New and Innovative Beef Supply Chains in Thailand

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> Project Aims

• To investigate new and innovative supply chain opportunities for northern Western Australian beef cattle through Thailand for the domestic market and re-export:
  – Primary consideration of the potential for increased competitiveness, market penetration, and value-adding production through the diversion/ expansion of existing live exported cattle through a dedicated supply chain featuring leading technology and best practice animal welfare
### Project Approach

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**Pre-Feasibility Assessment**
- Financial Modelling
- Cost Benefit Assessment
- In-Country Assessment
- Benefits
- Stakeholder Presentation
Production Assessment: WA Beef Cattle Industry
Production Study Area

Pre-Feasibility Supply Region

Source: RIRDC
Northern WA Beef Cattle Industry

• Herd just over 1 million head *Bos Indicus*
• Annual turnoff 230,000 to 320,000 head
• Characteristics:
  – Large scale enterprises on pastoral lease
  – Low herd density
  – Long distances to market, with domestic processing concentrated in the south-west of the state
  – Heavy preference for live export (Indonesia, Vietnam, Israel, Malaysia)
> Prices

Source: MLA
Thailand Market Assessment
Thailand Beef Industry

- Herd est. 4-6 million head
- Imports from Myanmar (approx. 100,000 head/ annum)
- Strong established feedlotting and on-selling (China, Vietnam, Malaysia)
- Established processing for the domestic market
- Commenced importing feeder and slaughter cattle from Australia (imported 9,000 head to the end of September 2015)
> Per Capita Beef Consumption

Source: OECD
> Competitors (Beef Exports)

- India
- Brazil
- Australia
- United States
- New Zealand
- Paraguay
- Canada
- EU
- Belarus
- Mexico

% of World Exports

Source: MLA
Strengths

- Established feedlotting sector
- World class agribusiness operations (chicken, pork, seafood)
- Strong trade agreements and linkages (Australia, China, ASEAN Economic Community) –
- Trusted reputation in food processing and distribution
- Large tourist population 600M consumer market ASEAN
- High beef prices ($11/kg supermarket retail)
> Risks

• Modest per capita consumption (2kg/capita). Both an upside and downside risk
• Foot and Mouth Disease (FMD)
• Developing new export linkages for processed meat (front-door access to China)
• Relatively high-cost (within Asia)
New and Innovative Supply Chain Considerations
Potential Supply Chain Options

• Live export of feeder cattle with fattening and processing occurring in Thailand
• Live Export of slaughter cattle with processing occurring in Thailand
• Preliminary processing (e.g. carcass quarters/halves) in Australia with further processing in Thailand
• Export of deboned beef from Australia
• Processed food market (e.g. canned, dehydrated, etc.)
Primary Supply Chain Model

• Exporting live feeder cattle to Thailand for finishing and processing
• A number of advantages, including:
  – Avoiding processed beef import quotas/tariffs
  – Consistency with current Rangelands feeder cattle production
  – Potential utilisation of Thailand’s trade agreements into third party export markets (generally a 40% Thai value content required)
  – Access to low-cost feedlotting and processing labour within Thailand.
New Supply Chain Considerations

- Trade Agreements
- Bio-Security
- Animal Welfare
- Investment Incentives
- Site Location Options
Trade Access

Australian Access to Thailand:
- Tariff-free live export
- Special Safeguards (SSGs) for boxed beef (50% tariff beef, 33% offal). Local industry protections evident in other trade agreements (e.g. Thailand-India)

Thai Re-Export Access:
- ASEAN Economic Community
- ASEAN-China Free Trade Agreement
> Bio-Security

- Classified FMD endemic
- Restricted re-export access to FMD-Free markets (Indonesia, Japan, USA, Western Europe)
- Seeking to have selected province declared FMD-free (with vaccination) with the OIE

Source: OIE
Animal Welfare

Australia Government Export Supply Chain Assurance System (ESCAS) requirements:
- Initial Independent Audit of facilities
- Annual Independent Audit of feedlot
- Bi annual Independent Audit of Abattoir (halal)
- Individual Animal Traceability from Port of Origin to Slaughter
- Transition to Livestock Global Assurance Program (LGAP) QA based system
- Benefits: Improved animal welfare, better meat quality, improved profitability
Location Choices

Industrial Parks/ Estates: Eastern Seaboard, Ayutthaya (Abattoir Only)
Freehold Sites: Saraburi, Suphanburi
Special Economic Zones: Trat, Sa Kaeo, Songkhla

Investment Incentives:

<table>
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<tr>
<th>Primary Activity Type</th>
<th>Incentive Level</th>
<th>Incentives</th>
</tr>
</thead>
</table>
| Slaughtering          | A4             | • Three years corporate Income tax exemption plus merit-based incentives  
|                       |                | • Exemption of import duty on machinery  
|                       |                | • Exemption of import duty on raw or essential materials used in manufacturing export products  
|                       |                | • The right for foreigners to own freehold land  
|                       |                | • The right to bring in skilled foreign workers as well as their spouses or dependents  
|                       |                | • The right to remit money abroad |
| Livestock Husbandry or Aquaculture | | |
> Stakeholder Engagement
Stakeholder Engagement

• Initial telephone consultations with Thai and Australian stakeholders
• Face to face interviews in Thailand
• A half-day stakeholder workshop in Bangkok attended by 26 key Thai and Australian industry stakeholders.
Thai and Australian stakeholders consulted for this study were generally supportive of the potential to develop a new beef supply chain.

Significant future support exists for proponents seeking to establish a best practice integrated supply chain which focuses on leading technology, animal welfare and traceability, and collaborative market and industry development.
Model New Supply Chain
Model New Supply Chain

1. Transport Cattle Station – Pre-Export Quarantine (PEQ)
2. PEQ Depot
3. Transport PEQ - Export Port
4. Export Port Loading
5. Sea Freight Export - Import Port
6. Discharge - Import Port
7. Transport Import Port - Feedlot
Cattle Specifications

• Current exports specifications fall into three main categories:
  – Indonesian Feeder – Under 350 kg individual live weight
  – Slaughter cattle – 400-550 kg live weight - Vietnam, Malaysia, Brunei, Thailand, Middle East
  – Other Feeder cattle 350-400 kg – Vietnam, Malaysia, Thailand, Middle East
＞ Cattle Supply Markets

- Total requirement of 96,000 head per annum
- A range of source markets required initially due to competition for live export cattle and seasonal access constraints

<table>
<thead>
<tr>
<th>Supply Region</th>
<th>Project Supply</th>
<th>% of Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA Rangelands (feeder cattle)</td>
<td>40,000</td>
<td>41.7%</td>
</tr>
<tr>
<td>NT/QLD (feeder cattle)</td>
<td>40,000</td>
<td>41.7%</td>
</tr>
<tr>
<td>Thailand (slaughter cattle)</td>
<td>16,000</td>
<td>16.7%</td>
</tr>
</tbody>
</table>
> Feedlotting

- Using agricultural by product in a Total Mix Ration (TMR) currently available and being used by Thai Feedlotters
- Up to around 30,000 head in the feedlot to supply 96,000 head abattoir (120-day cycle)
- Due to limited land availability, cost of land and high rainfall it will be essential that the feedlot pens are all concrete, and will need to be either fully or partially covered to separate waste and stormwater to minimise waste water treatment
- Model feedstock costs of approximately $300/tonne
- Capital estimates approx. $7 million
- Approximately 300 staff
> Abattoir Specifications
### Abattoir Output

- **400 head/day** (96,000 head per annum single shift)
- Meets all USDA and halal accreditation requirements
- **Capital costs** approx. $22 million
- **Operating costs** approx. $40/head at single shift capacity

### Item Output

<table>
<thead>
<tr>
<th>Item</th>
<th>Kg Per Head</th>
<th>Kg Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef Production Per Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live Weight</td>
<td>540</td>
<td>216,000</td>
</tr>
<tr>
<td>Carcass Weight</td>
<td>281</td>
<td>112,400</td>
</tr>
<tr>
<td>Offal</td>
<td>36</td>
<td>14,400</td>
</tr>
<tr>
<td>Renderables</td>
<td>98</td>
<td>39,200</td>
</tr>
<tr>
<td>Blood</td>
<td>24</td>
<td>9,600</td>
</tr>
<tr>
<td>Hides</td>
<td>36</td>
<td>14,400</td>
</tr>
<tr>
<td>Paunch (stomach contents)</td>
<td>64</td>
<td>25,600</td>
</tr>
<tr>
<td>Subtotal</td>
<td>259</td>
<td>103,600</td>
</tr>
<tr>
<td>Overall Total</td>
<td>540</td>
<td>216,000</td>
</tr>
<tr>
<td>Deboned Beef (70% Yield)</td>
<td>197</td>
<td>78,680</td>
</tr>
<tr>
<td>Rendering</td>
<td>84</td>
<td>33,600</td>
</tr>
</tbody>
</table>

### Carton Production Per Day

<table>
<thead>
<tr>
<th>Item</th>
<th>Cartons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deboned Beef (avg. carton weight 25 kgs)</td>
<td>3,147 Cartons</td>
</tr>
<tr>
<td>Offal (avg. carton weight 22 kgs)</td>
<td>655 Cartons</td>
</tr>
<tr>
<td>Total Carton Production</td>
<td>3,802 Cartons</td>
</tr>
</tbody>
</table>
Post Processing Distribution
> Financial Viability
## Financial Analysis

10 Years Operations @ ฿270/$10.7 per kg beef:
- Internal Rate of Return 18.2%

<table>
<thead>
<tr>
<th>Real Discount Rate</th>
<th>Present Value Costs ($M)</th>
<th>Present Value Benefits ($M)</th>
<th>Net Present Value ($M)</th>
<th>Net Present Value ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8%</td>
<td>$1,452.2</td>
<td>$1,491.3</td>
<td>$39.1</td>
<td>฿976.4</td>
</tr>
<tr>
<td>12%</td>
<td>$1,227.4</td>
<td>$1,247.6</td>
<td>$20.2</td>
<td>฿505.2</td>
</tr>
<tr>
<td>15%</td>
<td>$1,054.1</td>
<td>$1,060.2</td>
<td>$6.2</td>
<td>฿154.5</td>
</tr>
</tbody>
</table>
### Market Opportunities

The implementation of the ASEAN Economic Community and the implementation of additional border Special Economic Zones opens further access to high value regional export markets.

<table>
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<th>Country</th>
<th>Retail Price (AUD/kg)</th>
<th>Potentially Viable Market</th>
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<tr>
<td></td>
<td>Wet Market</td>
<td>Super Market</td>
</tr>
<tr>
<td>Thailand</td>
<td>$9.4</td>
<td>$11.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>$9.1</td>
<td>$11.7</td>
</tr>
<tr>
<td>Vietnam</td>
<td>$15.5</td>
<td>$17.4</td>
</tr>
<tr>
<td>China</td>
<td>$19.7</td>
<td>$21.4</td>
</tr>
<tr>
<td>Indonesia*</td>
<td>$13.3</td>
<td>$16.3</td>
</tr>
<tr>
<td>Philippines*</td>
<td>$6.3</td>
<td>$6.8</td>
</tr>
</tbody>
</table>

* Imports restricted due to FMD status.

Source: Ainsworth
> Key Risks

• Cattle supply shortages

• Production margins for the domestic market:
  – Potential to link cattle supply prices to graziers to end market returns (requires a long-term view and an equity share in the supply chain)
  – Access to higher value re-export markets a key opportunity
Socio-Economic Benefits
Benefits for Australia

- Cost Benefit Analysis (CBA) Framework
- Key Benefits:
  - Additional Profits for Producers
  - Additional Regional Economic Activity From Cattle Production
  - Productivity Improvements
  - Market Diversification

<table>
<thead>
<tr>
<th>Real Discount Rate</th>
<th>Present Value Costs ($M)</th>
<th>Present Value Benefits ($M)</th>
<th>Net Present Value (AUD $M)</th>
<th>Benefit Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>$12.0</td>
<td>$41.0</td>
<td>$29.0</td>
<td>3.42</td>
</tr>
<tr>
<td>7%</td>
<td>$9.6</td>
<td>$32.8</td>
<td>$23.2</td>
<td>3.42</td>
</tr>
<tr>
<td>10%</td>
<td>$7.9</td>
<td>$27.1</td>
<td>$19.2</td>
<td>3.42</td>
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</table>
Benefits for Thailand

- **Infrastructure and technology transfer:** Development of new meat processing technology to supply the domestic and regional export markets
- **Diversified & new local processing alternatives:** New processing options for local cattle producers and access to new and high-value markets
- **Contribution to the industry capacity of Thai beef feedlotting and processing:** Potential to significantly develop the scale and capacity of the Thai beef feedlotting industry and processing sector based on importing Australian live cattle
- **Trade development and strategic alignment:** Further positioning Thailand as a key food processing hub, supplying value-added agricultural exports to regional markets
- **Economic development**, including:
  - Direct output of nearly ฿6 billion per annum once fully operational
  - Capital expenditure of over ฿700 million
  - Direct employment of over 550 jobs across feedlot and abattoir operations (as well as training and skills development opportunities)
  - High-level economic modelling suggests this level of direct activity could contribute ฿4.7 billion to Thailand’s Gross Domestic Product (GDP) per annum including direct and flow-on impacts.
> Project Next Steps
> Project Next Steps

Next Steps for this Investment Opportunity

Release of Documentation to Identified Investors and Stakeholders

Continued Project Advocacy and Support:
- Investor Identification
  - Trial Feedlotting
  - Skills Training
- Approvals Support
- Re Export Market Access
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