

SUPPLY CHAIN ANALYSIS FOR THE PESTE DES PETITS RUMINANTS (PPR) VACCINE IN THE KARAMOJA REGION

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Peste des Petits Ruminants (PPR) is a disease that affects goats and sheep. Currently targeted for eradication by 2030 as it is one of the causes of food insecurity and economic loss among pastoralist communities and livestock owners.

Challenges in the eradication program are of an interdisciplinary nature and wide in range, such as different social and gender dynamics of livestock owners among different cultures, achieving sustainability of the project by providing vaccines to livestock owners at a price they are willing to pay, and logistical challenges such as poor infrastructure and remoteness. The Livestock Systems Innovation Lab at UF has an ongoing project for PPR vaccination in Uganda and Kenya where approximately one million goats are to be vaccinated.

A supply chain analysis of the distribution methods could improve the vaccination coverage and reduce the cost, thus making it more accessible for livestock owners and improving the efficacy of vaccination programs. The PPR eradication strategy faces many challenges and this project focused on several key aspects.

Remoteness: Karamoja is a remote area in northern Uganda with poor infrastructure. Strategic location of distribution centers, storage facilities and other infrastructure in the distribution network is key in order to increase availability and reduce costs. Constraints such as the lack of a reliable electrical grid and security must be taken into consideration. This information would also be used to generate a transportation model to improve delivery.

Poor availability of the vaccine: Uncertainty on the demand for the vaccine makes for difficult forecasting. Without adequate forecasting methods there is a higher risk of holding a sub-optimal amount of inventory, which leads to increased costs and poor availability. Gathering data to determine optimal

inventory at each stage of the supply chain is one of the objectives that could help improve availability.

Coordination in the supply chain: Assessing the communication and data sharing between supply chain actors as well as identifying ways to improve communication channels will guarantee reliable data from all levels in the supply chain. This would also allow to design a model of the supply chain in order to propose a redesign if needed. Such models have been previously used to propose improvements in the vaccine supply chain of African countries.

The supply chain analysis for the PPR vaccination project can help quantify the economic viability of other veterinary thermostable vaccines in Karamoja as well as actively contributing to improve the distribution and logistics of the vaccines

for the project. Although thermostability provides flexibility in terms of logistics, inventory policy still plays a crucial role in reducing costs and increasing availability. For the PPR vaccination project, priority was given to avoid understocking, without increasing the risk of overstocking significantly. CAHW's are probably the most important element in the supply chain as they are trusted members of the community who can deliver vaccines to remote locations. The assessment showed that they have a positive perception to the commercialization of vaccines which could probably mean that similar projects as this one could be replicated if proven successful.

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