

Evolution of surveillance approaches of PPR in view of eradication (Endemic countries and threats to disease free countries)

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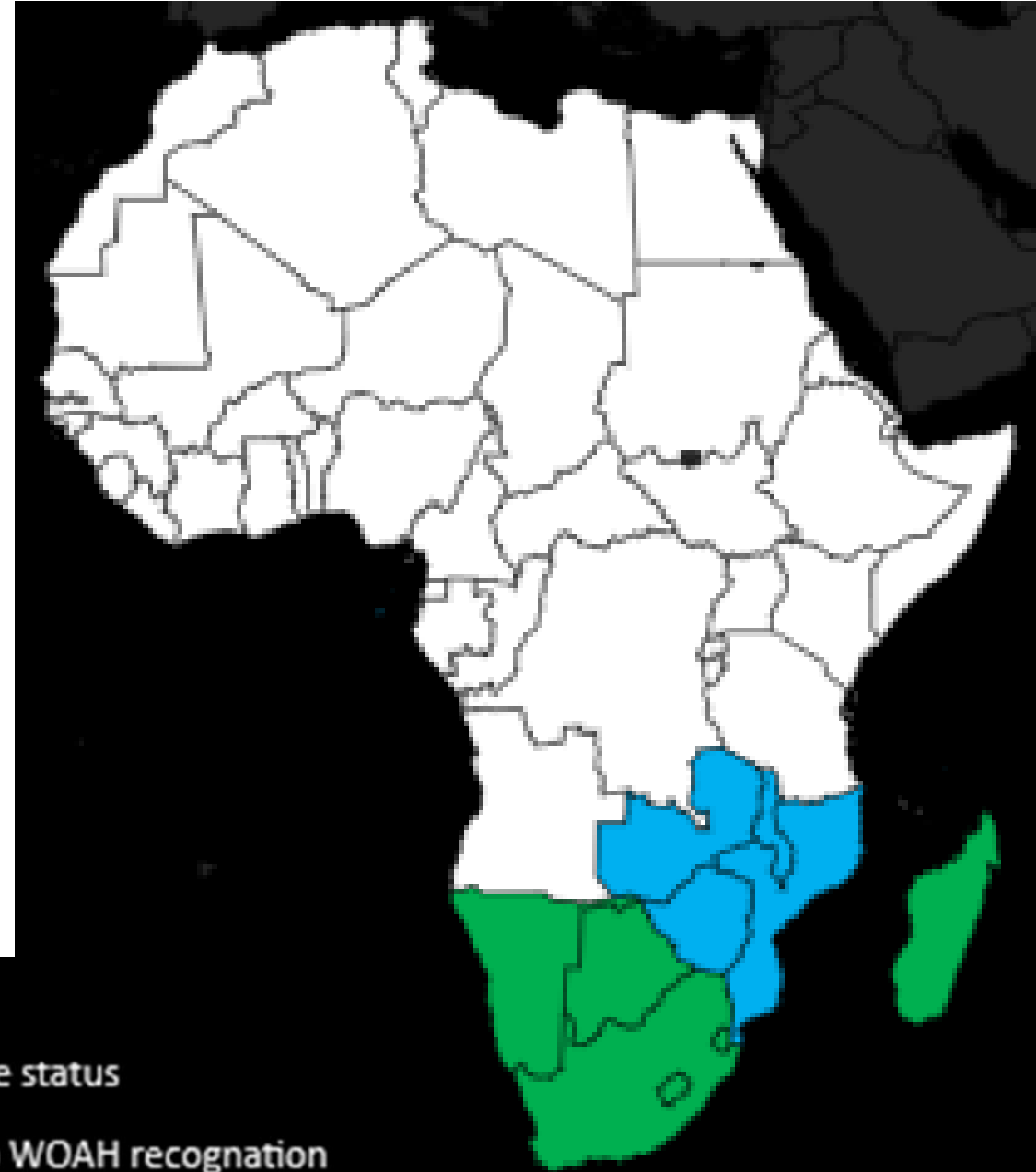
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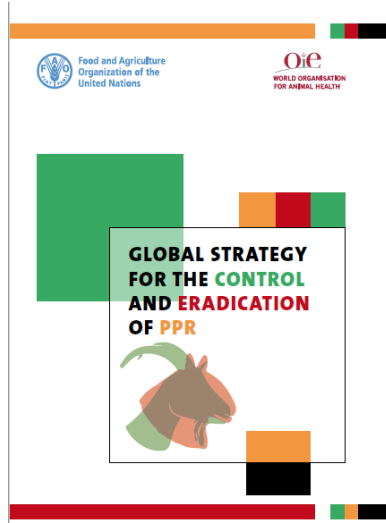
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☉ Peste des petits ruminants disease (PPR)

- Caused by the *Peste des petits ruminants virus (PPRV)* a member of the Small Ruminant Morbillivirus. Described first in Africa in 1942.
- Peste des petits ruminants (PPR) is characterised by high morbidity and mortality in naïve herds
- Arguably it is the small ruminant disease with the highest socio-economic impact in developing countries thus becoming a probable candidate for bioterrorism.

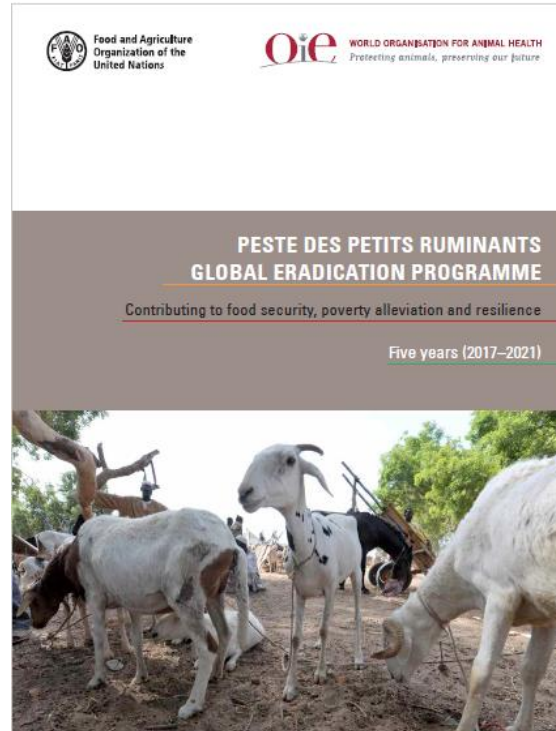




Objectives of the PPR GCES:

- Eradicate PPR by 2030
- Reinforce Veterinary Services
- Reduce the impact of other high impact infectious diseases of Small Ruminants

GEP Phase I (2017 – 2021): Laid foundation to commence PPR eradication through control of PPR epidemics.



GEP Phase II & III Blueprint (2022 – 2030): Envisages eradicating the disease in two phases (II & III)



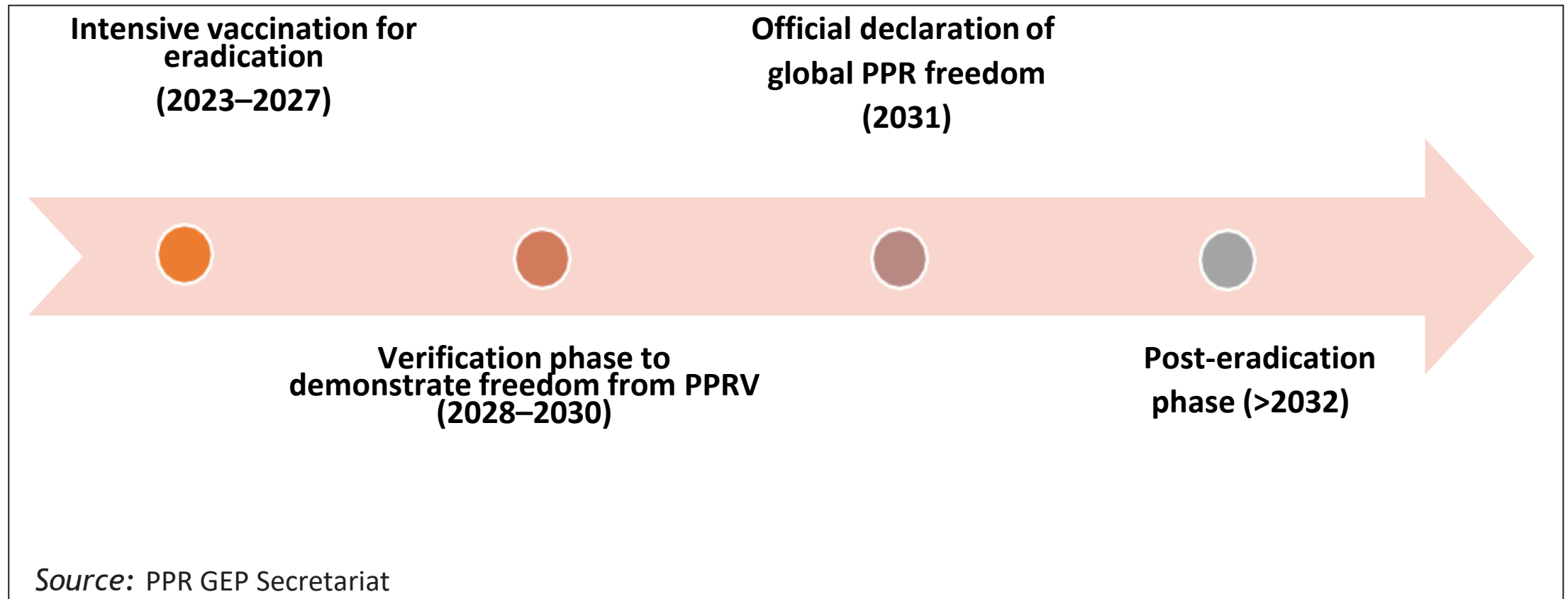


PPR Global Control and Eradication Strategy (GCES) and Global Eradication Program (GEP)

- PPR GEP which is developed and implemented as a multi-country, multi-stage process.



- This would decrease epidemiological risk levels with increase of prevention and control of PPR, by first reducing its prevalence in the countries currently infected as done in phase one 2017-2021 and then eradicating the disease in phases two and three 2022-2030 as envisaged in PPR GEP Blueprint.

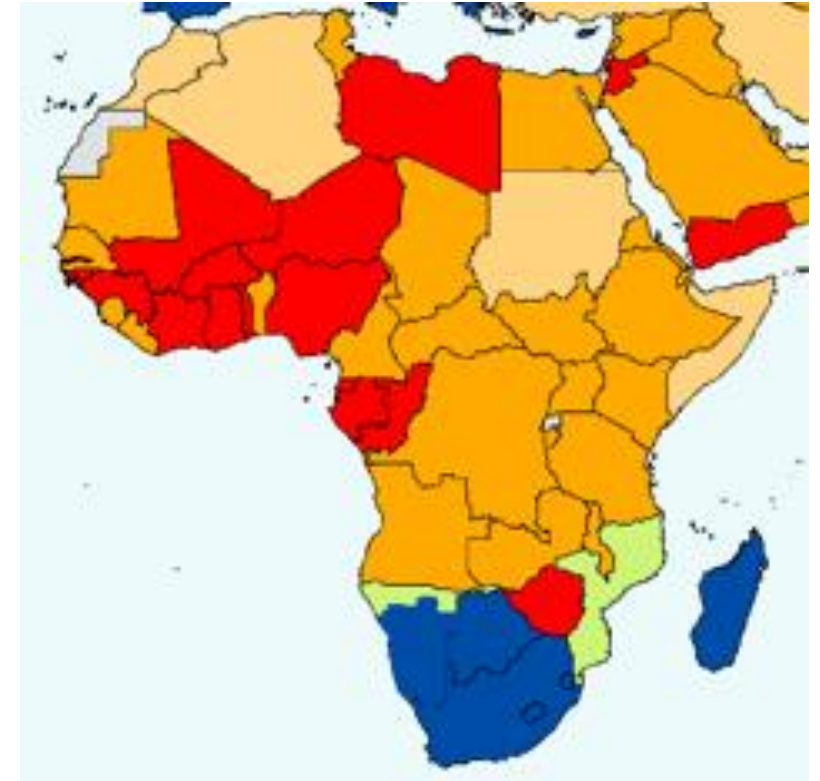


PPR African situation


- Situation at April 2017



- Situation at June 2022



WOAH official status

 Members and zone recognised as free from PPR as of May 2022

PPR GCES stages as self assessed by the countries during their last PPR regional/epizone roadmap/consultation meeting (2017 - 2022)



- PPR GCES and GEP highlight surveillance as one of the key tool in the eradication of PPR
- The main purpose of PPR surveillance is
 - early detection of the appearance of the disease or virus incursion
 - demonstration of the absence of clinical disease or infection with PPRV
 - determination and monitoring of the prevalence, distribution and occurrence of the disease or infection
- The PPR surveillance plan is developed in context of PPR epidemiological situation in each country and is part of PPR National Strategic plan (NSP)

- The design and establish a PPR surveillance plan takes into account essential information on the following,
 - stakeholders and their respective roles
 - target (general population at risk) and study populations
 - accessibility of study population
 - vaccination history
 - reporting systems and Information Technology systems in place
 - nearest laboratory to receive samples locally and laboratories at national regional and global levels that will assist in analysis
 - risk factors, e.g., population risk factors that might influence interpretation of surveillance data



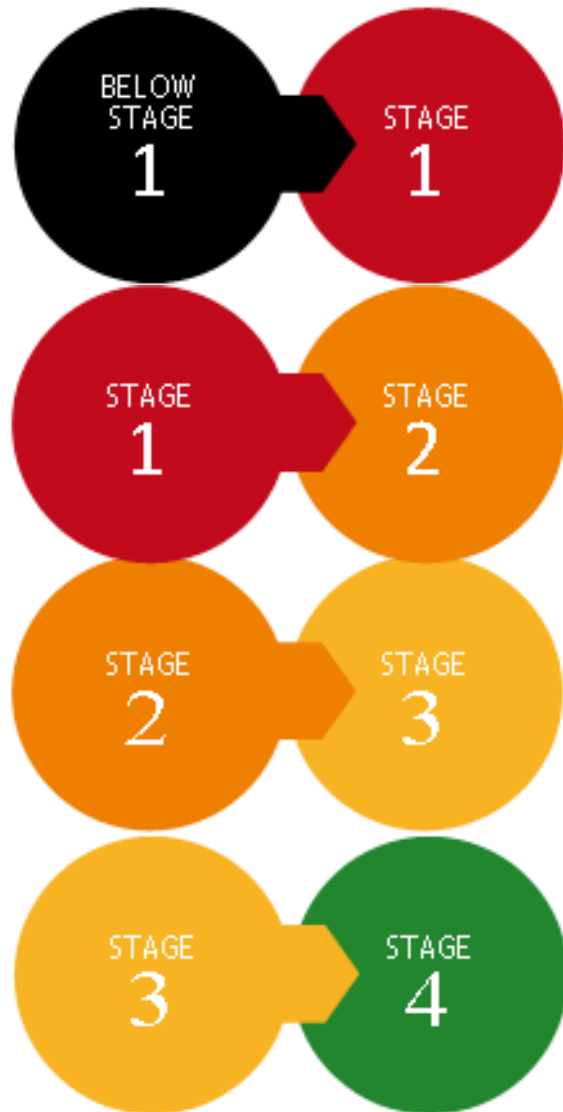
- Countries engaging in the eradication of PPR can be categorised into
 - (i) free
 - With WOAHA recognized PPR free status
 - Without WOAHA status or historically free
 - (ii) infected countries or zones.
- The surveillance strategy is contingent on the GCES Stage a country is at.



No data available Assessment Stage Control Stage Eradication Stage Post Eradication Stage OIE Free Status



PPR surveillance activities at every GCES stage



Stage title	Stage objective	Surveillance objective	Active Surveillance	Passive Surveillance
Stage 1 Assessment	Epidemiological & social economic situation i.e., presence or absence of PPRV	baseline data to define priority eradication activities	+++	+
Stage 2 Control	implement targeted control activities	Detection of the disease/virus in vaccinated & unvaccinated herds	++	++
Stage 3 Eradication	Develop an eradication strategy	Increased sensitivity of Surveillance system	++	+++
Stage 4 Post-Eradication	Evidence that PPRV is not circulating	Prove absence of PPR virus	+	+++

PPR surveillance activities at every GCES stage

Active surveillance	GCES Stages	Passive surveillance	GCES Stages
Serology	1, 4		
Clinical/syndromic- supported by genome sequencing	1,2,3		
Abattoir (specific surveys)	1, 2	Abattoir (reported cases)	2, 4
Wildlife (as sentinels)	2, 3	Wildlife (reported cases)	2,3,4
Markets (specific surveys)	1,2,3	Markets (reported cases)	2,3,4
Border VS inspection surveys	3, 4	Border VS inspection reports	3, 4
Participatory disease search	1,2,3		
Questionnaire surveys	1, 2		
		Reporting vet/para-vet & CAHWS	1,2,3,4

- The PPR Global Eradication Programme phase three (PPR GEP Blueprint) emphasises on the episystem approach in the eradication phase.
- Virus episystem is defined as an interconnected group of host populations that maintain circulation and transmission of the virus indefinitely.
- The core of a PPR episystem is the domestic small ruminant population component capable of PPR virus transmission.
- An episystem may consist of one large population but more commonly consists of several interlinked sub-populations
- An episystem can be a network of populations at different locations and not necessarily in a contiguous zone.
- Episystems need to be sufficiently large enough for new susceptible animals to be born into the system each year to support indefinite maintenance of PPR.
- Episystems often transcend international borders.

- The active surveillance tools are very important in delineating and characterizing episystems
- In the eradication phase (stage 3), the PPR virus is most likely to be circulating in the episystems characterized by remoteness, insecurity, poor accessed pastoral areas.
- Use of community-based animal health systems and tools i.e., CAHWs and Participatory Disease Search (PDS) will be useful in getting surveillance data in difficult areas.
- Analysis of the genetic sequence (molecular epidemiology) of PPR virus lineage sub-types detected in an episystem, is an important epidemiological tool to help precisely characterize episystem, understand viral movement, and new virus intrusion.

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- Surveillance is critical to the success of the PPR Global Eradication Programme
 - National training programme tailored to a country's needs in PPR epidemiology, surveillance, laboratory diagnostics and other aspects of the disease management is of critical importance.
 - Implementation of a coordinated monitoring/surveillance system (with its active and passive components)
 - Diagnostic services or access to diagnostics capable of confirming PPR or making differential diagnosis and molecular analysis of PPRV isolates.
 - Documentation of virus flows using different sources of information including molecular epidemiology.
 - Virus transmission characteristics and virus elimination threshold better understood.
 - With this capacity it will be possible to trace PPR virus intrusions.

Thank you

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