Application of Spatial Group Model Building

<https://www.frontiersin.org/journals/veterinary-science/articles/10.3389/fvets.2021.687708/full>



Community awareness, 2024

Timor-Leste African Swine Viber (ASF) Epidemia 2023-2026



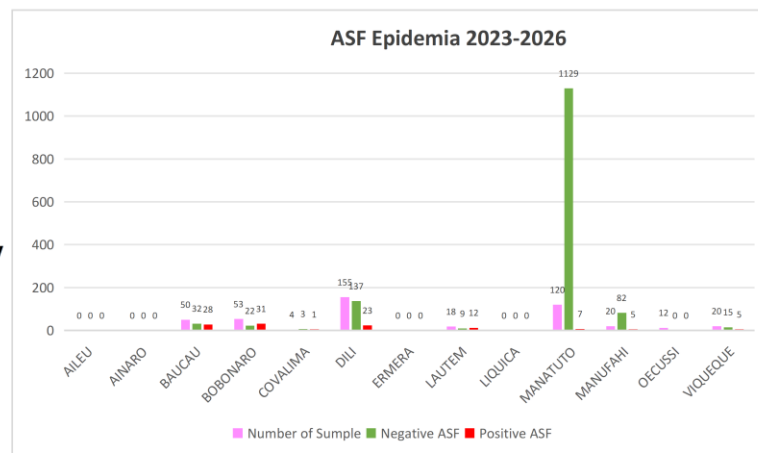
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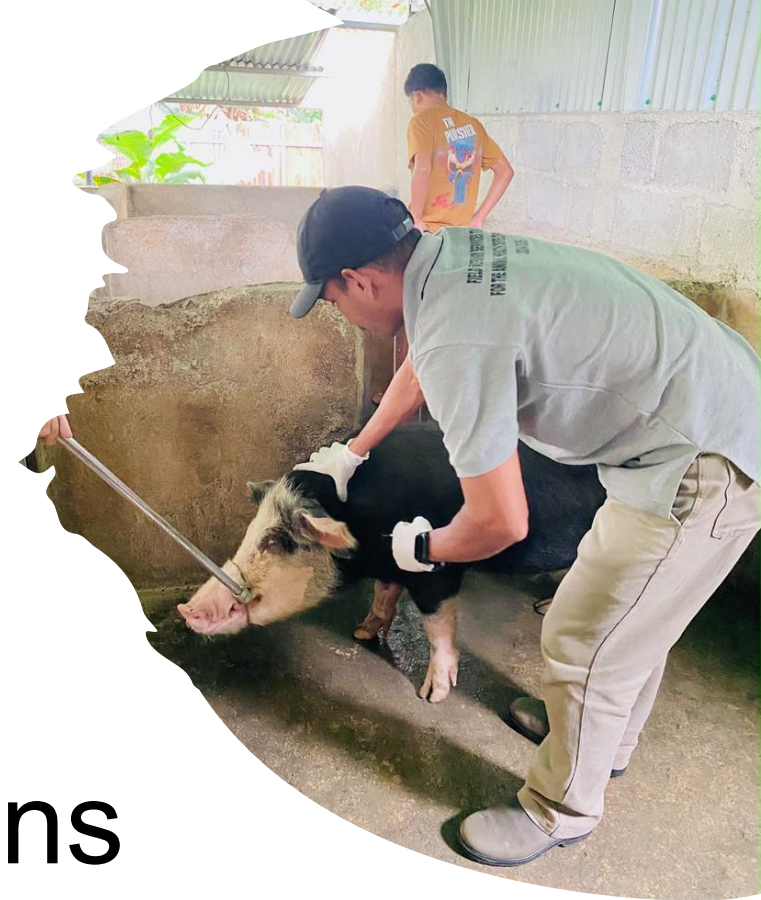


ASF Situation 2023-2026

Challenges in Timor-Leste

- Smallholder production
- Low biosecurity
- Free-ranging pigs
- Limited diagnostic capacity
- Limited funding
- Difficult transportation
- Farmer awareness





Recommendations

- Increase surveillance
- Improve biosecurity
- Strengthen laboratory
- Rapid outbreak response
- Community education
- Inter-sector collaboration
- Regional cooperation
- Sustainable funding



Thank You