

PARTNER COUNTRIES: Cambodia, Laos

PROJECT: Livestock health and vaccines in Cambodia and Laos: scoping study and economic assessment (PLIA/2006/012)

DESCRIPTION: Australia's Centre for International Economics has completed a three-month study, investigating the vaccine-supply chain and reviewing quality-assurance measures in the government-run Vaccine Production Centre in Vientiane

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# NEED FOR VACCINE NETWORK

Disease has been a perennial threat to raising livestock in Asia, with a recent study highlighting the work still needed in developing an effective vaccination program

BY GRAEME O'NEILL

**T**he livestock trade among neighbouring countries such as Laos, Cambodia, Thailand, Vietnam and China is increasing in economic importance, but falling short of potential because of disease.

Endemic diseases such as foot-and-mouth, haemorrhagic septicaemia, cattle blackleg, classical swine fever and avian influenza plague the region's animal industries.

Laos, for example, exports live cattle and buffalo into Vietnam and China—a trade largely based on culled draught animals. Conversely, Laotian pig producers face increasing competition in their own domestic markets from Vietnam and Thailand. The main factor hindering Laotian farmers' competitiveness is disease and the lower production costs of the more intensive Vietnamese and Thai industries.

Dr Peter Rolfe, ACIAR's animal health research program manager, says that even though farmers can buy inexpensive, locally made vaccines, they often fail because of supply-chain problems.

Australia's Centre for International Economics (CIE) recently completed a three-month, ACIAR-funded scoping study in Laos to investigate the vaccine supply chain and to review quality-assurance measures in the government-run Vaccine Production Centre in Vientiane.

The study, by CIE's Dr Robert Warner and AusVet's Dr David Kennedy, used the classical swine fever vaccine to model the vaccine manufacture and supply chain because it is particularly susceptible to heat degradation.

Dr Rolfe says the vaccine must be kept chilled; difficult

in remote rural tropical regions that lack a continuous refrigeration chain from manufacturer to farm.

Vaccines commonly have antigenic proteins from the target virus, causing the immune system to raise antibodies that recognise the shape of the viral antigens, and subsequently react to any encounter with the real-world virus. But the antibody response is ineffective if the antigenic proteins in the vaccine are heat-damaged or degraded.

Dr Rolfe says that while the antigens in the classical swine fever vaccine can induce protective immunity, the survey found quality-control issues—but also identified lay-trained village animal workers who could, with more training, deliver vaccines in the field.

"We're still exploring the best way to proceed," Dr Rolfe says. "However, it is imperative that the vaccine supply is

sustainable, affordable, delivered effectively and that farmers are aware of the benefits."

He says the issue extends beyond Laos and is a problem throughout the greater Mekong. Disease-control initiatives, coordinated by groups such as the UN's Food and Agriculture Organization and the World Animal Health Organisation, rely on the availability of high-quality vaccines. Disease remains the principal threat to the development of viable livestock industries because until there is widespread control, other production and marketing programs will be undermined.

"For example, producers are not inclined to improve genetics of their feedstocks if viral diseases keep coming through," Dr Rolfe says.

The results of the scoping study are now being analysed with a view to policy changes needed at government level to produce and distribute high-quality vaccines. ◀



Cattle in Cambodia: endemic diseases plague the region's livestock industries.