



## STRENGTHENING CAPACITIES FOR THE PREVENTION OF PESTE DES PETITS RUMINANTS (PPR) IN ERITREA

February 2020

SDGs:



Countries:

Eritrea

Project Codes:

TCP/ERI/3607

FAO Contribution

USD 302 000

Duration:

3 February 2017 – 30 June 2019

Contact Info:

FAO Representation in Eritrea

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### Implementing Partners

The Ministry of Agriculture (MoA).

### Beneficiaries

The MoA, national and local administration service providers in the targeted provinces and districts, community-level structures, farmers and livestock organizations and cooperatives, rural and pastoralist communities in project areas, livestock owners and keepers, the chief veterinarian officer and veterinarians.

### Country Programming Framework (CPF) Outputs

Regional Initiative 3: Resilience Building in Drylands of Africa.



## BACKGROUND

In Eritrea, 75 percent of the population is engaged in livelihood activities within the agriculture, animal husbandry and fishing sectors, which account for 16.9 percent of the gross domestic product (GDP) and 20-30 percent of export commodities. Across the country's six agro-ecological zones, livestock rearing practices are variable, although cattle (71 percent), sheep (50 percent) and goats (60 percent) are predominantly raised in the western lowlands. The livestock sector alone accounts for 39 percent of the agricultural GDP and 4.6 percent of the national GDP.

*Peste des Petits Ruminants* (PPR) poses a major threat to sheep and goat production in Eritrea. The disease was first confirmed in 1993 and, since its initial incursion in the Tsorona region, PPR outbreaks have caused extensive concerns across the country. Critically, in newly infected areas, mortality rates have been estimated to reach as high as 90 percent. In 2014, 17 outbreaks were reported and the frequency of outbreaks were on the rise. In response to the 2014 epidemic, 501 300 animals were vaccinated, but this only represented less than 8 percent of the national population, while the recommended target by the FAO/OIE Global Strategy for the Control and Eradication of PPR is 75 percent. Recent assessments have indicated that PPR is often misdiagnosed and under-reported by pastoralists, the national laboratory capacity for PPR diagnosis is limited, the national PPR surveillance system requires strengthening and preventing the spread of PPR will require more effective post-vaccination evaluation.

The presence and threat of PPR affects the livelihood and food security of the Eritrean population. Not only does it have direct effects on animal rearing production levels, it influences economic activities, such as trade, which take place beyond the level of daily activities performed by sheep and goat farmers. In an effort to move closer toward PPR eradication, the project aims to strengthen the national capacity of Eritrea to prevent and control threats posed by the disease.



## IMPACT

The project aimed to enhance the livelihood and resilience of peri-urban, rural and pastoral communities in Eritrea by strengthening the national capacity for PPR prevention and management.

## ACHIEVEMENT OF RESULTS

The project developed Eritrea's capacity for PPR prevention and management using a multi-stakeholder approach. On a national scale, PPR awareness was raised, PPR surveillance systems were improved and both PPR detection methods and laboratory diagnostic competencies were expanded.

A PPR communication committee was established for the creation of a wide-reaching communication strategy that could identify, map out and support stakeholder organizations. The committee was tasked with the development of materials for raising PPR awareness and communicating the importance of PPR prevention. Over 35 000 farmer and pastoralist households engaged in small ruminant production were sensitized to information pertaining to PPR. Various communication tools were used, including two nationally-broadcasted films, a radio broadcast, posters, flyers and booklets.

A national PPR surveillance plan was developed and the plan was validated at a national workshop attended by 60 animal health experts in November 2018. Two training sessions for 30 veterinary personnel from the six *zobas* on participatory epidemiology (PE), participatory disease research (PDR) and data management were delivered. The initial training took place in July–August 2018, followed by a refresher training in November 2018. The training sessions equipped participants with a better understanding of PPR outbreaks and the spread of disease, including the identification of risk hotspots and transmission pathways. Participants also gained experience with data analysis and presentation tools for disease surveillance. Additionally, three staff members participated in a training session on global positioning systems (GPS) and geographic information systems (GIS) at the Agricultural Research Council – Onderstepoort Veterinary Research in South Africa in September 2018.



The capacity of eight veterinary laboratories of the National Animal and Plant Health Laboratory (NAPHL) were assessed. Human resources, laboratory equipment, consumables and procedures, as well as services offered were all evaluated and the project consultant produced a comprehensive report with recommendations for improvements. Twenty-two NAPHL staff attended a five-day training workshop, which covered methodologies for investigating PPR outbreaks, differential diagnosis, sampling and the delivery of results. The project consultant also addressed measures for improving quality assurance (QA) and quality control (QC). Laboratory reagents and equipment for carrying out enzyme-linked immunosorbent assay (ELISA) protocols, as well as multiple computers were procured to support PPR diagnosis beyond the project.

## IMPLEMENTATION OF WORK PLAN

Project activities were carried out within the approved budget, with a no-cost extension being approved to allow for delays experienced in project implementation. Although some project activities and sub-activities were not carried out, this did not affect the achievement of the envisaged project outcome.

## FOLLOW-UP FOR GOVERNMENT ATTENTION

While the national capacity for PPR prevention and management was greatly developed under the project, there are several areas for follow-up action. As highlighted by the project consultant, opportunities to attain accreditation for performing PPR testing should be introduced at the NAPHL in order to support QA and QC. Additional training services also need to be offered to field technicians on sample collection methodologies to improve PPR detection and diagnosis. As the project was unable to establish a digital surveillance system, future attention and funding could also be directed towards this PPR prevention measure.



## SUSTAINABILITY

### 1. Capacity development

The surveillance, management and goal to eradicate PPR are supported by Government policy and firmly embedded in the structures of the MoA and Animal Health Unit. In particular, the project improved activities carried out by Veterinary Services by developing capacity for PPR detection and diagnosis. Relationships were strengthened between farmers/pastoralists and non-governmental organizations, who must work together with the MoA to support stronger PPR surveillance and prevention measures.

### 2. Gender equality

### 3. Technological sustainability

The methodologies developed and technologies introduced at both the field and laboratory levels can be utilized beyond the project in PPR surveillance and management. Both field and laboratory staff received suitable training that will ensure the continuation of improved PPR detection across the country. However, project beneficiaries still require additional support to develop their understanding of PPR and its outbreak potential.

### 4. Economic sustainability

In order to sustain the advances made under the project, additional funding needs to be directed toward animal husbandry management in terms of PPR prevention. This could include both national and regional approaches to PPR surveillance and control.



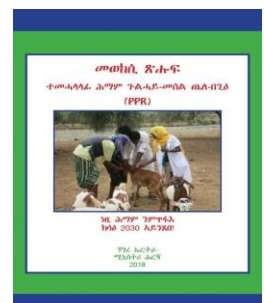
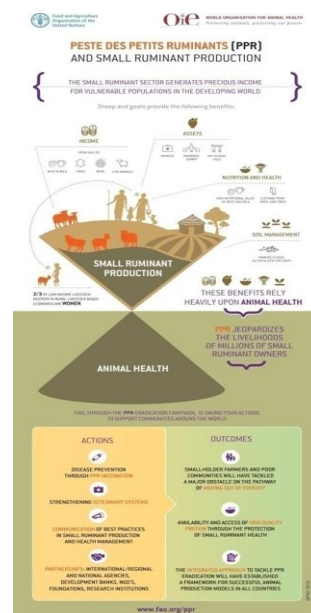
## DOCUMENTS AND OUTREACH PRODUCTS

### Documents

- ❑ PPR Survey Plan. Veterinary Services.
- ❑ Communication Strategy Document. The PPR Awareness National Committee.
- ❑ PPR National Strategy Plan and Budget. Veterinary Services.
- ❑ Participatory Epidemiology and Participatory Disease Search Training Report. Dr. Olwande and Dr. Sserugga. 16 August 2018.
- ❑ Participatory Epidemiology and Participatory Disease Search Refresher Course Report. Dr. Olwande and Dr. Sserugga. 26 November 2018.
- ❑ *Peste des Petits Ruminants* (PPR) Diagnostic Capacity Development. Dr. P Signangwe. 5 September 2019.

### Outreach Products

- ❑ Two PPR sensitization video documentaries.
- ❑ One PPR awareness raising radio broadcast.
- ❑ PPR awareness-raising roll-up posters.
- ❑ 2000 posters in two local languages.
- ❑ Guideline booklets for field veterinarians.



## ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

Expected Impact	Strengthened capacities for the prevention of PPR leading to better control and improved livelihood opportunities and resilience of peri-urban, rural and pastoral families		
Outcome	Improved awareness, strengthened PPR Surveillance systems and PPR detection and laboratory diagnostic capacities for better disease control		
	Indicator	1. Number of stakeholders reached or sensitized and with improved PPR awareness. 2. Number of veterinarians and other stakeholders trained. 3. Number of laboratory technicians trained and able to undertake PPR surveillance and diagnosis. 4. Number of laboratories equipped and able to support PPR surveillance and diagnosis.	
	Baseline	1. 0 2. 0 3. 10 4. 0	
	End Target	1. At least 10 percent of the targeted (in the newly developed CPF) 2 350 vulnerable female-headed households with improved work opportunities in the agricultural and livestock sector. 2. At least 0.5 percent of the targeted (in the newly developed CPF) 50 000 MoA staff, farmers, Ministry of Marine Resources staff and fishermen (disaggregated by sex) have received technical capacity development support. 3. Six additional technicians trained. 4. At least one laboratory equipped and technical capacity of their staff strengthened.	
	Comments and follow-up action to be taken	The project outcome was achieved despite some activities not being accomplished. This did not negatively affect the project's ability to reach its targeted outcome.	
Output 1	Pastoralists, livestock keepers and other stakeholders are sensitized on PPR management activities		
	Indicators	Target	Achieved
	Tools, methods and procedures developed for sensitizing small ruminant producers and other stakeholders.		Yes
Baseline	No tools, methods and procedures were available for sensitizing producers and stakeholders to PPR.		
Comments	The project sensitized over 35 000 households (pastoralists and settled farmers) engaged in small ruminant production in six zobas (regions) of the country, using a combination of tools (i.e. two films were broadcasted on national TV, radio programmes, flyers, posters, booklets, etc.).		
Activity 1.1	Develop PPR communication strategy and identify and map out stakeholder organizations and activities		
	Achieved	Yes	
	Comments	The PPR communication strategy was successfully developed. Stakeholders were identified and their activities were mapped.	
Activity 1.2	Develop appropriate awareness, advocacy and communication materials and carry out dissemination activities		
	Achieved	Yes	
	Comments	Two sensitization video documentaries were developed and then broadcasted on the national TV channel for a week. Additionally, a radio broadcast was carried out. Roll-up posters were prepared in two languages and displayed at public events. In addition, 2 000 posters (in two local languages) were affixed in public locations. A booklet containing guidelines for field veterinarians was prepared and distributed. One thousand other leaflets were also prepared and widely distributed.	
Activity 1.3	Organize PPR awareness and sensitization events covering various small ruminant value chain actors		
	Achieved	No	
	Comments		
Activity 1.4	Establish PPR national committee to facilitate improved engagement, consultation and promote stakeholder engagement		
	Achieved	No	
	Comments		



Output 2	PPR surveillance systems are strengthened		
	Indicators	Target	Achieved
	<ul style="list-style-type: none"><li>– PPR national surveillance plan developed and validated.</li><li>– Capacities of veterinary personnel developed in various aspects of PPR surveillance and reporting.</li></ul>		Yes
Baseline	The country did not have a PPR surveillance plan and staff members’ capacity to conduct surveillance was weak.		
Comments	The national PPR surveillance plan was developed and validated. Thirty veterinary personnel from six zobas were trained on PE, PDS and data management. The first training took place during July–August 2018 and a refresher course was offered in November 2018. Three staff members participated in a three-day training at the Agricultural Research Council – Onderstepoort Veterinary Research, South Africa in September 2018. The training focused on GIS and GPS, enabling the participants to carry out disease mapping as part of the PPR surveillance process. An electronic database was not established under the project as originally planned.		
Activity 2.1	Develop national PPR surveillance plan		
	Achieved	Yes	
	Comments	The PPR surveillance plan was successfully developed.	
Activity 2.2	Conduct national workshops to validate surveillance plan		
	Achieved	Yes	
	Comments	A national validation workshop was organized in November 2018. Sixty animal health experts attended the workshop, where they discussed and validated the PPR control strategy and surveillance plan.	
Activity 2.3	Establish database and equipment for digital based surveillance systems		
	Achieved	No	
	Comments		
Activity 2.4	Carry out training on outbreak investigations, surveillance, participatory epidemiology and participatory disease surveillance including syndromic approaches and epidemiology and risk assessment		
	Achieved	Yes	
	Comments	Two rounds of training on PE and PDS were conducted in July–August 2018 (initial training) and November 2018 (refresher course). Thirty participants from six zobas attended the training sessions. The PE/PDS training was one of the highest quality capacity development programmes conducted in the country over recent years. Livestock owners displayed a keen interest in discussing the PPR outbreaks and the impacts of the spread of disease.	
Activity 2.5	Carry out training to improve data collection and analysis for improved identification of risk hotspots and transmission pathways by analysis of epidemiological system		
	Achieved	Yes	
	Comments	The PE/PDS training addressed field data collection, as well as data storage, analysis and presentation. The analysis and presentation tools that were introduced included disease impact matrix scoring and disease mapping. The project also improved the format for disease information collection for emergency and monthly reporting in Microsoft Excel. A recommendation was made to establish an epidemiology unit to spearhead data collection, analysis and reporting.	

Output 3	PPR detection and diagnostic capacities are strengthened		
	Indicators	Target	Achieved
	Laboratories suitably equipped and laboratory technicians trained to undertake PPR surveillance and diagnosis.		Yes
Baseline			
Comments	In addition to field-level training for the detection of suspected PPR cases, the project enhanced laboratory-based capacity for the diagnosis of PPR samples by training laboratory experts and improving both QA and QC systems. Beyond the project, further training on field data collection for animal health technicians may be required.		
Activity 3.1	Assess capacities of national laboratories to undertake PPR diagnosis		
	Achieved	Yes	
	Comments	An assessment of the capacities of all veterinary laboratories (eight separate units) of the NAPHL was undertaken. Human resource strength (laboratory personnel), laboratory equipment and consumables, as well as procedures and common services were evaluated in June–July 2019. The project consultant provided a comprehensive report that also provided recommendations for remedial measures. Importantly, field technicians need to be appropriately trained on sample collection.	
Activity 3.2	Carry out training on laboratory diagnostics and testing including sample collection, handling, differential diagnosis of PPR, laboratory quality assurance and quality control (QA/QC) systems and requirements for PPR test accreditation		
	Achieved	Yes	
	Comments	A five-day laboratory training workshop on methodologies for investigating PPR outbreaks, differential diagnosis, the correct collection, transport, storage and testing of samples, and issuing of results was organized and delivered to 22 NAPHL laboratory personnel. The workshop was well designed and highly participatory in its approach. The project consultant also provided recommendations on the steps to follow for improving QA/QC systems and highlighted the importance of requiring PPR test accreditation at the national laboratory.	
Activity 3.3	Procure stocks of reagents, laboratory devices and equipment		
	Achieved	Yes	
	Comments	The following equipment was procured under the project: One ELISA reader, one ELISA microplate washer, one ELISA microplate shaker, one desktop computer for the serology laboratory, six desktop computers for the zobas, eight printers and 15 packets of A4-sized paper.	
Activity 3.4	Collect field samples and conduct laboratory testing		
	Achieved	No	
	Comments	Logistical challenges were encountered, which did not allow for the collection of samples and implementation of the activity.	

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