

Strengthening a risk-based control strategy for foot-and-mouth disease in South East Asia through improved animal disease surveillance

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Abstract

The overall goal of this project is to control foot and mouth disease (FMD) in South East Asia, with Lao PDR and Myanmar being a key partner countries as part of the South-East Asia and China FMD (SEACFMD) Campaign. The long term outcome is to increase the number of zones and countries that are FMD-free in the region. Lowering the incidence of FMD in the region will in turn increase the contribution of livestock production to household income in South East Asia, and farmers in Lao PDR in particular. Recent studies have shown FMD to generally be under-reported to state veterinary services, and if the project is to achieve its goals, FMD endemic countries in the SEACFMD Campaign will need to have improved animal health surveillance systems.

Keywords: *FMD, vaccination, disease control, post-vaccination monitoring, surveillance*

Introduction

Controlling endemic (and occasionally exotic) FMD in SE Asian countries is a significant challenge. This project is working in SE Asia in the context of the SEACFMD Campaign and the SEACFMD 2020 Roadmap for FMD control (OIE 2016). The project aims to provide training and technical assistance to multiple groups in Laos, Myanmar, Cambodia and Vietnam initially, and support FMD control efforts there. Results are shared regionally in SE Asia through meetings and workshops, such as the SEACFMD Sub-Commission Meeting held annually. The fact that the project is able to interact with multiple groups in and among countries, will give all stakeholders in the region the benefit of gaining from the lessons learned in each country.

The Department of Livestock and Fisheries (DLF) in Lao PDR, and the Livestock Breeding and Veterinary Department (LBVD) in Myanmar have shown a high level of engagement in SEACFMD. A long-term aspiration of the SEACFMD campaign is the creation of an FMD-free zone with vaccination in the Upper Mekong area. FMD outbreaks cause significant financial losses to farmers due to morbidity, cost of treatment and mortality, not to mention other indirect costs such as additional feed and time spent taking care of sick animals. One estimate of the financial cost of FMD per household exceeds USD 1,200, which only considers the costs of treatment and losses due to morbidity and mortality. This

estimate would increase significantly if indirect costs are also calculated. The losses suffered by farmers represent between 11% and 60% of their household annual income. Although well-off households experience higher losses due to having a greater number of large ruminants than other household classifications, poor households have fewer assets to protect them and are thus the most vulnerable to the financial impacts of FMD outbreaks.

To reduce the risks of FMD outbreaks, the DLF and LBVD have previously conducted several small-scale vaccination campaigns. However, these relatively small campaigns have not been able to fully control FMD, with large numbers of animals remaining unvaccinated due to funding constraints. Rising demand in China and Vietnam for livestock from Lao PDR and Myanmar will continue to drive animal movements across borders, bringing with them the continued risk of FMD outbreaks. Risk-based vaccination, however, is only one of the measures needed to prevent FMD and control its spread. To be effective, vaccination needs to be implemented with other activities, namely animal movement management, public awareness campaigns and improved disease surveillance. Thus, a more comprehensive and long-term FMD control programme for Lao PDR and Myanmar is needed if the goal of zero outbreaks is to be achieved.

Methods

The 'New Zealand Funded FMD Control Project' has been developed to enable maximum benefit to be gained from the experience of previous vaccination campaigns and other related activities. The project has been developed to help address the enormous threat presented by increased livestock movement regionally, as well as to control the FMD virus believed to be circulating endemically in Lao PDR and Myanmar. It will monitor FMD through improved surveillance and reporting systems, and continue to control FMD in focal villages, as well as to investigate any FMD outbreaks identified nationally. Post vaccination monitoring will also continue in both countries.

A reduction of the incidence of FMD in these countries is expected to have positive effects on market chain activities, livestock production and export potential. These positive effects in turn are expected to benefit 60,000 households in the project areas. The work reinforces awareness of

the importance of FMD prevention and control, animal movement management and disease surveillance, as well as the legislation, veterinary services and operational requirements in both the project and neighbouring areas and serves as a model FMD control programme in South East Asia and beyond.

Given the complexities of FMD, the changing nature of trade and marketing arrangements, as well as unofficial movements of livestock, technical support is also being provided by New Zealand through staff from both Massey University's Epi-Centre and the Ministry for Primary Industries. Together with the LBVD, DLF and OIE these collaborative teams will manage the project with five key outputs:

1. FMD risk assessments are conducted in target areas
2. FMD Control Strategies are developed and implemented for target areas
3. Training and technical assistance is provided
4. Coordination workshops are conducted and resource materials provided
5. FMD monitoring, evaluation and modelling tools are established

Results

Because of increased vaccination coverage, vaccine quality, and specificity to serotype, we will expect to see increased animal (cattle / buffalo) population immunity to and reduced incidence of FMD in targeted villages. Coupled with education/awareness of farmers and traders to suspend or limit movement and infected animal contact when FMD is suspected, this would reduce the impact of an outbreak and the spread of disease. Another key outcome will be the improved technical capacities of the district and national veterinary services to conduct disease surveillance; help farmers and traders recognise FMD and apply non-vaccination control measures; vaccinate, monitor and assess the impact of control, animal movement restrictions; and increased emergency preparedness for FMD.

Discussion

The project began aspects of in-country operations in November 2015, with an initial emphasis on risk analysis and conducting baseline surveys in targeted areas. Initial results have identified the high prevalence of FMD in Lao PDR and Myanmar which has led to the project having to re-evaluate the initial concept of trying to control FMD through management of FMD in specific 'hot-spot' zones. Instead the project strategy is shifting to a focus of monitoring animal health, and specifically FMD incidence in some 300 targeted villages in Lao PDR, and another 1000 villages in Myanmar.

Supported by the development of both an improved FMD surveillance system and a more effective disease outbreak response, it is expected that an overall decrease in FMD incidence will follow giving greater economic benefits to the communities involved in the project. Although still in the early operational phases, the project is already having an impact on how FMD is being approached within the SEACFMD Campaign.