

live *export*

The Live Export Industry

Assessing the Value of the Livestock Export Industry to Regional Australia

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Prepared by: Michael Clarke, AgEconPlus
Julian Morison, EconSearch
Warwick Yates, Warwick Yates & Assoc

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Abstract

This study describes and quantifies the contribution of the livestock export industry to producers and economies in regions that are highly reliant on the livestock export trade. These designated regions are the Northern Territory (cattle), Western Australia (southern sheep and cattle), Western Australia (northern cattle), Queensland (cattle) and Victoria (dairy cattle).

Assessing the regional level contribution of the value of the live export trade will assist the industry in promoting understanding of the livestock export trade and the value it provides to producers in the sheep, beef and dairy sectors. The target audience for these messages are the Federal, State, territory and local governments and community at large.

Executive summary

Introduction

This study described and quantified the contribution of the livestock export industry to producers and economies in regions that are highly reliant on the livestock export trade, namely northern Western Australia (cattle), the Northern Territory (cattle), Queensland (cattle), southern Western Australia (sheep and cattle) and Victoria (dairy cattle). Estimates were made of the current contribution of the industry in those regions as well as the short, medium and long-term impact on the regional economies if there were to be a cessation of the livestock export trade.

The purpose of the study was to provide an objective and independent estimate of the contribution of the trade to promote an improved understanding of its importance within Federal, State/Territory and Local governments, as well as in the industries concerned and in the general community.

A large industry consultative committee with regional livestock expertise provided input to the study. Relevant literature, reports and publications were reviewed, and consultations, face-to-face meetings and a regional workshop were conducted with all livestock export stakeholders.

Regional Contribution of Livestock Exports

Five regional case studies were prepared detailing the contribution that livestock exports make to regional economies. Economic contribution has been measured in terms of value of output (business turnover), gross regional product (GRP) and employment. The case studies were based on consultations, value chain analysis and regional economic modelling. An overview of the current contribution of the industry to each region is provided in Table E1.

Table E1 Summary of Livestock Export Industry Value to Regional Australia, 2005/06^a

Case Study Region	Output - Direct (\$m)	GRP – Total (\$m)	Jobs – Total (FTE)	Impact of Cessation (H, M, L)
Northern WA Cattle	136	87	1,045	<ul style="list-style-type: none"> • High • Major industry • 25% of prod'n on indigenous properties
Northern Territory Cattle	218	157	1,821	<ul style="list-style-type: none"> • High • Third largest NT industry • Major spill-over into Qld
Queensland Cattle	107	96	1,213	<ul style="list-style-type: none"> • Medium • Other value chains now dominant
Southern WA Cattle	115	111	1,672	<ul style="list-style-type: none"> • Medium • Significant employer
Southern WA Sheep	331	273	4,118	<ul style="list-style-type: none"> • High • Underpins WA wool production
Victorian Dairy Cattle	117	107	1,206	<ul style="list-style-type: none"> • Medium • Contributes 20% of dairy farmer profits
Total^b	1,024	830	11,075	

^a Prices and costs in 2005/06 dollars but live export numbers based on 5 year average to 2005/06.

^b The estimates of output and employment are broadly consistent with Hassall and Associates (2006), whereas GRP is significantly less than the Hassall estimate of GDP. This is because the Hassall national modelling approach incorporated dynamic investment linkages which was not possible in the regional models used in this study.

Trade Cessation – Farm Income Impacts

Estimates of the impact of trade cessation on-farm incomes in the short, medium and long-term (years 1, 5 and 10 respectively) are provided in Table E2 for all case study regions. These estimates account for the direct loss in income to producers of live export sheep and cattle.

Although the impact on-farm income is expected to decline over time, the market loss is assumed to be enduring without any offsetting demand in new markets, and so the income effects are expected to be significant for at least 10 years following cessation. Under the price response and market loss assumptions employed in this study, the present value of income losses over the 10 year period following trade cessation is estimated to be over \$2.2 billion in the case study regions.

Table E2 Estimates of on-farm income impacts of trade cessation (\$m) ^a

Region	Year 1	Year 5	Year 10	Present Value (Years 1-10) ^a
Northern WA Cattle	-56	-52	-24	-348
Northern Territory Cattle	-82	-66	-56	-514
Queensland Cattle	-8	-6	-4	-48
Southern WA Sheep	-149	-120	-104	-939
Southern WA Cattle	-27	-12	-8	-120
Victorian Dairy Cattle	-31	-42	-42	-291
Total	-353	-298	-238	-2,259

^a Accounts for the direct loss in income to producers of live export sheep and cattle but does not include the loss in income to other producers within the industry as a result of domestic industry price effects or the positive, offsetting income effect for those producers who switch to alternative enterprises following the loss of live export markets.

^b Present value of the on-farm income effect was calculated over a 10-year period using a 7% discount rate.

Trade Cessation – Gross Regional Product (GRP) and Employment Impacts

Estimates of the impact of trade cessation in the short, medium and long-term are provided in Table E3 for all regions for the two key economic indicators, gross regional product (GRP) and employment. These estimates account for the total (i.e. direct and indirect) impact of cessation relative to the base case (i.e. current) impact.

In the first year following trade cessation, it is estimated that gross regional product in the five case study regions will fall by over \$1.1 billion. Aggregate employment is expected to drop by over 5,800 FTE (full time equivalent) jobs, with southern WA feeling the greatest impact but with significant job losses in Victoria, Northern Territory and northern WA as well.

The effects of trade cessation will ease over time as new markets are sought, changes are made to on-farm enterprise mix (where alternatives exist) and businesses along the live export supply chain look for other opportunities. However, in lieu of significant new markets for these livestock sectors (i.e. markets that are willing to pay prices equivalent to those currently realised in the live export markets), the net losses from cessation of live exports will continue to be significant in the medium to long-term.

Value of Livestock Export Industry to Regional Australia

Table E3 Estimates of the GRP and employment impacts of trade cessation ^a

	Region						Total
	Northern WA Cattle	NT Cattle	Queensland Cattle	Southern WA Sheep	Southern WA Cattle	Victorian Dairy Cattle	
Year 1 of cessation							
GRP (\$m)	-109	-126	-215	-449	-61	-171	-1,131
Employment (FTE)	-388	-538	-221	-3,614	-392	-653	-5,806
Year 5 of cessation							
GRP (\$m)	-110	-106	-200	-325	-32	-181	-954
Employment (FTE)	-502	-491	-176	-2,714	-164	-673	-4,719
Year 10 of cessation							
GRP (\$m)	-48	-93	-185	-266	-13	-177	-783
Employment (FTE)	-185	-461	-131	-2,292	-49	-662	-3,779

^a To model these impacts, prices are expressed in 2005/06 dollars but live export numbers were based on the 5 year average to 2005/06.

The impact of the live export trade and the likely impacts of trade cessation on each of the case study regions, summarised in Tables E1 to E3, is discussed below for each of the regions in turn.

WA Northern Cattle Industry (WA north of the 26th parallel)

Direct and Indirect Contribution

Based on average cattle exports over the 5 years to 2005/06, the WA northern live cattle export industry generates:

- \$136 million in output. The output value is the CIF value of the trade less goods and services purchased outside of WA;
- \$87 million in gross regional product (GRP): \$59 million in direct GRP generated by the businesses that comprise the live export value chain and \$28 million in indirect GRP generated by other regional suppliers of goods and services in the northern WA economy.
- 1,045 jobs (775 direct and 270 indirect) generated on an FTE basis.

Services have emerged in northern WA to support the development of the livestock export trade. Off-station support services include veterinarians, fodder supply and assembly depots. Businesses in eleven separate sectors of the value chain earn 50-100% of their revenue from live exports.

Growth of the livestock export industry has supported capital investment in roads, assembly depots and port upgrades.

Production System Impacts

In the Kimberley and northern part of the region, live export is the only viable cattle market and livestock export has fuelled a major change in the dominant pastoral system throughout the region. Production has moved from the harvest of shorthorn cattle to the more intensive management of

Bos indicus breeds. Breeder deaths were 15% and are now 6% and branding rate was 50% and is now 60%. These changes can be partly attributed to the requirements and incentives provided by the live export trade.

Property prices have increased more than 300% since 1999 and in the Gascoyne/Pilbara this has fuelled vertical integration in southern WA finishing properties and South East Asian feedlots. A number of integrated value chains have emerged.

Indigenous producers, who account for approximately 25% of northern WA pastoral leases, have captured the same benefits of a buoyant and consistent cattle market as non-indigenous pastoralists. More than 90% of sales are directed at live export and production has reoriented to meet the needs of specific live export channels. Feeder bulls are transported south for feedlotting prior to shipment to the Middle East and steers and culls are directed into South East Asian feedlots. Indigenous producers are investing in genetics, fencing and water.

Additional receipts earned through live export are providing indigenous producers with an added measure of financial independence, the ability to set goals, employment opportunities for young people and skills development. Skills are being developed through agricultural academies that combine pastoral knowledge with literacy/numeracy and practical pastoral skills are being augmented with financial and succession planning programs.

Cessation Impact

A cessation of the live export cattle trade is estimated to result in a reduction in cattle prices from \$1.60/kg to \$1.10/kg with the imposition of additional costs of \$0.21/kg for transport, fees and animal husbandry. Following a period of adjustment the industry would settle out with lower productivity, lower profitability, lower land values and a 'wild harvest' system similar to that which existed pre live export development in the early 1990s. Gross output, GRP and employment would all be lower than under continuation of the livestock export trade. For example, northern WA would shed 388 jobs in the first year of cessation and a total of 502 over a five year period (Table E3).

Losses in on-station income over the 10 year period following a cessation in trade were estimated to have a present value of \$348 million (7% discount rate) (Table E2).

Trade cessation would have social (reduced employment for non-indigenous and indigenous people), biosecurity (reduced capacity to monitor and control disease outbreaks) and environmental consequences (reduced capacity to manage and 'spell' country) in the northern WA region.

Northern Territory Cattle Industry

Direct and Indirect Contribution

The beef cattle industry accounts for 81% of the Northern Territory's (NT) gross value of agricultural production. In 2005, over 210 000 cattle were exported live through the Port of Darwin, with Northern Territory producers supplying 99% of these cattle. Another 10,000 Territory cattle were exported through Wyndham in Western Australia.

Value of Livestock Export Industry to Regional Australia

Based on average cattle exports over the 5 years to 2005/06, the Northern Territory live cattle export industry generates:

- \$218 million in output. The output value is the CIF value of the trade less goods and services purchased outside of the NT;
- \$157 million in gross regional product (GRP): \$98 million in direct GRP generated by the businesses that comprise the live export value chain and \$59 million in indirect GRP generated by other regional suppliers of goods and services in the NT economy.
- 1,821 jobs (1,048 direct and 773 indirect) generated on an FTE basis.

The importance of the cattle export trade in the NT varies between regions, with 80-100% of cattle turnoff from properties in the Top End, Darwin, Gulf, Katherine and Victoria River regions going to live export. Stations in the Barkly Tablelands and Alice Springs are more focused on the Queensland and southern markets.

The NT has a population of around 207,000 people with the majority of the population living in Darwin, Palmerston and surrounding areas. The dependence of regionally based communities and the interdependence of businesses in these regions on key pastoral industries emphasises the importance of the regionally based pastoral industry and the potential significant knock on effects at a regional level that would result from reduced pastoral industry revenues if the live export trade were to cease.

Beef Production System Impacts

In those regions dependent on live exports the profitability associated with participation in the trade has generated significant production system impacts including:

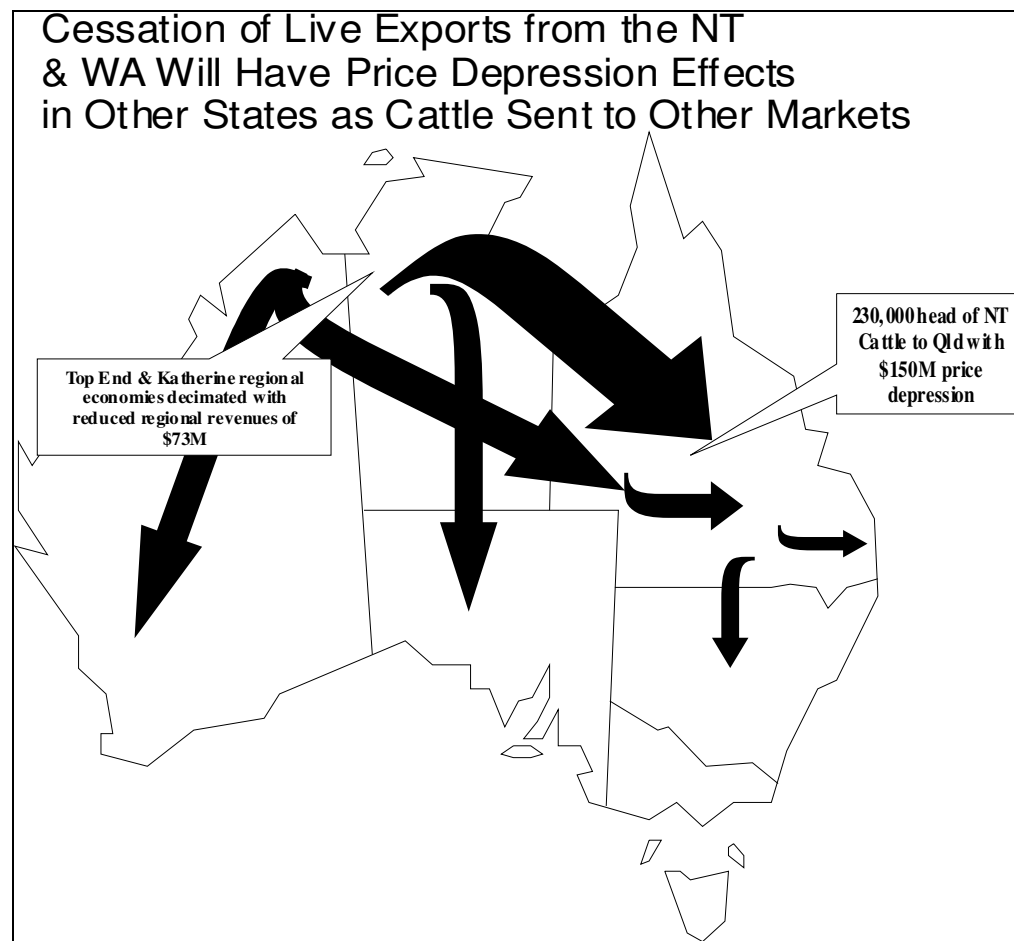
- Improved prices and stability associated with the growth of live exports has encouraged investment in genetics. Cattle reach their optimum live weight at a younger age, allowing increased breeder numbers and improved total farm production. No longer are live exports second class cattle but rather cattle specifically bred to South East Asian feedlot market requirements;
- Total factor productivity for northern beef properties grew at a rate of 3.6% a year in the period 1988/89 to 2001/02. In contrast, there was relatively little productivity growth for southern Australian beef properties (ABARE 2007). Much of this productivity growth is attributed to the enhanced industry viability afforded by the continuity of the live export industry;
- Beef property prices have increased their best area value at the rate of 25-30% compound growth over the last 4 years in line with improved industry property values and industry confidence. This rate of increase in land values compares to a 20% increase in land values in Queensland over the same period;
- The NT indigenous communities account for approximately 30,000 head of cattle with about 7,000 head going to live exports. Live export trade participation together with partnership programs such as the Indigenous Pastoral Program has enabled effective beef industry skills transfer to occur to these communities from NT beef producers.

Cessation Impact

The immediate short-term cash flow impact of a live export trade cessation could be a farm gate price decrease of approximately 59 cents/kg to accommodate the livestock freight cost to Central and Southern Queensland. Based on 230,000 head weighing 330 kg, this price decrease could

equate to reduced farm gate revenues of approximately \$77 million at the extreme if these cattle were not finished in the NT. However, it is likely that cattle would be turned off at lighter weights (230kg) to optimise load factors moving cattle into Queensland, further reducing farm gate revenues.

Overall, the reduction in live export revenues (whole value chain) would be in the order of \$138 million with greatest impacts occurring in the Top End, Gulf, Katherine and Victoria River which rely solely on live exports as their market focus as distinct from the Alice Springs and Barkly regions. The economies of these two regions would be greatly affected. Producer returns would be reduced, impacting on employment, on-station management and investment. In the medium-term these adjustments are likely to become entrenched, resulting in an increased age of herd, lower productivity and profitability and reduced investment.



If the live export trade were to cease then the NT beef industry would suffer significantly reduced revenues and marginal profitability to loss making operations. The consequences of live export trade cessation would be:

- Price depression for livestock as cattle previously intended for live exports were diverted to other markets in the NT, Qld and SA. There would be knock-on market effects in south east Queensland and NSW (see chart above);

- A significant decline in regional revenues, especially in the Katherine and Top End regions;
- Reduced employment both on-station, within the live export supply chain and in regional centres;
- A significant slow down in on-station investment and improvements to beef enterprise productivity and infrastructure improvements;
- A severe reduction in available funds for sustainable rangeland management programs, jeopardising the gains made in these programs, especially weed and pest control;
- Annual reduction in industry gross value as a result of trade cessation. The net reduction in the value of output across the whole industry value chain would be \$138 million in year 1 of cessation, \$122 million in year 5 of cessation and \$111 million in year 10 of cessation.

Losses in on-station income over the 10 year period following a cessation in trade were estimated to have a present value of \$514 million (7% discount rate) (Table E2).

Loss of incomes associated with trade cessation would have consequences for Northern Territory biosecurity (capacity to invest in monitoring and disease control), the environmental management of lease country and social cohesion.

Queensland Cattle Industry

Direct and Indirect Contribution

Queensland live cattle exports peaked in 2002-03 at 254,000 head but have declined every year since. The live export trade has found it increasingly difficult to compete on price with re-stockers, meat processors and lot feeders.

Based on average cattle exports over the 5 years to 2005/06, the Queensland live cattle export industry generates:

- \$107 million in output. The output value is the CIF value of the trade less goods and services purchased outside of Queensland;
- \$96 million in gross regional product (GRP): \$35 million in direct GRP generated by the businesses that comprise the live export value chain and \$61 million in indirect GRP generated by other regional suppliers of goods and services in the Queensland economy.
- 1,213 jobs (534 direct and 679 indirect) generated on an FTE basis.

Beef Production System Impacts

In the tropical north of Queensland, beef production generally requires higher Brahman content cattle to compete, especially in tick areas. In the designated tick areas, live exports are still regarded as a secondary and alternative market outlet for cattle but a market that is much reduced in size given the demand drivers that have enhanced Australia's processed beef export position.

Despite the decline in live exports from Queensland, the live export market provides a secondary market for high Brahman content cattle from the Gulf and Coastal Queensland that do not easily comply with feedlot entry specifications. The current live export price of \$1.75/kg (Cloncurry) is the best price seen for approximately four years and is viewed as a viable alternative market for livestock unsuitable for the southern Queensland supply chain.

Cessation Impact

If live exports were to cease it is estimated that approximately 230,000 head of cattle would enter the Queensland supply chain in two supply peaks in April and August each year. The impact on Queensland cattle revenues by diversion of NT live exports to the Queensland market could be in the order of \$150 million, if prices were depressed for 4 months of each year. In good seasons the Queensland supply chain would absorb the additional numbers with a reduced price impact in the order of 5-10%.

Under a trade cessation scenario there would be a loss in output of around \$34 million along the live export supply chain and \$184 million in lost revenue to other beef producers due to depressed cattle prices. The impact of these income losses would be partially offset in the broader economy from increased processing activity (both Queensland and NT sourced cattle) valued at over \$100 million. Direct and indirect value added is estimated to decline by \$215 million in year 1. In years 2-5 the value added loss would be approximately \$200 million per annum and, in the following 5 years be a loss of around \$185 million (relative to the current contribution of the livestock export industry). Industry employment (direct plus indirect) losses were estimated to be around 220 FTE in year 1, over 170 in years 2-5 and approximately 130 in years 6-10.

Losses in on-station income over the 10 year period following a cessation in trade were estimated to have a present value of \$48 million (7% discount rate) (Table E2).

Southern Western Australian Sheep and Cattle Industries

Direct and Indirect Contribution

Southern Western Australia dominates Australia's live sheep exports and is an important contributor to live cattle exports. Around 80% of all sheep exports (average 3.27 million) and 19% of cattle exports (average 130,000) were shipped from the Ports of Fremantle and Geraldton over the past 5 years, the great majority from Fremantle. Live exports of sheep have averaged 43% of total sheep and lamb turnoff in WA over the past 5 years.

Based on average sheep exports over the 5 years to 2005/06, the southern WA live sheep export industry generates:

- \$331 million in output. The output value is the CIF value of the trade less goods and services purchased outside of WA;
- \$273 million in gross regional product (GRP): \$105 million in direct GRP generated by the businesses that comprise the live sheep export value chain and \$168 million in indirect GRP generated by other regional suppliers of goods and services in the southern WA economy.
- 4,118 jobs (2,025 direct and 2,078 indirect) generated on an FTE basis.

Based on average cattle exports over the 5 years to 2005/06, the southern WA live cattle export industry generates:

- \$115 million in output. The output value is the CIF value of the trade less goods and services purchased outside of WA;
- \$111 million in gross regional product (GRP): \$41 million in direct GRP generated by the businesses that comprise the live export value chain and \$70 million in indirect GRP generated by other regional suppliers of goods and services in the southern WA economy.
- 1,672 jobs (825 direct and 847 indirect) generated on an FTE basis.

Sheep and Cattle Production System Impacts

For both the sheep and cattle sectors, the industry circumstances in Western Australia make its situation more precarious than in the Eastern states, particularly in terms of the size and severity of the market's response to external changes. For example, the slaughter capacity in WA is relatively low, there is currently a severe shortage of abattoir labour and the ratio of live export sales to domestic slaughter sales is relatively high. These factors together mean that options for producers and others in the live export supply chain are limited in the face of external market change. Put another way, the live export trade provides a solid underpinning to Western Australia's livestock markets that provides stability and a degree of income certainty as well as confidence to maintain investment in the industry.

While wool prices have been in decline in recent years, livestock sales for both shippers and prime lambs have enabled producers to maintain profitability. This has enabled significant on-farm investment in improved infrastructure (roads, fences, yards, etc) and corresponding benefits to other activities in the typical farming enterprise mix.

For sheep producers, having a viable and sustainable alternative market also gives opportunities for alternative mating strategies. The move to ewe based flocks and reduced emphasis on wool production has seen the number of adult wethers decline significantly and the sale of younger sheep, particularly the sale of long-tailed entire ram lambs.

For many mixed sheep - cropping farmers, the live export of sheep currently contributes around one-third of farm income, up from under around 18% six years ago. The live export of sheep and cattle from southern Western Australia has made a positive economic contribution to participating sheep and cattle producers and the broader livestock industry.

Clearly there has been a range of value chain services that either emerged to support the trade or have grown in response to it. These services and the integration on-farm of sheep and cattle enterprises that are structured specifically for the live export market make the live export trade a significant, valuable and integral part of agribusiness in southern WA.

Cessation Impact

A cessation of live sheep exports would have a calamitous effect in southern WA, particularly in the many communities that are reliant upon live sheep exports. With the lack of demand for the type of sheep that are currently being exported, many of which would be too light or of the wrong type for processors to handle, it is expected price would fall by a least half but more likely by 70 to 80% to around \$10 to \$15 per head. Given current prices for sheep for mutton of \$15 to \$20 per head, the over supply situation would be likely to push prices well below that level. A large proportion of the sheep and lambs that would have otherwise been sold into the live export trade would be unsaleable.

With a complete collapse in sheep and lamb prices inevitable, producers would be faced with four main options:

- Sell sheep for processing locally - the market would be heavily oversupplied and prices depressed.
- Hold sheep on-farm – it would be potentially financially crippling to turn crops over for grazing or to use the grain harvested for supplementary feeding.
- Transport sheep to eastern states for slaughter (costing in the range \$18-22 per head) - if all live exports were to cease, the eastern states, in particular South Australia and Victoria, would also be faced with serious oversupply conditions.

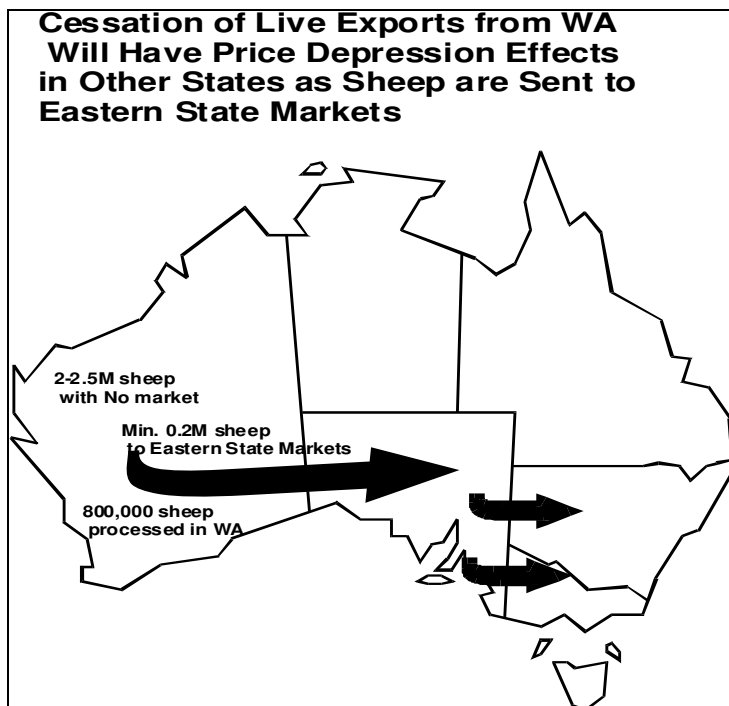
Value of Livestock Export Industry to Regional Australia

- Destroy sheep - with market options severely limited and no capacity to hold the sheep over the summer and autumn periods, the only option for many producers would be to destroy a large proportion of their flock.

Not only would the destruction of sheep result in a heavy financial loss for individual farmers, it would also be extremely stressful for them, their families and the broader community. Specialist transport operators, feed suppliers, agents and many other service providers along the value chain would lose a large proportion of their business and many would have difficulty selling their specialist equipment. Other specialist businesses in the value chain would be similarly affected.

For a farmer wishing to keep in sheep production, the reaction in the medium and long-term would be to increase prime lamb production as mutton prices would be in a state of complete collapse whereas there would be more confidence in prime lamb production. Prime lamb production in WA is currently centred around putting a terminal sire on a merino ewe. This would tend to change, seeking higher lambing percentages from alternative breeds, half breeds, etc. All of these tend to have an effect on the state wool clip and degrade its value and quantity. This tends to dilute the sought after extra profit from the prime lamb production. Any further loss of wool production on an already depleted clip has critical mass consequences which have the potential to degrade price even further (Bob Hall, pers. Comm.).

An alternative to selling for slaughter in the local WA market would be to transport sheep to the eastern states for slaughter there. Under the market conditions prevailing in recent years, this has been a viable strategy for the opportunistic sale of small numbers of sheep in the strong eastern states market. This has been a viable selling strategy despite a transport cost averaging around \$18 to \$22 per head. However, under a situation where all live exports cease, the eastern states, in particular South Australia and Victoria, would be faced with serious oversupply conditions as well. Over the past five years live exports of sheep from WA have averaged 3.3 million and the offering of this number or a substantial proportion will significantly depress prices in the short-term.



Under a trade cessation scenario there would be a loss in output of around \$149 million on-farm and \$266 million elsewhere along the live sheep export supply chain. The impact of these income losses would be offset to a small degree in the broader economy from increased processing activity valued at around \$22 million in year 1. Direct and indirect GRP is estimated to decline by \$449 million in year 1. In years 2-5 the GRP loss would be approximately \$325 million per annum and, in the following 5 years be a loss of around \$260 million (relative to the current contribution of the livestock export industry). Industry employment losses (direct plus indirect) were estimated to be around 3,600 FTE in year 1 of cessation, 2,700 in years 2-5 and over 2,200 in years 6-10.

A cessation of the live export cattle trade would also have a severe impact on the local beef market, producers and the whole value chain. It is estimated a halt to trade would result in a reduction in cattle prices from \$1.80/kg to \$1.40/kg and reduced sales as producers look to increase turnoff weights for processing domestically. Regional gross income, GRP and employment would all be lower than under continuation of the livestock export trade. For example, southern WA would shed 390 jobs in the first year of cessation and at least 150 jobs in years 2-5.

Losses in on-farm income over the 10 year period following a cessation in trade were estimated to have a present value of \$939 million for sheep producers and \$120 million for cattle producers (7% discount rate) (Table E2).

The loss of sheep flock and cattle herd structures associated with lower management inputs and the increased bio-security and environmental risks associated with greater incursions of feral animals, such as dogs, goats, camels and donkeys, would exacerbate the severe social and economic consequences of live export trade cessation.

Victorian Dairy Industry

Direct and Indirect Contribution

Based on average dairy cattle exports over the 5 years to 2005/06, the Victorian live dairy cattle export industry generates:

- \$117 million in output. The output value is the CIF value of the trade less goods and services purchased outside of Victoria;
- \$107 million in gross regional product (GRP): \$43 million in direct GRP generated by the businesses that comprise the live export value chain and \$65 million in indirect GRP generated by other regional suppliers of goods and services in the Victorian economy.
- 1,206 jobs (599 direct and 607 indirect) generated on an FTE basis.

Services have emerged in Victoria to support the dairy livestock export trade and others have expanded in response to its growth. Services to benefit from the dairy cattle live export trade include backgrounders, agents, assembly depots, veterinarians, artificial insemination technicians, fodder, chaff and sawdust providers, the port authority, stevedores, shipping companies, ships' crews, hotels and exporters. Businesses in seven separate sectors of the value chain earn more than 10% of their total revenue from the trade.

Development of this trade has been able to 'piggyback' on existing infrastructure and dairy farmers participate in the trade without the need for additional investment. In fact live dairy cattle export provides opportunities for dairy farmers looking for a lower input alternative to milking.

Dairy Production System Impacts

Of the 6,100 dairy farms in Victoria, an estimated 2,000 to 3,000 contribute dairy stock for export on a regular basis and a typical enterprise of 200 dairy cows will make available an additional 20 dairy heifers to supply the trade. Between 50 and 250 farm enterprises will contribute dairy heifers to a single 3,000 head livestock shipment. The industry has averaged sixteen shipments per annum from Victorian sourced cattle, most of which have been shipped through the Port of Portland.

Victorian dairy farmers estimate that the live export of heifers has contributed 20% of farm profit to the average 200 cow Victorian dairy enterprise in the period 2003 to 2006.

Cessation Impact

A cessation of the live export trade in dairy cattle from Victoria would result in a reduction in twelve month old heifer prices from \$1,000 head to \$500 head as supply of these cattle exceeded demand. Surplus three month old dairy heifers would fall in value from \$500 head to \$100 head and would be disposed to processing as manufacturing beef. In the first year of cessation GRP of approximately \$170 million would be lost to the Victorian economy and over 650 jobs would be shed.

Losses in on-farm income over the 10 year period following a cessation in trade were estimated to have a present value of \$290 million (7% discount rate) (Table E2).

Conclusion

Livestock exports underpin economic activity, environmental management and the social wellbeing of large slices of rural and remote Australia. Based on annual average exports in the five years to June 2006, the industry contributes direct output of more than \$1 billion per annum, gross regional product (direct and indirect) of \$830 million pa and employment of 11,075 FTE jobs in the case study regions (Table E1).

The economic contribution of livestock export is greatest in northern WA (cattle), the Northern Territory (cattle) and southern WA (sheep). The industry also makes important contributions to the economies of Queensland (cattle) and the Victorian dairy industry.

Cessation of the trade would result in a \$2.3 billion reduction in on-farm income over the next 10 years (Table E2). Cessation of the trade would also result in the loss of 5,800 FTE jobs from rural and remote Australia in the first year, 4,700 FTE jobs in year 5 and a 'steady state' reduction in employment in year 10 of 3,700 FTE positions (Table E3).

The industry is investing in training, land management practices, genetics, production systems and after farm animal welfare (road transport, assembly facilities, ship loading and onboard management). The industry is providing opportunities for Indigenous cattle producers. Livestock exporting is economically sustainable, environmentally responsible and socially inclusive.

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Abbreviations

AAGIS	Australian Agriculture and Grazing Industry Survey
ABS	Australian Bureau of Statistics
ADF	Australian Dairy Farmers
AI	Artificial Insemination
AQIS	Australian Quarantine Inspection Service
AMSA	Australian Maritime Safety Authority
BTEC	Brucellosis and Tuberculosis Eradication Campaign
CIF	Cost Insurance Freight
CCA	Cattle Council of Australia
CDEP	Community Development Employment Projects
DAF WA	Department of Agriculture and Food Western Australia
DEC	WA Department of Environment and Conservation
FOB	Free on Board
FTE	Full Time Equivalent (employment)
GRP	Gross Regional Product
ILC	Indigenous Land Corporation
KAP	Kimberley Aboriginal Pastoralists
MLA	Meat and Livestock Australia
NT	Northern Territory
NTCA	Northern Territory Cattlemen's Association
NT DBERD	NT Department of Business Economic and Regional Development
NT DPIFM	NT Department of Primary Industries, Fisheries and Mines
NTLEA	Northern Territory Livestock Exporters Association
PA	Per Annum
PGA	(WA) Pastoralists and Graziers Association
QDPI&F	Queensland Department of Primary Industries and Fisheries
SD	ABS Statistical Divisions
RETWA	Rural Export and Trading (WA) Pty Ltd
VFF	Victorian Farmers Federation
WAFF	Western Australian Farmers Federation

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Referencing

Unless otherwise stated, all statements have been derived from industry consultation.

1 Study Purpose and Background

1.1 Introduction

This current study describes and quantifies the contribution of the livestock export industry to producers and economies in regions that are highly reliant on the livestock export trade. These designated regions are the Northern Territory (cattle), southern Western Australia (sheep and cattle), northern Western Australia (cattle), Queensland (cattle) and Victoria (dairy cattle).

Assessing the regional level contribution of the value of the live export trade will assist the industry in promoting understanding of the livestock export trade and the value it provides to producers in the sheep, beef and dairy sectors. The target audience for these messages are the Federal, State, territory and local governments and the wider community.

1.2 Objectives

The study's objectives were:

1. Analyse and provide a description of the direct, indirect and multiplier regional benefits flowing from the livestock export industry.
 - a. The analysis should provide a description of the size of the industry including the identification of the players along the export value chain, the impact on regional communities and employment and the size and nature of capital investment in the regions. This analysis should include indigenous producers in these regions.
 - b. The analysis is to include the numbers of livestock, the location of the business, with particular focus on the producer population, breed type, the class and age of livestock, seasonality of supply and the value of the trade in terms of gross revenue.
2. From each regional perspective, the farming system and alternatives to the industry should be specified. Analysis of adjustment paths and the effect these are likely to have on-farm gate prices, herd or flock structure and its associated cost, environmental impact, cash flow, income, property infrastructure and land values should be assessed.
3. The study should look at the short-term (up to one year), the medium-term (up to five years) and long-term (10-15 year) direct and multiplier effects on-farm gate price, downstream effects in each region, and costs of adjustment for producers and the wider industry if the livestock export trade was to cease.
4. The study should consider broad industry and government costs that would be incurred to assist producers and stakeholders in adjustment within each region if the export trade was to cease.

1.3 Method

Project tasks included:

- Briefing meetings and teleconferences with a large industry consultative committee that incorporated regional livestock expertise. The industry consultative committee (see persons contacted as part of the study) approved a final study consultation list and project questionnaire (copy provided in Appendix 2);
- Review of the LIVE.314 report and an earlier report completed by Hassall & Associates (2000);
- Review of current, relevant literature, in particular relevant regional economic reports completed for Western Australia, the Northern Territory, Queensland and Victoria;
- Wide consultation with all livestock export stakeholders including face-to-face meetings and a regional workshop; and
- The development of a series of regional economic models that had their parameters and assumptions endorsed by the project consultative committee.

The regional economic modelling tool used for this study was input-output analysis. An explanation of the input-output analysis methodology is provided in Appendix 1.

Five regional analyses are presented. Each regional analysis provides a statement of case study specific objectives, a literature review, a record of consultation, model assumptions and data and quantitative and qualitative analysis results.

The study was prepared during the period September 2006 to June 2007.

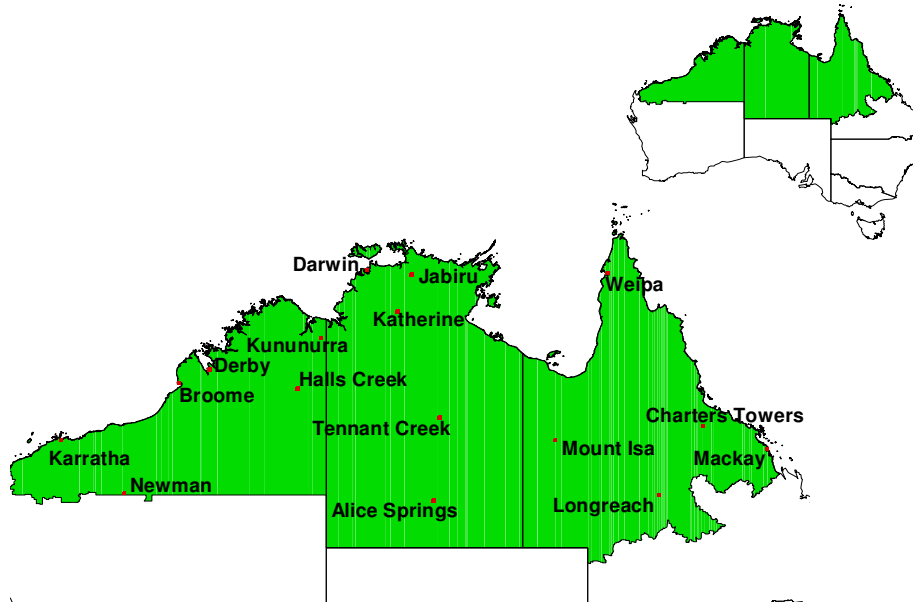
1.4 The Live Export Trade in Perspective

Northern Australia Live Export Zone

Exports of live cattle add to the overall demand for Australian cattle and to the total value of Australian exports. In 2004-05 and 2005-06, exports of live cattle accounted for around 7% of total Australian cattle turnoff and 5% of the total value of cattle production. Live cattle exports are very important to the economies of some regions of Australia (ABARE 2007).

In northern Australia a specialised industry has developed to supply the live cattle trade and a high proportion of cattle are sold each year from this region for live export. ABARE (2007) defined a northern Australian live export supply region across northern WA, the NT and Qld as per Figure 1.1 below.

Figure 1.1 Northern Australian Live Export Zone



Source: ABARE (2007)

Australia's ability to meet the growth in demand for live feeder cattle since the early to mid-1990s has been made possible by important changes to the breeding and management systems of northern Australian properties. Traditional breeding and fattening systems that turned off bullocks at around 4-5 years of age have been converted to enterprises with a higher proportion of breeders turning off cattle at a younger age.

Growth in the live cattle trade since 1990 has been partially built upon improved management systems that were a by-product of the brucellosis and tuberculosis eradication campaign instigated in the 1980s, including increased fencing, better livestock control and consequent regulation of cattle supply even in the wet season. In addition, the live export trade further reinforced moves toward *Bos indicus* breeds in northern Australia helping to improve branding and turnoff rates and reducing cattle death rates.

The proportion of cattle turnoff for live export in the upper NT and northern WA is around 50%. The relative importance of the live cattle trade varies both between properties and also over time. According to ABARE's Australian Agriculture and Grazing Industry Survey (AAGIS) data, 75% of northern live export zone properties with more than 300 head of beef cattle were either partially or substantially reliant on receipts from live export over the ten years 1995-96 to 2004-05. Properties that sell most of their turnoff to live export are concentrated in the top end of NT and the Kimberley of WA. Typically these properties run herds that are much larger than average for the northern live export zone.

Value of Livestock Export Industry to Regional Australia

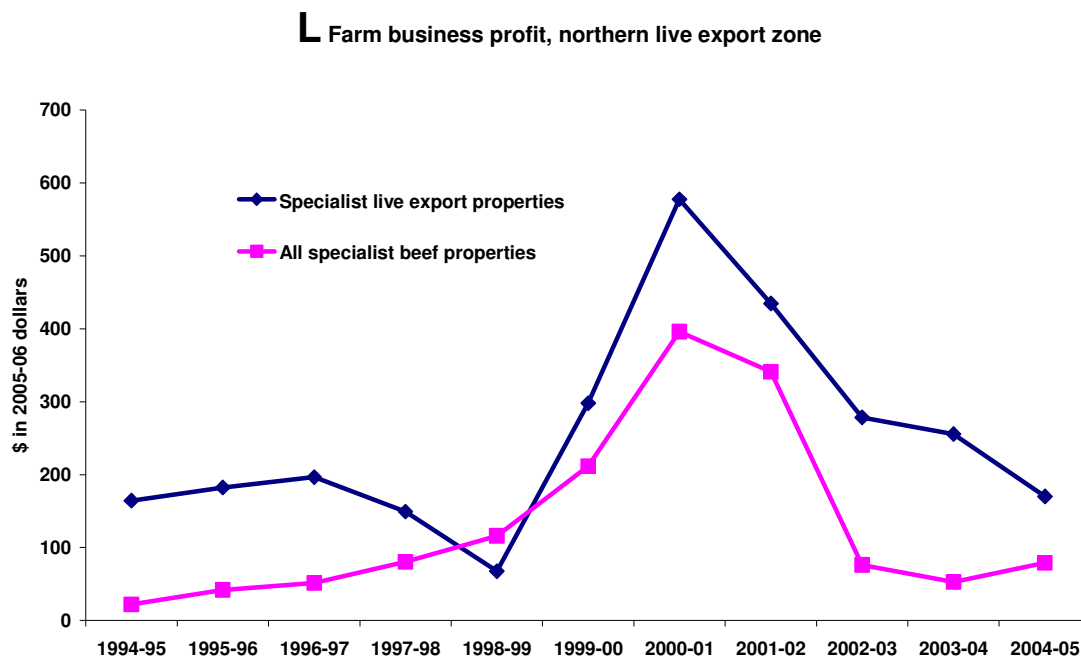
Historically, the financial performance of specialist beef properties in the northern live export zone has exceeded that of southern Australia and productivity growth is an important determinant of this result. Total factor productivity for northern beef properties grew at a rate of 3.6% pa in the period 1988-89 to 2001-02. In contrast there was relatively little productivity growth for southern Australian beef properties. High productivity growth coincided with major developments in the northern beef industry including the emergence of the live cattle export trade, which enabled cattle to be turned off at a younger age.

Very large increases in property capital values resulting from rapidly escalating land prices in northern Australia have occurred over the period 1998-1999 to 2004-05.

ABARE were able to analyse the financial performance of specialist live export properties (i.e. at least 25% of their receipts from live export cattle and compare them to non-specialist live export properties and non-exporting properties. ABARE found, that on average, the financial performance of specialist live export properties was better than that of non-specialist exporters and non-exporters in each of the past six years (Figure 1.2). Specialist live export properties generated higher farm business profits and higher rates of return than non-specialist exporters and non-exporters in both the pre downturn period 1999-2000 and 2001-02 and the post downturn period 2002-03 to 2004-05. While the financial performance of specialist live export properties has declined of late, their financial performance has remained strong relative to non-exporters.

Figure 1.2 clearly shows the impact of the 1997 Asian currency crash on northern live cattle export returns.

Figure 1.2 Northern Australian Live Export Zone



Source: ABARE (2007)

Value of Livestock Export Industry to Regional Australia

The Australian live cattle export industry is volatile in terms of numbers of cattle exported and FOB prices received, as shown in Table 1.1. Equally, the number of active participants in the live export business fluctuates dramatically depending on the availability of easily satisfied market opportunities. Nevertheless the cattle export trade is an essential component of the Australian cattle industry.

Table 1.1 Volume and Value of Australian Live Cattle Exports, 2003-2006

Year Ending	Indonesia	Philippines	Malaysia	Middle East	China	Japan	Egypt & Libya	Other	Total
Number (head exported)									
2003	490,803	108,236	97,731	115,743	22,262	18,466	104,384	50,261	1,007,886
2004	348,726	75,227	66,999	80,645	63,244	19,639	2,888	25,430	682,798
2005	358,593	36,012	38,189	74,887	62,062	22,728	6,961	24,147	623,579
2006	360,364	17,139	44,813	86,836	14,285	24,070	0	32,390	579,897
Value (millionA\$FOB)									
2003	280.751	56.985	45.226	69.691	31.707	15.087	65.296	42.753	607.496
2004	185.100	41.366	31.194	44.982	116.912	17.120	1.792	21.287	459.753
2005	214.920	23.426	20.955	45.237	114.033	19.526	3.829	22.046	463.972
2006	220.683	10.379	23.913	65.644	21.431	22.873	0	39.506	404.429
Price /Head (A\$FOB/ head)									
2003	572	526	463	602	1,424	817	626	851	603
2004	531	550	466	558	1,849	872	620	837	673
2005	599	651	549	604	1,837	859	550	913	744
2006	612	606	534	756	1,500	950	0	1,220	697

Source: MLA Statistical Review June 2006

2 WA Northern Cattle Industry

2.1 Context of Live Exports in the Region

Introduction

This regional analysis focused on the export of beef cattle feeder/slaughter stock from northern Western Australia (WA).

The region was defined by the industry consultative committee as WA north of the 26th parallel i.e. north of Shark Bay. In terms of ABS data this was interpreted as the Statistical Divisions (SD) of Kimberley and Pilbara and the Shires of Carnarvon, Upper Gascoyne, Meekatharra and Wiluna from the Central SD and Ngaanyatjarraku Shire in the South Eastern SD. Case study objectives included the requirement to demonstrate the contribution live export has made, and will make in the future, to Indigenous owned and managed stations.

Exports

Three ports within the case study region service the live cattle export trade. They are Broome, Port Hedland and Wyndham. The Port of Derby is not currently in use for live cattle export. Livestock exported through the Port of Broome are shown in Table 2.1.

Table 2.1 Livestock exported through the Port of Broome, WA (head)

	2001	2002	2003	2004	2005
Beef Cattle	80,290	77,962	85,138	98,780	82,815
Dairy Cattle	na	na	105	0	0
Sheep	6,547	5,044	7,100	5,002	4,490
Goats	9,894	8,757	4,950	5,365	2,478

Source: LiveCorp (2006) in Hassall & Associates (2006)

Beef cattle exported through all three northern WA ports are shown in Table 2.2. Beef cattle exports averaged 166,343 head per annum (pa) across the three northern ports over the 5-year period to 2005.

Table 2.2 Beef cattle exported through the Ports of Broome, Wyndham and Port Hedland, WA (head)

	2001	2002	2003	2004	2005
Broome	80,290	77,962	85,138	98,780	82,815
Wyndham	56,892	56,708	54,078	59,797	65,587
Port Hedland	47,120	22,481	20,207	16,810	7,050
Total	184,302	157,151	159,423	175,387	155,452

Source LiveCorp (2006)

Indigenous Properties

Indigenous properties account for some 30% of the pastoral leases in the Kimberley. Indigenous properties are less profitable than non-indigenous properties due to low stock numbers relative to carrying capacity, governance problems and inconsistent management. McEntee and Bartle (2006) recommended strategies to address low profitability that have the potential to increase the sustainable carrying capacity of Kimberley indigenous properties from 40,000 livestock units (LSU) to between 80,000 and 100,000 LSU. This would add a minimum of \$5 million pa to the gross value of indigenous property output. Maximising price received from preferential markets is an important 'stage 2' priority for future indigenous property management (McEntee and Bartle 2006).

2.2 Industry Size and Trends

2.2.1 Industry size and structure

Production Enterprises and Livestock

There are 527 pastoral leases in WA. There are approximately 100 leases in each of the Kimberley, Pilbara, Gascoyne and Goldfields. Pastoral leases in the Kimberley, Pilbara and Gascoyne are relevant to this study.

For the Kimberley in the north of the region, live export is the only viable market for cattle at the current time. The region's processing works are closed and in many cases demolished. These processing works were unable to compete with superior prices offered to producers supplying live export. Local processing works have always struggled to secure suitable skilled labour and service capital costs on a seasonal kill. In 2006, southern WA, defined here as the area below the 26th parallel, had five small abattoirs killing cattle for the domestic market and three abattoirs killing for export (in both categories one or two have both domestic and export capacity). Interstate processing options include Murray Bridge in South Australia and Townsville in Queensland. There is a small non-operational works in Katherine NT with limited processing capacity. Transport costs to service abattoirs outside the region are a substantial additional cost for northern WA producers.

The Pilbara and the Gascoyne to the south of the Kimberley are better placed to service both southern live export and processing markets. Approximately 50% of the Pilbara's cattle are turned

Value of Livestock Export Industry to Regional Australia

off for direct live export through the Ports of Broome and Port Hedland and the balance are trucked south for backgrounding and feedlotting prior to live export through the port of Fremantle. Most of the region's cattle are unsuitable for domestic markets (age and breed) and those that are processed in Australia are exported as lower value manufacturing or 'grinding' beef.

Not all pastoral leases in the ABARE defined northern Australian live export zone participate in the trade. ABARE estimate that approximately 50% of turnoff in northern WA is directed at immediate live export. The typical participating lease will turnoff 2,000 head of cattle pa for live export (ABARE 2007).

Nearly all classes of northern WA cattle find a market in live export (Table 2.3). Larger, older beasts are discounted relative to younger stock suitable for placement in feedlots in South East Asia or in southern WA prior to export to the Middle East. Asian markets have a strong preference for younger *Bos indicus* (e.g. Brahman, Droughtmaster) cattle. Shorthorn cattle (*Bos taurus*) are discounted in the northern market place.

Table 2.3 Livestock Classes Exported – Northern WA

Class	Market	Preferred Breed	Age (months)	Indicative Weight (kg)	Indicative Producer Price (\$/kg)
Steers-Slaughter/Feeder	South East Asia (Indonesia, Malaysia)	Brahman-Brahman cross	12 to 18	340	1.60 to 1.80
Bull – Mickey	Middle East (Saudi, Israel, Jordan)	Brahman or Shorthorn	15 to 18	300	2.20 to 2.40
Bull – Mickey	Malaysia	Brahman or Shorthorn	18 to 24	350	1.75 to 1.85
Culls, spayed cows, etc	South East Asia	Brahman-Brahman cross	na	>200	1.30 to 1.50

Source: Industry consultation

Growth in the northern live cattle export industry since 1990 has fuelled dramatic changes in the dominant pastoral system. The Kimberley is rapidly moving away from 'wild muster' of shorthorn (*Bos taurus*) cross bullocks of up to five years of age to improved *Bos indicus* genetics managed in a more intensive pastoral system.

'Historically, the northern WA cattle production system was based on heavy, older shorthorn cattle (an enterprise typically yielding 15% breeder deaths and a 50% branding rate) while the new system is geared to live export and is based on a *Bos indicus* breeder herd with weaner turnoff (6% breeder deaths, 60% brandings). The pastoral system has embraced the purchase of stud quality bulls, poll genetics and supplementary feeding' (Peter McEntee, Kimberley Aboriginal Pastoralists Assoc.).

In addition 'Brahman cattle suit the region's resource base' (Dave Morrell, AQIS 3rd Party Veterinarian). Brahman cattle perform well in northern WA's tropical environment, especially in tick country and have some appeal, as a risk spreading exercise, on the domestic market' (Ruth Webb-Smith, WA PGA).

'Participation in the livestock export trade and needing to meet ever more stringent export protocols has forced a major increase in northern WA livestock production efficiency and product quality. The region is no longer based on wild harvest and Indigenous Land Corporation (ILC¹) properties are now managed pastoral systems' (Luke Bowen, ILC).

The integration of Brahman cattle into a more intensively managed production system featuring larger breeding herds, smaller paddocks, improved waters, more regular yarding and improved animal welfare has driven productivity growth in the northern beef industry and has been funded by additional profit earned from live export markets (ABARE 2007).

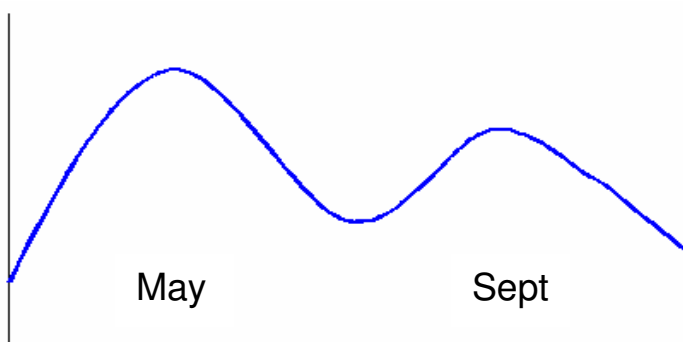
Support Services

Services have emerged to support the demands of a managed pastoral system supplying stock for live export. Services that have emerged to meet the needs of producers supplying the livestock export market include the provision of contract mustering, transport, fencing and pastoral/financial management training. Typically, major services are now sourced off-property and supplied by specialists. Off-station services that have emerged to meet the needs of the live export industry value chain include third party veterinary inspection, fodder supply and manufacture, quarantine/feedlot yards, agents, exporters, marine inspection and shipping providers.

Seasonal Supply Patterns

The supply of cattle to livestock export markets is governed by the summer-wet season (Figure 2.1). Historically stock have only been accessible during the dry and turnoff peaks initially in May (early dry season sales) and then again in September (to capitalise on final boat loadings). The presence of a more intensive production system funded through live exports and featuring smaller more manageable paddocks, improved watering points and access roads, has evened out the supply pattern in northern WA. The trade is less opportunistic and there are fewer peaks and troughs.

Figure 2.1 Seasonal Cattle Supply Pattern Northern WA



Source: Industry consultation

¹ The ILC is an Australian Government authority that assists Indigenous Australians acquire land and manage Indigenous-held land in a sustainable way to provide cultural, social, economic or environmental benefits for themselves and future generations.

Turning off younger cattle for live export markets, rather than growing out bullocks has meant that northern WA properties can reduce stock numbers prior to November and spell pastures through the rainy season with resultant land management and environmental benefits. In the absence of the trade the industry would revert to holding less breeders and more, older heavier cattle. It would run larger cattle numbers through the least productive part of the year when pastures are stressed and more easily damaged (Tim D'Arcy, Pilbara cattle producer, pers. comm.).

2.2.2 Gross value of the trade

The gross value of the livestock export trade through the ports of Broome, Wyndham and Port Hedland is estimated on the following basis:

- Average cattle to export between 2001 and 2005 of 166,000 head (ABS data);
- Average sale price between 2001 and 2005 of \$560/head farm gate (Hassall & Associates (2006) data confirmed through industry consultation although it is noted that lower prices were recorded in 2006 for cattle sold through Landmark which markets 50% of the Kimberley's turnover);
- To provide a gross farm gate value of \$93 million.

When the value of other services is added to farm gate price, average Cost Insurance Freight (CIF) value increases to \$819/head (Hassall & Associates (2006) data confirmed through industry consultation) giving a gross trade value of \$136 million pa.

These gross value estimates do not include northern WA cattle trucked south for additional value adding prior to live export through the southern WA port of Fremantle.

2.3 Economic Significance of the Trade

2.3.1 Economic contribution to cattle producers

Economic Contribution to Cattle Producers

In the absence of northern WA processing capacity, live export or trucking stock south for live export/slaughter are the only market opportunities for cattle producers. Prior to the growth of the livestock export trade there was very little price competition from cattle buyers and producers were limited option price takers. The growth of the live export trade has introduced price competition across exporters and countries of destination.

Price competition has resulted in substantially higher prices for Kimberley producers than would have occurred in the absence of the live export trade. Most industry observers point to a price premium of between 20% and 30% resulting from live export induced competition. Cattle prices in Broome are now comparable, on a class-by-class basis, to those achieved in Perth. Prior to establishment of the trade, producers received lower prices in Broome than Perth and then needed to net out substantial transport costs for Perth delivery of livestock.

Producers who participate in the trade typically earn more than 95% of their income from live exports (industry consultation).

Other benefits realised by producers who participate in the trade include:

- A relatively stable market – exports from the three northern WA ports have averaged 166,000 head over the last five years with a minimum of 155,000 head and a maximum of 184,000 head. Annual variation has been within 10% of the mean (ABS data);
- Investment – a relatively stable market permits investment in improved genetics, watering points, fencing, yards, etc on-station and support infrastructure such as good quality vehicles and crates by trucking companies, improved quarantine facilities and port loading infrastructure off-station. Investment has resulted in strong on-station productivity growth over the last fifteen years (ABARE 2007);
- Improved land management - investment in water provision, yards and fencing has resulted in reduced grazing pressure, higher sustainable stocking rates and improved range condition in northern WA. This is important to both industry sustainability and ensuring ongoing resource access (pers. comm. northern WA cattle producers);
- Disease management – more intensively managed holdings reduce the risk of disease and decrease disease control costs. In the absence of the trade it is likely that producers will revert to a 'wild-harvest' operating system with subsequent increases in disease control costs and reductions in control efficacy (pers. comm. northern WA cattle producers);
- Growth in the capital value of properties – improved industry profitability resulting from the growth of the live export trade has resulted in increases in property values of 300% in the Pilbara and 400% in the Kimberley between 1999 and 2005 (pers. comm. northern WA cattle producers);
- Vertical integration – successful northern WA cattle producers have invested in southern finishing properties to add value to Kimberley/Pilbara cattle, feedlots, quarantine facilities, transport operations and export licenses to capture a greater share of live export industry value added. Vertical integration by successful northern WA cattle producers has also included investment in beef production in South East Asia including feedlots and cattle distribution systems (pers. comm. northern WA cattle producers); and
- Superior cattle – introduction of *Bos indicus* genetics has resulted in cattle of improved temperament requiring less skilled operational labour to manage. Lower labour requirements are important when labour is in short supply and unskilled (pers. comm. northern WA cattle producers).

Economic Contribution to Indigenous Cattle Producers

Indigenous cattle producers hold 30% of the pastoral leases in the Kimberley and 20% of the leases in the Pilbara. Livestock exports provide Indigenous cattle producers with the same benefits as the general producer population of northern WA.

Value of Livestock Export Industry to Regional Australia

Live export provides indigenous owned properties with a buoyant and consistent market for their cattle. For example, on ILC² owned and managed properties (*Roebuck Plains* and *Myroodah*) more than 90% of sales are to live export and production is being reoriented to meet live export market requirements. The same is true of properties owned and operated by individual Aboriginal corporations (e.g. *Noonkanbah* and *Milijiddee*). Production is focussing on livestock export opportunities. Indigenous properties are buying superior cattle genetics (including stud quality Droughtmaster bulls at *Noonkanbah/Milijiddee* and Brahman bulls at *Roebuck Plains/Myroodah*) and employing more intensive management strategies (i.e. moving away from wild harvest). Management emphasis is on sound decision-making and commercial outcomes.

In response to live export market signals Indigenous properties are turning off feeder bulls and steers and retaining a more substantial breeder base. Feeder bulls are being sold at 300 kg and directed into southern feedlots before live shipment to the Middle East. Lower quality cattle, including feeder steers and surplus females are sold for immediate live shipment to Malaysia and Indonesia.

Two Aboriginal corporation controlled properties, *Noonkanbah* and *Milijiddee*, in the Kimberley are turning off 2,000 head pa for live export and grossing \$1.1 million pa on a consistent basis. Other indigenous properties are at various stages of development and fully developed will have capacity to sustainably supply more than twice their current turnoff. For example a group of six Kimberley properties is currently stocked at 3,000 head, its sustainable stocking rate, with minimum investment in fences and water funded through live export, is between 8,000 and 9,000 head.

In addition buoyant conditions in the northern WA cattle industry have attracted new property holders into the region who are bringing superior property management techniques from the NT and Qld and forming links with Indigenous property holders to increase both supply and quality of cattle originated from the region. Strategic alliances between Indigenous property holders, and experienced players with capital, promise to further boost industry production and productivity.

A profitable live export sector offers Indigenous people additional self-determination opportunities (Kim Carter ILC). A sustained live export market and the resultant measure of financial independence have permitted indigenous owned properties to:

- Set goals - goals may not necessarily be financial, they can be environmental or skills development/employment opportunities for young people;
- Employ large numbers of Indigenous people from local communities - two properties associated with ILC, *Noonkanbah* and *Milijiddee*, employ 30 people on a full time equivalent (FTE) basis. Half their time is dedicated to education and skills development, the other half to station activities;
- Skills development - ILC, DAF WA, DEC and CDEP and other payments assist with skill development in financial management and succession planning to complement a strong skill base in practical pastoralism;

² The Indigenous Land Corporation (ILC) has interests in the region in two main areas. The first as an owner and producer and the second as an agency able to provide support in the form of economic and environmental funding or provision of services to indigenous land owners, producers, etc. in individual Aboriginal land corporations.

- Invest in improved infrastructure - infrastructure improvement includes an annual investment of \$200k in water, yards and genetics on *Noonkanbah* and *Milijiddee*. These properties are reasonably typical of northern WA indigenous owned stations; and
- Develop regional infrastructure - regional infrastructure includes the Noonkanbah Agricultural Academy, established to develop pastoral skills, literacy and numeracy as a partnership between indigenous owned stations and the independent schools association. Students spend six months of the year in school and six months on an indigenous owned property.

Profits from live export have permitted these developments.

From the discussion above, industry consultation and general data collection, a number of key pieces of information emerged that are important for the analysis of the economic contribution of the current industry and for estimating the consequences of live export trade cessation:

- Kimberley: 99 pastoral leases, 33 are owned by Indigenous people, 26 single enterprises and 40 corporate entities/aggregations (Ruth Webb-Smith, pers. comm. WA PGA).
- 30% of the pastoral leases in the Kimberley are Indigenous owned (McEntee and Bartle 2006).
- Pilbara: 100 pastoral leases, 20 indigenous stations (Ruth Webb-Smith, pers. comm. WA PGA).
- Not all pastoral leases participate in the live export trade (ABARE 2007).
- Typical participating lease turns off 2,000 head for live export and live export is 95% of sales.
- Sale price averages \$560/head (\$1.60/kg X 350kg) for 18 month to 2-year-old steers.
- Production costs for cattle producers are approximately \$300/head (including overheads).
- Other cattle types supplied for live export include bulls and spayed cows.
- Total cattle exports from the ports of Broome, Wyndham and Port Hedland averaged 166,000 head between 2001 and 2005.
- This total does not include cattle trucked south, placed in feedlots and subsequently exported live through Fremantle.
- Approximately 95% of all cattle exported from the region are sourced from the region.
- There is some inflow of cattle from the NT for export through the Port of Wyndham in WA.

2.3.2 Economic contribution to other parts of the value chain

There are many value chain participants and ancillary service providers who benefit from the presence of the livestock export industry in northern WA. The range of value chain participants/service providers along with the percentage of their total turnover earned from the trade is shown in Table 2.4.

Value of Livestock Export Industry to Regional Australia

Table 2.4 Value Chain Participants who Benefit from Live Export - Northern WA

Value Chain Participant/Ancillary Service	Turnover Earned from Live Export (%)
Exporters	>80
Cattle producers – indigenous and non-indigenous	>80
Assembly depot operators	>80
Marine Consultants	>80
Ship owners	>80
Ships agents	>80
On-vessel stockmen	>80
Road transport providers	50-80
Livestock agents	50-80
Veterinary service providers	50-80
Port authorities	50-80
Stevedores	50-80
Rural contractors – mustering, fencing, etc	10-50
Rural consultants and trainers	10-50
Fodder growers and manufacturers	10-50
Industry associations	10-50
Providores (on-vessel supplies) and crew service providers (e.g. doctor)	10-50
Regional business – food, accommodation, etc	<10
Government service providers – AQIS, ILC, state agencies	<10
Rural finance, accounting, insurance and legal service providers	<10

Source: Industry consultation

A generic value chain for the export of live feeder/slaughter cattle 2004/05, produced by Hassall & Associates (2006), was reviewed with industry during consultation. The updated value chain is shown in Table 2.5.

Value of Livestock Export Industry to Regional Australia

Table 2.5 Notional Value Chain for Northern WA Live Cattle Exports, 2005/06^a

Value Chain Item	Average per head (\$)	Aggregate (\$m)
Livestock Costs		
Average Weight (kg)	350	166,343
Farm Gate Price	\$560.00	93.152
Agents Fees (Levied on Farm Gate Price)	\$16.80	2.795
Sub Total	\$576.80	95.947
Other On-farm Costs		
Additional Veterinary on Farm	\$4.00	0.665
Dipping Costs	\$2.00	0.333
Sub Total	\$6.00	0.998
Road Transport		
Farm to aggregation	\$25.00	4.159
Aggregation to wharf	\$6.00	0.998
Livestock insurance	\$9.15	1.522
Sub Total	\$40.15	6.679
Feedlotting/Spelling		
Feed Cost per head	\$14.00	2.329
Ear Tag	\$0.70	0.116
Sub Total	\$14.70	2.445
Industry Levies and Charges		
Livecorp	\$4.00	0.665
Wharf Charges	\$1.80	0.299
Third Party Vet	\$4.00	0.665
AQIS & Quarantine	\$2.50	0.416
Ports Corp	\$2.16	0.359
Stevedoring	\$2.25	0.374
Weighbridge	\$2.00	0.333
Sub Total	\$18.71	3.112
Management		
Selectors Costs	\$2.70	0.449
Administration	\$25.00	4.159
Livestock Officer	\$1.40	0.233
Sub Total	\$29.10	4.841
Value at Port		
Average Live Weight (kg)	350	58.220
Price per kg at Port FOB	\$1.96	0.326
Total Gross Value (FOB)	\$685.46	114.021
Shipping		
Fodder for voyage	\$20.00	3.327
Seafreight (excl exporter mgmt)	\$110.00	18.298
Insurance	\$3.50	0.582
Total costs	\$133.50	22.207
Total Gross Value (CIF)	\$818.96	136.228

^a Prices and costs in 2005/06 dollars. Export numbers to estimate aggregates were based on 5 year average to 2005/06.
Source: Hassall & Associates (2006) and industry consultation

Key data and assumptions underlying the regional economic contribution of northern WA live cattle exports are summarised by value chain sector in the following bullet points. Data were derived from the literature and consultation completed as part of the study.

Road Transport

- Two main Broome operations – Klopper and Hamptons.
- A consistent market has stabilised truck numbers and permitted investment in crates/vehicles
- Cessation of trade would result in major increase in trucks needed to haul cattle south, distances travelled and fuel consumed.

Agents

- Elders and Landmark dominate (5 FTE each), also Ray White Rural Broome (1 FTE).
- Agents typically earn 3% on annual cattle exports of approximately 80,000 head pa.
- A significant number of stock are sold direct to exporters and bi-pass agents.

Exporters

- There are approximately six firms servicing this market including, amongst others Emanuels (largest), Wellards, Elders, SEALs, AustAsia, Australian Rural Exports and Manana Exports.
- A number of the larger producers are actively involved in shipping.

Assembly Depot

- Three facilities at Broome with a combined capacity of 10,000 head.
- Broome Stockyards built 1999 (capacity 5,000 head) charge \$3.80/day including feed/water.
- In addition to the facilities at Broome there is one assembly depot at Wyndham and Kununurra and two at Port Hedland.

Veterinarians

- The region includes specialist third party AQIS Accredited Veterinarians.
- Vets work in the region for nine months and then move south on other livestock export work.

Fodder Producers

- Fodder is sourced from outside the region i.e. southern WA.
- Fodder is trucked into the region for use on station, in assembly depots and on board ship.

Port Authority and Stevedore

- Three ports dominate the trade in the region – Broome, Wyndham and Port Hedland.
- The principal port at Broome is closer to Indonesia than Perth.
- Port Hedland must compete with the minerals industry for loading opportunities.
- Wyndham is a difficult port to access being shallow and tide dependent.

- Port authority owns/maintains facilities and wharves, services include pilotage, towage, etc.
- Port of Broome also provides stevedoring services.
- Some 60% of the Port of Broome's income is derived from livestock exports.

Shipping Company

- A standard live cattle export vessel operating in northern WA has a capacity of 3,000 head. Larger vessels are 7,000 head and one company (Wellards) operates a 20,000 head vessel that loads in each of the three active northern ports for a single shipment.

Ship's Agent

- Manages piloting of the vessel into port, quarantine, shipment coordination, crew needs, repairs and maintenance, etc.
- There are two firms active in the region as ship's agents and both are located in Broome.

Service Providers - Additional Significant

- Helicopter mustering - new heli-muster business recently established for Pilbara and Kimberley (Ruth Webb-Smith, pers. comm. WA PGA).
- Haymaking and backgrounding enterprises have grown in the south in response to the strength of the livestock export trade (Ruth Webb-Smith, pers. comm. WA PGA).
- Specialist training enterprises have emerged to assist indigenous property owners with skills to facilitate live export participation (Ned McCord and Peter McEntee pers. comm.).
- Specialist marine consulting skills have been developed in the region to address livestock vessel pre-loading including review of pens, floors, ramps, fodder, water and fire systems.

These data drive the following qualitative and quantitative analysis results.

Infrastructure Investment

Development of the livestock export industry in northern WA since the early 1990s has driven investment in both on-station and off-station infrastructure.

On-station infrastructure investment has included:

- Improved genetics, especially the purchase of *Bos indicus* bulls (Brahman, Droughtmaster, etc) whose progeny meet livestock export market requirements; and
- Station improvements – watering points including watering points fitted with solar technology, internal fencing to facilitate more intensive management regimes, additional sets of better quality yards and internal roads for efficient livestock movement.

Both station improvements and improved genetics have enhanced and will continue to improve station productivity. Cattle producer investment in productivity enhancement is reflected in the growth in capacity in the rural merchandising sector. For example where once there was only an Elders office in Derby there is now a larger Elders business and a Landmark operation.

Value of Livestock Export Industry to Regional Australia

Project consultation reveals average annual on-station investment in infrastructure of \$120,000 pa over the last five years. On-station investment was higher on Indigenous properties (\$200,000 pa) than non-Indigenous properties (\$30,000 pa). Indigenous owned properties have been building livestock export capacity from a lower existing production base.

Off-station and regional infrastructure investment associated with livestock exports in northern WA in the last five years (i.e. since 2001) has included:

- Trucking – the purchase of improved crates and vehicles to enhance road transport efficiency and the welfare of cattle during transit;
- Assembly depots – two additional facilities constructed in Broome to complement existing infrastructure in Broome, Port Hedland and Wyndham;
- Port upgrade - The Port of Broome has spent \$20 million on a wharf extension attributable to growth in its oil and gas business and its resultant inability to service core livestock export activity. Livestock exports account for 60% of the Port of Broome's turnover and the port is constantly investing to improve both ease of loading and animal welfare. Investment has occurred at the Port of Wyndham to secure its ongoing share of the livestock export trade; and
- Training – individuals have established private training organisations to provide services to cattle producers supplying livestock export markets (e.g. Kimberley Livestock Management and Kimberley Rural Management and Training). A public training college has been established to train Indigenous station managers supplying livestock export markets (Noonkanbah Agricultural Academy) and the Kimberley College of TAFE, the largest training provider in the region runs a complete program of rural courses – Beef Cattle Certificate I, II and III throughout the Kimberley for indigenous and non indigenous students.

The industry is investing to secure its future.

Contribution to Regional Communities

The industry's contribution to regional communities is through:

- Strengthening of the mainstream rural economy – additional profit generated by producers and other parts of the livestock export value chain circulates through the region underpinning social as well as economic infrastructure; and
- Providing opportunities for indigenous community members to participate – economic opportunities provided by livestock export and the resultant boost to the region's pastoral economy provides:
 - Skills – indigenous children are provided with opportunity to learn practical pastoral skills in tandem with their normal school curriculum. The mixing of practical pastoral skills with formal education boosts interest and school attendance;
 - Higher incomes – employment of individual community members on stations provides opportunities to boost individual income levels and supplement family welfare receipts;

- Business acumen and integration – training, skills and a viable industry have provided indigenous people with opportunity to start their own businesses supplying contract mustering and heli-mustering services to the livestock export sector;
- Financial integration – incomes and profits earned through livestock export are providing a conduit for the introduction of indigenous community members into the mainstream commerce, banking and finance systems;
- Self-determination – Indigenous communities are realising a measure of independence and self-reliance through profits earned from live export cattle; and
- Hope – young people from stations operating on a commercial basis have been shown to engage better in wider society and have lower rates of substance abuse and even suicide rates.

Livestock export is providing stable pastoral industry opportunities in a region with few economic alternatives.

Environmental Benefits and Contribution During Drought

Environmental benefits attributable to the livestock export industry include:

- Seasonal reduction in stock numbers – Livestock export provides opportunities to turn sale stock off at a younger age, retain only breeders and protect the natural resource base through the least productive part of the year when pastures are stressed and natural environment is more easily damaged (See Figure 2.3 above). The pre-live export production system required the retention of bullocks for grow-out through the dry;
- More intensive management – participation in the livestock export trade has funded and necessitated the more intensive management of cattle in smaller fenced and watered areas. This in turn has permitted higher overall stocking rates while permitting intermittent resting of pastures. The result has been an overall improvement in range condition.
- Industry up-skilling – participation in the livestock export industry has necessitated a lift in all aspects of northern WA pastoral management. Along with skills in cattle husbandry and financial management the industry has developed improved range management and assessment skills. Range management and assessment skills have been employed for improved environmental, as well as economic outcomes.
- Management programs – additional profit has permitted station owners to invest in state government initiated programs to manage fire, weeds and pests.

Growth of the industry is delivering superior environmental outcomes over those achieved through the previous 'wild harvest' pastoral system.

Drought is less of a problem in the Kimberley than in other parts of Australia and the Kimberley has been unaffected by recent *El Niño* events. Further south in the Pilbara and Gascoyne the livestock export trade provides cattle producers with high value market outlets during periods of drought. In the Pilbara, for instance, store cattle can be sent by ship as feeder cattle to South East Asia and sound prices achieved. These same cattle would bring substantially lower prices in southern domestic markets. Live export allows pastoralists to market even old stock at reasonable prices during a drought.

2.3.3 Current contribution to the regional economy

The above data and analysis were used to derive a profile of employment, wages and salaries and value of output for each component of the value chain in the northern WA cattle industry. Additionally, an input-output model of the northern WA economy was constructed specifically for this project for the financial year 2005/06. The value chain data set and the regional input-output model were used to estimate the direct and indirect impacts of the industry. These estimates are summarised in Table 2.6.

Table 2.6 Direct and Indirect Impact of Live Cattle Exports - Northern WA

Economic Indicator	Impact of Live Cattle Sector			Type II Multiplier ^a
	Direct	Indirect	Total Impact	
Output (\$m)	136	-	-	-
GRP (\$m)	59	29	87	1.49
Employment (FTE)	775	270	1,045	1.35

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis

From the table it can be seen that in northern WA the live cattle export industry generates:

- \$136 million in output (or gross revenue). The output value is the CIF value of the trade less goods and services purchased outside the northern WA region;
- \$87 million in gross regional product (GRP): \$59 million in direct GRP generated by the businesses that comprise the live export value chain and \$29 million in indirect GRP generated by other regional suppliers of goods and services in the northern WA economy.
- 1,045 jobs generated on a FTE basis.

The industry is a significant source of employment and regional value adding.

2.4 Impact of Cessation of the Trade

The short, medium and long-term contribution of the livestock export industry to northern WA was assessed assuming a hypothetical shutdown in the trade. The analysis addresses alternatives to the industry, adjustment pathways and the direct and indirect impacts on and off station.

The implications of trade cessation for cattle production and prices are summarised below. The consequences of these broad changes are explored in the following sections.

- Trade operating: 166,000 head turnoff pa, 350kg live weight, price \$1.60kg
- Cessation in first year: 120,000 head turnoff pa, 350kg live weight, price \$1.10kg
- Cessation year five: 100,000 head turnoff, 380kg live weight, price \$1.20kg
- Cessation year ten: 140,000 head turnoff, 380kg live weight, price \$1.20kg

2.4.1 Short-term impact of cessation

The first year impact of trade cessation would be:

- A flooding of southern WA markets especially during the region's two large turnoff peaks of May and September (see Figure 2.3 above);
- Crashing of southern WA saleyard prices as supply exceeds demand for processing cattle. *Bos indicus* cattle bred for live exports are a non-preferred breed for the Australian domestic market (pers. comm. northern WA cattle producers). Southern WA export processing capacity is limited and 'instant' export markets are not available. Northern WA producers would be at the mercy of a single large abattoir, a limited number of small plants and limited sales, for a non-preferred breed, to store cattle buyers and feedlotters.
- Lower prices would be realised across all lines of northern cattle with a knock-on effect for southern cattle producers.
- Cull cattle that currently find a live export market in South East Asia would be destroyed on station rather than being sent south to market. An economic return could not be earned from these beasts in the absence of live exports.
- Cattle unsuitable for southern markets would be retained on station, with a resultant increase in range grazing pressure. Longer term this may lead to environmental degradation issues.
- Average producer price received for northern WA cattle would fall from \$1.60/kg to \$1.10/kg. The \$0.50/kg lost would be due to the market 'dampening' effect of trade closure. Additional costs would be incurred for transport (\$0.25/kg less \$0.11/kg currently paid, agents fees (\$0.05/kg, not currently paid on large shipments delivered direct to port) and additional animal husbandry costs (\$0.02/kg) (see Table 2.7).
- Increased numbers of cattle would be consigned long distances to eastern Australian markets, lowering prices for eastern cattle being sold, particularly for manufacturing meat.

Table 2.7 Short-term Price Impact of Trade Cessation (\$/kg live)

Average current price received feeder/slaughter cattle, farm gate		1.60
<i>Less</i>		
Market dampening affect – significant additional supply of less desirable stock (Brahman + Shorthorn) partially offset by withholding and/or destroying stock	0.50	
New price received		1.10
<i>Plus</i>		
Road transport to Perth (\$0.25/kg) less current costs (\$0.11/kg)	0.14	
Agents fees, not currently paid on large shipments delivered direct to port	0.05	
Additional animal husbandry	0.02	
Total additional costs		0.21

Source: Industry consultation and analysis

Value of Livestock Export Industry to Regional Australia

- A price to producers of \$1.10/kg net additional costs of \$0.21/kg is very close to the current cost of production in northern WA. Average cost of production is currently a conservative \$0.86/kg or \$300/head.
- Pre establishment of live export in the early 1990's the price of northern WA cattle was \$0.90/kg and had been static at this level for many years. As soon as live export commenced, the price paid to producers increased to \$1.40/kg and has steadily improved ever since.
- During the Asian financial crisis of 1997 prices for live export steers dropped from \$1.45 per kg live wt at the farm gate to 90 cents per kg live wt. The price stayed within this range while demand was suppressed, and only recovered as demand increased in response to a lower Australian dollar (Ross Ainsworth pers. comm. in Hassall & Associates (2006)). A price depressing effect of \$0.50/kg, a new price of \$1.10/kg, would therefore seem to be conservative.
- The average volume of northern WA cattle marketed under a short-term price of \$1.10/kg would decline from 166,000 head pa to something in the order of 120,000 head pa. Lost sales for culls, forced grow out of younger cattle plus loss of cattle sales to southern backgrounders prior to their live export would account for this difference.
- Gross value of output for the whole value chain is currently \$136 million. Gross returns on-station would fall by an estimated \$56 million, sales elsewhere along the value chain would be down by \$48 million and the market price impact on other producers in the region is estimated to be \$18 million. Across the region, the total GRP impact would be a fall of \$109 million, \$88 million directly and \$21 million in indirect effects. There would be a net job loss in the region estimated to be more than 380 FTE (Table 2.8).
- The value chain sectors most heavily impacted would be indigenous and non-indigenous producers, exporters and those associated with live export port operations (see Table 2.5). Producers would lose income, cash flow and asset values. A land price fall of 25% in the first year of cessation was commonly suggested during consultation with non-producer stakeholders. Less would be invested in property infrastructure.

Comments from non-producer stakeholders include:

- 'Trade cessation would have a huge negative impact in the short-term in respect to farm gate price and profitability. Property values may decline significantly, reflecting the export nature of the herd structure. Medium to long-term adjustments would be required to production systems. The impact of cessation would manifest itself in terms of foregone profit, huge capital losses and adjustment costs. The 'next best' enterprise would be boxed beef or production for domestic consumption' (Andrew Pitcher, Rabobank, Perth).
- 'If the live export market ceased, it would impact on the Port's business substantially both short and long-term. With the expected increase in the oil and gas sector of our business the effect would decrease with time' (Garry Easton, Port of Broome).

Value of Livestock Export Industry to Regional Australia

Table 2.8 Short-Term Impacts of Cessation (year 1) – Northern WA

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	136	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-56	-	-
<i>Other supply chain loss</i>	-48	-	-
<i>Other producer losses</i>	-18	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-122	-	-
GRP (\$m)			
Current (2005/06)	59	29	87
Year 1 of cessation	-29	8	-22
Net impact of cessation	-88	-21	-109
Employment (FTE)			
Current (2005/06)	775	270	1,045
Year 1 of cessation	569	88	657
Net impact of cessation	-206	-182	-388

Source: EconSearch analysis

2.4.2 Medium and long-term impact of cessation

A range of adjustment pathways based on 'next best' (i.e. lower profit) enterprises would be adopted by northern WA producers and other value chain participants over the medium-term. The adjustment path adopted would vary depending on the individual enterprise's circumstances. Adjustment pathways might include:

Investment in an Alternative Beef Enterprise on Existing Lease Country:

Northern WA enterprises would reorientate away from turnoff of 15-24 month old *Bos indicus* steers and 12-18 month old *Bos indicus* bulls. Breeder stock would be reduced and castrate bullocks retained for periods of between 48 and 60 months. Investment would be made in *Bos taurus* breed cattle more suitable for the domestic market and the 'new' enterprise would be similar to 'old' pre-live export production patterns. Cattle prices would be consistent with pre-live export levels and profitability would be less than the current live export focused enterprise. Lower profitability levels would curtail property investments in fencing, yards and water. Overall cattle supply originating from northern WA would be reduced reflecting lower breeding cattle numbers and the longer grow out periods required. There would be less regional indirect from the cattle industry to the economy of northern WA.

Investment in Southern Processing Capacity for Boxed Beef Supply:

Abattoirs in the northern part of the region have proved to be financially non-viable over a long period of time. The northern kill is restricted to little more than five months of the year and skilled labour is difficult to secure. Additional southern processing capacity would have the ability to source cattle all year round and secure skilled labour from a larger population pool. Considerable effort would need to be invested in developing new export and domestic markets for boxed beef produced in a new southern processing plant. Current northern cattle customers require live cattle for religious, infrastructure and other reasons and current northern breeds are unsuited to domestic supply. Boxed beef produced at a new southern processing plant would face stiff competition as a grinding product from other low cost beef suppliers such as Brazil. Medium-term a modest return would be expected from such an investment and no return would be realised for the northern WA region.

Investment in Further Southern Backgrounding and Feedlotting:

Northern WA cattle producers with reasonable financial resources might consider purchase of additional backgrounding or even feedlotting capacity to recapture some of the margin lost with cessation of the live export trade. Some northern producers might operate as 'calf factories' under this scenario, selling weaners to backgrounders further south. Northern producers might purchase southern finishing at considerable expense and southern finishing of cattle would require additional investment in cattle breeding, genetics and additional southern processing capacity. Again value would not be added in the northern WA region.

Investment in Alternative Enterprises on Station:

Producers contacted as part of this study mentioned tourism, horticulture, forestry and even aquaculture as enterprise alternatives in the event of live export cessation. Many questioned the ongoing viability of any form of non-live export beef enterprise. All alternative enterprises mentioned required massive capital investment and considerable 'up skilling' by current cattle producers. All options are unproven in the particular circumstances proposed.

Medium-term impacts of cessation

Given the range of adjustment pathways outlined above, the regional input-output model for northern WA was re-calibrated to model the impact of trade cessation in the medium-term. The estimated impacts are summarised in Table 2.9.

Gross returns on-station would fall by an estimated \$52 million (compared to the current value of production), sales elsewhere along the value chain would be down by \$62 million and the market price impact on other producers in the region would be around \$14 million. Across the region, the total GRP impact would be a fall of \$110 million, \$87 million directly in live export value chain activities and \$23 million in indirect effects. There would be a net job loss in the region estimated to be around 500 FTE (Table 2.9).

Value of Livestock Export Industry to Regional Australia

Table 2.9 Medium-Term Impacts of Cessation (year 5) – Northern WA

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	136	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-52	-	-
<i>Other supply chain loss</i>	-62	-	-
<i>Other producer losses</i>	-14	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-127	-	-
GRP (\$m)			
Current (2005/06)	59	29	87
Year 5 of cessation	-28	5	-23
Net impact of cessation	-87	-23	-110
Employment (FTE)			
Current (2005/06)	775	270	1,045
Year 5 of cessation	475	68	544
Net impact of cessation	-300	-202	-502

Source: EconSearch analysis

Long-term Impact of Cessation (10 years)

Long-term the industry would settle out with lower productivity, lower profitability, lower land values and a 'wild harvest' system similar to that, which existed pre live export development in the early 1990s. Regional gross revenue, value added and employment would all be lower than under continuation of the livestock export trade. These impacts are shown in Table 2.10.

Gross returns on-station would fall by an estimated \$24 million (compared to the current value of production), sales elsewhere along the value chain would be down by \$32 million and the market price impact on other producers in the region would be around \$9 million. Across the region, the total GRP impact would be a fall of \$48 million, \$40 million directly in live export value chain activities and \$9 million in indirect effects. There would be a net job loss in the region estimated to be over 180 FTE (Table 2.9).

Value of Livestock Export Industry to Regional Australia

Table 2.10 Long-Term Impacts of Cessation (year 10) – Northern WA

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	136	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-24	-	-
<i>Other supply chain loss</i>	-32	-	-
<i>Other producer losses</i>	-9	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-65	-	-
GRP (\$m)			
Current (2005/06)	59	29	87
Year 10 of cessation	19	20	39
Net impact of cessation	-40	-9	-48
Employment (FTE)			
Current (2005/06)	775	270	1,045
Year 10 of cessation	666	195	861
Net impact of cessation	-109	-75	-185

Source: EconSearch analysis

Industry Threats and Sustainability

Threats to the industry that may result in the cessation scenarios described above or even a partial reduction in the trade, in order of importance, are:

1. An extreme animal welfare group achieving their stated goal of trade shutdown;
2. An exotic disease outbreak such as Foot and Mouth brought to Australia by illegal fishermen or other vectors;
3. A market related shutdown such as a change in an importing country's policy in relation to live exports, political instability and/or its capacity to pay. The Asian currency crisis of the late 1990s was cited as a recent example;
4. Exchange rate movements that result in Australian product becoming non-price competitive in export markets; and
5. New or additional price competition from a large low cost beef exporter like Brazil or India (Buffalo beef) that already supply boxed beef to the Philippines.

There is no reason for these threats to be realised. The livestock export industry in northern WA is sustainable. As one export market opportunity has contracted (e.g. Philippines) others have emerged (Malaysia, Libya, Israel and Indonesia). The industry is investing in training, land management, genetics, production systems and after farm animal welfare (road transport, assembly facilities, ship loading and onboard management). As the industry matures its skills and ethics are developing with it. A sustainable and profitable industry has been established in northern WA.

The present value of direct on-station losses

The present value of direct on-station losses was estimated assuming a reduction in industry gross value as a result of trade cessation of \$56 million in the first year falling to around \$52 million by year 5 and \$24 million by year 10 (Tables 2.8 to 2.10).

The present value of these losses for northern WA producers was estimated to be \$348 million, at a 7% discount rate.

2.5 Conclusion on Regional Value of the Industry

The live export trade essentially saved the Kimberley cattle industry, turning around profitability, production systems, land and animal management, and driving the adoption of new management systems and training. It has led to a buoyant and sustainable cattle economy in the region (Peter McEntee, pers. comm. 2007).

Based on the average for the past 5 years of live exports, the northern WA cattle economy generates gross revenues of \$136 million, direct and flow on value added of \$87 million and 1,045 jobs. If the trade were to cease, cattle prices would fall by \$0.50/kg and producers would incur additional costs of \$0.21/kg. The net effect is that cattle producers would be \$0.71/kg worse off. Employment would fall by 400 FTE in year one and by 515 FTE in year five, before settling out at a level about 220 FTE below the current impact.

Given the lack of meat processing facilities in the northern WA region, cessation of live cattle exports would have a devastating impact on the industry, particularly in the first year following cessation. With the generally low margins and high debt levels among producers in the northern WA, closure of the trade would mean significant losses at a property level.

2.6 Consultation

The project's steering committee recommended persons to be contacted during the study. Those interviewed and their sector in the value chain are shown in the Table 2.11. Other exporters and members of the livestock value chain in other states were also interviewed and their names recorded in the southern Western Australia, Northern Territory, Queensland and Victoria case studies.

Table 2.11 Regional Contacts and Consultation Completed - WA Northern

Value Chain/Ancillary Service	Regional Contact/Business Consulted
Exporters	Dean Ryan, Emanuels in Broome Ian Halleen, own export business John Stoate - Anna Plains South of Broome – export licence
Producers – cattle	Ned McCord, Leopold Downs and Fairfield (indigenous owned) Sean D'Arcy, Producer Southern Pilbara Ruth Webb Smith, Producer Kimberley and Chair WA PGA Peter McEntee – Bohemia Station and indigenous training Lang Coppin, Producer, Pilbara
Road Transport	Bart Jones, Hampton Transport, Broome Lawson Klopper, Transport, Broome
Agents	David Ingham, Landmark, Broome Max Cunnington, Elders Ltd, Perth
Assembly depot	Dean Ryan, Emanuels in Broome Avon Price, Broome Stockyards
Regional Business/local govt	Ned McCord, Kimberley Rural Management & Training Broome Lawson Klopper – Dip Yards Broome, CC Station, Transport
Fodder grower or manufacturer	Jane Graham, Mackie Feeds/Gilmac P/L hay and pellet mill
Government, ILC, Assoc., etc	Luke Bowen, Indigenous Land Corporation (ILC) Kim Carter – runs Indigenous properties for DAF WA & ILC, Broome John Edwards, Chair WA Livestock Exporters Association
Shipping Co/Ship Agent	Peter Blenkinsopp, Osprey Marine Consultants Henrick Nissen, Dens Ocean and LiveShip Greg Burton, Shipping Agent, Wellard Rural Exports
Port Authority/Stevedore	Garry Eaton, Port of Broome Port Authority and Stevedore
Service Providers	Dave Morrell, Broome Veterinary Hospital (3 rd Party AQIS Vet) Anthea Henwood Fitzroy Helicopters Andrew Pilcher, Rabobank, Australia Limited
Total Contracted – 23 interviews	Total Completed – 27 interviews

3 Northern Territory Cattle Industry

3.1 Context of Live Exports in the Region

Introduction

This report examines the regional impacts of the live export trade with this section focusing on the Northern Territory (NT). The live export trade operates in the context of a significant market sector of the NT beef industry. The commercial reality is however, that livestock export operators operating in the NT organise exports wherever they can obtain optimum commercial advantage. While operators may reside in Queensland for instance they may well export cattle out of Darwin because it is better business to use that export pathway. ABARE (2007) confirms that live exporters see that the supply draw area is not necessarily the NT but rather Northern Australia as shown in Figure 2.1.

Notwithstanding the commercial reality of operating across Northern Australia, the following analysis examines the NT as the key cattle live export area for Australia particularly for export markets in Indonesia and how important live exports are to the prosperity of the NT beef industry and NT regional economies.

While every attempt has been made to utilise current data sets this has not been possible in all cases due to frequency of surveys and census collections.

The Northern Territory Beef Industry

The NT Department of Business, Economic and Regional Development (DBERD) estimates the pastoral industry in the Northern Territory's contributes over \$256 million in direct benefits at the farm gate with cattle production contributing approximately 49 % of the gross value of agricultural production of \$521 Million (NT DBERD 2006).

The Northern Territory is not a homogenous State in terms of cattle production and has four distinct beef production regions defined by climate and rainfall, namely:

- *The Alice Springs Region:* an arid to semi-arid environment with an average rainfall that varies from 100mm in the south east to 350mm in the north which has a predominant summer rain fall;
- *The Barkly Region:* a semi-arid to sub tropical environment with an average rainfall that varies from 459mm in the south to 965mm in the northeast. Rainfall occurs in the summer wet season; and
- *The Remainder of the NT:* this region comprises the *Top End* which has a tropical climate with wet season from November to April and a dry season from May to October. Rainfall in the region ranges from 1,428mm in the south to 1,917mm in the north and the *Katherine Region* which: has a semi- arid monsoonal climate with a wet season from October to April and a virtually rainless dry season from May to September. Average rainfall can vary from 521mm in the southwest to 981mm in the north;

The climate and geographic location define the nature of pastoral cattle production in the NT. The Top End and Katherine regions target the South East Asian live export trade with predominantly *Bos Indicus* cattle, the Alice Springs region supplies the domestic market to the south with *Bos Taurus* cattle and the Barkly Region sends store crossbred cattle into supply chains in Queensland.

The geographic location, climate and production system differences in each of the regions needs to be recognised in any consideration of the impacts of the live export trade to the Northern Territory. The relative location of the NT beef industry and market focus of beef turnoff is shown in Table 3.1.

Table 3.1 Regional Profile of the NT Beef Industry

Pastoral District	% NT Beef Herd	Market Destination
Alice Springs	20%	Qld, SA, NSW, some live export
Barkly Downs and Tennant Creek Regions	30%	Qld, WA and Live Export
Remainder of the NT comprising Victoria River District, Katherine, Darwin, Roper and Gulf Region	50%	Live Export

Source: NT Government 2006

NT Beef Industry Dynamics

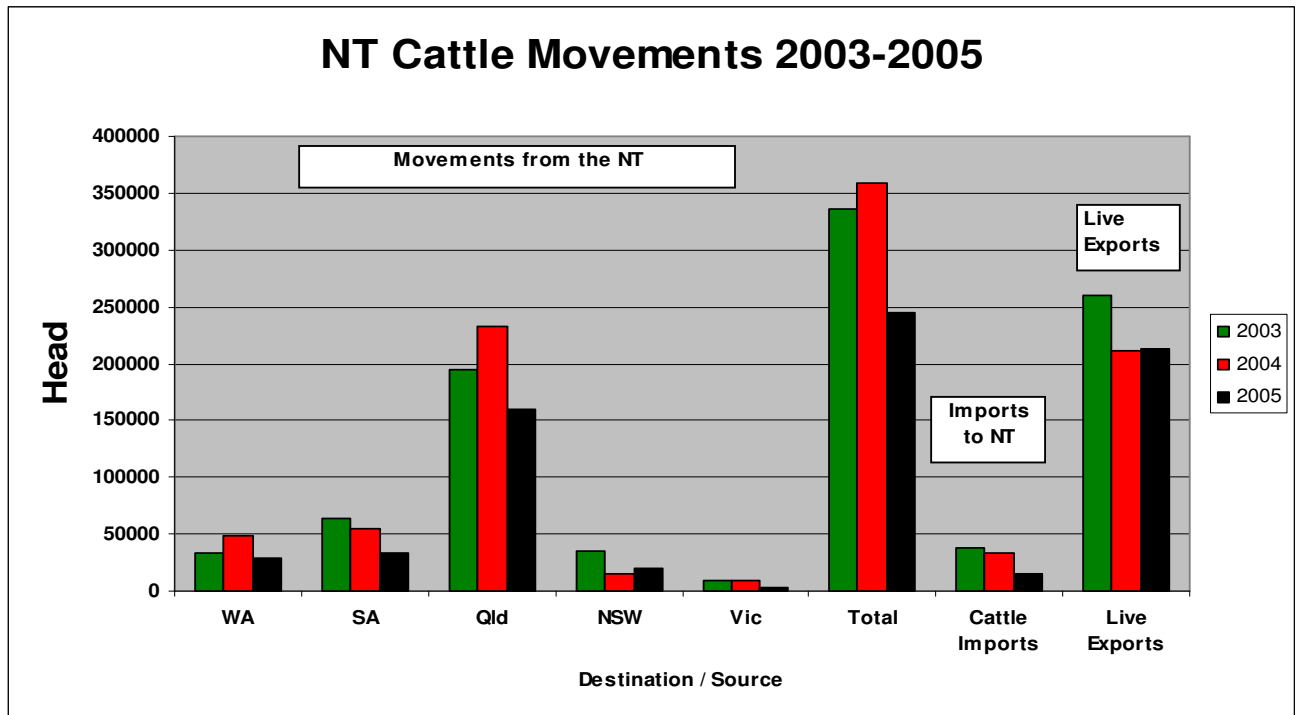
NT has approximately 1.8-1.9 million head of cattle. This represents 6.4% of the total Australian herd (MLA 2006). The mainstream production system in the NT is breeding young feeder steers and heifers and herd replacement females although some properties in the Darwin and Alice Springs regions fatten cattle for meat processing.

The live export market is the largest single market destination for NT bred cattle (Figure 3.1).

NT beef properties turned off 538,000 head of cattle in 2004 to a range of markets including live export. There were also sales to interstate backgrounders and lot feeders and some cattle to meat processing (5,400 head and 700 calves in 2006). Some 212,000 head of cattle were exported live through the Port of Darwin in 2006.

There are approximately 1800 people directly employed in the NT beef industry (DPIF&M 2007). However, staff numbers vary during the year with additional staff required for mustering in April and September each year. DPIF&M (2007) estimated the number of permanent and seasonal staff employed on a regional basis. The estimates are shown in Figure 3.2.

Figure 3.1 NT Cattle Movements, 2003-2005

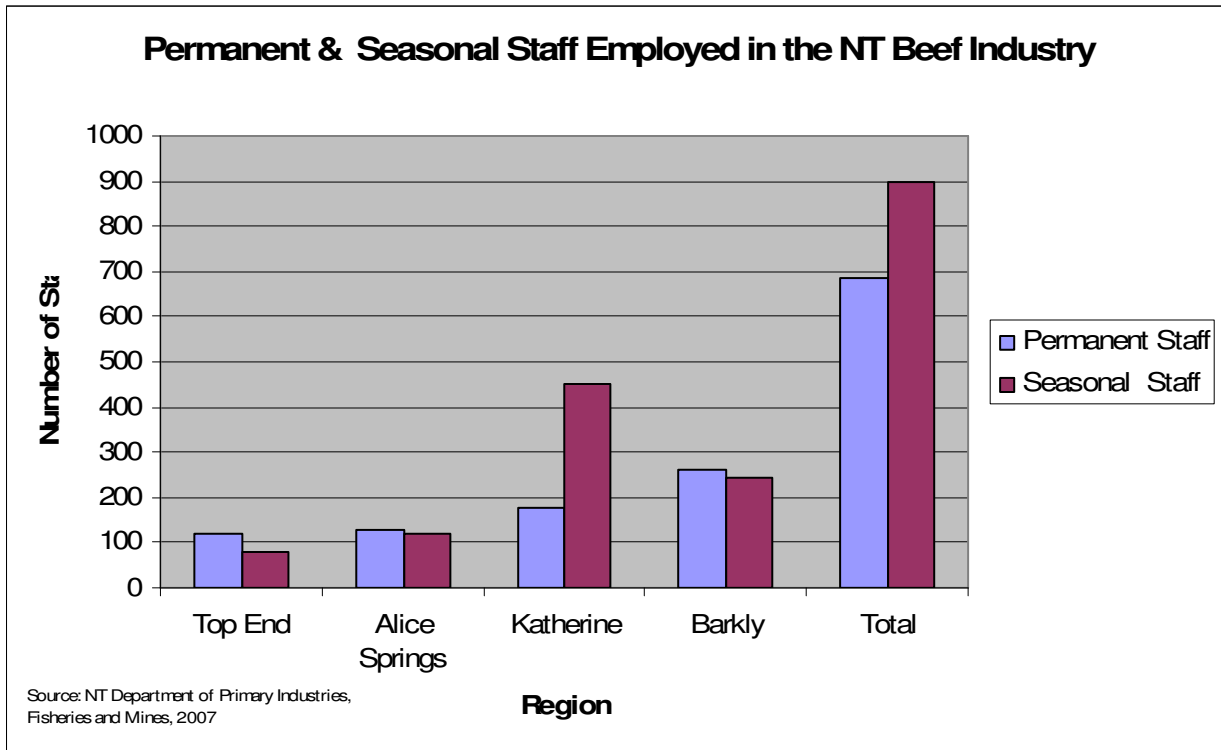


Source: NT Department of Business Industry and Regional Development, NT Department of Primary Industries, Fisheries and Mines and consulting team analysis.

The NT has one export accredited meat works at Katherine with a capacity of 800 head per day. The plant is currently in mothballs but could be operational in 3 months if processing economics improved and overcame processing labour access and competitive pricing relativities to live exports. The decision for producers to send cattle to live export or to processing would then be a matter of relative market economics. In recent times the competitiveness of the live export trade has attracted supply away from meat processing, keeping the Katherine plant closed.

The 2004 NT Pastoral Survey revealed producers' intentions to increase carrying capacities through improvements to station infrastructure, mainly fencing and waters. Carrying capacity was estimated to increase by 29% by 2009 and by 54% by 2014. Much of the projected capacity increase is being driven by the current prosperity afforded by live exports.

Figure 3.2 Permanent and Seasonal Staff in the NT Beef Industry



Currently agriculture is the third ranked industry in terms of its contribution to the Northern Territory economy behind mining and tourism. ABARE, in a recent analysis, indicated that the beef cattle industry in the Northern Territory accounts for 49% of the Northern Territory's gross value of agricultural production, which totalled \$317 million in 2004-05 (ABARE 2007).

3.2 Industry Size and Trends

3.2.1 Industry size and structure

ABARE (2007) indicated that in value terms around 80% of Australia's live cattle exports over the last five years were sourced from Northern Australia. An average of 13% of total cattle turn off from Northern Australia was for live export, in the two years 2003-04 and 2004-05 down from 19% in 2002-03.

In the same way the southern Australian beef production systems are different from the northern Australian beef production systems, the northern live export industry is different to the southern live export industry in three important perspectives, namely:

- The cattle produced for the northern live export industry are bred, produced for and exported to tropical climates;

Value of Livestock Export Industry to Regional Australia

- The Indonesian live export market has matured and become professional in terms of the animal specification and protocols; and
- The northern beef production systems (especially in the Top End of the NT) are live export focussed rather than regarding live export turn off as a secondary and opportunistic market.

As one NT stakeholder succinctly expressed in this consultancy *“The livestock export trade is a natural integration of producing cattle where they are most cheaply produced (rangelands Australia) and fattening them where they can be cheaply fattened (S.E. Asia) This is now a sophisticated process and it would be a backward step to try and fatten and finish cattle in the NT. The expensive and inefficient part of the trade is the ship voyage but otherwise it is an interdependent process.”*

The live cattle export industry continues as an important contributor to the overall Northern Territory economy. In 2005, over 210 000 cattle were exported through the Port of Darwin, with Northern Territory producers supplying 98% of the cattle exported. Another 10,000 Territory cattle were exported to Wyndham in Western Australia. This represents sales of around \$125m to Territory producers (Northern Territory Live Exporters Association 2006).

Live cattle exports declined slightly in 2005-06 reflecting higher Australian beef prices and increased competition for supply due to increased beef export demand and the drought in Queensland and S.E. Australia. However, above average rainfall in Northern Australia over the first half of 2006 should lead to increased livestock turn off in 2006-07. ABARE estimates that live cattle exports will increase to 580,000 head in 2006-07 financial year. There is no separate estimate for the Northern Territory.

Historically the exports out of the NT were sourced from the NT, Queensland and Western Australia if prevailing market conditions and road freight cost to Darwin made purchases in Queensland and WA profitable. Table 3.2 shows the numbers of cattle exported out of the Port of Darwin comprising those sourced from the NT and outside the NT. In 2006 the majority of live exports from the Port of Darwin (99%) were sourced from the NT, particularly in those regions from Katherine north.

Table 3.2 Proportion of NT Sourced Cattle for Live Export 1998-2005

	Live Cattle Exports Port of Darwin (no.)	NT Sourced Live Cattle Exports Port of Darwin (no.)	% NT Sourced Cattle
1998	219,439	160,412	73.10
1999	280,011	192,441	68.73
2000	299,179	222,669	74.43
2001	258,127	193,172	74.84
2002	322,602	229,796	71.23
2003	260,618	212,520	81.54
2004	211,042	205,204	97.23
2005	212,616	210,558	99.03

Source: NT Department of Primary Industries, Fisheries and Mines

Value of Livestock Export Industry to Regional Australia

Cattle exported live are predominantly Brahman or Brahman cross cattle with feeder steers ranging in weights of between 280-350 kg, slaughter steers (350-500kg) and feeder heifers 270-340 kg.

The current live trade is seasonal with the majority of cattle exported between April and November. The increased importance of the cattle export trade, particularly in the Top End, has seen the emergence of a year round trade albeit in relatively smaller numbers compared to peak export periods.

NT sourced cattle are also exported out of Wyndham and Broome. To the end of October 2006 49,000 head were exported out of Wyndham alone.

An average of 52% of NT properties sold cattle for live export in the three years 2002-03 to 2004-05. This compares with 55% of properties in the Kimberley and Northern Pilbara in Western Australia and 9% of northern Queensland properties. This average NT turnoff of 52% of properties servicing the live export market masks the regional differences within the NT.

This is especially the case when the market destinations of sales to live export from the respective NT regions are examined (Table 3.3). This analysis was undertaken by ABARE for the NT Government and is previously unpublished. The survey attempted to drill down to a regional level to highlight the relative effect of live exports on the key NT regions.

Table 3.3 Beef Herd Statistics per Farm, Northern Territory, 2002/03 to 2004/05

Statistical Region	Northern Territory			Top End Darwin, Gulf: Region 714			Katherine Victoria River: Region 713			Barkly Tablelands: Region 712			Alice Springs: Region 711		
	2002-03	2003-04	2004-05	2002-03	2003-04	2004-05	2002-03	2003-04	2004-05	2002-03	2003-04	2004-05	2002-03	2003-04	2004-05
Closing herd no.	8349	7955	8863	3856	3382	3761	8446	9541	10559	20058	17237	20636	5311	5255	5005
Turnoff	2363	2878	2917	726	782	644	2564	2592	2885	5726	8678	9447	1465	1992	1430
% Turnoff	28	36	33	19	23	17	30	27	27	29	50	46	28	38	29
Total no. sales	1510	1965	1859	726	681	561	1468	2428	2418	2718	2816	3340	1419	1992	1430
No. sales to live export	700	790	894	726	511	487	1144	2076	2149	638	0	570	199	0	0
% sales to live export	46	40	48	100	75	87	78	86	89	23	0	17	14	0	0
No. of farms surveyed	196	196	193	32	43	39	73	64	64	28	28	28	63	61	62
No. employed	1372	1176	1351	160	129	156	365	384	448	392	336	420	378	305	248
Average no. per Property	7	6	7	5	3	4	5	6	7	14	12	15	6	5	4

Source: ABARE AAGIS Data, NT Department of Business, Economic & Regional Development, 2006

Key highlights of the regional analysis are:

- The Top End, Darwin and Gulf and Katherine Victoria River regions are heavily dependant on the live export industry with between 80 and 100% of turn off going to live export;
- The Barkly Downs is a calf factory region tending to large scale properties and herd sizes with high percentage *Bos indicus* and crossbred cattle entering the Queensland beef supply chain with live exports being an occasional market; and
- The Alice Springs region is also a predominantly breeding area, sending cattle east and south but only occasionally providing cattle to live export.

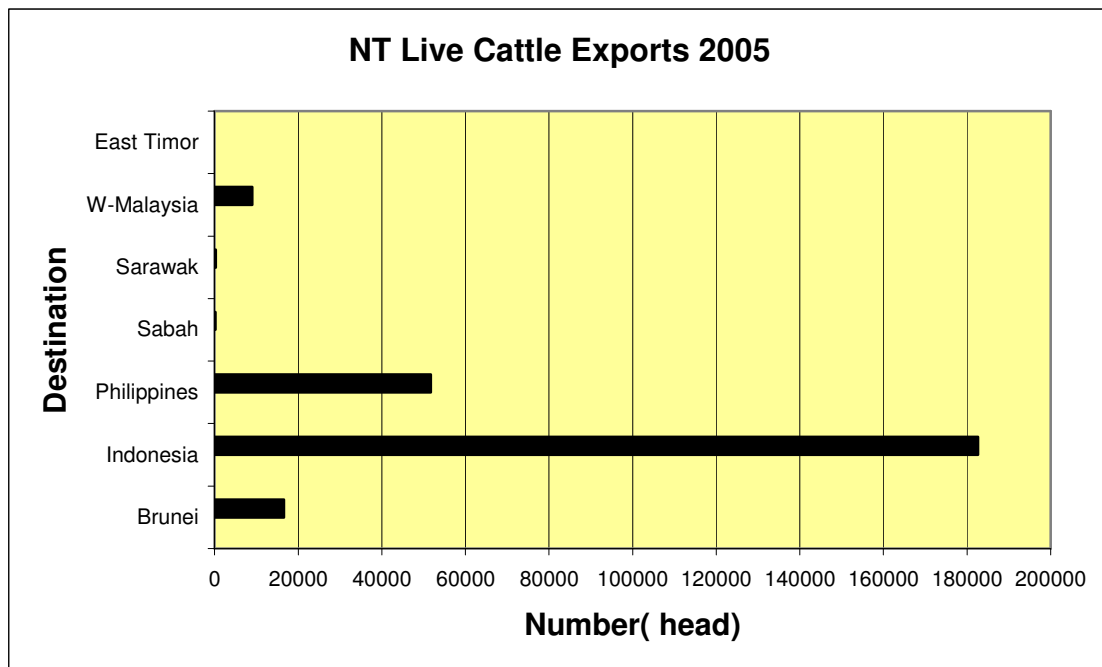
3.2.2 Gross value of the trade

Indonesia continues to be the key market for live cattle, taking about 70% of Territory exports.

Indonesia depends on the capacity of the NT breeding programs to provide competitively priced young cattle for feedlot finishing in Indonesia. Australian cattle are sourced for Indonesian feedlot operations predominantly for the following reasons:

- health protocol reasons;
- proximity – (effecting cost of shipping); and
- similar climate – cattle sourced from northern Australia are tropically adapted and perform well under Indonesian conditions.

Figure 3.3 Importance of Indonesia as a Destination for NT Cattle, 2005



Source: NT Department of Primary Industries, Fisheries and Mines

MLA's recent 2007 Industry Projections confirm the importance of Indonesia to the NT beef industry and live export industry. Indonesia is expected to take 405,000 head in 2007, which is an increase of 7% on 2005. This would be close to two-thirds of Australia's forecast live exports for 2007.

The factors driving growth in the Indonesian market include:

- Solid growth in the Indonesian economy;
- Recent significant expansion in feedlot capacity. Five to six of Indonesia's top 10 feedlots are increasing the scale of their operations. This capacity expansion will increase one time feeding capacity by a further 10,000 head in 2007 on top of similar growth last year. The increase in feedlot capacity is being facilitated by the Indonesian government lifting its 10% value added tax on cattle imports;
- Growth in demand for beef in the Indonesian market and also increasing demand for better quality beef;
- An easing in the Australian dollar/ Rupiah exchange rate; and
- The recently announced MLA marketing initiative in Indonesia that will promote beef produced from Australian livestock but fed and processed in the Indonesian market.

Gross value of the NT trade

The preceding discussion has demonstrated the importance of live exports to the NT beef industry, particularly the Indonesian market. The following is additional information used in estimating the contribution live exports makes to the NT economy:

- 99% of live export cattle are sourced within the NT.
- The Northern Territory Government estimated that the live export value chain to FOB was worth approximately \$180 million in 2006.
- Industry consultation indicated that more than 85% of expenditures by NT cattle producers and others in the live cattle supply chain occur within the Northern Territory.
- The prosperity afforded by the current viability of the beef industry has seen property values increase at the rate of 25-30% compound growth over the last 4 years. However, not all of this increase in property values can be attributed to live exports.

3.3 Economic Significance of the Trade

The live export industry in The Northern Territory is the prime market for beef producers due to a current lack of alternative market outlets in the NT, such as abattoir operating capacity and feedlot operations. However, not all cattle exit the NT by Darwin port. Cattle are also sent to export via Derby and Wyndham in WA. The eastern NT also provides significant numbers of young cattle to the Queensland grass fed and grain fed supply chains.

The NT beef industry is reliant on the live export trade particularly in the regions such as Katherine and the Top End /Darwin/Gulf areas (Department of NT Chief Minister & Department of Business 2005).

The bulk of the NT population live in regional areas and the interrelationships between businesses are much greater than in the Southern States. Any contraction in a supply chain linked industry such as the pastoral industry and live exports has significant knock-on effects at a regional level in terms of reduced revenues, capacity to attract staff and so on.

Live exports are important to the pastoral industry at a regional level where there is lack of land use alternatives. The live export industry is not favoured by all government agencies at both the regional and federal levels because of well published events that are wrongly attributed to all players and sectors of the industry. The cattle export trade is strongly supported by regional and State/ Territory governments from a primary industries perspective.

The emergence in recent years of the live export trade in the NT has had a number of benefits that were identified in project consultation. The presence of the live export market has increased the viability of the northern Australian cattle producers generally. This in turn has provided all supply chain and service providers with an opportunity to increase activities this region, which in turn has assisted company and regional growth.

3.3.1 Economic contribution to cattle producers

Sustainable Rangeland Environmental Management

NT producers care for 9% of the Australian land mass. The profitability afforded NT beef producers by the cattle export trade has enabled them to re-invest in their pastoral holdings. That investment has also ensured that producers are committed to sustainable rangeland management programs including effective grazing management programs, erosion control, weed and feral animal control.

Livestock and Agricultural Production

The option of having another marketing option (price stability) has encouraged investment in improved genetics so that cattle reach their optimum live weight at a younger age for earlier turnoff. The dynamics of the herd structure has changed to allow increased breeder numbers thereby improving total beef production. No longer are live exports regarded as second quality cattle but rather cattle specifically bred to increasingly exacting SE Asian feedlot market requirements;

Branding rates have risen to over 70% and mortality rates have decreased to less than 4%.

Value of Livestock Export Industry to Regional Australia

There has been an improvement in cattle quality – with some herds increasing the percentage and quality of Brahman in the herd, others using more cross breeding (introducing Euro cross bulls to the herd). BTEC had an enormous impact in transforming the NT beef industry - live exports have continued the momentum that BTEC created in the NT. The number of feral bulls has decreased in line with improved genetics. Heifer management and selection has also improved.

In addition:

- More properties are turning off younger stock, which are suited to the SE Asian “feeder” cattle market. (Utilising earlier weaning, and the use of supplements);
- Increase in the number of properties that can supply cattle to the market all year round (e.g. utilising small holding paddocks close to all weather roads) especially in areas closer to Darwin;
- Live exports provide the opportunity for sustainable indigenous businesses to be developed based on cattle production and the associated service industries under the auspices of the NT Indigenous Pastoral Program (IPP). ;
- The NT live export industry consumes an estimated 4000 tonnes of hay annually in the quarantine holding yards prior to shipment.

Livestock Pricing

It was generally agreed that live exports underpins NT livestock pricing. Stakeholders consulted estimated that a short-term contraction in the live trade would immediately reduce livestock prices by 20-30%. If the market were to demise as happened in the Asian financial crisis prices could drop by about 50 cents per kg. This pricing response would most likely be a short-term reaction and prices would recover as cattle were placed in alternate market supply chains.

This estimated price decrease needs to be put into perspective relative to cost of production. Northern Australian herds have the following operating margins for the top 20% of herds and average herds (Table 3.4).

Table 3.4 Operating Margins - Northern Beef Herds, \$/kg

	Top 20% Producers	Average Producers
Income	1.92	1.83
Direct	0.33	0.48
Overhead	0.46	0.65
Total	0.79	1.17
Operating margin	1.13	0.66

Source:- RCS Profit Probe, December 2006

Value of Livestock Export Industry to Regional Australia

Clearly, top producers may be able to withstand short-term price declines whereas average producers would become marginal operators operating at break even or below levels of production.

Darwin price for live export is essentially the east coast price less the 35c/kg freight cost to east coast abattoirs or feedlots.

Productivity Improvements

Total factor productivity for northern beef properties grew at a rate of 3.6% a year in the period 1988-89 to 2001-02. In contrast, there was relatively little productivity growth for southern Australian beef properties (ABARE 2007). Much of this productivity growth can be attributed to the enhanced industry viability afforded by the continuity of the live export industry. Over the last 27 years NT productivity growth has been twice the rate of the national herd. Undoubtedly, BTEC started the move to higher productivity but the prosperity afforded in part by live exports and subsequent reinvestment in beef enterprises has continued the productivity push.

The productivity improvements generated by beef industry profitability is best illustrated by estimated current and future carrying capacity (Animal Equivalents) for properties in each NT region resulting from re-investment in properties based on information sourced from the NT Pastoral Survey 2004 (Table 3.5).

Table 3.5 Estimated current and future carrying capacity, 2004, 2009 and 2014

Region	AE/property				
	2004	2009		2014	
	(no.)	(no.)	(% change from 2004)	(no.)	(% change from 2004)
NT	11,812	15,262	29%	18,202	54%
Alice Springs	6,240	6,575	5%	6,844	10%
Top End	5,548	13,602	145%	21,492	287%
Katherine	12,986	16,189	25%	18,543	43%
Barkly	24,522	28,065	14%	30,935	26%

Source: DPIF&M (2006)

It should be noted that the largest carrying capacity improvements are expected to occur in the two areas most dependent on live exports, namely the Katherine and Top End regions.

Seasonality of supply

Generally, SE Asia market demand follows the supply season of Northern Australia, with peak demand correlating to peak supply. However, there is a steadily growing demand for cattle outside of these times, which allows producers that are able to supply (e.g. in "wet season") the ability to gain price premiums for their cattle. The success of the specialised focus of NT cattle producers on the export trade has seen importing clients demand a supply of cattle 365 days per year.

Improved Industry Profitability

Live exports have enabled the NT to actively participate in the improved beef industry profitability situation in recent years despite lack of access to meat processing facilities. The improved profitability has seen benefits flowing to triple bottom line outcomes in company balance sheet.

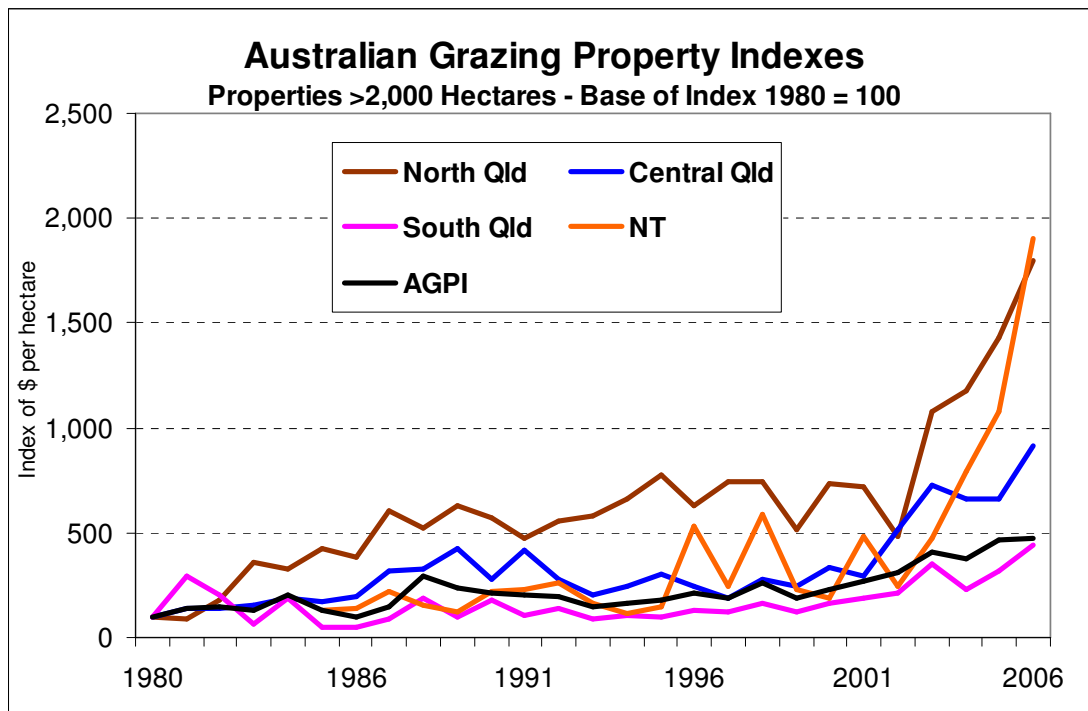
Investment Patterns

Over the last few years with improved cattle prices, the obvious pattern in investment has been the increased land values and the increase presence of “corporate” operations moving North and investing in more NT properties given the lower relative beast area values compared to Central Queensland.

Increase in Property Values

Herron Todd White is a firm of rural valuers that operates in both Queensland and the Northern Territory. They have analysed the change in values for pastoral land over time. The current prosperity being enjoyed by the beef industry in the NT and Queensland is reflected in the increase in land values illustrated in the Figure 3.4. Clearly, the impact on land values can be attributed in part to the success of NT based live exports but this is also in part due to the demand coming from the Queensland beef supply chains looking to purchase competitively priced feeder steers and heifers from the NT.

Figure 3.4 Movements in Grazing Property Prices



Source: Herron Todd White (rural valuers)

Beef property prices have increased their best area value at the rate of 25-30% compound growth over the last 4 years in line with improved industry property values and industry confidence. This rate of increase in land values compares to a 20% increase in land values in Queensland over the same period.

The improved property values have also increased owners equity, enabling them to borrow to further invest in their enterprises. In the NT there has been an overall trend to increase capital expenditure on waters and fencing with some pasture improvement. The introduction of better quality genetics has also been a result of improved enterprise profitability.

Capital Investment in Infrastructure

Overall capital investment in properties has been driven by high cattle prices. In recent years live exports have provided a “floor” in the market, and the Eastern States markets have provided increased demand and lifted cattle prices.

It was clear from industry consultation that in recent years the pastoral industry has invested considerably in fencing, water etc to lift carrying capacities. As well, there have been a few companies that have invested additional funds in up-grading their own quarantine and protocol facilities. This investment has been a direct result of high prices for cattle,

Cattle industry infrastructure from Katherine and further south is all geared for sending cattle to export and would not be utilised if the trade were to cease. The redundancy of this infrastructure would have an immediate economic impact on those who own the infrastructure. It would also mean that the region would lose access to this infrastructure as it would be either scrapped or sold on to users in other States.

The Indigenous Pastoral Program (IPP)

Aboriginal people make up 27% of the Territory’s population with 18,000 living in Central Australia³. They own about 49% of the land in the Northern Territory. The IPP properties control about 30,000 head of cattle with approximately 8,000 head going to live export each year. Some properties are also run in conjunction with non-indigenous cattle producers.

The Program’s key objectives are to help Indigenous land owners implement sustainable pastoral enterprises and increase pastoral production from their land. In achieving these objectives, the key outcomes are:

- to increase cattle numbers on Indigenous land;
- to expand Indigenous participation in the pastoral workforce; and
- maintain and grow export markets.

The IPP program is one measure that seeks to redress the labour shortage issue in the NT with significant flow on benefits to indigenous communities. The profitability afforded by live exports has enabled programs such as this to progress.

³ “Breaking New Ground” Indigenous Pastoral Program. NT Government

3.3.2 Economic contribution to other parts of the value chain

Table 3.6 details the NT beef live export value chain from farm gate to FOB and CIF pricing to Indonesia. These data are based on inputs from active NT live exporters and their live export costing sheets.

Transport

The NT has an effective live cattle transport infrastructure that enables live exporters to service small and large live export boats. Cattle are generally drawn from the various quarantine depots and holding facilities rather than from individual properties.

The slow down of live exports, increasing costs, particularly fuel, and drought conditions have seen the continued rationalisation and consolidation of the livestock transport industry in the NT with Hampton's Transport recently taking over the operations of Gulf RTA to become the largest livestock transport operator in the NT.

The other main ongoing issue is the amount of Government funding available for maintaining the main stock route roads. The pastoral industry in the NT has a major ongoing effort to ensure Government is spending enough money on maintaining the condition of these roads.

Improved Industry Support Services

Support services to the cattle industry have improved with live exports. These services include veterinary services, livestock transport, dedicated quarantine facilities, fodder supply and livestock service and selling agencies. The size of these operations has been relatively stable in recent times as a result of livestock export numbers declining from the peak of 2002.

Port Infrastructure

Live exports account for 37% of the export tonnage through Port of Darwin by way of 94 ship movements in 2005-06. Approximately 14,500 tonnes of livestock feed was also exported from Darwin, countered to some extent by imports of 6,000 tonnes of feed used primarily in the cattle export trade.

Interestingly, the Darwin Port Authority has recoveries from live exports of approximately \$568,000 annually for an overall port capital investment of around \$250 million. As such live exports are regarded as a minor industry in terms of overall exports from Darwin port making it difficult to justify additional live export specific infrastructure investment. Despite this position the existing port infrastructure could handle live cattle exports up to 500,000 head per annum according to industry stakeholders.

If live exports were to cease then the past and present investment in port infrastructure to handle the trade would become largely redundant.

Value of Livestock Export Industry to Regional Australia

Table 3.6 Notional Value Chain for NT Live Cattle Exports, 2005/06

Value Chain Item	Average per head (\$)	Aggregate (\$m)
Livestock Costs		
Average Weight (kg)	343	243,936
Farm Gate Price	\$629.33	153.517
Agents Fees (Levied on Farm Gate Price)	\$18.88	4.606
Sub Total	\$648.21	158.123
Other On-farm Costs		
Additional Veterinary on Farm	\$4.50	1.098
Dipping Costs	\$2.17	0.529
Sub Total	\$6.67	1.626
Road Transport		
Farm to aggregation	\$16.88	4.116
Aggregation to wharf	\$14.06	3.430
Livestock insurance	\$8.00	1.951
Sub Total	\$38.93	9.498
Feedlotting/Spelling		
Feed Cost per head	\$11.82	2.883
Ear Tag	\$0.72	0.175
Sub Total	\$12.53	3.057
Industry Levies and Charges		
Livecorp	\$3.79	0.924
Wharf Charges	\$2.10	0.512
Third Party Vet	\$3.83	0.935
AQIS & Quarantine	\$2.62	0.638
Ports Corp	\$2.16	0.527
Stevedoring	\$5.67	1.382
Receival Yard Fees	\$2.23	0.543
Weighbridge	\$2.05	0.501
Sub Total	\$24.44	5.963
Management		
Selectors Costs	\$2.70	0.659
Administration	\$22.67	5.529
Livestock Officer	\$2.27	0.553
Sub Total	\$27.63	6.741
Value at Port		
Average Live Weight (kg)	343	83.751
Price per kg at Port FOB	\$2.21	0.539
Total Gross Value (FOB)	\$758.42	185.007
Shipping		
Fodder for voyage	\$19.96	4.869
Seafreight (excl exporter mgmt)	\$110.00	26.833
Insurance	\$3.33	0.813
Total costs	\$133.29	32.515
Total Gross Value (CIF)	\$891.72	217.522

^a Prices and costs in 2005/06 dollars. Export numbers to estimate aggregates were based on 5 year average to 2005/06.
Source: Industry consultation

Stability of Employment

Improved industry profitability attributed to live exports and the investment security that gives has generally provided a before unheard of level of on-station security of employment. At a farm family level this period of prosperity has also enabled better farm family succession planning and implementation.

Support services have also grown as an outcome of increased industry spending including provision of trained stockman for quarantine facilities and trained stockman for the livestock ships. However like the rest of Australia competition for labour, high labour costs and access to skilled labour continues to be a major issue.

Requirements for Live Export Industry Profitability and Productivity in the NT

The key determinants in the future for a sustainable live export industry in the NT are an adequate supply of suitable cattle, continued demand from exporters, stable prices and State and Federal Government support for the live export industry

The live export industry in the NT has matured and has added significantly to the overall prosperity of the northern beef industry. That maturity has seen a continuing rationalisation and consolidation of companies operating in the industry with the exit of opportunistic players as long-term commercial relationships are established by exporters with key clients in the target export markets.

For the livestock exporters and cattle producers in the NT the price of their export cattle must remain competitive in key export markets. Unless this primary requirement is met the live export industry will be volatile and contain sufficient risk and volatility risk to be unsustainable in the long-term. Any issue that drives up FOB cost, including government regulatory charges, can undermine the NT's live export competitiveness.

The NT beef and live export industry recognises the need for responsible animal welfare practices and has instituted best practice protocols to eliminate animal welfare problems. The industry based activities in responsible animal welfare management need to be continually complemented with government recognition and support at a local State and federal government level as well as internationally.

The Need for NT Government Endorsement for the Live Export Industry

Industry players frequently commented during this consultancy that the confidence they had in the future of live exports was not matched by the NT Government in terms of live export related infrastructure expenditure such as that for required roads, nor by the Federal Government in terms of active industry support in the face of animal rights opposition to the live export industry.

The NT Government continues to ignore the value added components of the NT live export trade choosing instead to focus on farm gate prices. The rationale seems to be that while the live exports industry is small relative to mining and tourism at a State level, it does not warrant further Government support. However, live exports have significant regional impacts in light of limited alternative land use options in regional NT, as well as the value adding activity between the farm gate and port.

3.3.3 Current contribution to the regional economy

The following summarises the physical parameters used in the regional economic impact analysis.

- In 2005, there were 216 specialist beef properties in the NT.
- The Northern Territory Live Exporters Association (NTLEA) has the following membership profile:
 - Live exporters:* 13 members of which 5 companies are dominant and 5 companies are dormant at December, 2006;
 - Veterinarians and Agents:* 9 members
 - Associates:* 15 members
- We estimate that there are approximately 300-400 people employed in the live export supply chain post farm gate in the Northern Territory.
- The 216 specialist beef properties turned off 538,000 head of cattle in 2004.
- The Northern Territory (NT) has approximately 1.8-1.9 million head of cattle. This represents approximately 6.4% of the total Australian herd (MLA 2006). The mainstream production system in the NT is breeding young feeder for export overseas or to Queensland and herd replacement females although some properties in the Darwin and Alice Springs regions fatten cattle for sale to meat processors.
- 95% of NT beef producers are represented by their peak body -the Northern Territory Cattlemen's Association Inc (NTCA).
- 212,616 head of cattle were exported live through the Port of Darwin.
- Cattle exported are predominantly Brahman or Brahman cross cattle with feeder steers ranging in weights of between 280-350 kg, slaughter steers (350-500kg) and feeder heifers 270-340 kg. Average value of cattle exported to the dominant market, Indonesia, is \$599/head FOB.

The above data and analysis were used to derive a profile of employment, wages and salaries and value of output for each component of the value chain in the Northern Territory live cattle export industry. Additionally, an input-output model of the NT economy was constructed specifically for this project for the financial year 2005/06. The value chain data set (Table 3.6) and the input-output model were used to estimate the direct and indirect impacts of the industry. These estimates are summarised in Table 3.7.

Table 3.7 Direct and Indirect Impact of Live Cattle Exports - Northern Territory

Economic Indicator	Impact of Live Cattle Sector			
	Direct	Indirect	Total Impact	Type II Multiplier ^a
Output (\$m)	218	-	-	-
GRP (\$m)	98	59	157	1.60
Employment (FTE)	1,048	773	1,821	1.74

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis.

Table 3.7 effectively benchmarks the current economic contribution of the live export industry to the NT. From the table it can be seen that the NT live cattle export industry generates:

- \$218 million in output. The output value is the CIF value of the trade less goods and services purchased outside the NT;
- \$157 million in gross regional product (GRP): \$98 million in direct GRP generated by the businesses that comprise the live export value chain and \$59 million in indirect GRP generated by other regional suppliers of goods and services in the NT economy.
- 1,821 jobs generated on an FTE basis.

The industry is a significant source of employment and regional value adding.

3.4 Impact of Cessation of the Trade

The short, medium and long-term contribution of the livestock export industry to the Northern Territory is assessed assuming a hypothetical shutdown in the trade. The following analysis addresses alternatives to the industry, adjustment pathways and the direct and multiplier impacts on and off station.

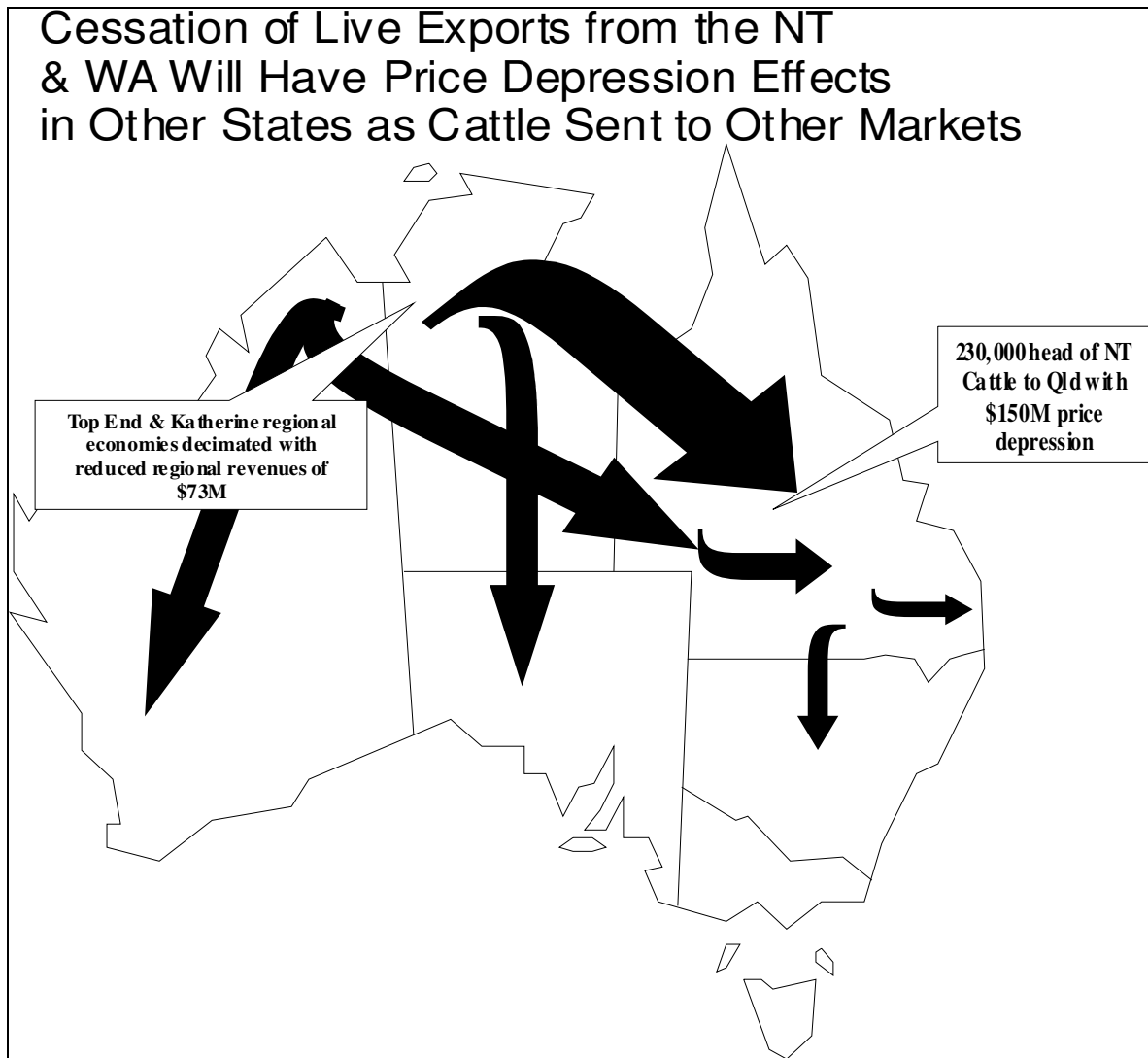
3.4.1 Short-term impact of cessation

If the live export trade were to cease with little warning there would be immediate financial and market adjustment impacts across the entire cattle supply chain in the NT. The immediate impact would be an attempt to place cattle previously designated for live exports into the Queensland market (see figure over page) given the market alternatives for meat processing backgrounding and lot feeding. Some cattle bred for the live export market could be less acceptable to the Queensland beef supply chain pathways than lower Brahman content cattle currently being supplied to this market.

As cash flow from participation in the live export trade decreased the short to medium-term impact in the immediate region would be less opportunity for continued industry growth together with potential for increased bad debts and producer re-evaluating investment options on-station. This is probably a worse case scenario as the degree to which the industry was impacted would depend on other factors including the state of the industry at that particular time (supply/demand for stock) as well as seasonal conditions.

The reduced profitability of beef enterprises resulting from a cessation in the cattle export trade would see producers retreat from the current level of investment in ineffective bio/conservation outcomes.

In the short-term there would be a market adjustment impact on all aspects of the beef industry supply chain and knock-on effects to regional communities given the current NT dependence on the live export industry and the lack of an immediate replacement market.



Farm gate prices:

The immediate short-term cash flow impact of a live export trade cessation would be a farm gate price decrease of approximately 59 cents/kg to accommodate the livestock freight cost to Central and Southern Queensland. Based on 230,000 head weighing 330 kg this price decrease could equate to reduced farm gate revenues of approximately \$38 million at the extreme if these cattle were not finished in the NT. But it is likely that cattle would be turned off at lighter weights (230kg) to optimise livestock transport load factors moving cattle into Queensland. Overall the reduction in live export revenues would be of the order of \$73 million with greatest impacts occurring in the Top End/Gulf and Katherine Victoria River Districts which rely solely on live exports as their market focus. The regional economies of these two regions would be greatly affected and would almost certainly see a wind back across the live export supply chain with resulting decreases in regional employment and skill sets.

NT and Queensland operators observed:

“The live export industry gives our business flexibility to markets. We are situated in such a manner that we are able to access Eastern Markets for our cattle but having the additional market to live export for our stock is invaluable.

The live export market also in my opinion prevents or keeps many stock from entering the Australian processing sector and therefore keeps them from our domestic market. This has an extremely positive effect on the price of our domestic beef product.

Should the large numbers of the breed and type of cattle involved in this live export market become available to the export processors on the east coast, then they would cause a downturn in the export beef price as a result of the oversupply to this market.”

and

“If 230,000 head were dropped into the Queensland market especially in a dry year then the impact on cattle prices could be of the order of 50 cents per kg for about 4 months of the year”

The impact on Queensland cattle prices by diversion of NT live exports to the Queensland market could be of the order of \$150 million if that price depression occurred over 4 months of each year. In good seasons the Queensland supply chain could most likely absorb the additional numbers with a reduced price impact in the order of 5-10%.

As cash flow from participation in the live export trade decreased the short to medium-term impact in the immediate region would be less opportunity for continued industry growth together with potential for increased bad debts and producer re-evaluating re-investment options on-station. This is probably a worse case scenario as the degree to which the industry was impacted would depend on other factors including the state of the industry at that particular time (supply/demand for stock) as well as seasonal conditions.

In the short-term there would be a market adjustment impact on all aspects of the beef industry supply chain and knock-on effects to regional communities given the current NT dependence on the live export industry and the lack of an immediate replacement market.

Herd/flock structure:

In an attempt to increase profitability producers could hold onto sale cattle longer. This decision is unlikely because it would possibly force a reduction in the number of breeders normally carried and the difficulties to bring cattle to suitable meat processing market specifications under pastoral conditions.

Instead of younger turnoff of cattle, cattle would be held back until they put on enough weight to be sold into the backgrounding market or processing market in the eastern and southern States.

Cash flow/income:

Cash flow would be reduced and delayed particularly in the short-term, as stock were held back to achieve desired selling weights.

Industry restructure costs:

Significant increase in working capital requirements would occur as the herd restructure took place. Unless producers have significant equity it may be difficult for them to obtain required funding given restricted cash flow impacts.

If the live export industry were to close, restructure cost in the first year alone would be of the order of \$17m based on a price depression of 9 cents/kg for a 350kg beast over the annual 540,000 head turned off from NT properties each year. This cost does not take into account the period that the industry would need to fully adjust to the loss of the live export market and also does not include adjustment costs for operators down the supply chain that would be forced to close their business.

Infrastructure Investment:

Infrastructure investment would most likely decrease significantly or cease in response to reduced cash flow and increased debt levels.

Land values:

Industry valuers have estimated that cattle property values could retreat from between \$800-1000 per beast area value to approximately \$400-600 per beast area. All other things being equal, land values could decline if beef industry cash flows were constrained.

The immediate impact on cash flow and industry profitability along the supply chain would see beef farm asset values decline marginally as producers adapted to a changed turnoff marketing environment. Most likely there would be a return to traditional lower cost beef breeding/ harvest operations with consequent declines in rural and regional employment, a reduction in property improvement activities such as fencing, water and station infrastructure.

Short-Term Impact of Cessation:

The input-output model for the NT was calibrated to model the impact of trade cessation in the short-term. Results are summarised in Table 3.8. Gross value of output for the whole value chain is currently \$218 million. Gross returns on-station would fall by an estimated \$82 million and sales elsewhere along the value chain would be down by \$56 million. Across the region, the total GRP impact would be a fall of \$126 million, \$98 million directly and \$28 million in indirect effects. There would be a net job loss in the region estimated to be 538 FTE out of a total of 1821, i.e. almost 30% of the jobs attributable to the industry (Table 3.8).

Value of Livestock Export Industry to Regional Australia

Table 3.8 Short-Term Impacts of Cessation (year 1) – NT Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	218	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-82	-	-
<i>Other supply chain loss</i>	-56	-	-
<i>Other producer losses</i>	0	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-138	-	-
GRP (\$m)			
Current (2005/06)	98	59	157
Year 1 of cessation	0	31	31
Net impact of cessation	-98	-28	-126
Employment (FTE)			
Current (2005/06)	1,048	773	1,821
Year 1 of cessation	843	440	1,283
Net impact of cessation	-205	-333	-538

Source: EconSearch analysis

3.4.2 Medium and long-term impact of cessation

Medium-term impacts of cessation

This scenario would be very like the short-term impact and only mitigated by changes in market conditions and currency relativities. Two to five years would be insufficient time for people to change breeding programs and to refocus operations on domestic and export processed beef supply chain needs.

However, the investment in better station infrastructure, herd genetics and nutrition programs to satisfy live export standards has led to a position which is effectively a soft landing if the live export trade were to cease. The 212,000 head of cattle produced for live export could be diverted into the high Brahman grass fed and grain-fed trade exiting the NT for the Queensland beef supply chain as do young cattle currently exiting the NT from the Barkly region.

The major impacts would be to the service industry that has been built up around the current fortunes of the live export trade and the immediate impacts in regional communities. The loss of any businesses would have significant effects in regional NT communities.

Value of Livestock Export Industry to Regional Australia

Overall the single biggest impact would be the lack of an alternative market for NT bred cattle in favourable supply situations in Queensland. NT cattle would be discounted to account for the additional freight cost to Queensland market destinations. Re-opening of the Katherine works could mitigate this situation.

Producers operating at the margin with high debt loads would be expected to either return to low input cattle production or exit the industry as they struggled to pay down debt levels.

The regional input-output model for the NT was calibrated to determine the impact of trade cessation in the medium-term. The results are summarised in Table 3.9.

Table 3.9 Medium-Term Impacts of Cessation (year 5) – NT Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	218	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-66	-	-
<i>Other supply chain loss</i>	-56	-	-
<i>Other producer losses</i>	0	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-122	-	-
GRP (\$m)			
Current (2005/06)	98	59	157
Year 5 of cessation	16	35	51
Net impact of cessation	-82	-24	-106
Employment (FTE)			
Current (2005/06)	1,048	773	1,821
Year 5 of cessation	843	487	1,330
Net impact of cessation	-205	-286	-491

Source: EconSearch analysis

Value of Livestock Export Industry to Regional Australia

Gross returns on-station would fall by an estimated \$66 million (compared to the current value of production) and sales elsewhere along the value chain would be down by \$56 million. Across the region, the total GRP impact would be a fall of \$106 million, \$82 million directly in live export value chain activities and \$24 million in indirect effects. There would be a net job loss in the region estimated to be around 490 FTE (Table 3.9).

Longer Term Impact of Cessation (10 years)

It is difficult to predict what the longer-term impact would be if the live cattle trade were to cease. For instance, would meat processing plants be reopened or expanded in the NT or could eastern and southern markets absorb all the cattle produced in the North? Clearly, there will always be a beef industry in the NT because of the lack of alternative agricultural production systems. Enterprise owners will gravitate to those enterprises that optimise investment returns. If the live export industry were to cease, the most likely scenario over time would be for the NT to become a source of young feeder steers and heifers for eastern and southern supply chains. Some players have indicated they can see feedlots developing in the NT and if feedlot development occurs there will be an expansion of abattoir operations to process feedlot product.

Table 3.10 Long-Term Impacts of Cessation (year 10) – NT Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	218	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-56	-	-
<i>Other supply chain loss</i>	-56	-	-
<i>Other producer losses</i>	0	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-111	-	-
GRP (\$m)			
Current (2005/06)	98	59	157
Year 10 of cessation	26	38	64
Net impact of cessation	-72	-21	-93
Employment (FTE)			
Current (2005/06)	1,048	773	1,821
Year 10 of cessation	843	517	1,360
Net impact of cessation	-205	-256	-461

Source: EconSearch analysis

Decreased cash flows and lowered profitability arising from a cessation of the trade would most likely see a reversion to the cattle harvest practices of the past and a reduction in investment in employment, social infrastructure, bio-security preparedness, animal welfare and environmental management programs for weeds and feral animals.

The longer-term impact of trade cessation was modelled assuming the NT becomes a source of young feeder steers and heifers for southern supply chains.

Gross returns on-station would fall by an estimated \$56 million (compared to the current value of production) and sales elsewhere along the value chain would be down by \$56 million. Across the region, the total GRP impact would be a fall of \$93 million, \$72 million directly in live export value chain activities and \$21 million in indirect effects. There would be a net job loss in the region estimated to be around 460 FTE (Table 3.10).

The present value of direct on-station losses

The present value of direct on-station losses was estimated assuming a reduction in industry gross value as a result of trade cessation of \$82 million in the first year falling to around \$66 million by year 5 and \$56 million by year 10 (Tables 3.8 to 3.10).

The present value of these losses for NT producers was estimated to be in excess of \$500million, at a 7% discount rate.

Impacts on an Expansion in the Current Trade

The potential for live exports to increase is really dependant on movements in the SE Asian economy and the Indonesian economy in particular. Indonesia has previously taken 400,000 head of cattle from Australia. This target is achievable in the longer term as Indonesian demand for beef increases provided Australian live exports remain price competitive. Given the capacity for improved carrying capacity, identified in the NT Pastoral Survey, that industry expansion has the ability to progressively supply an expanded live export trade.

The following outlines some of the impacts if the live export trade were to expand.

Farm gate prices:

Expansion of the trade would provide further security of alternative markets and resultant price stability. While demand for cattle for processing remains high from Queensland it would difficult for the live export of cattle from the North to SE Asia to expand significantly unless there was a continuing increase in the NT herd expansion due to productivity improvements and better country utilisation because of waters and fencing investments Probably what will happen over the next couple of years is that demand from Queensland will reduce in response to improved seasonal conditions. This will enable live exports to expand again, thus keeping cattle prices in the North relatively stable.

Expansion of the trade, in the current supply situation, would probably lead to increased farm gate prices as exporters were forced to compete with other markets (domestic, processing sector).

Herd structure:

Currently there is a growth in herd size resulting from increased land utilisation (because of new waters investment) and productivity growth, if demand were to continue to increase there would be continued growth of herd sizes as properties were better utilised. There would be an associated improvement in genetics with stock turned off at a younger age and investment in higher quality bulls.

Farming systems:

In the NT this particularly refers to hay production, as more properties intensively manage their cattle and include improved management practices such as “yard weaning” and requiring NT sourced fodder. The increased demand for hay and other supplements could see a flow on effect and expansion in the NT hay growing areas.

Properties would continue to become more specialised and there would be more efficient use of land through added water, improved pasture and fencing.

Cash flow/income:

Improved cash flow to regional communities would result from increased production and higher prices and subsequent less volatile cash flow overall.

Infrastructure:

It would be unlikely to be further investment in dedicated live export infrastructure as the existing infrastructure was built to handle the peak live export shipments in 1997 and have been relatively well maintained or upgraded since that time. NTLEA estimates that live exports could increase to between 300-350,000 head per annum without any additional capital expenditure spend.

Land values:

Further increase in land values would occur in line with improved enterprise profitability and reinvestment in those properties (primarily due to increased carrying capacity following property improvements).

Better Disease Management:

Another benefit of the expansion of the industry would be that further development of these regions may lessen the possibility of disease outbreak, or at least increase the likelihood that disease would be detected much earlier and controlled. Better cattle management afforded by improved waters and fencing and resulting improved surveillance could assist Australia’s disease monitoring and preparedness efforts to the benefit of the whole Australian beef industry.

While the import of Indian boxed beef is banned in Indonesia there are continuing allegations that some Indian beef is being smuggled into Indonesia. If this allegation is true, then the FMD risk posed by this action leads to an increased FMD risk in Australia. The competitive nature of Australian live exports to Indonesia at the moment acts to mitigate the potential FMD risk.

3.5 Conclusion on Regional Value of the Industry

In 2005, there were 216 specialist beef properties in the NT directly turning off 538,000 head of cattle. Live cattle exports are the single biggest market destination for NT bred cattle and some 212,000 head of cattle were exported live through the Port of Darwin in 2005. Some 99% of live cattle exported from the NT are sourced from the Territory. The average direct gross value of the trade at FOB is \$218 million. Total value added is \$157 million and there are a total of 1,821 jobs associated with the industry. The live export industry has facilitated the professionalism, investment climate and productivity improvements in the NT beef industry particularly in the Katherine and Top End regions.

Given the competition capacity for low priced processed meat from neighbouring countries live exports represents a realistic capacity for Australia to compete with low priced beef from other sources. This competitive capacity is expected to be maintained given the established supply chain linkages that already exist in the trade.

Generally the live export market importance to the prosperity of the NT is under rated compared to the “glamour” industries of mining, tourism and defence. The overall NT population is around 207,000 people with the majority of people living in Darwin and surrounding areas. Yet in NT regional areas that are dependant on live export trade and associated businesses the impact of a cessation of the trade would be much greater because of the interdependent relationships that exist between businesses in these regional areas is much greater than in the southern states.

Any contraction in a supply chain linked industry such as the pastoral industry and live exports has significant knock on effects at a regional level in terms of reduced revenues, capacity to attract staff to a State where the population is transient.

If the live export trade were to cease then the NT beef industry would suffer significantly reduced revenues and marginal profitability to loss making operations. The consequences of live export trade cessation would be:

- Price depression for livestock as cattle previously intended for live exports were diverted to other markets;
- A significant decline in regional revenues especially in the Katherine and Top End regions;
- As business operating revenues were reduced management inputs would be accordingly decreased;
- Reduced employment both on-station, within the live export supply chain and in regional centres;
- A significant slow down in on-station investment and improvements to beef enterprise productivity and infrastructure improvements;
- A severe reduction in available funds for sustainable rangeland management programs jeopardising the gains made in sustainable rangeland management programs especially weed and pest control;
- Cause severe regional economic impacts as follows:

Value of Livestock Export Industry to Regional Australia

In the first year cessation of the trade would result in the loss of \$138 million in output and 538 FTE jobs.

In five years gross value of output would fall by \$122 million for the whole value chain. Total GRP would fall by \$106 million and there would be a net job loss in the region of 491 FTE.

In ten years gross value of output would fall by \$111 million for the whole value chain. Total GRP would fall by \$93 million and there would be a net job loss in the region of 461 FTE.

3.6 Consultation

The project's steering committee recommended persons to be contacted during the study. Those interviewed and their sector in the value chain are shown in the Table 3.11.

Table 3.11 Regional Contacts and Consultation Completed – Northern Territory

Value Chain Sector/Ancillary Service	Regional Contact/Business Consulted
Live Exporters	Michael Finucan, Austrex David Heath, NACC Sid Parker, SEALS Phillip Bielefeld, AustAsia Lachlan MacKinnon, NTLEA
Producers	Stuart Kenny, NTCA David Connolly, Australian Agricultural Company Ken Warriner, CPC Don Mackay, Australian Agricultural Company
Road Transport	Brooke Hartley, Hamptons Transport Jim Cooper, Gulf RTA
Agents	Tony Gooden Elders
Veterinarians	Ross Ainsworth, Australian Livestock Services
Regional Business/local government	Doug Phillips, Dept. Business, Economic & Regional Development
State Government	Alister Trier Director Pastoral Production NT DPIF&M Graham Kirby and Shiw Murti, Dept Business, Economic and Regional Development
Assembly depot	NTLEA AustAsia
Port Authority	Gary Scanlan, Darwin Port Authority
Meat Processor	Geoffrey Teys, Teys Brothers
Service Providers	Frank Peacock, Herron Todd White Lachlan Douglas and Barry Gerschwitz, Rabobank Craig Stevens, NAB
Total Contracted – 23 interviews	Total Completed – 23 interviews

4 Queensland Cattle Industry

4.1 Context of Live Exports in the Region

The Queensland beef industry has changed significantly over the last 10 years with an increasing sophistication, integration and interdependence of the domestic and export market supply chains.

Table 4.1 is a time series of the Queensland beef cattle industry that shows the increase in cattle going to feedlots, increased slaughtering and an associated decline in cattle going to live export, despite a relatively stable total herd size.

Table 4.1 The Queensland Beef Industry Snapshot 2002-2006

At 30 June	2002	2003	2004	2005	2006
Cattle and calves (million head)	11.5	10.7	11.5	11.6	N/A
Cattle on Feed ('000 head)		350.0	349.5	438.3	506.7
Cattle Slaughtering ('000 head)	3,514.1	3,515.2	3,564.2	3,690.5	3646.9
Calf Slaughtering ('000 head)	99.7	92.1	74.7	73.3	63.3
Live Exports ('000 head)	236.9	142.3	67.4	49.7	35.1

Source: MLA Statistical Database, 2006

Even with severe drought, the Queensland beef industry has continued to consolidate and rationalise. This has manifested itself as tighter market specifications and pricing that reflects a producer's ability to meet these specifications. Consequently the live export trade has found it increasingly difficult to compete on price with re-stockers, meat processors and lot feeders with a resultant contraction of live exports from the State has occurred.

However, Queensland is a large state and beef production in the tropics generally requires higher Brahman content cattle, especially in tick areas, to compete effectively. In the designated tick areas live exports are regarded as a complementary and alternative market outlet for cattle but a market that is much reduced in size given current demand drivers that have enhanced Australia's beef export position.

4.2 Industry Size and Trends

4.2.1 Industry size and structure

Historically, Queensland live cattle exports peaked in 2002-03 at 254,000 head but annual exports have declined every year since then (Table 4.2).

Value of Livestock Export Industry to Regional Australia

Table 4.2 Australian Live Cattle Exports by State (number of head)

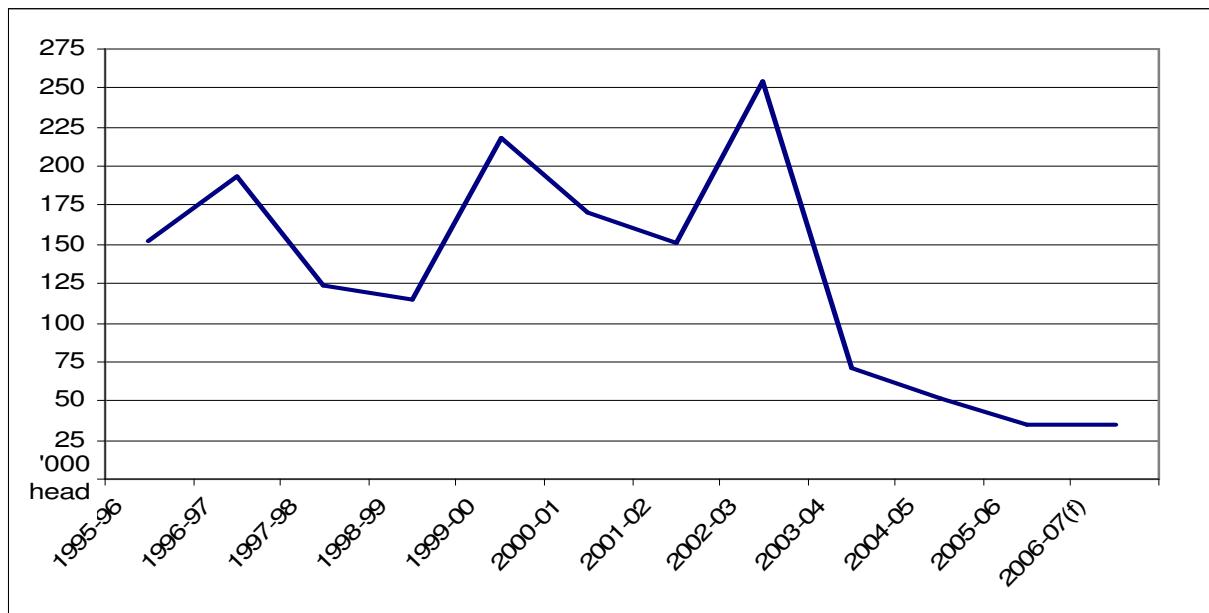
State	2000	2001	2002	2003	2004	2005
Western Australia	323,248	338,683	315,410	301,094	275,823	279,383
Northern Territory	303,941	223,493	306,309	246,065	197,975	213,447
Victoria	52,874	57,891	69,212	52,900	78,899	66,778
New South Wales	8,748	4,931	13,906	15,802	4,495	3,279
Queensland	187,308	166,873	236,895	142,316	67,421	49,671
South Australia	14,223	27,621	26,171	16,071	7,955	5,994
Tasmania	5,630	2,972	16	0	4,880	5,027
Re-exports	0	10	3,961		300	
Total Australia	895,982	822,474	971,880	774,248	637,748	623,579
QLD share of total	20.9%	20.3%	24.4%	18.4%	10.6%	8.0%

Source: ABS (2006d)

Recent analysis by Queensland Department of Primary Industries and Fisheries (QDPI&F) graphically illustrates the decline in the live export activity in Queensland (Figure 4.1).

Industry stakeholders generally regard the contraction in live exports is a permanent change because of the competitiveness of re-stocker, backgrounder, feedlot and meat processor competition for supply. Future live exports are only likely to be part of the marketing equation in excess supply years, such as drought, when supply surpluses exceed feedlot demand or where a significant change to the economic environment of live exports in the QLD market.

Figure 4.1 Live Cattle Exports, Queensland, 1995–96 to 2006–07



Source: QDPI&F Prospects 2006-07 derived from unpublished ABS data.

Value of Livestock Export Industry to Regional Australia

Queensland live exports in 2005 were 49,671 head, which represents approximately 8.0% of cattle of national live exports (Table 4.3).

Table 4.3 Queensland Live Cattle Exports in National Perspective, 2005

Destination	NSW	VIC	QLD	SA	WA	TAS	NT	Total
Brunei	0	0	0	0	0	1,900	12,292	14,192
China	4	53,522	0	3,581	4,858	97	0	62,062
Egypt	0	0	0	0	6961	0	0	6,961
Indonesia	0	1,600	23,351	0	159,790	2,980	170,872	358,593
Israel	0	0	0	1,171	42,941	0	0	44,112
Japan	3,228	0	19,200	0	300	0	0	22,728
Kuwait	0	1882	0	0	2,743	50	0	4,675
Saudi Arabia	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	29,558	0	8,631	38,189
Mexico	0	4,728	0	0	660	0	0	5,388
Philippines	0	2,673	5,930	0	7,075	0	20,334	36,012
UAE	0	2362	0	0	300	0	0	2,662
Other	47	11	1,190	1,242	24,197	0	1,318	28,005
Total	3,279	66,778	49,671	5,994	279,383	5,027	213,447	623,579
% of Australian total			7.97%					

Source: ABS (2006d)

The key markets for Queensland live export cattle are Indonesia and to a lesser extent Malaysia and the Philippines. Cattle destined for Indonesia are generally shipped through Darwin port. Japan is a key market for Queensland live cattle exports with predominantly Angus cattle being sourced from NSW and Southern Queensland.

In 2005 live exports of all livestock through Queensland ports are shown in Table 4.4.

Table 4.4 Live Exports through Queensland Ports 2005

Port	Beef Cattle	Sheep	Goats	Dairy Cattle
Brisbane	24,170	0	475	0
Cairns	980	0	0	0
Gladstone	0	73,749	12	0
Karumba	8,157	0	0	0
Total	33,307	73,749	487	0

Source: LiveCorp

Very few cattle now move from Queensland for export out of the NT (Table 4.5) compared to previous years. More cattle move to the NT for other reasons such as within company herd transfers, improvements in herd genetics than move for live export.

Value of Livestock Export Industry to Regional Australia

Table 4.5 Queensland Cattle Movements to NT 2005 & 2006

Class	Bulls	Steers	Cows	Heifers	Weaners	Calves	Total
2006							
Export Animals	14	744	0	234	0	0	992
Other Movements	1721	470	2027	5462	280	376	10,336
							11,328
2005							
Export Animals	47	280	1	805	0	0	1,133
Other Movements	4,636	5,968	5,328	2,634	0	1,788	20,354
							21,487

Source: QDPI&F (2006)

Only 9% of Queensland properties sold livestock to live export in 2005 (ABARE 2007).

Importantly the Queensland live cattle export industry is now small compared to previous times. Table 4.6 puts the live export industry into perspective when compared to the feedlot and meat processing sectors.

Table 4.6 Relativity of Qld Live Cattle Exports to Other Market Destination, 2005-06

	Head	% Total Qld herd	Total Australia	Queensland Activity as % of Australia
Total Queensland Livestock Numbers June 05	11,600,000		27,800,000	41.7
Live exports	35,138	0.3	579,897	6.1
Feedlot cattle on feed	506,646	4.4	940,097	53.9
Livestock Slaughtering	3,646,900	31.4	7,580,600	48.1

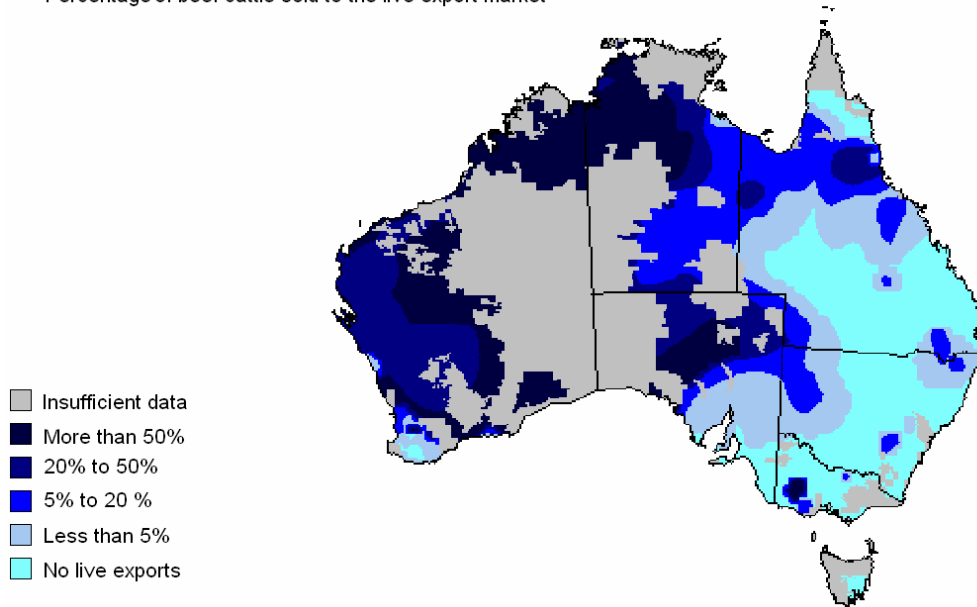
Source: MLA Statistical Review 2005-2006

The change in live export activity in Northern Queensland between 2000-01 and 2004-05 is graphically illustrated in ABARE (2007). Figures 4.2 and 4.3 clearly demonstrate the decline in importance of live exports over a relatively short period.

The decline in live exports in Queensland has been matched by an increase in the number of cattle sourced from the NT to feed the Queensland domestic and export market supply chains. After live export, Queensland is the second largest market for NT bred cattle.

Figure 4.2 Percentage beef cattle sold live export in 2000-01

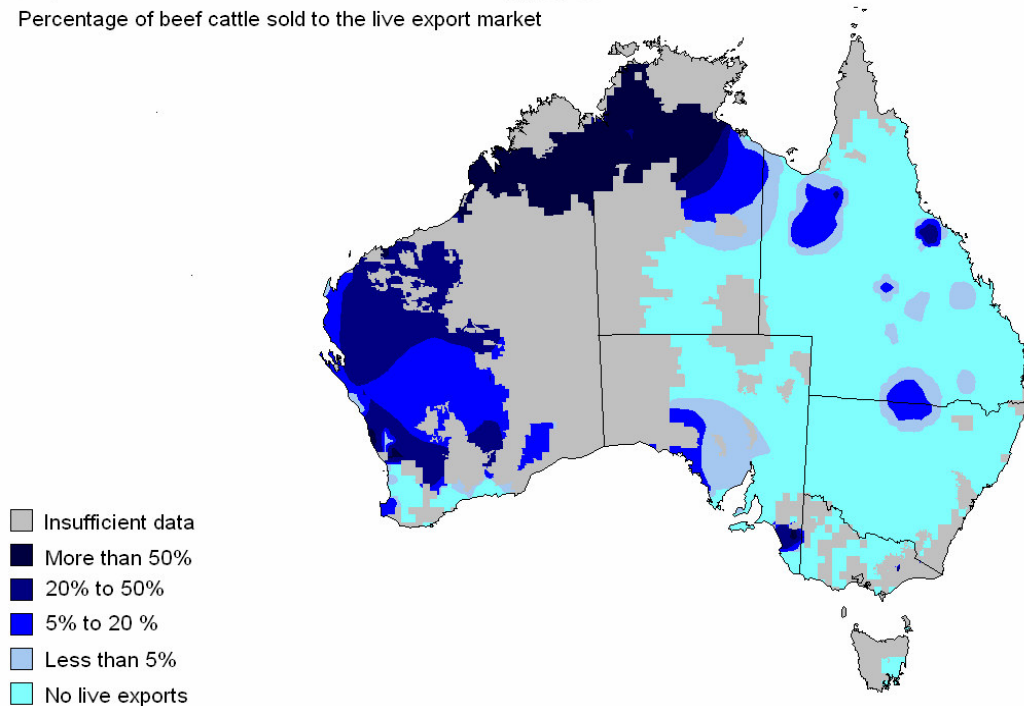
All producers with more than 50 head of beef cattle, 2000-01
Percentage of beef cattle sold to the live export market



Source: ABARE (2007)

Figure 4.3 Percentage beef cattle sold live export in 2004-05

All producers with more than 50 head of beef cattle, 2004-05
Percentage of beef cattle sold to the live export market



Source: ABARE (2007)

4.3 Economic Significance of the Trade

4.3.1 Economic contribution to cattle producers

Despite the decline in live exports from Queensland, the live export market provides a complementary market for high Brahman content cattle from the Gulf and Coastal Queensland that do not easily comply with feedlot entry specifications. The Current live export price of \$1.75/kg Cloncurry is the best price seen by the industry for approximately four years and is a viable alternative market for livestock unsuitable for the southern Queensland supply chain. These cattle are unsuitable for the southern Queensland supply chain because of factors such as high Brahman content, problems with dentition in 3-4 year old steers and the 60-70 cents per kg freight cost to move them south for finishing.

At a regional level the live export market is an additional complementary market and provides flexibility for live stock producers in the far north of the state in a line north of Mount Isa and Townsville.

However, drought induced shortages of supply and demand from meat processors and lot feeders have seen the rapid decline in beef live exports in Queensland. This situation is likely to be further exacerbated as the drought breaks and demand from re-stockers, meat processors and lot feeders increases cattle price and makes live exports an un-economic proposition. Live exports are likely to always be an option in the far north of the state but are unlikely to return to their previous export volumes even in a run of good seasons.

If live exports were to be constrained or to cease it is unlikely that far north cattle operations that are not geared to supply southern feedlots and meat processors would become borderline for profitability. Cattle not taken into the grain fed supply chain could be finished on grass and absorbed by the meat processing sector.

Alternatively if the live export trade out of Darwin were to cease or be severely constrained it is likely that approximately 230,000 head of cattle would enter the Queensland supply chain in two supply peaks in April and August each year. The impact on this additional supply is hard to quantify but as key stakeholders with NT and Queensland operations observed:

“The live export industry gives our business flexibility to markets. We are situated in such a manner that we are able to access Eastern Markets for our cattle but having the additional market to live export for our stock is invaluable.

The live export market also in my opinion prevents or keeps many stock from entering the Australian processing sector and therefore keeps them from our domestic market. This has an extremely positive effect on the price of our domestic beef product.

Should the large numbers of the breed and type of cattle involved in this live export market become available to the export processors on the east coast, then they would cause a downturn in the export beef price as a result of the oversupply to this market.”

“If 230,000 head were dropped into the Queensland market especially in a dry year then the impact on cattle prices could be of the order of 50 cents per kg for about 4 months of the year”

The impact on Queensland cattle prices by diversion of NT live exports to the Queensland market could be of the order of \$150 million if that price depression occurred over 4 months of each year. In good seasons the Queensland supply chain could most likely absorb the additional numbers with a reduced price impact in the order of 5-10%.

Conversely if the live export trade were to expand then depending on price relativities the number of northern cattle that do go to meat processing might decline putting supply pressures on north and central Queensland meat processors. Essentially the end market destination of these cattle is a matter of prevailing market price and freight rates at the time.

The low numbers of cattle exported live from Queensland means any quantitative estimates should be treated with caution.

Number of properties selling to live export markets is variable but using ABARE estimates for the northern live export zone and making allowances for NT properties selling to live export the number of specialist properties is estimated at 40 with another 120-150 non-specialist properties being opportunistic suppliers.

The number of people involved in the Queensland export trade is estimated to be in the range 80-100.

35,500 cattle mainly sourced from interstate are sold to live export including the specialist Japanese trade principally controlled by Elders and for which no value chain data is available because of the commercial confidentiality policies of the company.

Average farm gate price per head is \$666. Average FOB price is \$713 per head. More than 85% of expenditures occur within the State.

4.3.2 Economic contribution to other parts of the value chain

The lack of significant live export activity, the concentration of operators servicing live Queensland exports and the fierce competitiveness to obtain supply results in current live export players being reluctant to provide value chain data, most citing commercial confidentiality.

Table 4.7 is an update of a 2001 study that examined the interaction between live exports and boxed beef exports in Queensland (Macarthur Agribusiness 2001). This analysis is an average of data for live export steers departing either the port of Townsville or Karumba.

Value of Livestock Export Industry to Regional Australia

Table 4.7 Approximate Queensland Value Chain for Live Export Steers, 2005/06^a

Value Chain Item	Average per head (\$)	Aggregate (\$m)
Livestock Costs		
Average Weight (kg)	360	112,140
Farm Gate Price	\$666.00	74.685
Agents Fees (Levied on Farm Gate Price)	\$19.98	2.241
Sub Total	\$685.98	76.926
Other On-farm Costs		
Additional Veterinary on Farm	\$4.00	0.449
Dipping Costs	\$2.00	0.224
Sub Total	\$6.00	0.673
Road Transport		
Farm to aggregation	\$4.86	0.546
Aggregation to wharf	\$11.15	1.250
Livestock insurance	\$5.40	0.606
Sub Total	\$21.41	2.401
Feedlotting/Spelling		
Feed Cost per head	\$4.00	0.449
Ear Tag	\$0.36	0.040
Electrolytes and molasses	\$1.26	0.141
Sub Total	\$5.62	0.630
Industry Levies and Charges		
Livecorp	\$4.07	0.456
Wharf Charges	\$1.00	0.112
Third Party Vet	\$3.50	0.392
AQIS & Quarantine	\$1.80	0.202
Ports Corp	\$2.16	0.242
Stevedoring	\$3.85	0.432
Receival Yard Fees	\$1.08	0.121
Weighbridge	\$2.16	0.242
Sub Total	\$19.62	2.200
Management		
Selectors Costs	\$2.70	0.303
Administration	\$18.00	2.019
Livestock Officer	\$2.70	0.303
Sub Total	\$23.40	2.624
Value at Port		
Average Live Weight (kg)	360	0.000
Price per kg at Port FOB	\$2.12	0.237
Total Gross Value (FOB)	\$762.04	85.454
Shipping		
Fodder for voyage	\$19.80	2.220
Seafreight (excl exporter mgmt)	\$165.00	18.503
Stockmen & on-board vet	\$2.00	0.224
Export levies	\$2.36	0.265
Insurance	\$2.75	0.308
Bank fees	\$4.00	0.449
Total costs	\$195.91	21.969
Total Gross Value (CIF)	\$957.95	107.424

^a Prices and costs in 2005/06 dollars. Export numbers to estimate aggregates were based on 5 year average to 2005/06.

Source: Industry consultation

4.3.3 Current contribution to the regional economy

The above data and analysis were used to derive a profile of employment, wages and salaries and value of output for each component of the value chain in the Queensland cattle industry. Additionally, an input-output model of the Queensland economy was constructed specifically for this project for the financial year 2005/06. The value chain data set and the regional input-output model were used to estimate the direct and indirect impacts of the industry. These estimates are summarised in Table 4.8.

Table 4.8 Direct and Indirect Impacts of Live Cattle Exports - Queensland

Economic Indicator	Impact of Live Cattle Sector			Type II Multiplier ^a
	Direct	Indirect	Total Impact	
Output (\$m)	107	-	-	-
GRP (\$m)	35	61	96	2.77
Employment (FTE)	534	679	1,213	2.27

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis

From the table it can be seen that the Queensland live cattle export industry generates:

- \$107 million in output. The output value is the CIF value of the trade less goods and services purchased outside of Queensland;
- \$96 million in gross regional product (GRP): \$35 million in direct GRP generated by the businesses that comprise the live export value chain and \$61 million in indirect GRP generated by other regional suppliers of goods and services in the Queensland economy.
- 1,213 jobs generated on a FTE basis.

The live cattle industry makes a small but positive contribution to the Queensland economy.

4.4 Impact of Cessation of the Trade

If the live export trade were to cease there would be minimal impact in the Far North of the State where live exports are a useful secondary market for cattle that do not meet Queensland beef supply chain specifications. Cattle would simply be diverted into the meat processing and feedlot supply chains.

The beef industry in Queensland has already adapted to the recent significant contraction in the industry aided by the prosperity afforded by good seasons, sustained beef prices in domestic and export markets and high levels of competition for livestock from meat processors, backgrounders and lot feeders.

The impact of trade cessation in the short, medium and long-term is shown in the tables over page.

Value of Livestock Export Industry to Regional Australia

In the short-term, gross returns on-station would fall by an estimated \$8 million (compared to the current value of production), sales elsewhere along the value chain would be down by \$26 million and the market price impact on other producers in Queensland would be over \$180 million. There would be increased processing in the State to the value of just over \$100 million, giving an overall impact on gross output of -\$116 million. Across the region, the total GRP impact would be a fall of \$215 million, \$183 million directly in live export value chain activities and \$32 million in indirect effects. There would be a net job loss in the region estimated to be around 220 FTE (Table 4.9).

Table 4.9 Short-Term Impacts of Cessation (year 1) – Queensland Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	107	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-8	-	-
<i>Other supply chain loss</i>	-26	-	-
<i>Other producer losses</i>	-184	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	103	-	-
Total change in value of output	-116	-	-
GRP (\$m)			
Current (2005/06)	35	61	96
Year 1 of cessation	-148	29	-119
Net impact of cessation	-183	-32	-215
Employment (FTE)			
Current (2005/06)	534	679	1,213
Year 1 of cessation	537	455	992
Net impact of cessation	3	-224	-221

Source: EconSearch analysis

In the medium-term, gross returns on-station would fall by an estimated \$6 million (compared to the current value of production), sales elsewhere along the value chain would be down by \$26 million and the market price impact on other producers in the region would be around \$175 million. There would be increased processing in the State to the value of just over \$100 million, giving an overall impact on gross revenue of -\$105 million. Across Queensland, the total GRP impact would be a fall of \$200 million, \$173 million directly in live export value chain activities and \$27 million in indirect effects. There would be a net job loss in the region estimated to be more than 170 FTE (Table 4.10).

Value of Livestock Export Industry to Regional Australia

Table 4.10 Medium-Term Impacts of Cessation (year 5) – Queensland Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	107	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-6	-	-
<i>Other supply chain loss</i>	-26	-	-
<i>Other producer losses</i>	-175	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	103	-	-
Total change in value of output	-105	-	-
GRP (\$m)			
Current (2005/06)	35	61	96
Year 5 of cessation	-138	34	-104
Net impact of cessation	-173	-27	-200
Employment (FTE)			
Current (2005/06)	534	679	1,213
Year 5 of cessation	537	500	1,037
Net impact of cessation	3	-179	-176

Source: EconSearch analysis

Gross returns on-station would fall by an estimated \$4 million (compared to the current value of production), sales elsewhere along the value chain would be down by \$26 million and the market price impact on other producers in the region would be around \$167 million. There would be increased processing in the State to the value of just over \$100 million, giving an overall impact on gross revenue of -\$95 million. Across the region, the total GRP impact would be a fall of \$185 million, \$162 million directly in live export value chain activities and \$23 million in indirect effects. There would be a net job loss in the region estimated to be around 130 FTE (Table 4.11).

The present value of direct on-station losses

The present value of direct on-station losses was estimated assuming a reduction in industry gross value as a result of trade cessation of \$8 million in the first year falling to around \$6 million by year 5 and \$4 million by year 10 (Tables 4.9 to 4.11).

The present value of these losses for Queensland producers was estimated to be \$48 million, at a 7% discount rate.

Value of Livestock Export Industry to Regional Australia

Table 4.11 Long-Term Impacts of Cessation (year 10) – Queensland Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	107	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-4	-	-
<i>Other supply chain loss</i>	-26	-	-
<i>Other producer losses</i>	-167	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	103	-	-
Total change in value of output	-95	-	-
GRP (\$m)			
Current (2005/06)	35	61	96
Year 10 of cessation	-128	39	-89
Net impact of cessation	-162	-23	-185
Employment (FTEe)			
Current (2005/06)	534	679	1,213
Year 10 of cessation	537	545	1,082
Net impact of cessation	3	-134	-131

Source: EconSearch analysis

4.5 Conclusion on Regional Value of the Industry

The Queensland beef industry has fundamentally changed from the time that live exports were a significant turn off pathway for Queensland cattle. Industry players are of the opinion that the decline in live exports is a permanent change on the industry landscape unless a significant change in cattle industry economics occurs.

The sophistication of the Queensland beef supply chain, the number of export abattoirs, the demand from the lot feeding sector, comparative freight rates from Queensland compared to freight rates from Darwin to Indonesia, drought and increasing levels of beef enterprise integration have seen a contraction in the industry.

Apart from the complementary market for high Brahman content cattle from the Gulf and coastal Queensland the live export market has ceased to exist.

It is worth commenting that live export operators do not confine their operations to State borders. While their companies may be domiciled in Queensland live exporters will source and export cattle from wherever they can optimise returns.

4.6 Consultation

The project's steering committee recommended persons to be contacted during the study. Those interviewed and their sector in the value chain are shown in Table 4.12.

Table 4.12 Regional Contacts and Consultation Completed – Northern Territory

Value Chain Sector/Ancillary Service	Regional Contact/Business Consulted
Live Exporters	Phillip Bielefeldt, AustAsia Angus Adam, AAA Livestock Services David Gardiner Austock Rural Michael Fenucin, Austrex
Producers	David Connolly, Australian Agricultural Company Zanda Mc Donald MDH Pty Ltd Greg Brown, Meadowbrook, Mt Garnet Roger Halliwell, Georgina Pastoral Company
Road Transport	Brooke Hartley, Hamptons Transport Jim Cooper, Gulf RTA Ross Fraser, Frasers Transport
Agents	Don Steele Agents Assoc + Qld Livestock Exporters Assoc Tony Gooden, Elders
Regional Business/local govt	NA
State Government	Jenny Shorter, Queensland Department of Primary Industry and Fisheries Warwick Lee, Queensland Department of Primary industries and Fisheries
Meat Processors	Geoffrey Teys, Teys Brothers
Fodder grower or manufacturer	NA
Port Authority	NA
Stevedore	NA
AQIS, Other Government	NA
Shipping Company	NA
Service Providers	Tony Gooden, Elders Livestock Kerry Herron and Rick Carr, Herron Todd White Lachlan Douglas, Rabobank
Total Contracted – 23 interviews	Total Completed – 19 interviews

5 WA Southern Cattle and Sheep Industry

5.1 Context of Live Exports in the Region

This regional analysis focuses on the export of cattle and sheep from southern Western Australia.

The industry consultative committee defined the region as Western Australia south of the 26th parallel i.e. south of Shark Bay. In terms of ABS data this was interpreted as the Statistical Divisions (SD) of Midlands, Perth, South West, Upper Great Southern, Lower Great Southern, South Eastern (excluding Ngaanyatjarraku Shire) and Central (excluding the Shires of Carnarvon, Upper Gascoyne, Meekatharra and Wiluna).

The majority of livestock are exported through the Port of Fremantle with an average of around 115,000 cattle and 3.2 million sheep exported over the past 5 years. Geraldton is the other regional port of significance with annual average exports of approximately 25,000 cattle and 10,000 sheep over the same period.

While the sheep and cattle exports through Geraldton are sourced mainly from the surrounding regions, (i.e. the Central region), the source of livestock exports through Fremantle is more diverse with approximately half of the sheep sourced from the Great Southern region, one-quarter from the South West and the remaining one-quarter from the Midlands and Central regions, particularly the area between Perth and Geraldton.

5.2 Industry Size and Trends

5.2.1 Industry size and structure

Over the last five years Western Australia has exported between 2.7 and 3.7 million head of sheep per annum, supplying an average of 70% of Australia's total live sheep exports during that period. While national exports declined from a peak of 6.5 million in 2001/02 to 4.2 million in 2005/06, the WA numbers have been firmer and therefore increased in national share from around 60% 5 years ago to 80% in 2005/06 (Table 5.1).

Table 5.1 Live exports of sheep and cattle, Southern Western Australia

	2001/02	2002/03	2003/04	2004/05	2005/06	5 yr average
Sheep – Sth'n WA						
Number (million)	3.69	3.71	2.76	2.79	3.40	3.27
National Share	56.5%	63.4%	71.8%	86.3%	80.0%	69.0%
Cattle – Sth'n WA						
Number ('000)	146.8	157.8	151.0	104.0	134.8	138.9
National Share	17.9%	15.7%	22.1%	16.7%	23.3%	18.7%

Source: LiveCorp

Up until the mid 1990s Australia live sheep trade was based on the export of cast-for-age merino wethers. The decline in wool prices during the 1990s saw many producers switch into crop production with a corresponding fall in sheep numbers in most sheep producing regions. Although prices in the late 1990s were still relatively low, live sheep exports average around 5 million per annum of which approximately two-thirds were sourced from WA.

The re-entry of Saudi Arabia into the live export market in 2000/01 corresponded to a sharp increase in domestic lamb prices and a jump in live sheep export prices. Shippers that had been selling for around \$25 to \$30 per head (farm gate) approximately doubled in price to \$45 to \$55 per head. This price range has been fairly well maintained over the past 5 years.

In contrast to sheep, live cattle exports from the region have been relatively steady over the past five years, averaging almost 140,000 head. This has been just under 20% of national exports. Despite a dip in 2004/05, the numbers in 2005/06 were back to just below the 5 year average.

5.2.2 Gross value of the trade

The gross value of the southern WA sheep and cattle export trade is estimated on the following basis:

- Average annual cattle exports of 131,000 head in the 5 years to 2005/06 (ABS data);
- Average annual sheep exports of 3.27 million in the 5 years to 2005/06 (ABS data)
- Average sale price (farm gate) between 2001/02 and 2005/06 of \$50 a head for sheep⁴ and \$612 a head for cattle (industry consultation);
- A gross farm gate value of \$172.7 million for sheep and \$82.3 million for cattle.

When the value of other services is added to farm gate price, average FOB value increases to \$74 per head for sheep and \$720 for cattle (Table 5.2) giving a gross trade value of \$243 million for sheep and \$94 million for cattle.

Additional services yield a CIF valuation, some of which are provided by overseas companies (e.g. sea freight) and some by Australian suppliers (e.g. fodder for voyage, stockmen, insurance). In total, the CIF value of live sheep exports from southern WA was estimated to average \$330 million per annum over the past five years and \$115 million for cattle over the same period.

⁴ The price in 2004/05 was approximately \$10/head less than this average figure, a decline that could properly be attributed to the Cormo Express incident and the subsequent cessation of live shipments to Saudi Arabia (Bob Hall, pers comm.).

Value of Livestock Export Industry to Regional Australia

Table 5.2 Gross value of live exports of sheep and cattle, Southern Western Australia ^a

	Sheep	Cattle
Export no. (average 2001/02 to 2005/06)	3,271,473	130,583
Farm Gate Value		
Average live weight (kg)	45	340
Average price (\$/head)	\$50.00	\$612.00
Farm gate value (\$m)	163.6	79.9
Port Value (FOB)		
Average value (\$/head)	\$74.54	\$720.04
Gross port value (\$m)	243.9	94.0
Delivered Value (CIF)		
Average value (\$/head)	\$101.31	\$878.54
Gross delivered value (\$m)	331.4	114.7

^a Due to trading between regions, there are differences in the number turned off farm for live export and the number of live exports through ports in the region.

5.3 Economic Significance of the Trade

5.3.1 Economic contribution to livestock producers

The most obvious benefit for producers of involvement in the live export trade is the price premium they receive. For sheep producers, the price of shippers has averaged around \$50 per head over the last few years. The same sheep sold on the domestic market would average around \$25 per head, perhaps even less.

Additionally, while wool prices have been in decline, livestock sales for both shippers and prime lambs have enabled producers to maintain profitability.

Having a viable and sustainable alternative market also gives opportunities for alternative mating strategies. The move to ewe based flocks and reduced emphasis on wool production has seen the number of adult wethers decline significantly and the sale of younger sheep, particularly the sale of long-tailed entire ram lambs.

Data provided by Bob Hall (JRL Hall & Co, Farm Management consultants), indicated the significance of the live trade among a group of 80 clients farming in the Darkan district. One illustration was the \$10 per head average reduction that could be attributed to the Cormo Express incident. The firm's 80 clients sell an average of 4,184 sheep. The \$10 per head reduction caused an average individual loss of \$41,840 and had an aggregate impact of over \$3.3 million among the client group.

Another example provided by Bob Hall relates to the Shire of West Arthur in the Great Southern region of Western Australia. The Shire has a sheep population of around 1 million, a human population of 900 and an estimated 150 commercial farm holdings. Annual sheep sales in the region average around 440,000 and the average price in 2004/05 (for both domestic slaughter and live export) was \$40.76. A 25% (\$10 per head) reduction in price would result in a loss in gross revenue (mostly profit) of \$4.5 million, which translates into approximately \$5,000 per head of population in the shire and almost \$30,000 per property.

The growing importance of live exports was also illustrated in the data provided for the JRL Hall client group. In 2000, group average sheep sales comprised approximately 18% of total farm receipts. By 2006 sheep this figure had increased to exactly one-third of total receipts and was on a par with wool income. This growth in enterprise share occurred over a 6-year period when average gross receipts for group members increased by 45%.

For both the sheep and cattle sectors, the industry circumstances in Western Australia make its situation more precarious than in the Eastern states, particularly in terms of the size and severity of the market's response to external changes. For example, the slaughter capacity in WA is relatively low, there is currently a severe shortage of abattoir labour and the ratio of live export sales to domestic slaughter sales is relatively high. These factors together mean that options for producers and others in the live export supply chain are limited in the face of external market change. Put another way, the live export trade provides a solid underpinning to Western Australia's livestock markets that provides stability and a degree of income certainty (such as provided by Haj contracts) as well as confidence to maintain investment in the industry.

Another important benefit from the live trade has brought to farms in the region has been the improvements that come from investment in on-farm infrastructure. The size of vehicles and the need for efficient loading facilities has meant that many farmers have invested heavily in, for example, upgrading sheep and cattle yards and access roads on-farm.

The live export of sheep and cattle from Southern Western Australia has made a positive economic contribution to both participating sheep and cattle producers and the broader livestock industry.

5.3.2 Benefits for others in the supply chain

Generic value chains for the live export of sheep and cattle from southern Western Australia are shown in Table 5.3. A brief description is provided of some of the main activities.

Local contractors: local contractors are employed to undertake several export related tasks such as scratching and shearing shippers.

Road transport providers: the live trade has had a significant impact on the transport industry. In southern WA there are several livestock transport operators for whom more than 50% of their business is in freighting sheep from farms to feedlots. For feedlots based in the region, this may not be much different to freighting to an abattoir but there is an additional movement from feedlot to the port. Another important part of the business is the transport of store wethers from saleyards to farm that are being fattened for export.

Value of Livestock Export Industry to Regional Australia

Table 5.3 Value Chain for Sheep and Cattle Live Export – Southern WA, 2005/06^a

Value Chain Item	Average per head (\$)		Aggregate (\$m)	
	Sth'n WA-S	Sth'n WA-C	Sth'n WA-S	Sth'n WA-C
Livestock Costs				
Average Weight (kg)	45	340	3,271,473	130,583
Farm Gate Price	\$50.00	\$612.00	163.574	79.917
Agents Fees (Levied on Farm Gate Price)	\$2.75	\$18.36	8.997	2.398
Sub Total	\$52.75	\$630.36	172.570	82.314
Other On-farm Costs				
Additional Veterinary on Farm	\$0.40	\$4.00	1.309	0.522
Shearing (one-third)	\$1.50	\$0.00	4.907	0.000
Dipping Costs	\$0.00	\$2.00	0.000	0.261
Sub Total	\$1.90	\$6.00	6.216	0.783
Road Transport				
Farm to aggregation	\$3.00	\$12.50	9.814	1.632
Aggregation to wharf	\$1.05	\$6.00	3.435	0.783
Livestock insurance	\$0.40	\$9.15	1.309	1.195
Sub Total	\$4.45	\$27.65	14.558	3.611
Feedlotting/Spelling				
Feed Cost per head	\$4.50	\$10.50	14.722	1.371
Ear Tag	\$0.00	\$0.70	0.000	0.091
Ajistment, handling, AI, certification	\$4.00	\$0.00	13.086	0.000
Sub Total	\$8.50	\$11.20	27.808	1.463
Industry Levies and Charges				
Livecorp	\$0.90	\$3.93	2.944	0.513
Wharf Charges	\$0.19	\$1.80	0.622	0.235
Third Party Vet	\$0.08	\$4.00	0.262	0.522
AQIS & Quarantine	\$0.17	\$2.50	0.556	0.326
Ports Corp	\$0.50	\$2.16	1.636	0.282
Stevedoring	\$0.18	\$2.25	0.589	0.294
Receival Yard Fees	\$0.50	\$0.00	1.636	0.000
Weighbridge	\$0.50	\$2.00	1.636	0.261
Sub Total	\$3.02	\$18.64	9.880	2.434
Management				
Selectors Costs	\$0.00	\$2.43	0.000	0.317
Administration	\$3.92	\$22.50	12.834	2.938
Livestock Officer	\$0.00	\$1.26	0.000	0.165
Sub Total	\$3.92	\$26.19	12.834	3.420
Value at Port				
Average Live Weight (kg)	45	340	147.216	44.398
Price per kg at Port FOB	\$1.66	\$2.12	5.419	0.277
Total Gross Value (FOB)	\$74.54	\$720.04	243.865	94.025
Shipping				
Fodder for voyage	\$5.50	\$25.00	17.993	3.265
Seafreight (excl exporter mgmt)	\$19.08	\$130.00	62.410	16.976
Stockmen & on-board vet	\$0.30	\$0.00	0.981	0.000
Insurance	\$1.89	\$3.50	6.185	0.457
Total costs	\$26.77	\$158.50	87.569	20.697
Total Gross Value (CIF)	\$101.31	\$878.54	331.435	114.722

^a Prices and costs in 2005/06 dollars. Export numbers to estimate aggregates were based on 5 year average to 2005/06.
Source: Industry consultation

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Agents: Elders and Landmark dominate the West Australian livestock agency sector and each firm has agents who specialise in sourcing sheep and cattle for live export markets. Agents earn around 3-5% commission on sale value and individual franchises source up to 150,000 head per annum.

Feedlots: Several facilities are in operation, some near Fremantle and others closer to the source of livestock. Gross revenue for this sector is estimated to total around \$30 million.

Fodder producers: The development of the trade has seen the establishment and expansion of pellet producers and specialist fodder suppliers. Expenditure on feed in feedlots and fodder on-ship is estimated to lie in the range \$35 to 40 million per annum.

Port Authority: Two port authorities service livestock export vessels in southern WA, namely Fremantle Ports and Geraldton Port Authority. Wharfage and related port charges are, in aggregate, estimated to be in the range \$2.5 to \$3.0 million per annum.

Stevedore: Expenditure associated with stevedoring totals just under \$1 million per annum. Labour expenses dominate stevedoring expenditure.

Shipping company: The shipping company incurs expenses in Western Australia while loading for live export. Each vessel incurs costs of over \$100,000, which includes repairs and maintenance, fuel, ships provisions (stores, food, spare parts), port charges, oil and fresh water.

Ships crew: The ships crew also spend wages and salaries while in port and an allowance of \$10,000 per vessel has been made. This allowance includes medical services, meals, recreation expenses and other consumables.

Exporters: There are several firms servicing this market including, amongst others, Emanuels, Wellards, Elders and Australian Rural Exports.

Additional significant service providers: Other services associated with the trade include straw and grain sales to the pellet producer (there are currently no alternative markets for straw) and backgrounding enterprises have grown in response to the strength of the livestock export trade.

Clearly there has been a range of services that either emerged to support the trade or have grown in response to it. Note that the aggregate export numbers refer to the average live exports for the five years to 2005/06.

Environmental Benefits

Producers commented that the environmental benefits resulting from the industry's development occurred because profitable businesses can afford to manage their land in an appropriate and sustainable way. Some producers are of the view that movement to a higher crop dependent, or even a continuous cropping system, would be detrimental to the long-term productivity of their land, a change that would be forced on some farmers if the live export trade were to cease. As well, there are widely recognised benefits from maintaining livestock in an enterprise rotation to help control persistent weed problems.

The estimated indirect economic impact from all parts of the value chain is provided in the following section.

5.3.3 Current contribution to the regional economy

The contribution of the livestock export industry in southern WA was based on average live exports for the five years to 2005/06. For sheep the figure was 3.27 million and for cattle the annual average exports totalled just over 130,000. The data presented in Table 4.4 were used to calibrate an input-output model of the southern WA economy. The model is for the financial year 2005/06 and was constructed specifically for this project.

The direct and multiplier impacts of the industry derived from the regional input-output model are summarised in Table 5.4 for sheep and Table 5.5 for cattle.

Table 5.4 Base case regional contribution – Southern WA Sheep

Economic Indicator	Impact of Live Sheep Export Sector			
	Direct	Indirect	Total	Type II Multiplier ^a
Output (\$m)	331	-	-	-
GRP (\$m)	105	168	273	2.60
Employment (FTE)	2,035	2,083	4,118	2.02

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis

Table 5.5 Base case regional contribution – Southern WA Cattle

Economic Indicator	Impact of Live Cattle Export Sector			
	Direct	Indirect	Total	Type II Multiplier ^a
Output (\$m)	115	-	-	-
GRP (\$m)	41	70	111	2.71
Employment (FTE)	825	847	1,672	2.03

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis

From the tables it can be seen that in southern WA the live export industry generates:

- \$331 million in output (or gross revenue) for sheep and \$115 million for cattle. The output value is the CIF value of the trade;
- \$273 million in gross regional product (GRP) for sheep: \$105 million in direct GRP generated by the businesses that comprise the live export value chain and \$168 million in indirect GRP generated by other regional suppliers of goods and services in the southern WA economy.
- \$111 million in gross regional product (GRP) for cattle: \$41 million in direct GRP generated by the businesses that comprise the live export value chain and \$70 million in indirect GRP generated by other regional suppliers of goods and services in the southern WA economy.
- 4,118 jobs generated on a FTE basis by live sheep exports and 1,672 by cattle exports.

5.4 Impact of Cessation of the Trade

5.4.1 Short-term impact of a cessation

For producers there would be an immediate price reduction and all producers would be impacted. Given the price response following the Cormo incident (approximately \$10/head fall for all sheep in WA), and the lack of demand for the type of sheep that are currently being exported, many of which would be too light or of the wrong type for processors to handle, it is expected price would fall by a least half (to \$25 per head) but more likely by 70 to 80% to around \$10 to \$15 per head. Given current prices for sheep for mutton of \$15 to \$20 per head, the over supply situation would be likely to push prices well below that level, conservatively modelled to be \$8 per head but could possible be as low as \$4 to \$5 per head if the fall was of a similar proportion to that for shippers.

The short-term effect of trade cessation on prices is difficult to assess but the experience of the flock reduction scheme in 1988 following the removal of the floor price scheme provides an interesting precedent. Ewes at the time were \$0.20 to \$1.00 less freight which gave a negative return to producers. To encourage flock reduction, the scheme provided incentives for on-farm slaughter; up to \$6.00 for good quality young sheep and \$1.80 for older and poorer quality sheep. These were incentive prices and therefore above meat prices prevailing at the time (Bob Hall, pers. comm.)

Following cessation of the trade farmers would be faced with four main options:

- Sell to sheep for processing locally
- Hold sheep on-farm
- Transport sheep to eastern states for slaughter
- Destroy sheep

Given the current capacity and utilisation levels in abattoirs in southern WA, it is possible that 1.0 to 1.5 million additional sheep could be slaughtered. This would require most of the abattoirs moving to a double shift. In the current tight labour market in WA brought about by the resources boom in the State, processors are having difficulty maintaining staff at current levels, let alone attracting additional staff at wages well below what can be obtained in the resources sector. However, even if a short-term expansion in throughput were possible, it would still leave around 2.0 to 2.5 million sheep that would be otherwise sold for live export.

It is likely that many farmers would be faced with the proposition of holding on to a proportion of the sheep they would otherwise have sold for live export. This would raise two immediate problems that will impact on both their short-term and medium-term income levels.

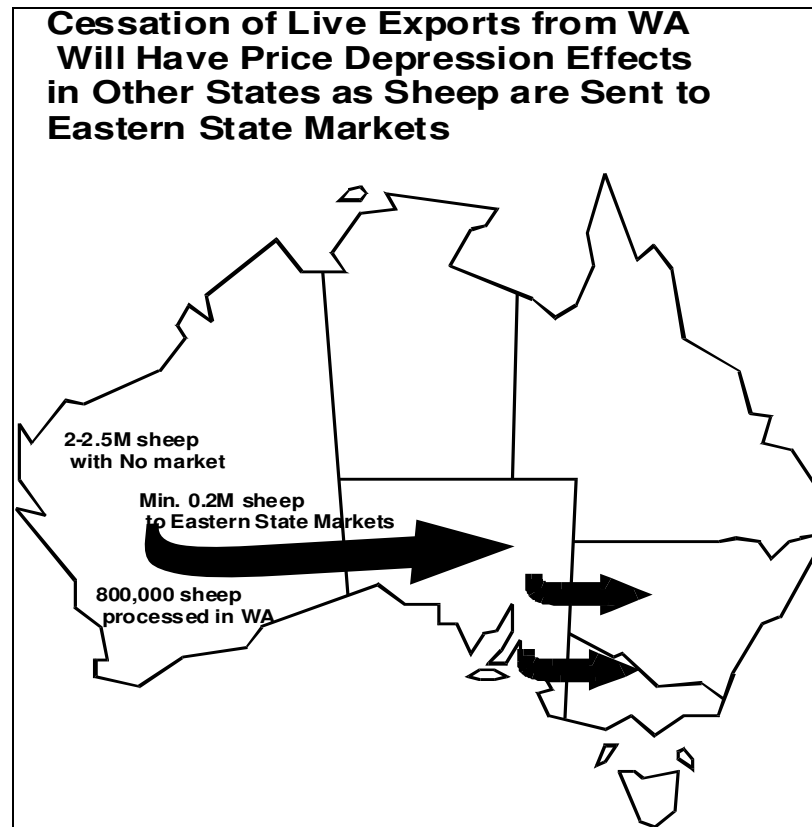
First, the farmer choosing to hold on to their wethers (for increased wool production) will do so by either reducing the number of ewes or, given that most sheep producers have a mixed livestock cropping enterprise, reducing the area cropped. The obvious problem with the first strategy is that the market would be heavily oversupplied and prices depressed.

The second option of reducing cropped area would, for most producers, not be feasible in the short-term and even less so in the medium to long-term. By heavily stocking a property with a “loss leader”, the farmer would be forced to expand the enterprises that provide some potential to offset

the losses from the sheep enterprise. Although expansion in cropping will not be possible in the first year, it would be financial suicide to reduce farm income by turning crops over for grazing or to use the grain harvested for supplementary feeding. There would also be significant environmental damage if producers were forced to carry excess stock.

The timing of any announcement would to some extent dictate the immediate options that would be open to farmers. The timing of an announcement would affect the extent to which current season decisions about mating, cropping and enterprise mix could be changed, and the prevailing season and feed conditions would also influence what would be the farmer's best strategy to minimise losses.

An alternative to selling for slaughter in the local WA market would be to transport sheep to the eastern states for slaughter there. Under the market conditions prevailing in recent years, this has been a viable strategy for the opportunistic sale of small numbers of sheep in the strong eastern states market. This has been a viable selling strategy despite a transport cost of around \$18 to \$22 per head. However, under a situation where all live exports cease, the eastern states in particular South Australia and Victoria would be faced with serious oversupply conditions as well. Over the past five years live export of sheep from WA have averaged 3.3 million and the offering of this number or a substantial proportion will significantly depress prices in the short-term.



The final option for many producers would be to destroy sheep on property. With market options severely limited and no capacity to hold the sheep over the summer and autumn period, the only option would be to destroy a large proportion of the sheep. If, in the short-term, up to 1 million sheep were either processed in WA or transported by road to the eastern states, it would still leave well 2 to 2.5 million sheep that would need to be destroyed. Not only would this result in a heavy financial loss for individual farmers it would also be extremely stressful.

Specialist transport operators, feed suppliers, agents and many other service providers along the value chain would lose a large proportion of their business and many would have difficulty selling their specialist equipment.

For modelling the sheep industry short-term (year 1) effect, the following assumptions have been made:

- The price of sheep previously destined for live export would fall by \$35/head.
- The sale of sheep previously destined for live export would total approximately 1 million (80% processed in WA and 20% transported to the eastern states). The majority of the remaining 2.3 million sheep would be destroyed.
- In response to the increased supply of sheep destined for the domestic market, it was assumed that the price of sheep would fall by \$0.34/kg and the price of lambs would fall by \$0.14/kg live weight for all producers. This is above the long-term equilibrium price adjustment forecast by Hassall & Associates (2006), however the isolated nature of the WA market, the constraints on slaughter capacity and the extent to which live shipment prices tend to price all other sheep in the WA market suggest that these short-term price effects are conservative and likely understate the actual short-term price impact following trade cessation.
- For sheep to be processed that were previously destined for live export, transport costs were assumed to approximate the farm to aggregation cost.
- The value added (difference between the farm-gate and factory gate prices) of the 800,000 sheep that would be processed in WA was assumed to be \$20/head.

For modelling the beef industry short-term (year 1) effect, the following assumptions have been made:

- The price of cattle previously destined for live export would fall by \$0.40/kg live weight.
- Turnoff weights for cattle previously destined for live export were assumed to be similar. The number of cattle turned off was assumed to be 20,000 head less than the number destined for live export.
- In response to the increased supply of cattle destined for the domestic market, it was assumed that the price of cattle would fall by \$0.18/kg live weight for all producers.
- For cattle previously destined for live export, transport costs were assumed to approximate the farm to aggregation cost.
- The livestock-processing sector in southern WA was assumed to process up to 75% of cattle previously destined for live export from southern WA and northern WA and the value added by this sector was assumed to be \$200/head. The balance of cattle was assumed to be transported to the eastern states. It is quite optimistic to assume that current potentially

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available capacity would match the number of cattle that would need to be processed. As well as reluctance on the part of abattoir operators to dramatically increase kill in the event of an emergency (Burggraaf and Manners 2005), the current labour market constraints would make it very difficult for most abattoirs to significantly increase production above current levels. There is a strong possibility that cattle producers would face the destruction of some livestock in response to a cessation of trade.

The short-term impacts for both sectors (Tables 5.6 and 5.7) would be disastrous for the regional economy, particularly the localities where the industry is concentrated. For the sheep industry the loss in gross revenue is estimated to be greater than the gross value of the live export industry supply chain. This arises because there will be substantial losses for other sheep producers not supplying the export trade as sheep prices across the board will be impacted. The sheep sector impact will result in almost \$450 million lost from gross regional product and the loss of over 3,600 jobs (FTE), divided evenly between businesses directly involved along the value chain and those in the broader economy with and indirect association with the industry. For the beef sector, the regional income loss is less dramatic with gross regional product down by around \$60 million and almost 400 jobs lost.

Table 5.6 Short-term impacts of cessation (year 1) - Southern WA Sheep

Economic Indicator	Impact of Live Sheep Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	331	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-149	-	-
<i>Other supply chain loss</i>	-266	-	-
<i>Other producer losses</i>	-47	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	22	-	-
Total change in value of output	-440	-	-
GRP (\$m)			
Current (2005/06)	105	168	273
Year 1 of cessation	-165	-11	-176
Net impact of cessation	-270	-179	-449
Employment (FTE)			
Current (2005/06)	2,035	2,083	4,118
Year 1 of cessation	570	-66	504
Net impact of cessation	-1,465	-2,148	-3,614

Source: EconSearch analysis

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Table 5.7 Short-term impacts of cessation (year 1) - Southern WA Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	115	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-27	-	-
<i>Other supply chain loss</i>	-40	-	-
<i>Other producer losses</i>	-18	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	46	-	-
Total change in value of output	-39	-	-
GRP (\$m)			
Current (2005/06)	41	70	111
Year 1 of cessation	-8	57	50
Net impact of cessation	-49	-13	-61
Employment (FTE)			
Current (2005/06)	825	847	1,672
Year 1 of cessation	643	636	1,280
Net impact of cessation	-182	-211	-392

Source: EconSearch analysis

5.4.2 Medium and long-term impact of cessation

For the sheep industry the medium (year 5) responses (Table 5.8) were assumed to be similar to those listed above for the short-term with the exception of the following.

- The price of sheep previously destined for live export would be \$15/head lower than the pre-cessation price.
- The sale of sheep previously destined for live export would total approximately 1.25 million (85% processed in WA and 15% transported to the eastern states).
- There would be some offsetting income derived from cropping activity, estimated to be \$55 million/annum, as many producers adopt an increase cropping strategy. Not all farms can switch to crop production in response to lower sheep profitability but those that can are likely to. Net returns are assumed to be 80% of current averages as new plantings would be on more marginal land and the increase in production is likely to have some dampening effect on price.

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For a farmer wishing to keep in sheep production, the reaction in the medium and long-term would be to increase prime lamb production as mutton prices would be in a state of complete collapse whereas there would be more confidence in prime lamb production. Prime lamb production in WA is currently centred around putting a terminal sire on a merino ewe. This would tend to change, seeking higher lambing percentages from alternative breeds, half breeds, etc. All of these tend to have an effect on the state wool clip and degrade its value and quantity. This tends to dilute the sought after extra profit from the prime lamb production. Any further loss of wool production on an already depleted clip has critical mass consequences which have the potential to degrade price even further (Bob Hall, pers. Comm.).

Table 5.8 Medium-term impacts of cessation (year 5) - Southern WA Sheep

Economic Indicator	Impact of Live Sheep Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	331	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-120	-	-
<i>Other supply chain loss</i>	-250	-	-
<i>Other producer losses</i>	-35	-	-
<i>On-farm gain (other enterprises)</i>	53	-	-
<i>Additional processing</i>	28	-	-
Total change in value of output	-324	-	-
GRP (\$m)			
Current (2005/06)	105	168	273
Year 5 of cessation	-92	40	-52
Net impact of cessation	-197	-128	-325
Employment (FTE)			
Current (2005/06)	2,035	2,083	4,118
Year 5 of cessation	873	531	1,404
Net impact of cessation	-1,162	-1,552	-2,714

Source: EconSearch analysis

Long-term (year 10) responses (Table 5.9) were assumed to be similar to the medium-term response with exception of the following.

- The price of sheep previously destined for live export would be \$10/head lower than the pre-cessation price.

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Table 5.9 Long-term impacts of cessation (year 10) - Southern WA Sheep

Economic Indicator	Impact of Live Sheep Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	331	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-104	-	-
<i>Other supply chain loss</i>	-235	-	-
<i>Other producer losses</i>	-23	-	-
<i>On-farm gain (other enterprises)</i>	53	-	-
<i>Additional processing</i>	35	-	-
Total change in value of output	-274	-	-
GRP (\$m)			
Current (2005/06)	105	168	273
Year 10 of cessation	-56	63	7
Net impact of cessation	-161	-105	-266
Employment (FTE)			
Current (2005/06)	2,035	2,083	4,118
Year 10 of cessation	1,011	815	1,826
Net impact of cessation	-1,024	-1,268	-2,292

Source: EconSearch analysis

Although the short-term impact has been mitigated to some extent, the losses in terms of gross regional product (more than \$250 million per annum) and employment (over 2,200 FTE jobs) are forecast to be sustained over a long period of time.

For the cattle industry, the medium (year 5) responses (Table 5.10) were assumed to be similar to those for the short-term response listed above with the exception of the following.

- The price of cattle previously destined for live export would fall by \$0.20/kg live weight.
- Turnoff weights for cattle previously destined for live export were assumed to be 60 kg/head greater. The number of cattle turned off was assumed to be 10,000 head less than the number destined for live export.
- The livestock-processing sector in southern WA was assumed to process up to 85% of cattle previously destined for live export.
- There would be some offsetting income derived from cropping activity, estimated to be \$5 million/annum. Net returns are assumed to be 80% of current averages as new plantings would be on more marginal land and the increase in production is likely to have some dampening effect on price.

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Table 5.10 Medium-term impacts of cessation (year 5) - Southern WA Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	115	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-12	-	-
<i>Other supply chain loss</i>	-44	-	-
<i>Other producer losses</i>	-14	-	-
<i>On-farm gain (other enterprises)</i>	5	-	-
<i>Additional processing</i>	47	-	-
Total change in value of output	-18	-	-
GRP (\$m)			
Current (2005/06)	41	70	111
Year 5 of cessation	12	66	79
Net impact of cessation	-28	-4	-32
Employment (FTE)			
Current (2005/06)	825	847	1,672
Year 5 of cessation	673	835	1,508
Net impact of cessation	-152	-12	-164

Source: EconSearch analysis

Long-term (year 10) responses (Table 5.11) were assumed to be similar to the medium-term response with exception of the following.

- The price of cattle previously destined for live export would fall by \$0.09/kg live weight.
- The livestock-processing sector in southern WA was assumed to process up to 90% of cattle previously destined for live export.

The short-term impacts are estimated to be fairly well off-set in the medium to long-term. To some extent, alternative strategies adopted by producers provide some compensatory income but a much more significant effect is the increased level of processing, particularly of cattle transported from the north of the state. This impact is, of course, contingent upon sustained expansion of processing capacity in the state.

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Table 5.11 Long-term impacts (year 10) - Southern WA Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	115	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-8	-	-
<i>Other supply chain loss</i>	-44	-	-
<i>Other producer losses</i>	-9	-	-
<i>On-farm gain (other enterprises)</i>	5	-	-
<i>Additional processing</i>	59	-	-
Total change in value of output	4	-	-
GRP (\$m)			
Current (2005/06)	41	70	111
Year 10 of cessation	23	74	98
Net impact of cessation	-18	5	-13
Employment (FTE)			
Current (2005/06)	825	847	1,672
Year 10 of cessation	682	941	1,623
Net impact of cessation	-142	94	-49

Source: EconSearch analysis

Industry Threats and Sustainability

Threats to the industry that may result in the cessation scenarios described above or even a partial reduction in the trade are:

1. An extreme animal welfare group achieving their stated goal of trade shutdown;
2. Lack of investment in the essential move of export facilities from Fremantle – current arrangements not sustainable in the long-term
3. An exotic disease outbreak such as Foot and Mouth brought to Australia by illegal fishermen or other vectors;
4. A market related shutdown such as a change in an importing country's policy in relation to live exports, political instability and/or its capacity to pay. ;
5. Exchange rate movements that result in Australian product becoming non-price competitive in export markets;
6. Inappropriate shipping protocols or standards. Industry point to current difficulties with shipping standards that prohibit even short horned cattle being exported and minimum weights that exclude cattle during drought periods; and

7. A shortage of labour on-farm, in feedlots, in transport and right through the value chain.

The present value of direct on-farm losses

A present value of current and future loss is estimated using the following data:

- Sheep: Annual reduction in on-farm gross value as a result of trade cessation is almost \$150 million pa in the first year and more than \$100 million pa thereafter (Tables 5.6, 5.8 and 5.9); and
- Cattle: Annual reduction in industry gross value as a result of trade cessation is \$27 million pa in the first year and around \$10 million pa thereafter (Tables 5.7, 5.10 and 5.11).

The present value of current and future loss associated with trade cessation in southern WA, at a 7% discount rate, is in excess of \$1.05 billion, almost \$940 million for sheep producers and \$120 million for cattle producers.

5.5 Conclusion on Regional Value of the Industry

The live export trade has underpinned farm profitability, production systems, land and animal management in many areas in southern WA. It has led to a buoyant and sustainable industry in the region.

The southern WA sheep and cattle live export sectors contribute a combined gross revenue of almost \$450 million, direct and indirect GRP of \$380 million and over 5,700 jobs. If the trade were to cease, sheep prices would fall by up to \$35 per head, cattle prices would fall by \$0.40/kg, producers would incur additional costs and employment would fall by over 4,000 FTE in year one, settling out at 2,300 FTE in the medium to long-term.

For individual producers, both sheep and cattle, any loss of income goes straight to the bottom line. Industry consultation has shown that profits in both sectors are slender and would be transformed into losses with the level of income decline associated with the price effects anticipated following trade cessation.

The loss of sheep flock and cattle herd structures associated with lower management inputs and the increased bio-security and environmental risks associated with greater incursions of feral animals, such as dogs, goats, camels and donkeys, would exacerbate the severe social and economic consequences of live export trade cessation.

Because this study has a regional focus, the impacts on the sheep industry in the eastern states have not been included. However, it needs to be acknowledged that the lower priced sheep meat in WA will mean lower prices in the eastern states as well. Hassall & Associates (2006) indicated the long-term national price impact would be a \$0.17/kg live weight fall for sheep, while the price of lambs would fall by \$0.14/kg. In this report only the outcomes in the southern WA region have been costed but the substantial direct farm income impact that would be felt in other sheep producing regions needs to be recognised as well.

5.6 Consultation

Extensive consultation was made with producers and others involved in the export value chain in southern WA. Consultation was in the form of one-on-one interviews and telephone discussions. Interviews questions followed a set questionnaire, which is reproduced in Appendix 2. There were several questions that were specific to sheep and cattle producers that were not asked of others in the value chain.

In addition to one-on-one interviews, a Regional Discussion Group Meeting was held in Darkan at the offices JRL Hall & Co on 19 December 2006. Eight people attended the meeting representing the farm, transport, meat processing, agents and farm management consulting sectors. Bob Hall also provided comments on earlier drafts of this section of the report.

Table 5.12 Consultation list, Southern Western Australia

Value Chain Sector	Regional Contact/Business Consulted
Live Exporters	David Jarvie, Wellard Rural Exports Justin Morrissey, Wellard Rural Exports John Edwards, Al Jabri Australia Pty Ltd
Producers	Chris Buller, Sheep, Darkan/Kojonup Wayne Duffield – Sheep, Darkan Sally Gilham, sheep and cattle, South Geraldton Rocklea South, Sheep, Darkan Mark Wunnenberg, Sheep Darkan
Road Transport	Neville Matthews, Matthews Transport, Kojonup Jeff Miotti, Miotti Transport, Kojonup Grant Robbins, Livestock Transport Association
Agents	Chris Medcalf, Landmark State Livestock Manager Paul Mahoney, Elders, Darkan
Regional Business/local govt	Geoff McKeown, CEO, Shire of Narrogin Bob Hall, Farm Consultant, Darkan Peter Treford, Hillside Meats, Narrogin
State Government	DPI
Shearing Contractors	K and S Shearing
Assembly depot	RETWA Quarantine Feedlot Baldivis David Jarvie, Baldivis Feedlot
Fodder grower or manufacturer	Ian Spencer Wesfeeds David Jarvie, Wogan Hills Feedmill
Port Authority	Michael Bonavita, Rod Townsend, Fremantle Ports Berndt Olesen, Geraldton Port Authority
Stevedore	Western Stevedores
Government	AQIS
Service Providers	SINWA IMES P/L Providores
Total Contracted - 26	Total Completed - 27

6 Victorian Dairy Cattle Industry

6.1 Context of Live Exports in the Region

This regional analysis focuses on the export of dairy breeding cattle, especially dairy heifers from southern Australia. The dairy heifer export industry has grown rapidly since 2000 and the trade has been dominated by sales to China and Mexico, with a range of new markets emerging (Turkey, Pakistan, Russia, Saudi Arabia and Jordan). The trade has benefited from the identification of BSE in competing overseas markets.

The case study region was defined by the industry consultative committee as the state of Victoria. Case study objectives included the requirement to demonstrate the contribution live export makes to the overall health of the Victorian dairy industry and the underpinning it provides for dairy cattle prices.

6.2 Industry Size and Trends

6.2.1 Industry size and structure

Production Enterprises and Livestock

Approximately 90% of all Australian dairy livestock exports originate from Victoria and the trade accounts for half of the cattle exported live from the state. The Victorian dairy industry currently consists of 6,100 dairy production enterprises, which support 1.3 million milking cows. From this herd an average of 47,000 head pa of dairy breeding stock has been exported over the period 2003 to 2005 (Table 6.1). Separate data for dairy cattle exports are not available from ABS for the period prior to 2003.

Table 6.1 Physical Parameters, Victorian Dairy Cattle Livestock Exports

	2001	2002	2003	2004	2005
No Dairy Cows Victoria ('000 head) ^a	1,377	1,363	1,303	1,297	1,295
Number of registered Dairy Farms Victoria	7,559	7,079	6,801	6,242	6,108
Total Dairy Cattle Exports ^b	na	na	50,137	78,168	49,427
Dairy Cattle Exports Sourced from Victoria	na	na	45,123	70,351	44,484

^a Dairy Australia 2005 using ABS data

^b LiveCorp using ABS data

Of the 6,100 dairy farms in Victoria, an estimated 2,000 to 3,000 contribute dairy stock for export on a regular basis and a typical enterprise of 200 dairy cows will make available an additional 20 dairy heifers to supply the trade.

The trade requires joined or unjoined, predominately Holstein-Friesian, heifers of 12 to 15 months in age. Specific genetic requirements and pedigree status for Holstein-Friesian heifers vary between export markets but suffice to say that the Victorian industry is able to supply quality genetic material that meets export market requirements without diluting its own genetic resource.

Dairy farmers either supply Holstein-Friesian heifers directly to exporters or sell heifer calves of 3 to 6 months in age to specialist backgrounders who grow out these cattle for a further nine months. The industry estimates that Victoria supports a growing number of specialist backgrounding operations in addition to dairy farmers who supply exporters as an income diversification option.

A proportion of 12 to 15 month old dairy export heifers are impregnated through artificial insemination (AI) to a pedigree Holstein-Friesian bull prior to export. Other heifers are 'chance mated' by producers if pregnancy is a part of the contract. Heifers are transported to an assembly depot and an independent AQIS accredited veterinarian checks their health status. From the assembly depot heifers are transported to the ship. Assembly depots are located both at the Port of Portland, two facilities, and in Victorian dairy production regions.

Typically between 50 and 250 farm enterprises will contribute dairy heifers to a single 3,000 head livestock shipment. Since the early 2000s, the industry has averaged sixteen shipments per annum from Victorian sourced cattle, most of which have been shipped through the Port of Portland.

Seasonal Supply Pattern

The trade is supplied all year round with stock maturing twelve months after spring or autumn calving. Traditional spring and autumn calving is spreading out over time in response to milk production requirements. There is no strong seasonality in the trade.

6.2.2 Gross Value of the Trade

The gross value of the Victorian dairy export trade is estimated on the following basis:

- Average annual dairy cattle to export between 2003 and 2005 of 47,000 head (ABS data);
- Average sale price between 2001 and 2005 of \$1,100 head farm gate (industry consultation);
- To provide a gross farm gate value of \$51.7 million.

When the value of other services is added to farm gate price, average CIF value increases to \$2,069 per head (Table 6.2) giving a gross trade value of \$116.8 million.

These gross value estimates do not include dairy cattle sourced from other Australian states, principally Western Australia and exported through other Australian ports.

6.3 Economic Significance of the Trade

6.3.1 Economic contribution to dairy farmers

Victorian dairy farmers estimate that live export of heifers has contributed 20% of farm profit to the typical 200 cow Victorian dairy enterprise in the period 2003 to 2006.

A representative Victorian dairy farmer participating in the trade will set aside an additional twenty heifers to meet export orders and these cattle are retained on-farm until twelve months of age. The opportunity cost of foregoing the immediate sale of surplus calves is between zero and \$100/head. Previously, surplus heifer calves would enter the 'bobby' calf market for slaughter and marketing as veal.

By retaining otherwise surplus stock on-farm the dairy farmer incurs additional production costs of between \$300 and \$650/head for milk, supplements, animal health treatments, pasture and labour. At twelve months of age the dairy farmer sells these heifers to an exporter for between \$900 and \$1,200/head, earning a profit of between \$550 and \$600/head. The live export enterprise earns the dairy farmer a profit of approximately \$11,500 pa.

ABARE Australian Farm Survey results (March 2005) indicate that the typical Victorian dairy farmer generates a profit of \$56,340. The 'new' enterprise of supplying heifers for export contributes 20% of farm profit.

State wide, Victorian dairy farmers have been very appreciative of the additional profit earned from growing out surplus heifers. This additional profit has been particularly valued during recent low milk prices and drought related production decline. Dairy farmers indicate that the live export market has 'saved' many producers especially in the state's northern Murray Goulburn Valley.

Other benefits to dairy farmers from the development of the live export trade include:

1. A market for three to six-month-old weaner heifers. Dairy farmers who do not wish to grow out their own heifers for the trade are able to on sell these stock to 'backgrounders' achieving average prices of \$500 head for stock that previously sold for \$100 head or less.
2. Price underpinning for twelve to fifteen-month-old heifers of between \$200 and \$500 head. The equivalent of a 35% boost in gross value. The benchmark price for surplus Victorian dairy heifers was between \$700 and \$900 head prior to development of the live export trade. It is now between \$900 and \$1,200 head.
3. An opportunity to shortcut milk production. Victorian dairy farmers are able to sell twelve-month-old heifers and buy in cows in full production at twenty-four months of age for the same price. Cows of twenty-four months of age are producing milk while heifers of twelve-months require a further year to achieve an economic return.
4. The creation of a less demanding enterprise for those wishing to retire from the commitment of milking. 'Growing out' dairy heifers requires less labour and is more flexible than the rigorous daily requirements of milking dairy cattle. Growing out heifers also makes efficient use of the farmer's investment in the dairy industry (pastures, production systems, know-how). A specialist 'backgrounding' sector has emerged from 'retired' dairy farmers and new entrants.

The live export of dairy cattle has made a positive economic contribution to both participating Victorian dairy enterprises and the broader dairy industry.

6.3.2 Economic Contribution to Other Parts of the Value Chain

Services that have either emerged to support the trade or have grown in response to it include road transport providers, stock agents specialising in dairy, assembly depots, fodder growers and manufacturers, third party veterinary inspection, AI technicians, port service providers and exporters. A generic value chain for the live export of dairy heifers from Victoria has been developed, based on Hassall & Associates (2006) and reviewed with the industry during consultation. Results are shown in Table 6.2.

The various parts of the value chain have benefited from the growth in dairy cattle live exports. A brief overview is provided below.

Backgrounders: around 24 specialist backgrounders, each growing out 400 heifers pa now operate in Victoria. Backgrounders incur production costs of approximately \$850 head and sell stock at twelve months of age for around \$1,100 head. Backgrounders are investing in fencing, water supply and other improvements to manage cattle held prior to quarantine.

Road transport providers: dairy heifers are collected in smaller 'trade trucks' and delivered to assembly depots in either single 'semi-trailers' or 'B Doubles'. Typically smaller trucking firms with up to three drivers service this market. Live dairy exports contribute gross revenue of between \$50,000 and \$60,000 in a business with total revenue of \$500,000.

Agents: Elders and Landmark dominate the Victorian livestock agency sector and each firm has a specialist in sourcing dairy heifers for live export through their network of franchisees. Agents earn a 5% commission on sale value and individual franchises source between 500 and 15,000 head pa.

Assembly depot operators: Two facilities are in operation at Portland and a third has been constructed at Camperdown. Assembly depots each have capacity for between 3,000 and 5,000 head.

Veterinarians: Victoria does not support dedicated live export veterinary practices in the same way that WA, NT and Qld do. Work associated with the live export trade is spread across ten to fifteen practices and is responsible for the employment of six vets on an FTE basis.

AI technicians: As a percentage of heifers are exported pregnant additional opportunities have emerged for AI technicians to provide artificial insemination services to the export sector.

Fodder producers: While there are no specialist roughage producers specifically contracted to servicing live dairy exports, there are approximately twelve hay contractors who turnover \$100,000 pa each in sales to dairy exporters. The feedmill producing pellets for the trade is located in South Australia.

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Table 6.2 Notional Value Chain for Live Dairy Cattle 2005/06^a

Value Chain Item	Average per head (\$)	Aggregate (\$m)
Livestock Costs		
Average Weight (kg)	350	56,462
Farm Gate Price	\$1,010.00	57.026
Agents Fees (Levied on Farm Gate Price)	\$60.00	3.388
Sub Total	\$1,070.00	60.414
Other On-farm Costs		
Additional Veterinary on Farm	\$10.00	0.565
Dipping Costs	\$0.00	0.000
Sub Total	\$10.00	0.565
Road Transport		
Farm to aggregation	\$30.00	1.694
Aggregation to wharf	\$8.00	0.452
Livestock insurance	\$25.00	1.412
Sub Total	\$63.00	3.557
Feedlotting/Spelling		
Feed Cost per head	\$40.00	2.258
Ear Tag	\$0.70	0.040
Ajistment, handling, AI, certification	\$68.00	3.839
Sub Total	\$108.70	6.137
Industry Levies and Charges		
Livecorp	\$4.00	0.226
Wharf Charges	\$7.50	0.423
Third Party Vet	\$9.60	0.542
AQIS & Quarantine	\$76.25	4.305
Ports Corp	\$0.00	0.000
Stevedoring	\$6.00	0.339
Receival Yard Fees	\$15.00	0.847
Weighbridge	\$0.00	0.000
Sub Total	\$118.35	6.682
Management		
Selectors Costs	\$0.00	0.000
Administration	\$200.00	11.292
Livestock Officer	\$0.00	0.000
Sub Total	\$200.00	11.292
Value at Port		
Average Live Weight (kg)	350	19.762
Price per kg at Port FOB	\$4.49	0.253
Total Gross Value (FOB)	\$1,570	88.648
Shipping		
Fodder for voyage	\$90.00	5.082
Seafreight (excl exporter mgmt)	\$400.00	22.585
Stockmen & on-board vet	\$5.75	0.325
Insurance	\$3.47	0.196
Total costs	\$499.22	28.187
Total Gross Value (CIF)	\$2,069.27	116.835

^a Prices and costs in 2005/06 dollars. Export numbers to estimate aggregates were based on 5 year average to 2005/06.
Source: Hassall & Associates (2006) and industry consultation

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Sawdust and chaff suppliers: A specialist provider has emerged to supply sawdust and chaff to the industry. Sawdust and chaff assist with animal welfare during the sea voyage and have been introduced by the industry at significant cost during recent years. Both activities generate \$300,000 each in supplying the dairy heifer trade.

Port authority: The Portland port authority services the equivalent of sixteen vessels with Victorian dairy cattle exports each year. Expenditure by the port authority to service these vessels includes labour, fuel and lease payments and totals \$22,500 per vessel.

Stevedore: Expenditure associated with stevedoring totals \$20,000 per livestock export vessel. Labour expenses dominate stevedoring expenditure.

Ships crew: The ships crew also spend wages and salaries while in port and an allowance of \$10,000 per vessel has been made. This allowance includes medical services, meals, recreation expenses and other consumables.

Additional significant service providers: Other service providers associated with the trade include hotels in dairy cattle purchasing districts (Gippsland, Murray-Goulburn, Western Districts, etc) and the port and its proximities (Portland, Camperdown and Heywood). Eight hotels are estimated to each gross \$22,500 pa from the trade.

Exporters: There are two large firms who drive the dairy export trade.

Table 6.3 shows the contribution live dairy exports makes to value chain participants' total income.

Table 6.3 Value Chain Participants who Benefit from Live Export – Victorian Dairy

Value Chain Participant/Ancillary Service	Turnover Earned from Live Export (%)
Exporters	10-50
Cattle producers – dairy farmers	10-50
Backgrounders	>80
Road transport providers	10-50
Livestock agents	<10
Assembly depot operators	10-50
Veterinary service providers	<10
AI technicians	10-50
Fodder growers and manufacturers	10-50
Port authority	<10
Stevedores	<10
Ship owners	<10
On-vessel stockmen	<10
Providores (on-vessel supplies) and crew service providers (e.g. doctor)	<10
Regional business – food, accommodation, etc	<10
Government service providers – AQIS, ILC, state agencies	<10
Rural finance, accounting, insurance and legal service providers	<10

Source: Industry consultation

Infrastructure Investment

The trade has been able to ‘piggy-back’ on existing on-farm and regional infrastructure. Grow out of weaners is already a part of most Victorian dairy operations and live beef cattle exports have been sourced from Victoria for many years. No new investment has been required to support the development of this industry.

Contribution to Regional Communities

Live exports of dairy cattle make a positive contribution to Victorian regional communities. Most importantly live dairy exports have contributed hope to regional dairy communities through a valuable and significant additional source of income for dairy farmers at a time (early 2000s) when drought and low milk prices were causing many to question their future in dairy production. Additional production optimism feeds through to the dairy input supply businesses (e.g. merchandising, genetics, feed, supplements, etc) and the processing communities that rely on the industry.

Environmental Benefits and Contribution During Drought

No environmental benefits or environmental costs were identified as a result of the industry’s development.

Producers commented that the existence of the dairy heifer live export market provided them with a financial incentive during the early 2000s drought to retain heifer calves at a time when they might otherwise have liquidated stock. Consequently when the drought broke there was a supply of suitable genetics for re-stockers and live exporters. The dairy heifer live export industry made a positive contribution to drought recovery.

6.3.3 Current contribution to the regional economy

The above data and analysis was used to calibrate an input-output model of the Victorian economy. The model is for the financial year 2005/06 and was updated by EconSearch for this project.

The direct and multiplier impact of the industry derived from the regional input-output model is summarised in Table 6.4.

Table 6.4 Direct and Multiplier Impact of Live Cattle Exports – Victorian Dairy

Economic Indicator	Impact of Live Dairy Cattle Export Sector			
	Direct	Indirect	Total Impact	Type II Multiplier
Output (\$m)	117	-	-	-
GRP (\$m)	43	65	107	2.52
Employment (FTE)	599	607	1,206	2.01

^a See Appendix 1 for multiplier explanation.

Source: EconSearch analysis

From the table it can be seen that the live export of Victorian dairy cattle generates:

- \$117 million in output;
- \$107 million in gross regional product (GRP): \$43 million in direct GRP generated by the businesses that comprise the live export value chain and \$65 million in indirect GRP generated by other regional suppliers of goods and services in the Victorian economy.
- 1,206 jobs generated on a FTE basis.

The industry is a positive source of employment and regional value adding for the Victorian economy.

6.4 Impact of Cessation of the Trade

The short, medium and long-term contribution of live dairy heifer exports is assessed assuming a shutdown of the trade.

6.4.1 Short-term Impact of Trade Cessation

Trade cessation would result in loss of critical cash flow and profit for the 2,000 to 3,000 dairy farmers who supply heifers for live export. Foregone profit would amount to 20% of farm cash income for the average dairy farmer. Twelve-month old heifer prices would fall from \$1,100 head to \$500 head as supply exceeded demand for these cattle. Weaner heifer prices would fall from \$500 head to less than \$100 head and surplus calves would revert to the slaughter market.

The direct and indirect impact of cessation is shown in Table 6.5.

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Table 6.5 Short-Term Impacts (year 1) – Victorian Dairy Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	117	-	-
Year 1 of cessation			
<i>On-farm loss (livex)</i>	-31	-	-
<i>Other supply chain loss</i>	-51	-	-
<i>Other producer losses</i>	-67	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	0	-	-
Total change in value of output	-149	-	-
GRP (\$m)			
Current (2005/06)	43	65	107
Year 1 of cessation	-69	6	-63
Net impact of cessation	-111	-59	-171
Employment (FTE)			
Current (2005/06)	599	607	1,206
Year 1 of cessation	480	73	553
Net impact of cessation	-119	-534	-653

Source: EconSearch analysis

Cessation would strip \$170 million in value added and 650 jobs from the Victorian economy in year one.

6.4.2 Medium to Long-term Impact of Trade Cessation

Over the medium and longer-term, herd structure would adjust and fewer females would be retained on-farm. Land and property values would adjust downward by the extent of the fall in farm business profit i.e. 20%. Depending on ruling interest rates and local conditions this may cause equity problems for landholders. However, ABARE indicate that average dairy farmer equity levels are currently a healthy 80% plus (ABARE 2005). The loss of live export income will not result in widespread farm foreclosures.

Modelling of the impact of trade cessation in the medium and long-term is shown in Tables 6.6 and 6.7. In the medium-term cessation would result in the loss of \$181 million in GRP and around 670 jobs from the Victorian economy.

Table 6.6 Medium-Term Impacts of cessation (year 5) – Victorian Dairy Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Current (2005/06)	117	-	-
Year 5 of cessation			
<i>On-farm loss (livex)</i>	-42	-	-
<i>Other supply chain loss</i>	-52	-	-
<i>Other producer losses</i>	-64	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	3	-	-
Total change in value of output	-155	-	-
GRP (\$m)			
Current (2005/06)	43	65	107
Year 5 of cessation	-77	3	-74
Net impact of cessation	-120	-62	-181
Employment (FTE)			
Current (2005/06)	599	607	1,206
Year 5 of cessation	476	57	533
Net impact of cessation	-123	-550	-673

Source: EconSearch analysis

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Table 6.7 Long-Term Impacts (year 10) – Victorian Dairy Cattle

Economic Indicator	Impact of Live Cattle Export Sector		
	Direct	Indirect	Total
Output (\$m)			
Contribution to GRP (\$m)	117	-	-
Year 10 of cessation			
<i>On-farm loss (livex)</i>	-42	-	-
<i>Other supply chain loss</i>	-52	-	-
<i>Other producer losses</i>	-61	-	-
<i>On-farm gain (other enterprises)</i>	0	-	-
<i>Additional processing</i>	3	-	-
Total change in value of output	-152	-	-
GRP (\$m)			
Current (2005/06)	43	65	107
Year 10 of cessation	-74	4	-70
Net impact of cessation	-117	-60	-177
Employment (FTE)			
Current (2005/06)	599	607	1,206
Year 10 of cessation	476	68	544
Net impact of cessation	-123	-539	-662

Source: EconSearch analysis

In the long-term cessation would result in the loss of \$177 million in GRP and around 660 jobs from the Victorian economy (Table 6.7).

The present value of direct on-farm losses

The present value of direct on-farm losses was estimated assuming a reduction in industry gross value as a result of trade cessation of \$31 million in the first year increasing to \$42 million by year 5 and remaining at that level through to year 10 (Tables 6.5 to 6.7).

The present value of these losses for Victorian dairy cattle producers was estimated to be around \$290 million, at a 7% discount rate.

Industry Threats and Sustainability

Threats to the industry that may result in its cessation, in order of importance are:

1. An extreme animal welfare group achieving their stated goal of shutting down all live animal exports, including breeding stock;
2. Loss of a key market such as China for any number of reasons including a change in Chinese Government policy; and
3. Disease outbreak that may change the health status of Australia's largely 'disease free' dairy industry.

There is no reason for these threats to be realised. The dairy export industry is stable and ongoing exports are sustainable at current levels (40,000 to 75,000 head pa) without loss overseas of superior genetic material.

6.5 Conclusion on Regional Value of the Industry

The study has shown that live dairy cattle exports have contributed approximately twenty per cent of farm business profit for average participating dairy farmers in the period since trade commenced in the early 2000s. The operation of the trade underpins twelve-month-old dairy heifer prices, which are currently \$1,100 head and would drop to \$800 head in the absence of live export sales. Surplus dairy calves are now valued at \$500 head. In the absence of the trade they would be worth less than \$100 head. In aggregate the trade contributes \$109 million value added and 1,206 jobs to the Victorian economy.

6.6 Consultation

Persons interviewed for the case study are presented in Table 6.1.

Table 6.8 Regional Contacts and Consultation Completed – Vic Dairy

Value Chain Sector/Ancillary Service	Regional Contact/Business Consulted
Live Exporters	Tony Brightling, Elders International Michael Finucan, Austrex Matthew Beale, China Cattle Limited
Producers – Dairy Farmers	Allan Burgess, ADF and producer, Shepparton Darryl Hammind, dairy producer, Warragul Brendan Cunningham, dairy producer, Pakenham
Backgrounders	John MacLachlan, dairy heifer backgrounder, Sale
Road Transport	John Beer, John Beer Transport Trevor Bramstead, AT & JM Bramstead
Agents	Straun Pearce, Landmark, Echuca Darryl Adams, Elders Pakenham
Assembly depot	Shane Ashworth, Camperdown Feedlot Jeff Shalders/Phillip King, Kobo Feedlot
Fodder grower or manufacturer	Logan’s Contract Haymaking, Warrnambool
Port Authority	Peter Gracias, Portland Port Authority
Stevedore	David Brodie, P&O Shipping
Regional Business/local government	Lyn Newby, Richmond Henty Hotel, Portland
State Government	John Harkin, Principal Vet Vic DPI
Service Providers, Shipping, etc	Henrick Nissen, Dens Ocean and LiveShip Peter Bryant, Portland Sawdust and Fodder Captain’s Bobcat and Tipper Hire Portland Jim McKenzie, Veterinarian Heywood (near Portland) Shane Ashworth, Total Livestock Genetics
Total Contracted – 21 interviews	Total Completed – 23 interviews

7 Conclusions

7.1 Regional Analysis

Live exports are very important to the economies of some regions in Australia (ABARE 2007). Results from this study highlighting the significance of the industry to five case study regions are shown in Table 7.1.

Table 7.1 Summary of Livestock Export Industry Value to Regional Australia, 2005/06^a

Case Study Region	Output - Direct (\$m)	GRP – Total (\$m)	Jobs – Total (FTE)	Impact of Cessation (H, M, L)
Northern WA Cattle	136	87	1,045	<ul style="list-style-type: none"> • High • Major industry • 25% of production on indigenous properties
Northern Territory Cattle	218	157	1,821	<ul style="list-style-type: none"> • High • Third largest NT industry • Major spill-over into Qld
Queensland Cattle	107	96	1,213	<ul style="list-style-type: none"> • Medium • Other value chains now dominant
Southern WA Cattle	115	111	1,672	<ul style="list-style-type: none"> • medium • Major employer
Southern WA Sheep	331	273	4,118	<ul style="list-style-type: none"> • High • Underpins WA wool production
Victorian Dairy Cattle	117	107	1,206	<ul style="list-style-type: none"> • Medium • Contributes 20% of dairy farmer profits
Total^b	1,024	831	11,075	

^a Prices and costs in 2005/06 dollars but live export numbers based on 5 year average to 2005/06.

^b The estimates of output and employment are broadly consistent with Hassall and Associates (2006), whereas GRP is significantly less than the Hassall estimate of GDP. This is because the Hassall national modelling approach incorporated dynamic investment linkages which was not possible in the regional models used in this study.

Estimates of the impact of trade cessation on-farm incomes in the short, medium and long-term (years 1, 5 and 10 respectively) are provided in Table 7.2 for all case study regions. These estimates account for the direct loss in income to producers of live export sheep and cattle.

Although the impact on-farm income is expected to decline over time, the market loss is assumed to be enduring without any offsetting demand in new markets and so the income effects are expected to still be significant for at least 10 years following cessation. Under the price response and market loss assumptions employed in this study, the present value of income losses over the 10 year period is estimated to be \$2.3 billion.

Table 7.2 Estimates of on-farm income impacts of trade cessation (\$m) ^a

Region	Year 1	Year 5	Year 10	Present Value (Years 1-10) ^b
Northern WA Cattle	-56	-52	-24	-348
Northern Territory Cattle	-82	-66	-56	-514
Queensland Cattle	-8	-6	-4	-48
Southern WA Sheep	-149	-120	-104	-939
Southern WA Cattle	-27	-12	-8	-120
Victorian Dairy Cattle	-31	-42	-42	-291
Total	-353	-298	-238	-2,259

^a Accounts for the direct loss in income to producers of live export sheep and cattle but does not include the loss in income to other producers within the industry as a result of domestic industry price effects or the positive, offsetting income effect for those producers who switch to alternative enterprises following the loss of live export markets.

^b Present value of the on-farm income effect was calculated over a 10-year period using a 7% discount rate.

Estimates of the impact of trade cessation in the short, medium and long-term are provided in Table 7.3 for all regions for the two key economic indicators, gross regional product (GRP) and employment. These estimates account for the total (i.e. direct and indirect) impact of cessation relative to the base case (i.e. current) impact.

In the first year following trade cessation, it is estimated that gross regional product in the five case study regions will fall by over \$1.1 billion. Aggregate employment is expected to drop by over 5,800 FTE jobs, with southern WA feeling the greatest impact but with significant job losses in Victoria, Northern Territory and northern WA as well.

The effects of trade cessation will ease over time as new markets are sought, changes are made to on-farm enterprise mix (where alternatives exist) and businesses along the live export supply chain look for other opportunities. However, in lieu of significant new markets for these livestock sectors (i.e. markets that are willing to pay prices equivalent to those currently realised in the live export markets), the net losses from cessation of live exports will continue to be significant in the medium to long-term.

The findings of the report demonstrate the severe dislocation that would be created in some regions in the wake of a cessation of trade. The aggregate impacts would be significant at a regional level and cause economic hardship for many rural families and businesses directly dependent on the live export trade. The pain would be particularly acute for those many producers with high levels of debt and already working with tight margins.

Although the focus in this study has been on the regions where the live export trade is concentrated, the “underpinning effect” of the trade to all states, highlighted in Hassall & Associates (2006), should also be acknowledged. As the Queensland case study demonstrated (Section 4), the most significant aspect of the trade cessation impact was not the losses that would be suffered by live exporters, severe as they might be, but the widespread price depressing impact on all cattle producers in the state. Similar impacts could be expected in the sheep and beef cattle sectors of the states not examined in this study.

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Table 7.3 Estimates of the GRP and employment impacts of trade cessation ^a

	Region						Total
	Northern WA Cattle	NT Cattle	Queensland Cattle	Southern WA Sheep	Southern WA Cattle	Victorian Dairy Cattle	
Year 1 of cessation							
GRP (\$m)	-109	-126	-215	-449	-61	-171	-1,131
Employment (FTE)	-388	-538	-221	-3,614	-392	-653	-5,806
Year 5 of cessation							
GRP (\$m)	-110	-106	-200	-325	-32	-181	-954
Employment (FTE)	-502	-491	-176	-2,714	-164	-673	-4,719
Year 10 of cessation							
GRP (\$m)	-48	-93	-185	-266	-13	-177	-783
Employment (FTE)	-185	-461	-131	-2,292	-49	-662	-3,779

^a To model these impacts, prices are expressed in 2005/06 dollars but live export numbers were based on the 5 year average to 2005/06.

7.2 Comparison with Hassall & Associates (2006)

This study shows that across the five case study regions the livestock export industry contributes 11,060 FTE jobs and value added (direct and indirect) of \$830 million (Table 7.1 above). The study was completed using average data for the five case study regions for the years 2001 to 2005. The national study (Hassall & Associates 2006) used a general equilibrium model of the Australian economy to model the national contribution of the industry over the same time period. Hassall & Associates (2006) concluded that, nationally the livestock export industry contributed 12,924 jobs and value added of \$1.8 billion pa. Reasons for the differences in results include:

- A national approach captures and includes multiplier impacts across the whole nation whereas regional multipliers are relatively modest especially in remote economies where most purchases are 'imported' into the region.
- The Hassall national modelling approach incorporated dynamic investment linkages which was not possible in the regional models used in this study.
- Inclusion of economic activity associated with livestock exports in all Australian regions in Hassall & Associates (2006). NSW, South Australia and Tasmania were excluded from this study. The analysis at a regional level does not account for the contribution the live export industry makes underpinning prices in these other regions; not just for livestock exporters but for producers supplying other markets as well.
- Inclusion of all major species exported in Hassall & Associates (2006). This study did not include relatively minor species such as goats, which still account for more than 50,000 head pa.

The two studies are broadly consistent in their results and simply measure different aspects of the same trade.

8 Industry Consultative Committee

Steve Banney – Live R&D

Simon Winter – Live R&D

Cameron Hall – LiveCorp

Ian McIvor – ALEC

Mike Hayward – MLA

Peter Weeks – MLA

Wayne Hall – MLA

John Griffith – exporter

Chris Buller – WA southern sheep

Ned McCord – WA northern cattle

John McQueen – Dairy

Tim D’Arcy - WA northern cattle

Stuart Kenny – NT Cattlemen’s Association

Garry Cook – ILC

Alister Trier – NT government

Henrick Nissen – LiveShip and Dens Ocean

John Edwards – WA Livestock Exporters Assoc

Richard Trivett – GRM

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10 Appendices

10.1 Appendix 1 Input-Output Analysis

Overview of Input-Output Analysis

Input-output analysis provides a comprehensive economic framework that is extremely useful in the resource planning process. Broadly, there are two ways in which the input-output method can be used.

First, the input-output table provides a numerical picture of the size and shape of the economy and its essential features. The input-output transactions table can be used to describe some of the important features of an economy, the interrelationships between sectors, and the relative importance of the individual sectors.

Second, input-output analysis provides a standard approach for the estimation of the economic impact of a particular activity. The input-output model is used to calculate industry multipliers that can then be applied to various development scenarios.

Linkages between sectors

The standard approach for the estimation of the regional economic impact of a particular activity, such as wine production, is to employ *input-output analysis*. The input-output model conceives the economy of the region as being divided up into a number of sectors, and this allows the analyst to trace expenditure flows.

To illustrate this, consider the example of a winery that, in the course of its operation, purchases goods and services from other sectors. These goods and services would include grapes, bottles, and corks and, of course, labour. The direct employment created is regarded in the model as an expenditure flow into the household sector, which is one of several non-industrial sectors recognised in the input-output model.

Upon receiving expenditure by the winery, the other sectors in the state economy engage in their own expenditures. For example, as a consequence of winning a contract for work with a winery, a bottle manufacturer buys materials from its suppliers and labour from its own employees. Suppliers and employees in turn engage in further expenditure, and so on. These *indirect effects*, as they are called, are part of the impact of the winery on the regional or state economy. They must be added to the *direct effects* (which are expenditures made in immediate support of the winery itself) in order to arrive at a measure of the total impact of the winery.

It may be thought that these indirect effects go on indefinitely, and that their amount adds up without limit, the presence of *leakages*, however, prevents this from occurring. In the context of the impact on a *regional or state* economy, an important leakage is expenditure on imports, that is, products or services that originate from *outside the region, state or country* (e.g. French oak barrels).

Thus some of the expenditure for imports to the region is lost to the local economy. Consequently, the indirect effects get smaller and smaller in successive expenditure rounds, due to this and other leakages. Hence the total expenditure created in the local economy is limited in amount, and so (in principle) it can be measured.

The performance of the input-output analysis calculations requires a great deal of information. The analyst needs to know the magnitude of various expenditures and where they occur. Also needed is information on how the sectors that receiving this expenditure share *their* expenditures among the various sectors from whom they buy, and so on for the further expenditure rounds.

In applying the input-output model, the standard procedure is to determine the direct or first-round expenditures only. No attempt is made to pursue such inquiries on expenditure in subsequent rounds, not even (for example) to trace the effects in the local economy on household expenditures by winery employees on food, clothing, entertainment, and so on, as it is impracticable to measure these effects for an individual case, here the winery.

The input-output model is instead based on a set of assumptions about constant and uniform proportions of expenditure. If households in general in the local economy spend (say) 13.3% of their income on food and non-alcoholic beverages, it is assumed that those working in wineries do likewise. Indeed, the effects of all expenditure rounds after the first are calculated by using such standard proportions (*multiplier* calculations).

Multipliers

Multipliers are an indication of the strength of the linkages between a particular sector and the rest of the regional economy. As well, they can be used to estimate the impact of a change in that particular sector on the rest of the economy. As noted above, detailed explanations on calculating input-output multipliers (and the underlying assumptions) are provided in any regional economics or input-output analysis textbook (see for example Hewings (1985), Jensen and West (1986), Midmore and Harrison-Mayfield (1996), Powell et al. (1985), and West (1993)). Suffice to note that they are calculated through a routine set of mathematical operations based on coefficients derived from the input-output transactions table.

Input-output transactions table

The structure and linkages of a local economy can be described with the aid of input-output analysis. Input-output analysis, as an accounting system of inter-industry transactions, is based on the notion that no industry exists in isolation.

This assumes, within any economy, each firm depends on the existence of other firms to purchase inputs from, or sell products to, for further processing. The firms also depend on final consumers of the product and labour inputs to production. An input-output transactions table is a convenient way to illustrate the purchases and sales of goods and services taking place in an economy at a given time.

Input-output tables provide a numerical picture of the size and shape of the economy and its essential features. Products produced in the economy are aggregated into a number of groups of industries and the transactions between them recorded in the transactions table. The rows and columns of the input-output table can be interpreted in the following way:

- The rows of the input-output table illustrate sales for intermediate usage (to other firms) and for final demand (consumers, exports, capital formation).
- The columns show the origin of the inputs and hence the purchases made at that time (labour, capital and intermediate inputs).
- Each item is shown as a purchase by one sector and a sale by another, thus constructing two sides of a double accounting schedule.

In summary, the input-output transactions table can be used to describe some of the important features of a regional economy, the interrelationships between sectors, and the relative importance of the individual sectors. The table is also used for the calculation of sector multipliers and the estimation of economic impacts arising from some change in the local economy.

Regional Definitions

Input-output models for 2005/06 were prepared for the following regions:

- Northern Territory;
- Western Australia (North);
- Western Australia (South);
- Victoria; and
- Queensland

The regional boundaries used for the input-output models are defined in Table A1.

Table A1 Regional definitions

Livestock Export Region Name	Definition ^a
Northern Territory	As defined by the Territory boundaries
Western Australia (North)	The ABS SDs of Kimberley and Pilbara and the Shires of Carnarvon, Upper Gascoyne, Meekatharra and Wiluna from the Central SD and Ngaanyatjarraku Shire in the South Eastern SD.
Western Australia (South)	The ABS SDs of Midlands, Perth, South West, Upper Great Southern, Lower Great Southern and the balance of the Central and South Eastern SDs.
Victoria	As defined by the State boundaries
Queensland	As defined by the State boundaries

^a ABS = Australian Bureau of Statistics, SD = Statistical Division.

The input-output models were either constructed specifically for this project or based on existing models and updated to 2005/06.

- Northern Territory: a model for 2005/06 was constructed specifically for this project.
- Western Australia (North): a model for 2005/06 was constructed specifically for this project.
- Western Australia (South): a model for 2005/06 was constructed specifically for this project.
- Victoria: a model for 2004/05 was prepared by EconSearch (2005) and was updated to 2005/06.
- Queensland: a model for 1996/97 was prepared by the Office of the Government Statistician (2004) and was updated to 2005/06.

Data Sources

In order to construct input-output models for the Northern Territory, Western Australia (North) and Western Australia (South) regions, data were collected from a wide variety of sources, including the following.

- Australian Bureau of Statistics ('Journey to Work Employment Data' from the *2001 Census Of Population and Housing* (by special request), *1998/99 Household Expenditure Survey*, ABS (2006a and b), *1998/99 National Input-Output Table*, etc.).
- Australian Taxation Office.
- Department of Employment and Workplace Relations (DEWR 2006).

The Victorian and Queensland models were updated to 2005/06 using a range of methods and will include adjustments for the following key economic indicators.

- Changes in labour productivity.
- Price changes: updated using Consumer Price Index for Melbourne and Brisbane, respectively, from the ABS (2006a).
- Changes in employment levels: updated using DEWR (2006).
- Changes in gross state product: updated using ABS (2006c).

For all five regions, the information collected from the livestock export industry survey was essential for constructing region-specific profiles of expenditure for the livestock export industry sectors.

Sectoral Definitions

Each of the models was prepared using a consistent 38 sector industry classification, as outlined in Table A2.

Value of Livestock Export Industry to Regional Australia

Table A2 Input-output sector definitions⁵

Livestock Export Regions (38 sectors)	1998/99 National input-output model (106 sectors)
1. Sheep	0101 Sheep
2. Grains	0102 Grains
3. Beef cattle	0103 Beef cattle
4. Dairy cattle	0104 Dairy cattle
5. Pigs	0105 Pigs
6. Poultry	0106 Poultry
7. Other agriculture	0107 Other agriculture
8. Services to agriculture	0200 Services to agric., hunting & trapping
9. Forestry	0300 Forestry and logging
10. Commercial fishing	0400 Commercial fishing
11. Mining	1100 Coal; oil and gas
	1301 Iron ores 1302 Non-ferrous metal ores 1400 Other mining
	1500 Services to mining
12. Meat & meat products	2101 Meat & meat products
13. Dairy products	2102 Dairy products
14. Other food products	2103 Fruit and vegetable products
	2104 Oils and fats
	2105 Flour & cereal foods
	2106 Bakery products
	2107 Confectionery
	2108 Other food products

⁵ Concordance between the national input-output sectors and the Australian and New Zealand Standard Industrial Classification (ANZSIC) 4-digit classification can be found in ABS Cat No. 5209.0, Appendix B.

Value of Livestock Export Industry to Regional Australia

Livestock Export Regions (38 sectors)	1998/99 National input-output model (106 sectors)
15. Wine & beverages	2111 Wine & spirits 2109 Soft drinks, cordials and syrups 2110 Beer and malt 2112 Tobacco products
16. Textiles, clothing and footwear	2201 Textile fibres, yarns etc. 2202 Textile products 2203 Knitting mill products 2204 Clothing 2205 Footwear 2206 Leather & leather products
17. Wood, paper and publishing	2301 Sawmill products 2302 Other wood products 2303 Pulp, paper & paperboard 2305 Paper bags and products 2401 Printing & services to printing 2402 Publishing; recorded media etc.
18. Petrochemical & other chemical products	2501 Petroleum & coal products 2502 Basic chemicals 2503 Paints 2504 Pharmaceuticals etc. 2505 Soap & other detergents 2506 Cosmetic & toiletry preparations 2507 Other chemical products 2508 Rubber products 2509 Plastic products
19. Non-metallic mineral products	2601 Glass & glass products 2602 Ceramic products 2603 Cement, lime and concrete slurry 2604 Plaster & other concrete products 2605 Other non-metallic mineral products
20. Metals & metal products	2701 Iron & steel 2702 Basic non-ferrous metals etc. 2703 Structural metal products 2704 Sheet metal products 2705 Fabricated metal products

Value of Livestock Export Industry to Regional Australia

Livestock Export Regions (38 sectors)	1998/99 National input-output model (106 sectors)
21. Machinery & equipment	2801 Motor vehicles & parts; other t/port equip 2802 Ships and boats 2803 Railway equipment 2804 Aircraft 2805 Photographic & scientific equipment 2806 Electronic equipment 2807 Household appliances 2808 Other electrical equipment 2809 Agricultural, mining etc. machinery 2810 Other machinery & equipment
22. Other manufacturing	2901 Prefabricated buildings 2902 Furniture 2903 Other manufacturing
23. Electricity, gas and water	3601 Electricity 3602 Gas 3701 Water, sewerage and drainage
24. Residential building	4101 Residential building
25. Other construction	4102 Other construction
26. Wholesale trade	4501 Wholesale trade
27. Retail trade	5101 Retail trade 5401 Mechanical repairs 5402 Other repairs
28. Accommodation, cafes & restaurants	5701 Accommodation, cafes & restaurants
29. Transport and storage	6101 Road transport 6201 Rail, pipeline & other transport 6301 Water transport 6401 Air & space transport 6601 Services to transport; storage
30. Communication services	7101 Communication services

Value of Livestock Export Industry to Regional Australia

Livestock Export Regions (38 sectors)	1998/99 National input-output model (106 sectors)
31. Finance and insurance	7301 Banking 7302 Non-bank finance 7401 Insurance 7501 Services to finance etc.
32. Ownership of dwellings	7701 Ownership of dwellings
33. Property and business services	7702 Other property services 7801 Scientific research, technical and computer services 7802 Legal, accounting etc. 7803 Other business services
34. Public admin and defence	8101 Public administration 8201 Defence
35. Education	8401 Education
36. Health services and community services	8601 Health services 8701 Community services
37. Cultural and recreational services	9101 Motion picture, radio etc. 9201 Libraries, museums & the arts 9301 Sport, gambling etc.
38. Personal services	9501 Personal Services 9601 Other services

Indicators of Economic Impact

The following indicators of economic impact will be generated using the regional economic modelling framework described above:

- output;
- contribution to gross state or regional product;
- employment; and
- household income.

(Value of) Output is a measure of the gross revenue of goods and services produced by commercial organisations (e.g. farm-gate value of livestock production) and gross expenditure by government agencies. Total output needs to be used with care as it includes elements of double counting (e.g. the value of the livestock export trade includes the farm-gate value of livestock production).

Contribution to gross state or regional product (GSP or GRP) is a measure of the net contribution of an activity to the state or regional economy. Contribution to GSP/GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In other words, it can be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using contribution to GRP/GSP as a measure of economic impact avoids the problem of double counting that may arise from using value of output for this purpose.

Employment is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent (FTE) jobs.

Household income is a component of GSP/GRP and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax.

Estimates of economic impact are presented in terms of

- direct impacts;
- indirect impacts; and
- total impacts.

Direct impacts are the initial round of output, employment and household income generated by an economic activity.

Indirect impacts are the sum of production-induced effects and consumption-induced effects. Production-induced effects are additional output, employment and household income resulting from re-spending by firms (e.g. transport contractors) that receive payments from the sale of services to firms undertaking, for example, livestock export. Consumption-induced effects are additional output, employment and household income resulting from re-spending by households that receive income from employment in direct and indirect activities.

Total impacts are the sum of direct and indirect impacts.

Assessing the Impact of Cessation of the Livestock Export Trade

In order to assess the regional economic impact of cessation of the livestock export trade, estimates have been provided at three distinct points in time:

- short-term (year 1);
- medium-term (year 5); and
- longer term (year 10).

An important component of the analysis was the data and assumptions used in modelling the structural adjustment process within the livestock export industry in response to cessation of trade. Estimates of economic impact have been provided for a range of different scenarios to account for uncertainty associated with these data and assumptions.

10.2 Appendix 2 Study Questionnaire



44 Barons Crescent
Hunters Hill NSW 2110
Tel: 02 9817 5888
Fax: 02 9816 4840
Email: clarke@AgEconPlus.com.au
Contact: Michael Clarke



EconSearch Pty Ltd
PO Box 746
Unley BC SA 5061
Tel: 08 8357 9560
Fax: 08 8357 2299
Email: jbmorison@econsearch.com.au
Contact: Julian Morison

Assessing the Value of the Livestock Export Industry to Regional Australia

Please read this first:

- For the purposes of this study **your region** is the state of WA north of Shark Bay
- **Industry of interest in this case study** is live cattle exports
- Study is being prepared for MLA and LiveCorp (contact Wayne Hall 07 3620 5228)
- Study is to demonstrate to Government and the community the contribution made by the industry to Australian regional economies
- All study data will remain confidential

Company Information

1. Company Information

Company Name: _____

Contact Name: _____

Contact Phone Number: _____

Role of your business in the livestock export industry (enterprise and species type):

The Live Export Industry in Your Region

2. In your opinion, what are the benefits to your enterprise of participation in the livestock export industry?

Value of Livestock Export Industry to Regional Australia

3. How has the livestock export trade contributed to changes in the nature of livestock production and support services in your region over the last 5-10 years?

- Livestock production _____

- Transport _____

- Support services _____

- Employment _____

- Infrastructure investment _____

4. What is required to make the livestock export industry sustainable in your region? _____

5. What threats does the livestock export industry currently face in your region? _____

Value of Livestock Export Industry to Regional Australia

Your Business activity in the Live Export Industry

6. Please indicate the number and class of livestock you have exported over the last 5 years.

	2001	2002	2003	2004	2005
Class of livestock					
Number					
Export destination					

7. Staff numbers and associated costs incurred in the region related to activities in the livestock export industry (estimate for 2005/06,):

	% in the region	% elsewhere (specify)
Full Time _____		
Part Time _____ (total)		
_____ (full – time equivalents)		
Contractors _____ (full – time equivalents)		
Gross wages & salaries in 2005/06 (\$'000) _____ (including associated costs, e.g. superannuation, but excluding payroll tax)		

8. What other costs related to the livestock export industry, in addition to gross wages, salaries and contractors, were incurred in 2005/06?

Expenditure item	(\$'000)	% in the Region
Livestock – Cattle, Sheep, Goats		
Road Transport		
Sea Transport		
Other Transport Services		
Fuel		
Veterinary Services		
Veterinary Chemicals, Drenches, etc		
Fodder Purchase/Fodder Making		

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Expenditure item	(\$'000)	% in the Region
Livestock Agents Fees		
Electricity & Gas		
Water & Sewerage		
Repairs & Maintenance - Buildings		
Lease & Hire for Machinery & Equipment		
Legal & Accounting Services		
Telephone, Postal & Office Equipment		
Motor Vehicle Registration & other Govt charges		
Banking Fees		
Cleaning & Security		
Travel Expenses		
Debt Servicing		
Pastoral Lease Payments		
Mustering Costs		
Other Expenses (please specify)		

9. What major capital expenditure on fixed assets, related to the livestock export industry, was made in 2005/06?

Expenditure item	(\$'000)	% in the Region
Building and Construction		
Machinery, Plant, Equipment and Vehicles		
Others (please specify):		

Value of Livestock Export Industry to Regional Australia

10. Please indicate (or estimate) how your capital expenditure on fixed assets in 2005/06 compares with your average capital expenditure on these assets over the past 5 years.

11. What was the gross value of turnover for your company/organisation that could be attributed to the livestock export industry in 2005/06? (\$'000)

12. Was the turnover related to live exports in 2005/06 indicative of the last 5 years? Yes / No

If "No", please explain in what way and why it was different.

13. How important is turnover from the livestock export industry to your total business? (Please circle):-

highly significant (>80%) significant (50-80%) important (10-50%) minor (<10%)

14. How has participation in the livestock export trade shaped your business (breed type, age & class of livestock, seasonality of supply, nature of the enterprise, investment patterns, etc)?

Breed type: _____

Age/class of livestock: _____

Seasonality of supply: _____

Enterprise nature: _____

Value of Livestock Export Industry to Regional Australia

Investment patterns: _____

15. How has the live export trade affected capital investment and asset values in your enterprise and the wider region?

16. Are you able to identify any infrastructure constructed in your region to service live exports in the last 5 years (roads, port facilities, yards, etc)? What has been the scale and importance of this infrastructure to the regional community?

17. What effect would an expansion of the trade have on-farm gate prices, herd/flock structure, cash flow, income, the farming system, adjustment costs, property/regional infrastructure and land values?

Farm gate prices: _____

Herd/flock structure: _____

Farming system: _____

Cash flow/income: _____

Adjustment costs: _____

Infrastructure/land values: _____

Value of Livestock Export Industry to Regional Australia

18. What would be the impact of trade cessation on your business in the short (<1 year), medium (2 to 5 years) and longer (10 to 15 years) terms?

19. What effect would cessation of the trade have on farm gate prices, herd/flock structure, cash flow, income, the farming system, adjustment costs, property/regional infrastructure and land values?

Farm gate prices: _____

Herd/flock structure: _____

Farming system: _____

Cash flow/income: _____

Adjustment costs: _____

Infrastructure/land values: _____

20. What would be the next best enterprise for you if you could no longer participate in the live export trade?

Value of Livestock Export Industry to Regional Australia

21. How many businesses similar to yours operate in the region? _____

22. Are there social (community resilience) or environmental (natural resource) benefits or costs associated with your participation in the trade?

23. Are there any other impacts of live exports in this region that the study should be aware of?

24. What are the effects of having a live export market in times of drought? _____

Thank you for your time and cooperation.

Interviews will be completed by the study team face-to-face. However, if you choose, the questionnaire may be returned by fax to (02) 9816 4840.

If you have any queries don't hesitate to contact Michael Clarke (02) 9817 5888 or Clarke@AgEconPlus.com.au.