Improving trade in large ruminants and products by transboundary animal disease control in Lao PDR

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Food security research in Cambodia and Lao PDR

Village based research: smallholder focused
2 large completed projects in 2012 and 3 in development PS 3/2014
Develop and evaluate interventions in health and production

Activities
Training and extension (biosecurity & production)
Knowledge, Attitude and Practices surveys
Knowledge transfer
Socioeconomic impact studies
Production levels
Disease investigations
Trade investigations

Overview
Laos background

• ~6.7 million people, GDP US 9.3B
• Land locked, bordering 5 countries
• 1.2 million cattle, 1.5 million buffaloes
• Livestock ownership is smallholder dominated
• Growing demand for beef offers opportunities for improved food security and reduced rural poverty
• Poorly resourced, high levels of poverty, limited animal health capacity

Opportunity for beef:
• Developing domestic market
• Developing export market to Vietnam and China? Sustainable?
• Transit routes for large ruminants to Vietnam and China

Lao PDR
Transboundary animal diseases - large ruminants

› TAD constraints
› Foot-and-mouth disease (FMD)
  - Vesicular viral disease of cloven-hoofed animals
  - High morbidity, low mortality, rapid transmission
  - ‘Endemic’ or ‘sporadic outbreaks’ each year
  - Major regional epizootic in SEA in 2010-11, 25,000 reported cases in 2010
  - Accurate incidence and impacts unknown due to underreporting
  - Transmission due to high volumes of animal movement and minimal biosecurity
› Haemorrhagic septicaemia (HS)
  - Bacterial disease
  - Morbidity moderate-high, mortality high

Temporal FMD in SEA 2000-2010
Livestock management

- Highly dispersed ownership (smallholder owning small herds)
- Poor households with limited resources
- Limited or no biosecurity
- Low vaccination uptake due to poor access and high cost of FMD vaccine
- Smallholders have poor knowledge of disease aetiology and prevention
- Rapidly changing market place with informal and sometimes illegal trade
- Movement of live animals considered highest risk factor for FMD spread

AIM
- Gain insight into informal market animal trade to assist direct FMD preventive strategies that can link to positive livelihood outcomes

Method

- Conducted a semi-structure survey of 32 traders in northern Laos
- Part of ‘Best practice health and husbandry of cattle and buffalo in Lao PDR’ project (ACIAR – AH/2006/159)
- January and February 2011
- Trading activity of last 12 months
  - Species bought and sold (cattle and buffalo)
  - Sex (m/f)
  - Age groups
  - Body condition score
  - Trade price
  - Transport methods, fees, levies, inspections, market stall rental
  - Issues and comments

Method (continued)

- Trader survey to enable a ‘value chain analysis’
  - Products and by-products of interest
  - Who is involved in the chain
  - Seasonality of supply
  - Physical location of those involved
  - Profitability of those involved
  - Regulations
  - Who and what factors are driving development or changes
  - Assessment of equity across the chain
Results

› Traders were operating in 16 districts in 4 provinces (high coverage)
› Range of experience 1-31 years with mean of 12.8 years
› Range of participation in different links of the market chain
› 8,796 trades reported, mean of 293.2 per trader per year
› Purchase of large ruminants made on visual estimation of ‘meat weight’, body condition and negotiated with smallholder farmer
› Mean purchase price reported at USD 4.95 per kg
› Transport methods
  - Truck
  - Walking
  - Tuk-Tuk
  - Boat
  - Combination of above

Large ruminants are moving!

Disease transmission risk pathways

Cattle transiting through Cambodia enroute to southern Vietnam from Thailand 2012
Illegal trade:

Buffalo unloaded from trucks and walked over the border

Results (continued)

› Variable inspection fees depending on location (mean $1.26/head)
› Variable fees on transport method (mean $8.53/head)
› Slaughter fees (mean $9.59/head)
› Market stall rental (mean $1.20/day)

› Skinny: 0.6%
› Medium: 61.3%
› Fat: 38.0%

Gross margin analysis on trades

› Crude Gross margin analysis of sale of a female buffalo in fat condition

  Sale
  - Meat $457.24
  - Offal, hide, bones, feet $260.24
  - Total $717.48

  Cost of goods sold
  - Purchase price (buffalo, F, fat condition) $622.67
  - Costs (transport, slaughter, inspection) $36.34
  - Total $681.14

  Trader Gross margin (base model) 8.1%
  - Underestimated weight by 20 kg 11.9%
  - Overestimated weight by 20 kg 4.1%

  Indicates 1) low margin & 2) importance of 'point of sale' valuation
Farm gate valuation of cattle and buffalo

- Linked trader survey results to production survey
- Matched trader purchase values to village herd structure (age, sex, BCS)

Results ($ million)

<table>
<thead>
<tr>
<th>Region</th>
<th>Cattle</th>
<th>Buffalo</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Laos</td>
<td>$60.5</td>
<td>$167.1</td>
<td>$227.6</td>
</tr>
<tr>
<td>Laos</td>
<td>$239.3</td>
<td>$675.6</td>
<td>$914.8</td>
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</table>

Significant wealth held by smallholder households

Conclusions & Relevance to VETSCI

- FMD is an ongoing constraint to poverty reduction and food security
- Increasing regional beef demand is driving high prices, and in result...
  - an opportunity for smallholders to improve productivity and supply higher quality livestock
  - < 40% traded large ruminants are ‘fat’
- Large ruminant valuation of $0.914 B in a country with GDP of $9.3 B offers potential to make high national impact if constraints addressed
- Understanding the value chain will assist understanding FMD transmission and direct interventions that can meet needs of various market players
- Traders are key in livestock movement and sources of information
- Small margins in trading, highly variable market engagement

Top 5 trader issues and suggestions

Key issues
- Supply unable to meet demand
- High competition
- Price fluctuation
- Poor access to source (road infrastructure- wet season)
- High taxes, levies & movement fees

Suggestions for ensuring supply
- Assistance for smallholder production
- Increase forage grazing resources
- Disease prevention and control
- Ensure local supply (cf. export quotas)
- Review taxes, levies & movement fees

Key opportunities

- Expand on current knowledge and scale out to wider communities
- Integrate smallholder production with value chain knowledge
- Increase transboundary disease control with value chain knowledge
Relevance to VETSCI Research

- Veterinary researchers need to address problems in a ‘systems approach’
- Multi-disciplinary requirements (economics, epidemiology, geopolitical factors, social science…)
- Collaboration, team work
- VRs have a Leadership role to play
- Disease management and biosecurity is going to require unique approaches in SEA
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  - www.mekonglivestock.wordpress.com
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Questions?

Communication

www.mekonglivestock.wordpress.com