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A quantitative and qualitative assessment of the value of the livestock export industry to the national economy

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EXECUTIVE SUMMARY

This report is the output of a study commissioned jointly by Meat and Livestock Australia and the Australian Livestock Export Corporation Ltd. The study provides a quantitative and qualitative assessment of the value of the livestock export industry to the national economy and to regional communities. The study addresses value added, multiplier effects, employment and the impact of the industry on participating businesses and regional centres.

The study was completed between January and June 2000. The study team included live sheep and cattle industry specialists and specialist economic modelling input. Case studies were prepared for five relevant Australian regions.

Value Chain

The livestock export industry value chain has been shown to be complex and relatively long. Up to twenty five separate business types, each generating value added and employing people in both urban and regional Australia have been identified.

The value chain for live cattle shows that producers, transporters (road and sea) and fodder suppliers are the major recipients of revenue from the trade. For live sheep the major revenue recipients are producers, feedlot operators, agents, shearers, fodder suppliers and transporters (road and sea).

Value added per head for live cattle in the value chain, not including an allowance for value added by each business supplying the chain or for multipliers for those servicing the industry outside the chain, is estimated at \$35/head. Assuming an annual export of 840,000 head, with similar per head returns, total value added is \$29 million (\$35/head by 840,000).

Similarly, value added per head for live sheep is estimated at \$8.75/head or a total of \$44 million when applied over annual exports of 5 million sheep.

Multiplier Effects

The case study analysis provided an understanding of the contribution of both the live sheep and cattle industries to regional Australia. Regional economic impact modelling (Input-Output Analysis) was able to demonstrate the contribution the industry makes to total economic activity in the region, the revenue created by the industry, industry value added and employment. Estimates of revenue, employment and value added were calculated for both the direct impact of the industry and "flow-on" or multiplier effects. Key results from each of the six regional case studies are summarised in the table below.

	Multipliers		Total Impact (\$ million)	
	<i>Value Added</i>	<i>Employment</i>	<i>Value Added</i>	<i>Employment</i>
FREMANTLE/ SOUTHERN PERTH	1.8	2.8	20.9	577
Wongan Hills, WA	1.3	2.1	10.4	207
Hamilton & Portland	1.6	3.3	13.2	320
Katherine & Darwin	1.6	2.7	27.3	771
North Queensland	1.5	2.4	40.3	938
Broome West-Kimberley	1.3	2.3	17	242
Regional Average	1.5	2.6		

Multipliers are a means of measuring gross revenue, value added and employment generated outside the value chain but inside the region. From the table it can be seen that, on average, for every:

- \$1 generated in value added within the value chain another \$0.50 is created in flow-on economic activity; and
- For every job generated in the value chain in the region another 1.6 jobs are created.

National Economy

General Equilibrium modelling was used to determine the contribution the live export industry makes to the national economy. The results of GE modelling show an annual contribution to GDP (or total domestic value added) of \$708 million and an estimated 9,080 jobs created. Jobs created, generate over \$300 million in wages and salaries. In many instances jobs created provide employment in otherwise contracting rural economies or employ rurally trained people, such as stockpersons, in urban areas.

Qualitative Contribution

The study contains a large number of qualitative assessments of the business created as a result of the industries' activities. The assessments are based on individual businesses and contain details regarding types of jobs generated, to whom flow on benefits accrue and discussion of the impact of the business if the industry were to contract.

Conclusion

The study provides hard data on both the overt and hidden benefits generated by the Australian livestock export industry. This factual analysis can be used to move the debate regarding the value of the industry forward.

ABBREVIATIONS USED IN THIS REPORT

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
AQIS	Australian Quarantine Inspection Service
AMSA	Australian Marine Safety Authority
CQMS	Clark Quality Management Systems
CIF	Cost Insurance Freight (Price + Insurance + Freight incurred in shipping livestock overseas)
FAS	Free Along Side
FOB	Free on Board (Price + the cost of freight on board the ship)
GDP	Gross Domestic Product
QDPI	Department of Primary Industries, Queensland
MLA	Meat and Livestock Australia
MRC	Meat Research Corporation
NIEIR	National Institute of Economic and Industry Research
RETWA	Rural Export and Trade Western Australia

CONTENTS

	Page
1. INTRODUCTION.....	5
1.1 Purpose of the Study.....	5
1.2 Study Background.....	5
1.3 Methodology.....	5
1.4 Structure of the Report.....	7
2 INDUSTRY DESCRIPTION.....	8
2.1 The Australian Livestock Export Industry.....	8
2.2 Industry Location.....	9
2.3 Industry Value.....	12
2.4 Markets for Exports.....	13
2.5 Product Supplied.....	15
2.6 Competitors.....	16
2.7 Impact on Producer Returns.....	17
2.8 In Summary.....	18
3 VALUE CHAIN DESCRIPTION AND ANALYSIS.....	20
3.1 Value Chain Definition and Purpose.....	20
3.2 Generic Description.....	20
3.3 Live Cattle Value Chain.....	25
3.4 Live Sheep Value Chain.....	26
3.5 Summary and Conclusions.....	27
4 CASE STUDY ANALYSIS.....	28
4.1 Fremantle/Southern Fringe Perth and Wongan Hills.....	28
4.2 Hamilton and Portland Victoria.....	34
4.3 Katherine and Darwin, Northern Territory.....	39
4.4 North Queensland.....	44
4.5 Broome West-Kimberley.....	49
4.6 Case Study Summary.....	54
5 NATIONAL ECONOMIC IMPACT.....	55
5.1 Introduction.....	55
5.2 Contribution to Gross Domestic Product.....	55
5.3 Contribution to National Employment.....	55
5.4 The Strategic Importance of the Industry.....	56
6 STUDY CONCLUSIONS.....	57
7 PERSONS CONTACTED AS PART OF THE STUDY.....	58
8 REFERENCES.....	59
9 APPENDICES.....	60
Appendix A Case Study Maps.....	60
Appendix B Multipliers – A brief explanation.....	63
Appendix C Value Chain for Live Sheep and Cattle – 1993/94.....	64

1. INTRODUCTION

1.1 Purpose of the Study

This report is the output of a study commissioned jointly by Meat and Livestock Australia (MLA) and the Australian Livestock Export Corporation Ltd (LiveCorp). The study provides a quantitative and qualitative assessment of the value of the livestock export industry to the national economy and to regional communities. The study includes an assessment of the:

Value chain for both the live sheep and live cattle export industries;

Multiplier effects of live sheep and cattle exports on the national economy, including the impact on selected regional economies;

Explicit assessment of employment generated by live sheep and cattle exports; and

Qualitative assessment of the impact of the industry on regional communities.

The report provides hard data on both the overt (primary) and hidden (secondary) benefits generated by the Australian livestock export industry. The factual analysis can be used to move the debate regarding the value of the industry forward and case study analysis that demonstrates the human impact of the live export industry to those who participate directly and indirectly.

1.2 Study Background

Live sheep and cattle exports have become established in recent years as a major element of the Australian livestock industry contributing over \$410 million Free on Board (FOB) to the national economy every year. With exports of around 5 million sheep annually the trade accounts for about 14% of the total sheep and lamb turn-off. The 840,000 cattle exported live in 1999 represented 9.8% of the total cattle turn-off. The prosperity of Australian sheep and cattle producers is linked to the live export trade. Australia is the world's number one exporter of livestock and has some 85 licensed livestock exporters, the majority of whom are active in the market.

1.3 Methodology

The study was completed using both case study analysis and economic modelling. A brief overview of study methodology is outlined below.

1.3.1 *Industry Description*

Industry description was completed using relevant literature and in consultation with the live export industry. The industry was described in both macro terms (i.e. total volumes and values) as well as in terms of "links" in the value chain. Industry descriptions were used to identify individual businesses for case study analysis and provide the framework for quantification of the value chain and economic modelling.

1.3.2 Value Chain Analysis

The industry chain described for each of cattle and sheep was quantified using data collected from the literature, the livestock export industry and the case study analyses. Sheep and cattle values Cost Insurance Freight (CIF) were used for the analysis. Values were apportioned for the chain as far back as the grazier/producer and included all links identified in the chain. Analysis was provided on a \$/head basis throughout the chain for both live cattle and sheep.

1.3.3 Case Study Selection and Execution

Case studies focused on the impact of the industry on a region. Regions were selected where there was a concentration of economic activity associated with live cattle and sheep exports. Case study regions were selected to provide a spread:

Between sheep and cattle sectors, reflecting relative industry gross values;

Northern and southern portions of the industry as well as contributions made across states;

Between rural and port based economies; and

Highlight the diversity of the industry wherever possible.

The case studies selected were:

Case Study 1: Fremantle/Southern Fringe Perth and Wongan Hills, Western Australia. Fremantle is a major port area for sheep as well as cattle. The case study highlights the service end of the industry and the businesses created. The case study also includes Wongan Hills, a production area in the wheat belt north east of Perth.

Case Study 2: Hamilton and Portland, Victoria. Hamilton is an inland production region that supplies the Victorian live sheep industries out of the port of Portland. Flow-ons to Portland were also examined. Live exports were shown to provide a boost to the regional economy. Impact on community infrastructure was also reviewed.

Case Study 3: Katherine and the Port of Darwin, Northern Territory. Katherine has cattle producers based locally and trucking companies, a fodder cubing mill, fodder producers and helimustering. Linkages with Darwin and Darwin activities were also explored. Darwin has two major (and a number of other smaller) collection depots/marshalling points, is a principle recipient of cattle and has two cubing mills for locally grown legume hay. Community implications were also examined.

Case Study 4: Northern Queensland. This is a major production and marshalling area for live cattle into and out of Queensland. North Queensland is serviced the ports of Karumba, Mourilyan, Townsville and also Darwin. Linkages to significant production areas such as Cloncurry and Charters Towers were examined along with the community implications of the industry. Many producers in this area have access to both the beef processing and live cattle markets.

Case Study 5: Broome and North West Western Australia. The port of Broome draws cattle from the Pilbara, east and west Kimberley and the Northern Territory. In the absence of the live export trade marketing options for producers in this region are limited.

Case studies were specifically designed to document the qualitative, less obvious social and economic impacts of the industry. They also provided hard data for the economic analysis.

1.3.4 *Regional and National Economic Modelling*

A two part modelling approach was employed. Input-Output analysis was used to quantify economic impacts associated with live export activity at the regional level and General Equilibrium Modelling was used to assess the national impact of the industry. Existing National Institute of Economic and Industry Research (NIEIR) models were utilised for this study and modified specifically to include a livestock export sector. Models were calibrated with both published data (eg ABS, ABARE), unofficial data (such as industry newsletters) and data collected from case study investigations.

1.3.5 *General Considerations*

The following general points with regard to study methodology are made:

In the first instance data was sourced and applied from published sources to ensure study credibility;

Caution was taken in the collection of industry data to ensure the positions of vested interests were not overstated;

Dollar figures used for the purposes of modelling are five year average figures rather than those of a single current year. This decision was made to ensure that the current peaks and troughs of the industry did not distort study results.

1.4 Structure of the Report

Chapter 2 provides a description of the livestock export industry. Value chain description and analysis is presented in chapter 3. Chapters 4 provide a summary of regional findings including the quantitative and qualitative impacts of the industry, for the case study areas of Fremantle/Wongan Hills, Hamilton/Portland, Katherine/Port of Darwin, North Queensland and North West Western Australia. Chapter 5 provides an assessment of the national economic impact of livestock exports. Conclusions are drawn in Chapter 6.

2 INDUSTRY DESCRIPTION

2.1 The Australian Livestock Export Industry

Livestock are exported from 23 Australian ports to 44 overseas destination ports, mostly in South East Asia and the Middle East. While there are more than 80 licensed Australian livestock exporters, about 12 exporters account for more than 90% of the livestock exported from Australia (QDPI, 1996, pers comm. D. Inall, LiveCorp, March 2000).

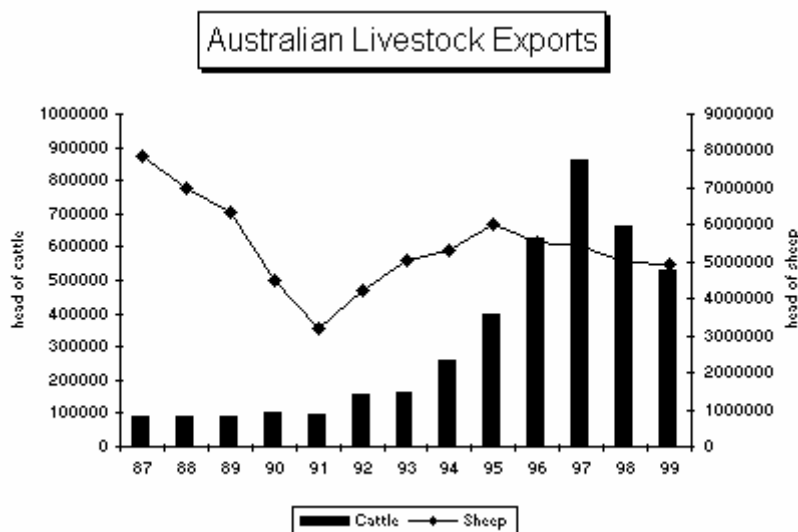
Australia has developed a livestock export trade as a result of being able to provide:

- Comparatively lower cost of production stock;
- Large supply volumes;
- Low disease incidence;
- Suitable breeds; and
- Because of Australia's close proximity to markets.

Increases in the trade have been facilitated by improved land and sea transport, infrastructure and breeding, feeding and vet care (Rutherford, 1997).

While the livestock export industry includes breeding stock, it is dominated by exports destined for slaughter or further finishing prior to slaughter. Live cattle and sheep account for by far the highest volumes. Goats, buffalo, horses, pigs, deer, camels and ostrich are also exported live. However, numbers of livestock other than sheep and cattle remain low. For example the number of goats and buffalo exported in the 3 years to June 1999, averaged 38,200 and 1,090 head per annum respectively (MLA, Statistical Review).

Figure 1



Source: MLA Statistical Review/ ABS data supplied by MLA, 2000

Australian live cattle exports reached a record 895,200 head in FY1997, with the average live cattle exports over the 5 years to June 1997 being just under 300,000 head per annum. The expansion of the Indonesian market was largely responsible for this rapid increase in live cattle exports. Indonesia, however, stopped imports almost entirely in early 1998 and other south east Asian countries reduced imports during the Asian currency crisis. Exports of live cattle fell nearly 35% from the 1997 level during the crisis. This trade has not yet fully recovered. However significant progress towards recovery has been made (MLA Statistical Review, 1999).

Recovery of the Indonesian and other South East Asian economies, as well as the recent establishment of new markets for Australian live cattle, including China and some North African markets, indicates that exports will recover. MLA forecast live cattle exports to remain steady at 840,000 in the medium term (MLA, 2000). Other industry sources expect live cattle exports to be notably higher than 850,000.

Australia's live sheep trade grew significantly during the 1970's and 1980's, with the main export destination being the Middle East. The growth in this market was associated with buoyant economic conditions: a result of high world oil prices. Total Australian live sheep exports reached 7.88 million head in 1987 as shown in Figure 1, with a value of \$216 million (FOB). Continued rejection of shipments by Saudi Arabia, due to scabby mouth outbreaks, together with depressed oil markets lead to a significant contraction in total Australian exports of live sheep following 1989. The Gulf conflict of 1989/90 exacerbated this situation. Exports recovered somewhat in the early 1990's as other markets such as Jordan, the United Arab Emirates and Bahrain developed. The quantity required for these markets remained largely unchanged in the period 1993 to 1997 at around 5 million head per annum. This level is around 35% less than the export volume peak of the mid-1980's and 14% less in nominal value terms.

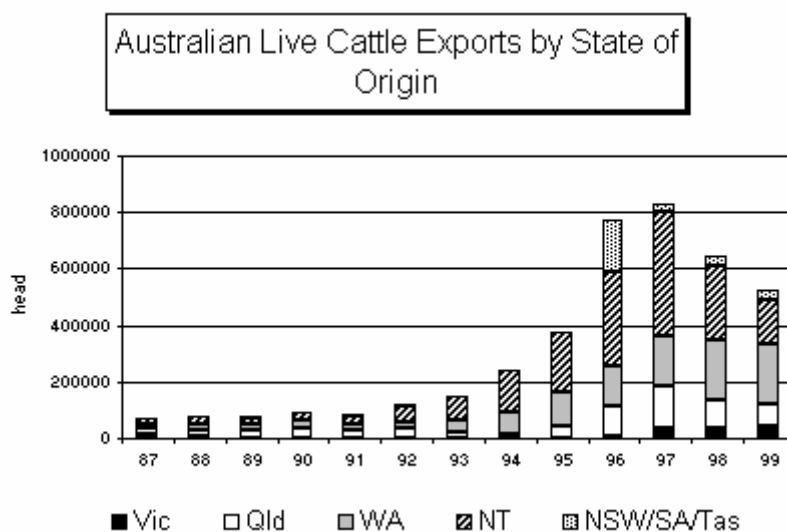
A shipment of 60,000 sheep to Saudi Arabia in January 2000 was the first consignment since the Saudi trade was suspended in 1989. The January shipment formed part of a six shipment trial in which new animal preparation and shipping protocols, including vaccination for scabby mouth, were implemented. The second shipment during March 2000, was also successful. The Saudi Arabian market for live imports has the potential to accommodate an estimated one million sheep per annum. Prior to the 1989 suspension, Australian live sheep exports to Saudi Arabia were in excess of 3 million head, equivalent to approximately half of the annual Saudi requirement (AFFA Press Release, 7 January 2000). With continued success of the trial shipments, Australian live sheep exports are expected to increase. MLA expects total exports to be 5.3 million in 2000 and to remain steady in the medium term (MLA, 2000).

2.2 Industry Location

Northern Australian ports handle approximately 80% of live cattle exports. These include Port Darwin, Karumba, Townsville and Broome. Southern ports include Fremantle, Portland and Devonport. Cattle shipped through Australian ports are sourced mainly from the Northern Territory, Western Australia and Queensland. During 1996-97, the Northern Territory, Western Australia and Queensland respectively, accounted for 48%, 27% and 22% of all Australian live cattle exports.

Around 10% of total cattle turn off in Australia is destined for the live export market. This is significantly higher in the north of Australia.

Figure 2



Source: Meat & Livestock Australia

The live cattle trade in the Northern Territory is significant, accounting for around 75% of the state's cattle turn off.

Figure 2 shows that the Northern Territory has accounted for a greater proportion of increased exports in the last 5 years. Port Darwin is the busiest northern port and this is due to the state's high turn off of cattle for live export and its close proximity to South East Asia. The development of additional live export infrastructure, supported by the Northern Territory government, has also resulted in Port Darwin being a preferred export port. In 1999 some 280,000 head of cattle were exported via Port Darwin, of which 87,500 head (31.25%) were from out of state. (Pastoral Market Update, 29 February 2000).

In contrast to the Northern Territory, Queensland live cattle exports represent only around 5%¹ of total Queensland turnoff (QDPI, 1999). While there is evidence that cattle for live export out of Queensland are occasionally sourced from southern Queensland and even NSW, the majority of live cattle exports have in the past come from Northern Queensland. In northern regions such as Julia Creek and Hughenden, the turnoff for live cattle exports has been as high as 57.6% (1996/97), compared to 5.4%, 3.2% and 0% respectively in the Cunnamulla, Roma, and Warwick regions² of southern Queensland (QDPI, 1998a). Live cattle were worth \$33.8 million in sales to Queensland in 1998/99. Cattle are exported out of five Queensland ports. Townsville and Karumba are the most important of these and accounted for 86% of exports from Queensland ports in 1997 (MLA Statistical Review, 1999).

Live cattle exports account for some 30% of the Western Australia's total cattle turnoff. These cattle are mainly derived from the north, and are exported through ports such as Port Headland, Broome and Wyndham. In both Western Australia and the Northern Territory, the

¹ Live exports were as high as 13% of turnoff in 1996/97 however the overall trend is around 5%.

² AAGIS regions as used in ABARE Australian Agriculture and Grazing Survey.

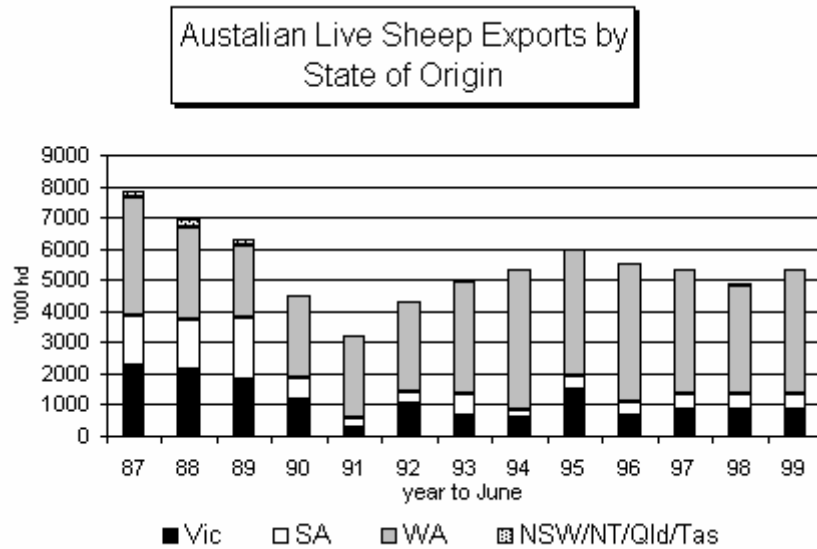
reliance on live exports has lead to changed production patterns. This includes greater preference for *bos indicus* breeds and younger animal turnoff.

In comparison to northern regions of Australia, fewer live cattle are exported from the south. When export markets have a preference for *bos taurus* cattle breeds, there is a tendency for live cattle exports from the south to increase. In the past this has included sales to the Japanese market, and more recently sales to some countries in northern African and Middle Eastern markets. The proportion of live cattle exports from the south increases during the northern wet season when northern cattle are less accessible.

While northern Australian ports handle, on average, 80 percent of Australia's cattle exports, most live sheep originate in southern Australia, see

Figure 3 below. During the mid 1980's, over half of all live sheep exports were from south eastern Australia. Some 80 percent of live sheep for export now originate in Western Australia. The remaining 20 percent are reported to come from Victoria and South Australia, however it is known that sheep from NSW also contribute to these totals. The percentage of sheep turned off for live export averages around 45 percent in Western Australia, 11 percent in South Australia and 13 percent in Victoria. (MLA Statistical Review).

Figure 3



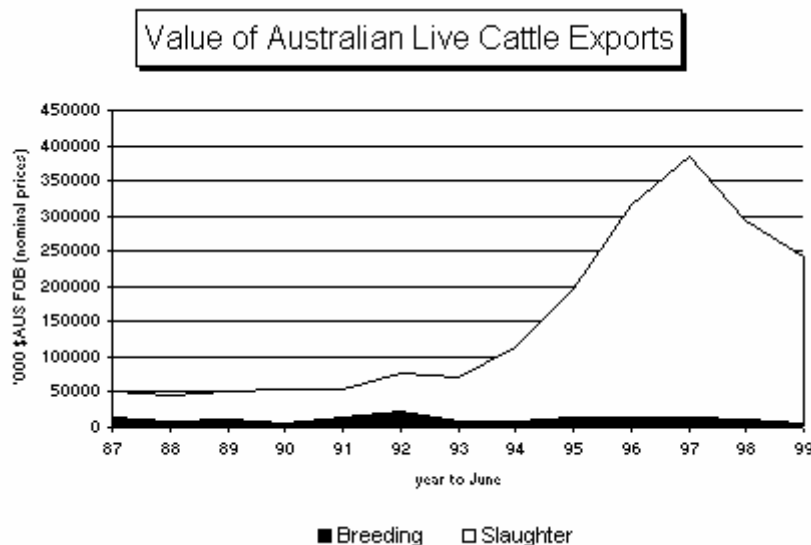
Source: Meat & Livestock Australia

The main ports for live sheep export are Adelaide, Portland and Fremantle. Increasingly, 'natural catchments' for these ports are undefined as transport efficiencies increase the opportunity to source stock further afield. Generally, however, most sheep are sourced in South Australia's mid-north, west coast and south east for export out of Adelaide, South Australia's south and mid and western Victoria for export out of Portland and Western Australia's south and grain belt for export out of Fremantle (pers. comm, D.Clark CQMS, 27 January, 2000).

2.3 Industry Value

The Australian livestock export industry has contributed around \$2.8 billion (FOB) to the Australian economy over the last 5 years. This includes \$1.8 billion from live cattle exports and \$1.01 billion from live sheep sales (AFFA, MLA, 2000).

Figure 4



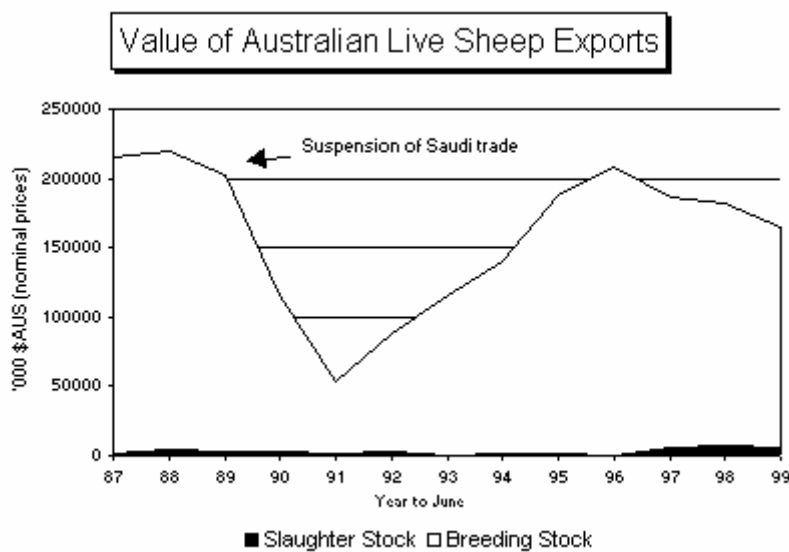
Source: MLA, Meat and Livestock Statistical Review

In the five years to 1999, the Australian live cattle export industry was worth an average of \$373 million per annum (FOB). This value represents approximately 10% of the value of total Australian beef exports annually (MLA, Statistical Review). QDPI (1996) credit the live cattle export industry as having minimised the fall in cattle prices during the 1990's and thus as having a contribution to the Australian cattle/beef industry far greater than simple FOB values. This is discussed further in section 2.7 following.

Figure 4 illustrates the relatively small contribution of breeding stock to the total value of the Australian cattle exporting industry. Of a total industry value of \$416 million in 1999, breeding stock contributed a modest 1.3%.

Similarly, the value of live exports of sheep for breeding purposes is relatively small, as shown in Figure 5 following.

Figure 5



Source: MLA, Meat and Livestock Statistical Review

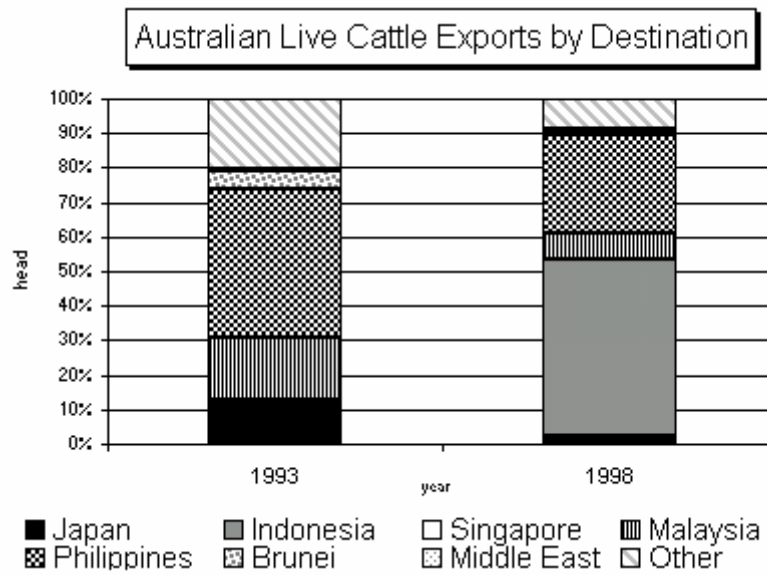
Australian live exports of sheep were valued at an average of \$202 million (FOB) in the five years to 1999. This compares to an average of \$212 million (FOB, nominal prices) in the three years to 1989 despite the nominal value of sheep having however risen some \$4/head during this time. The impact of the closure of the Saudi Arabian market in 1989 and the Gulf War that closed Kuwait in 1991 is shown clearly in Figure 5.

The value of mutton and lamb exports in 1999 were \$330 million (FOB) and \$306 million (FOB) respectively, making the value of sheep live exports approximately 21% of the value of total sheep meat industry exports.

2.4 Markets for Exports

The majority of live cattle exports are destined for Asian markets. This trade has developed in the last decade as beef production in many Asian countries has been outstripped by increasing demand. In country beef production in Asia is constrained by land and domestic feed supply, traditional meat production systems, a shortage of appropriate infrastructure and the devotion of land to producing diet staples such as rice. Live imports suit the needs of these countries. Live exports provide a product that can be slaughtered in accordance with local religious requirements.

Figure 6

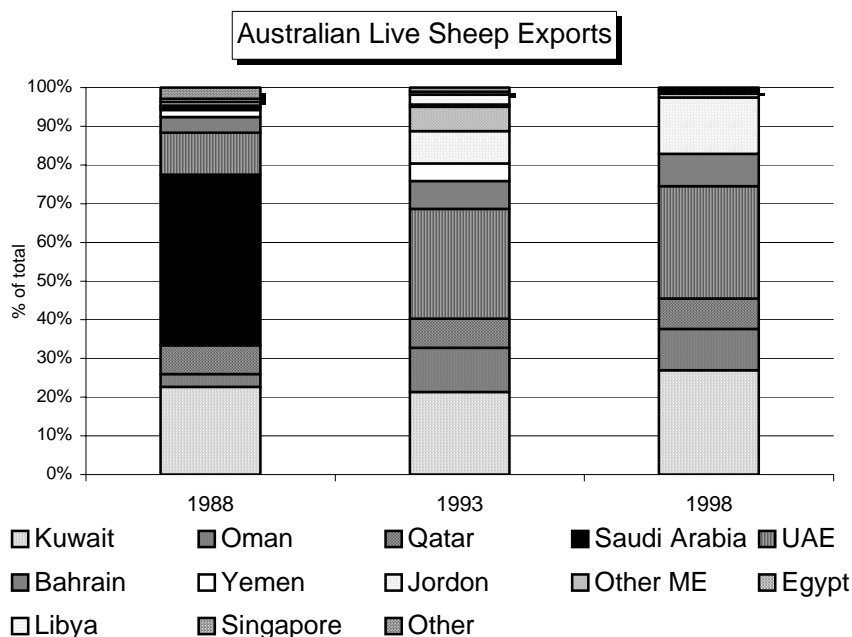


During the mid 1980's exports of live cattle to Korea dominated (51.3%) the Australian export trade. The trade has since moved to South East Asia, especially Indonesia and the Philippines, where the cattle feed lot industry has expanded. South East Asia now accounts for 60% of Australian exports. In the five years to 1998 and prior to the Asian currency crisis, Indonesia was the largest market for Australian live cattle (see

Figure 6 above) accounting for 55% of exports to South East Asia (O'Rourke *et al*, 1998). Egypt, Malaysia and Libya are also important markets for Australia's live cattle.

The live cattle trade has the potential to expand, both as the Indonesian and other South East Asian economies recover and as new markets such as Egypt and Jordan open. In particular, demand from the Philippines is expected to increase following favourable adjustments to their cattle and beef tariff and quota arrangements (ABARE, 1999). Markets with significant potential to expand or begin receiving exports include Thailand, China, Vietnam, Israel and Mexico. In January 1999 Vietnam received its first shipment of live cattle from Australia (Cattle News, February 1999) and in May 1999, a shipment of 4,000 cattle represented the first live cattle exports to Mexico (Cattle News, June 1999).

Figure 7



Source: MLA. Statistical Review

In the last five years the major markets for live sheep have been the United Arab Emirates, Kuwait, Jordan, Oman, Qatar and Bahrain. A number of these markets, such as Jordan developed following the closure of Saudi Arabia in 1989. Live sheep markets with significant potential include Saudi Arabia, Syria, Turkey, Lebanon, China, Israel and Egypt (LiveCorp, 1999, MLA 2000).

2.5 Product Supplied

Live cattle are exported directly for slaughter and for finishing in feedlots. In 1993, 82% of cattle were exported for slaughter, 11% for finishing and the remainder for breeding purposes (Rutherford, 1997). The proportion of cattle exported for finishing has since increased, with the expansion of the Indonesian and Filipino markets which have a high demand for feeder cattle. While the specifications for these cattle vary from country to country, generally, slaughter cattle are required to be over 350kg and feeder cattle less than 330kg live weight (Kaus *et al*, 1997). Most live trade cattle, say 95%, are steers. There has been a strong demand for young bulls, particularly to Israel and Jordan.

The majority of cattle sold into the Asian market are of the *bos indicus* breeds. Markets in Indonesia and the Philippines generally require a minimum of 50% *bos indicus* content. Other Asian markets have more particular preferences with regard to breed. Malaysia for instance mostly stipulates, that both feeder and slaughter cattle must be Brahman of at least 50%. Other markets require or prefer *bos taurus* breeds. Japan prefers Angus or Angus-cross cattle.

The majority of live sheep exports are shorn Merino wethers (AACM 1996a). Approximately 50% of live sheep exports are young sheep. Young sheep are generally required to weigh between 35kg and 45kg, while mature sheep weigh 55kg on average. Over time there has been a movement toward younger sheep. For example Jordan requires young sheep, Muscat/Oman is moving towards young sheep and Saudi Arabia will accept only young sheep in what was an old sheep market. Ram lambs account for approximately 10% of the trade (pers comm, D.Clark CQMS, 17 January, 2000).

While breed, sex and weight are significant in ensuring that livestock meet market requirements, good health is the highest priority. Disease restrictions vary from destination to destination. Australian exports are rarely affected by such restrictions as a result of the country's largely disease free status. The most significant disease which restricts sheep imports is scabby mouth and vaccination is becoming more common. To ensure disease status, quarantine periods are required. These range from 48 hours to a number of weeks depending on the destination country and the type of stock. In addition to being disease free other general and welfare requirements are necessary. These include freedom from external parasites, free of cuts, swellings, no fresh dehornings, blindness, cancer eyes, lameness or broken bones, general good health and no large or sharp horns. (Kraus *et al*, 1997). In the case of live sheep, preference is to have sheep shorn in the last 8-10 weeks. Sheep can be shipped with wool however, they do not adapt and travel as well or discharge in a state as cosmetically attractive. The additional space required (some 25%) for unshorn sheep is normally cost prohibitive.

2.6 Competitors

Australia has a major advantage over other suppliers of live cattle to South East Asian countries due to close proximity to markets. Argentinean and Latin American live cattle have the potential to compete with Australian live cattle exports in these markets, however high sea transport costs are largely prohibitive to their trade. Significant currency re-valuations could reduce this cost disadvantage.

In northern African markets, the European Union (EU) has been a traditional supplier of live cattle. However, bans on EU cattle due to BSE has opened up opportunities for Australian live cattle in north Africa. In addition, lower EU subsidies have reduced the competitive position of European suppliers. In some countries, including Egypt and Libya, the market has developed a preference for Australian cattle and significant customer relations have been established such that traditional EU suppliers (such as Ireland) now face non-financial competition (MLA, 2000).

North Asian countries, including Japan, are supplied by Canada and the United States as well as Australia. The Canadian and US presence in these markets is small with their combined exports to Japan in 1998 being less than 2% of the volume imported by Japan from Australia (MLA, Statistical Review, 1999).

The greatest competition in Middle Eastern live sheep markets comes from countries in the horn of Africa. Somalia and Sudan have become especially competitive in recent years with Saudi Arabia lifting an import ban on Sudanese sheep (which had been in place due a Rift Valley Fever outbreak in 1998). Livestock from Zimbabwe and South Africa also compete in the Middle East. Uruguay were once strong live sheep suppliers however in recent years have only shipped moderate numbers.

New Zealand has traditionally been an opportunistic supplier of live lambs. Since a New Zealand ban on the export of lambs aged less than 10 months in the mid 1980's, exports have been low and are expected to remain low. Only 127,000 head were exported in 1998. (MLA, 1999a).

Other countries with the potential to be competitors in the live sheep markets include China, and some countries in eastern Europe and South America.

2.7 Impact on Producer Returns

Producer returns are generally enhanced where a greater number of market opportunities exist. The livestock export market provides cattle and sheep producers with access to another market. The additional demand this extra market creates, enhances the returns across all markets. This positive relationship between livestock export demand and returns to producers is demonstrated by analysing shocks to the market over the last decade, and recent market trends.

Figure 8



Source: ABARE, Australian Commodity Statistics, Index of Prices Received by Farmers in Australia

Figure 8 illustrates the ABARE index³ of returns to producers of sheep for slaughter and sheep for live export during the late 1980's and early 1990's. The reflective movement of the indices demonstrates the close relationship between prices paid for domestic and live export stock. Figure 8 shows a fall in the returns to sheep production for both live export and domestic slaughter following the closure of the Saudi trade in 1989⁴.

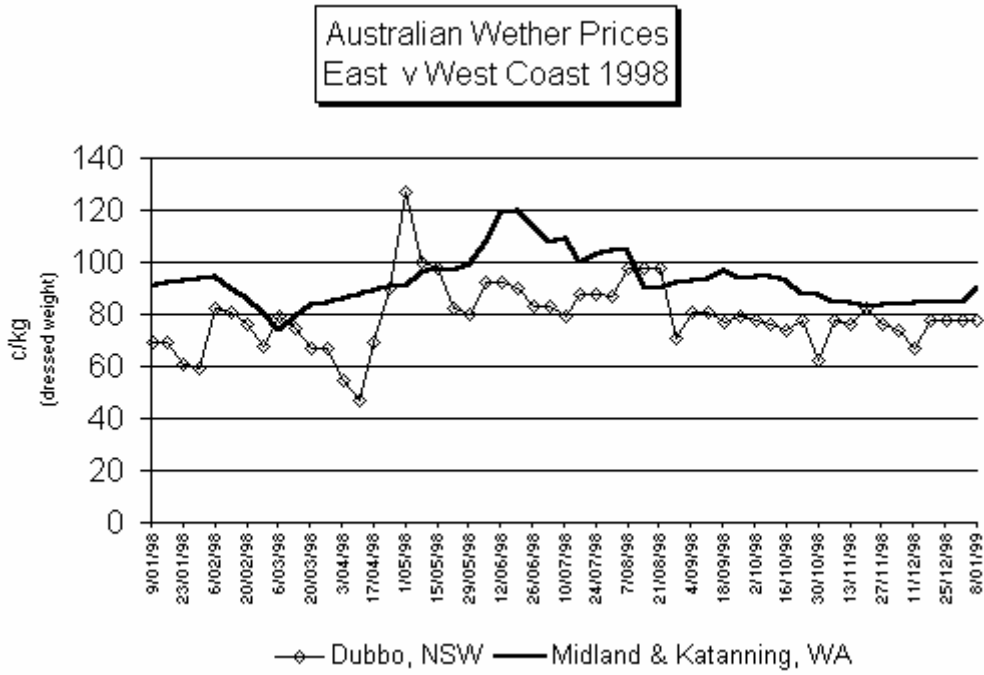
Overall the indices also demonstrate that returns tend to be higher to producers of sheep for live export than those to producers of sheep for slaughter. The returns for live export are equal to or higher than those for domestic slaughter for the entire period shown.

The way in which the export of live sheep strengthens the domestic sheep industry can also be illustrated by comparing sheep prices in Western Australia with sheep prices in NSW.

³ This index does not explicitly include the impact of changes to in returns to wool production. ABARE report returns to wool production in a separate index.

⁴ The removal of the Australian wool floor price in 1990 would have also influenced this fall due to the co-product nature of wool and sheep for live export/slaughter however the recovery of the two indices, as shown in Figure 8, demonstrates the greater influence of the live export market.

Figure 9



Source: MLA, 2000

Wether prices for similarly specified stock are shown in

Figure 9 for 1998. In Western Australia, where some 45% of sheep were turned off for live export during 1998, the market prices for wethers tend to be higher over most of the year. Prices in the Western Australian market are also significantly more consistent than those in the NSW market.

Similarly in the Australian beef industry, ABARE have found that 'the incomes of beef producers in the northern regions of Australia have been underpinned by involvement in the live cattle trade (O'Rourke *et al*, 1998). The dramatic fall in live cattle exports as a result of the Asian currency crisis was shown to have had significant impacts on the incomes of producers in the northern cattle regions and less significant impacts across all regions. It was also found that with few market alternatives in the north when demand for live cattle fell significantly, the number of farms recording negative farm cash incomes rose 18 percentage points between 1996-97 and 1997-98" (ABARE, 1999).

In Victoria more recently, the positive impact of buyers of live export cattle in the market has been shown to boost prices across the market. In Wodonga and Pakenham it was reported that prices⁵ rose up to 3c/kg during early April 2000 following the diversion of a ship from Western Australia to Victoria for loading.

2.8 In Summary

The main points to be gleaned from the industry overview are as follows:

Australia live exports a number of stock types, including goat, buffalo, deer, sheep and cattle, for both slaughter and finishing and for breeding. The greatest volume of live exports are of sheep and cattle for slaughter and finishing.

The average number of cattle exported in the five years to 1999 was 735,000 head per annum. Live cattle exports reached a peak of 950,000 head in 1997. From a partially recovered export quantity of 840,000 head during 1999, exports are expected to remain steady in the medium term.

The average number of sheep exported in the five years to 2000 was 5.4 million head per annum. Live sheep exports peaked in 1987 at 7.88 million head. This peak was followed by a dramatic fall in sheep exports when the trade to Saudi Arabia was suspended. Live sheep exports are expected to increase only marginally: from 5.1 million in 1999, to 5.3 million during 2000.

The live cattle industry is dominated by northern Australia. Northern ports, such as Port Darwin, Karumba, Townsville and Wyndham account for over 80% of live cattle exports. Some 72% of cattle originate from properties in the Northern Territory and Queensland. Some 23% originate from Western Australia, with most coming from the northern part of the state.

Western Australia, and the south of the state in particular, accounts for around 80% of Australia's live sheep industry. Exports from South Australia, Victoria and NSW account for the remaining 20%. Fremantle, Portland and Adelaide are the major ports for live sheep exports.

Exports of live cattle have been valued on average at \$373 million per annum (FOB) in the five years to 1999. This is some 11% of the value of total Australian beef industry exports.

Exports of live sheep have been \$202 million per annum (FOB) in the five years to 1999. This is some 21% of the value of total sheep meat industry exports.

⁵ 600kg plus bullocks and feeder steers

South East Asia is the principal destination for Australian live cattle, accounting for 60% of exports. The Philippines and Indonesia account for the majority of the South East Asian demand for Australian live cattle.

The live sheep trade is almost exclusively with countries in the Middle East. The United Arab Emirates, Kuwait, Jordan, Oman, Qatar and Bahrain have been important buyers in recent years.

The majority of live cattle exports are *bos indicus* breeds. South East Asian markets generally stipulate a minimum *bos indicus* content. North Asian and north African markets have a preference for *bos taurus* breeds. All markets have significant disease and health requirements.

Most live sheep exported are either aged or young merino wethers, weighing between 35 and 60kg. In addition to stringent health demands, sheep must be shorn.

Australia currently faces minimal competition in live cattle markets. Opportunities for Australian cattle sales in Asia have arisen due to Australia's low cost of production and close proximity to Asia. BSE related bans on cattle of European origin and higher priced European stock due to reduced EU subsidies, have led to market opportunities in the Middle East and North Africa for Australian live exports.

Competition in Middle Eastern live sheep markets comes primarily from countries in the horn of Africa, including Somalia and Sudan. Competition from New Zealand exports has fallen in recent years, while competition from China and some eastern European countries has the potential to increase.

Evidence suggests that stock prices and producer returns are supported to some degree by the existence of livestock export markets. Reduced demand for Australian livestock exports following the suspension of the Australian sheep trade to Saudi Arabia in 1987, the Gulf conflict in 1990 and the Asian currency crisis of 1997-98 have demonstrated this relationship.

3 VALUE CHAIN DESCRIPTION AND ANALYSIS

3.1 Value Chain Definition and Purpose

Livestock exporting is an industry, with a series of businesses, livestock owners and goods and service inputs and outputs up and down a value chain. A value chain is a description of an industry or specifically 'the chain or sequence of activities from the farm gate to the consumer' (QDPI, 1998b). Value chain analysis quantifies the costs and margins associated with each event in the chain between farm gate and the consumer, where in the case of livestock exporting the consumer is the importer in the country of destination or the government of the importing country.

By quantifying the costs and margins associated with each step in the chain, value added can be determined. Value added is defined as the difference between total income and total costs (AACM International, 1996a). Value added can also then be considered as an annual operating profit and the aggregate of all links across all industry players equates to the industries total value added and also its contribution to Gross Domestic Product (GDP).

In many respects, the links in the value chains for live cattle exports and live sheep exports are the same. A generic description of each link on the livestock export value chain is provided below followed by quantification of value adding activities specific to each chain.

3.2 Generic Description

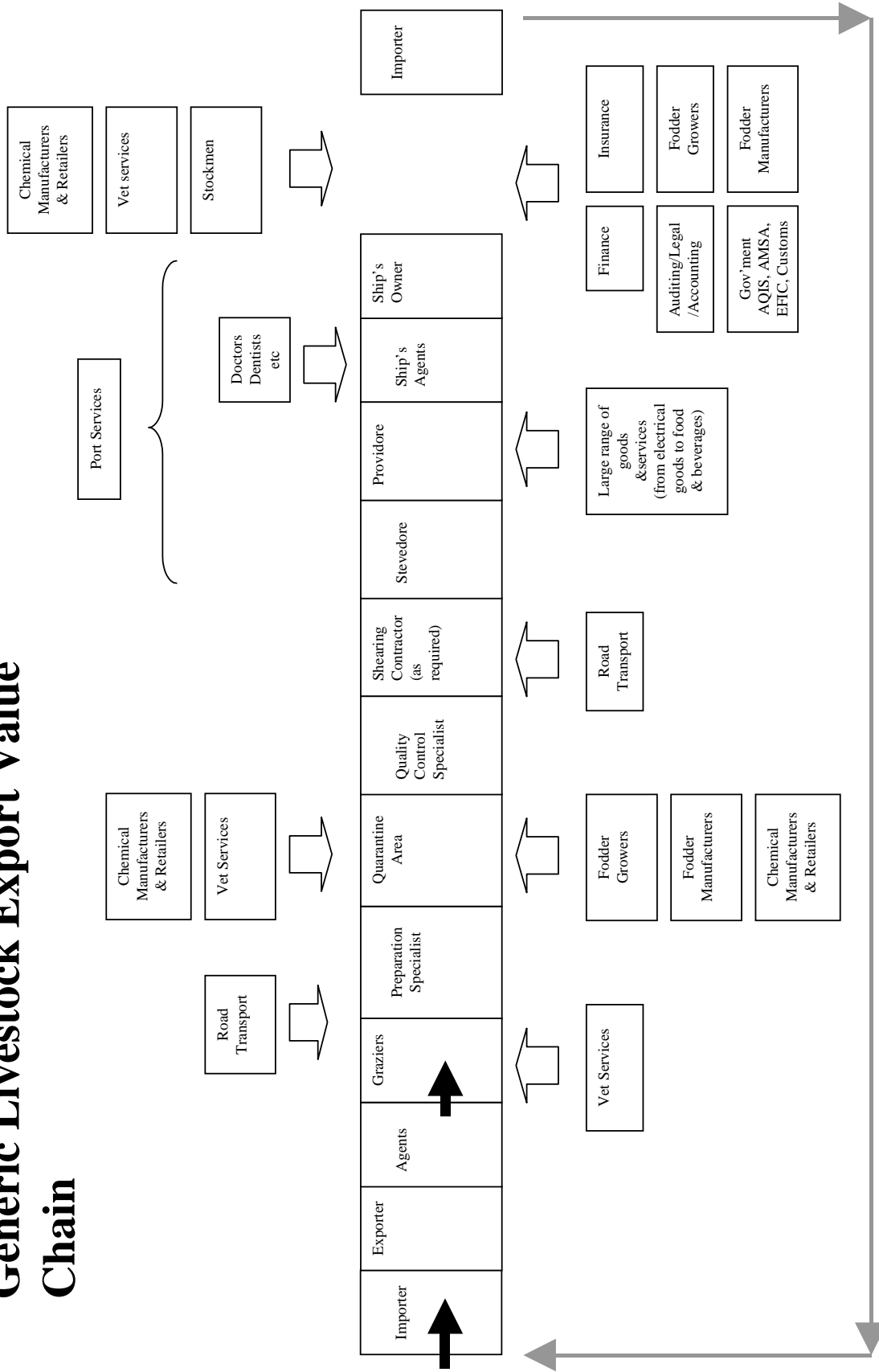
The steps in the chain were prepared in association with the industry. Graphically the generic chain is shown in Figure 10 of the following page. A brief definition of each link, activities involved and relevance to sheep and cattle is provided below.

Importer

A livestock importer may be either an overseas country or company that makes a request to an Australian exporter to supply live sheep or cattle. Typically a multiple of companies will operate independently in larger countries and in smaller countries or centrally planned economies, requests will come directly from the government. Orders direct from government will come from countries such as Kuwait, Qatar and Bahrain. Livestock requests may be made simultaneously to one or more Australian exporters, as well as to competing suppliers such as New Zealand, South America and China. Typically between three and five quotes are sought by importers.

Figure 10

Generic Livestock Export Value Chain



Exporter

Exporters are responsible for pricing, purchase, assembly and preparation of an importers order. This role includes specialist suppliers who simply source livestock for exporters.

Supplier/Procurement

A supplier buys livestock for export, to a specific order for an exporter. A procurement service is provided by the supplier. The supplier does not own the livestock and is paid on the basis of a contract rate.

Agents

Agents work on behalf of the grazier vendor to sell to a supplier or directly to an exporter. Their role includes initial inspection of livestock to ensure they meet the required specification. Specification may include age, weight, sex, breed and disease status. An agent will negotiate sale price between grazier vendor and exporter/supplier purchaser. After purchase the agent will arrange transportation to the quarantine area. Agents serving this market tend to be the larger operators in each area from which livestock are sourced. Agents generally attain a percentage of farm gate sale price, typically this figure is set at 5% for sheep and between 3 –5 % for cattle.

Graziers

Graziers produce sheep or cattle for sale to an exporter. A cattle breeding or growing out operation may be specifically geared towards supply of livestock suitable for the live export trade such as in the Northern Territory. Alternatively, sale to an exporter/supplier may be opportunistic and this is more often the case in southern Australia. Sheep graziers may include wool producers turning off older sheep or specialist producers turning off a younger product for higher value markets. The market is split roughly 45% young sheep, 55% older stock. In some cases, where economies of scale permit, graziers may supply directly to an exporter, without an agent. Alternatively, graziers may act as suppliers and buy trade stock to compile an appropriate lot for an exporter.

Preparation Specialist

The preparation specialist or backgrunder works with the exporter or agent to ensure consistency of livestock supply and the conditioning of stock for sea travel. Opportunities for specialist preparation usually occur when specified requirements are outside a grazier's normal management program. Preparation specialists tend to be more active in live cattle exports than with live sheep. Preparation specialists were more active in the sheep industry when returns were higher for wool and profits could be made by buying, shearing and on selling to exporters. Approximately 10% of export livestock pass through the preparation/backgrounding process. Independent preparation specialists are active in Victoria, Western Australia and Queensland.

Land Transport

Road transport is required at a number of stages throughout the livestock export value chain. Road transport of livestock takes place between the grazier producer, preparation specialist, the quarantine area and the ship. Further road transport is also required for transportation of fodder from fodder mills and feed producers to quarantine areas, fodder mills and on board ship.

Specialist transporters are present in each area where livestock and fodder are sourced as well as within close proximity of quarantine area feedlots.

Rail transport, particularly in Queensland, is important in the live cattle export industry. Some 70,000 head were transported to ports or spelling yards in Queensland in 1999. Plans have been developed to increase the speed and holding capacity of the rail loading facilities at Townsville (Daniels, 2000).

Veterinary Services

Traditionally commercial veterinary services to the industry were required for health compliance, for diseases such as brucellosis and tuberculosis. In recent years, the role of commercial vets has expanded and now includes district health status certification, animal welfare, tests and treatments associated with quarantine compliance and final inspection. The former of these tasks were previously completed by the Australian Quarantine Inspection Service (AQIS), but are now often contracted to private vets.

Commercial vets who have built dedicated practices in the industry are found in Darwin, Katherine, Townsville, Kununurra and Perth.

Quarantine Area Feedlot

A livestock quarantine area can be located at port or inland. Quarantine areas are established for shipments prior to boarding and as disease controls between states. For example, Cloncurry in north western Queensland, has quarantine facilities for cattle entering and leaving the Northern Territory. Large feedlots exist as marshalling areas for live sheep export at Beldivis, 50 km south west of Perth. The Northern Territory government has developed quarantine facilities for cattle near the Port of Darwin.

Quality Control Specialists

The industry currently supports a limited number of third party independent quality control specialists who inspect livestock against specification prior to vessel loading. Quality Control Specialists are not employed in every value chain.

Fodder Manufacturers

During the sea journey, live sheep are fed on a pellet typically consisting of 50% hay or straw, 30% grain barley, 10% lupins and the balance of bulk roughage, urea and possibly antibiotics. This pellet is also fed to cattle on southern export routes. On northern routes, lucerne (legume based) cubes are fed to export cattle. Lucerne cubes are used in cases where on-journey weight gain is desirable.

Fodder Growers

Fodder manufacturers may source fodder for production in their local region or from further afield. Pellet producers in the Hamilton region, for example, are known to source fodder from growers in the NSW Riverina region as are live cattle exporters from Queensland and the Northern Territory. In the north growers produce fodder specifically for pellet production.

Chemical Manufacturers and Retailers

Chemical suppliers to the livestock export industry include local stock and station agents, manufacturers of drugs, suppliers to vets such as the manufacturers of antibiotics (including Terrimycin) and electrolytes and vaccine companies. Chemicals are also required on board during the journey and are supplied in bulk to the ship.

Shearing Contractors

Sheep are normally shorn prior to live export, if wool growth is greater than 2.5 cm or approximately 10 weeks growth. This requirement provides the basis for a business in major live sheep export ports and regions.

Port Authority

The port authority provides port and marine services, it owns and maintains the port facility and wharves. It holds a long term lease on the channels of the harbour. The port authority leases space for storage and wharves, provides pilotage, towage and so on. The port authority is responsible for all aspects of inbound and outbound shipping.

Stevedores

Stevedores are responsible for ship loading of stock into pens on board the vessel. Stevedores employ experienced livestock handlers.

Providores

Providores include suppliers of food for the voyage, marine engineers for ships repairs, yards and fencing materials, protective clothing and boots, semi-trailers for stock management at destination and any other materials required during the sea journey.

Ships Agents

Ships agents notify port authorities of boat arrival time, organise quarantine clearance on arrival, manage customs documentation and provide services to the ship (repairs and maintenance) and ship's crew (doctors, dentists, etc).

Ships Owners

Some 90% of vessels plying the live export trade are foreign owned. There are a small number of vessels operating the northern live cattle trade.

Stockmen

A growing number of accredited Australian stockmen accompany vessels to the destination port, completing on board stock work and assisting with disembarkation. Reporting requirements are fulfilled by on board stockmen. Australian stockmen who work on board for this industry are sourced, trained and accredited by LiveCorp.

Government Agency Services and Industry Representation

In addition to the activities ascribed to AQIS vets, government services to the industry, and hence employment, include customs and immigration officers, Australian Marine Safety Authority (AMSA) employees, who check ship's engines, survey works, ventilation, general ship safety, and Agriculture Forestry and Fisheries Australia (AFFA). AFFA activities include animal welfare, policy, guideline and protocol formulation and trade delegations. MLA represents the industry from a producer perspective and works in close association with LiveCorp on market access, policy, promotion and research and development.

Insurance

Insurance services purchased by the industry include stock transit insurance from the graziers property to the quarantine area and mortality and cargo insurance for stock and fodder. In addition the Export Finance Insurance Corporation (EFIC) provide underwriting of credit risk in destination countries. Around 70% of industry insurance is provided by foreign owned companies.

Banking

Banking services required include exporter finance and letter of credit guarantees. A significant portion of banking activity is captured by Australian banks (interest rates and premiums are lower here, than say, Indonesian financial institutions).

Other Services

Other services purchased by the industry include auditors, accountants, solicitors and interpreters. Auditors, for example, are regularly employed by importers to review the Australian arms of their operations.

Travel and accommodation and various other services for visiting buyers and inspectors from destination countries are also required. Similarly, a number of hotels in towns where live stock facilities, such as quarantine yards and the ports, are located rely on the regular patronage of agents, stockmen and transport operators.

Meat Processing

The meat processing sector purchase cull stock from live exporters up until the point of ship departure, this activity is a bi-product of the trade. For example some 3% of sheep are rejected prior to loading and these are sold to the processing sector.

3.3 Live Cattle Value Chain

In 1996 the live cattle and sheep value chains were prepared for the Meat Research Corporation (MRC) by AACM International. Values per head and total industry value added for live cattle exports is shown for financial year 1993/94 in Appendix C. The same methodology was applied to estimate value added for live cattle exports in 1999/2000. Total gross value and major cost items were estimated by the internal study team and reviewed with relevant parts of the industry during field investigations. The value chain for 1999/00 is provided in

Figure 11.

Figure 11 Notional Value Chain for Live Cattle 1999/00

	\$ per Head
Total Gross Value	898
Costs	
Livestock Purchase (Farm gate)	550
Additional Veterinary On Farm	4
Road Transport to Quarantine	15
Agents Fees	28
Road Transport to Wharf	10
Feedlotting	15
Wharf Charges	1
Third Party Vet	3.50
AQIS	1
Stevedoring	3.00
Fodder for Journey	62.50
Sea Transport	165
On Board Water	1
On Board Veterinarian	3
Stockmen	1
Total Costs	863
Value Added	35

The 1999/00 notional value chain for live cattle exports is based on a CIF value delivered Indonesia. Value added per head is \$35. From the value chain it can be seen that the major revenue earners from the live cattle exports industry are:

- Cattle producers (51%);
- Livestock agents (3%);
- Road transport providers (4%);
- Fodder suppliers (6%); and
- Shippers (33%).

Case studies for individuals participating in the industry are provided in the following chapters.

3.4 Live Sheep Value Chain

The 1993/94 value chain for live sheep prepared by AACM international for the MRC is presented in Appendix C. An updated value chain for live sheep is presented in Figure 12.

Figure 12 Notional Value Chain for Live Sheep 1999/00

	\$AUD per Head
Total Gross Value	75.62
Costs	
Livestock Purchase (Farm gate)	25.00
Additional Veterinary On Farm	0.07
Road Transport to Quarantine	1.00
Agents Fees	1.50
Transit Insurance	0.50
Feedlotting	1.55
Shearing	1.00
Freight to Wharf	0.80
Wharf Charges	0.01
Third Party Vet	0.03
AQIS	0.01
Fodder for Journey	8.25
Sea Transport	26.00
On Board Water	0.05
On Board Veterinarian	0.30
Stockmen	0.12
Finance	0.03
Insurance	0.65
Total Costs	66.87
Value Added	8.75

The 1999/00 notional value chain for live sheep exports is based on a CIF value delivered Kuwait. Value added per head is \$8.75. From the value chain it can be seen that the major revenue earners from live sheep exports are:

- Sheep producers (37%);
- Livestock agents (2%);
- Shearing (2%)
- Road transport providers (2%);
- Feedlot (2%)
- Fodder suppliers (12%); and
- Shippers (39%).

Case studies for individuals participating in the industry are provided in the following chapters.

3.5 Summary and Conclusions

The livestock export industry value chain has been shown to be complex and relatively long. Up to twenty five separate business types, each generating value added and employing people in both urban and regional Australia have been identified.

The value chain for live cattle shows that producers, transporters (road and sea) and fodder suppliers are the major recipients of revenue from the trade. For live sheep the major revenue recipients are producers, feedlot operators, agents, shearers, fodder suppliers and transporters (road and sea).

Value added per head for live cattle in the value chain, not including an allowance for value added by each business supplying the chain or for any multipliers for those servicing the industry outside the chain, is estimated at \$35/head. Assuming an annual export of 840,000 head, with similar per head returns, total value added is \$29 million (\$35/head by 840,000).

Similarly, value added per head for live sheep is estimated at \$8.75/head or a total of \$44 million when applied over annual exports of 5 million sheep.

4 CASE STUDY ANALYSIS

4.1 Fremantle/Southern Fringe Perth and Wongan Hills

Fremantle and the area south east and west of Perth services the West Australian live sheep and cattle industries. The region is the centre for Western Australian live sheep exports. WA live sheep exports account for 80% of the national trade or 4 million head per annum. This case study concentrates on the contribution made by the live sheep industry. The Fremantle end of the case study highlights the contribution the live export industry makes to “down stream” economic activity. Businesses that benefit are as diverse as ships providers, shearing contractors, hay producers and chemical manufacturers.

The Fremantle component of the case study is defined as the Outer Southern Fringe of Perth plus Wongan Hills (see Appendix A, Map 1 for localities). The region includes outer areas of Perth south of the Swan River, and the regional centres of Fremantle, Kwinana, Rockingham, Mandurah, Pinjarra, Armadale and Baldivis.

From the Outer Southern Fringe case study region linkages were made to the production area of Wongan Hills in the Western Australian wheat belt and the economic and social contribution made to the town by the livestock export industry was reviewed. Wongan Hills with a shire population of 1,500 is two hundred kilometres north east of Perth. The case study area is defined as Wongan Hills-Ballidu Shire, Dalwallinu Shire and Goomalling Shire. This definition is based on the local livestock agents territory. Total territory population is approximately 5,000 people.

4.1.1 Qualitative Impact – Fremantle/Southern Fringe Perth

A selection of the individual businesses reviewed as part of the case study are described below.

Shingles Shearing Contractors

Shingles Shearing Contractors is one of four firms servicing the live sheep export industry in the case study area. Shingles controls approximately 30% of the contract shearing market associated with live sheep exports. Competition includes a similar large contractor who works the Wellard quarantine feedlot facility and two smaller operations. Shingles provides services to the RETWA feedlot at Baldivis.

The live sheep industry is attractive to a shearing contractor as it provides a stable year round customer with reasonably consistent throughput and acceptable working conditions. The feedlot is central to the metropolitan area of Perth and therefore involves less travelling and time away from home for shearers. It is also less costly for the contractor to service than a string of outlying sheep stations scattered across Western Australia.

Shingles provides local employment opportunities for young people from neighbouring small towns as well as a training base for an industry notorious for an aging workforce and not providing training opportunities for young, would-be shearers. Jim Shingle estimates that he has trained between 40 and 50 young people as shearers for the industry in the last 10 years.

Supplying shearing services to the live sheep export industry is 100% of Shingles business. Shingles currently employs 12 full time shearers and 10 part time shearers and assistants to the equivalent of 5 full time positions. Shearing, a service, is not a large purchaser of inputs. However, what shearing materials and accounting advice that is required are purchased locally. More importantly, wages and salaries earned by the contractor and his staff are spent within the case study area. Wages, salaries, superannuation and workers competition are approximately \$700,000 per annum.

Jim Shingle would like to be able to appoint another two shearers at the time the survey was completed.

Carratti & Sons, Hay Supply to the Quarantine Feedlot

Carratti & Sons supply 90% of the meadow hay fed to sheep prior to shedding at the 100,000 head capacity RETWA feedlot at Baldivis. The feedlot has a throughput of approximately 1.8 million sheep per annum.

Supply of meadow hay to the sheep feedlot accounts for one third of the Carratti's business and requires the full time labour inputs of one of the two brothers. Hay production for the feedlot is a welcome stable income opportunity following the decline in the local dairy industry. The Baldivis feedlot provides a guaranteed market for the Carratti's product and hay production generates a superior gross margin to beef production, to the next best alternative enterprise.

To produce their product the Carratti's purchase locally in Waroona (population 3,000), fuel and oil, spare parts, maintenance and bailing twin. All dedicated machinery (rollers, mowers, rakes, trucks and hay sheds) are also purchased from local suppliers in Waroona.

The Carratti's have a long term supply agreement with the feedlot and quality control is an important component of their business.

RETWA Quarantine Area Feedlot, Baldivis

The RETWA facility at Baldivis is one of six quarantine feedlots in the case study area. Facility names and nominal capacities are shown in the table below.

Name of Facility	Nominal Capacity
Wellards at Baldivis	100,000
RETWA at Baldivis	100,000
Wellards at Sterling Yards	12,000
Rosguy	15,000
Gidgee Springs	20,000
Fares at Kojunup (currently inoperative)	60,000

From the table it can be seen that the RETWA facility, along with the neighbouring Wellard Rural Export feedlot, are the largest in the case study area. The RETWA Baldivis feedlot processes 40% of the live sheep exported through the port of Fremantle.

The live sheep export industry generates 100% of the feedlots throughput and is the reason for the facilities existence. The feedlot requires nine full time employees and ten part time employees to the equivalent of five full time jobs. Employees are hired through a labour hire company. Local beneficiaries of the industry include:

- Labour hire company which pays out wages to the equivalent of \$525,000 per annum;
- Local repairs and maintenance contractors, \$100,000 per annum;
- Hay supplier (see Carratti & Sons above);

- Fodder supplier;
- Transport providers who are drawn from Esperance to Carnavon (see BR Clarke & Co below)
- Meat processors and a pet food manufacturer who buys reject stock;
- Shearing contractors (see Shingles Shearing Contractors above);
- Walls and Roofs, shed and pen construction;
- Local nursery suppliers who provide tree and shrub plantings to meet EPA requirements;
- Local veterinarian; and
- Local rural supply agent for rural merchandising products.

The quarantine feedlot has linkages to most of the case study businesses described in the value chain.

IMES Ship Supply; Providores

IMES Ship Supply is one of three companies servicing live export vessels at the Port of Fremantle. IMES Ship Supply controls between 50% and 55% of the live ship providing business associated with the port. Competitors include SeaLanes and Swan Shipping.

The livestock shipping industry is attractive to a providore, livestock ships have large crews and the vessels require up to ten times more maintenance. Typically the crew of a large livestock vessel is between 75 and 80 persons, while a small livestock vessel will require a crew of 35 to 40. By way of contrast, a modern container ship or a bulk cargo vessel will have a crew of 22 to 24. Larger crews consume more provisions (fruit, vegetables, meat, dry stores, dairy, etc), the basis for the providores business.

A livestock cargo generating manure and effluent requires a high level of on board maintenance. Both manure and effluent are corrosive and to meet quarantine requirements a livestock ship must be scrubbed with caustic soda and sea water before re-entering an Australian port. Manure, effluent and saltwater/caustic scrubbing result in higher levels of corrosion and therefore higher repair and maintenance costs than a similar size and age vessel carrying an alternative "non live" cargo. Technical stores (nuts, tools, pumps, paints, etc) are important supply items for a providores business.

Livestock exports account for 40% of IMES Ships Supply turnover. The company has six full time employees servicing the livestock export component of its business. Major Perth based beneficiaries of its business include:

- Fruit and vegetable wholesalers;
- Meat wholesalers;
- Dry store and grocery wholesale;
- Dairy companies;
- Blackwoods and Sweatmans Engineering Supplies;
- Reads Electric for motor rewinding;
- Will Trading for supply of safety gear;
- Fremantle Founding and Engineering;
- WA pump manufacturers Stalker; and
- Don Bodlovich Pharmacy which specialises in overseas brands of medicines and in the provisioning of ships medical kits, the contents of which are proscribed by law.

The livestock export industry has provided IMES with a regular, high volume and value base for the growth of their ships providing business. The company's principal, Murray Rayment, is an enthusiastic supporter of the industry.

Western Stevedoring

Western Stevedoring effectively provides 100% of the stevedoring services required by live sheep and cattle exporters from the Port of Fremantle. The occasional job is let to Patricks or P&O to ensure that Western's prices and service remain competitive.

Live exports are important for Western and account for one third of their total business receipts. Western have high productivity levels and have made effective cuts to livestock loading time with corresponding savings for shippers. As a measure of the company's faith in the industry, Western are currently advancing a proposal to relocate livestock exports to the industrial Port of Kwinana. The Kwinana Port will be equipped with dock side holding yards which will remove double handling of stock between farm, feedlot and port with corresponding reductions in cost and animal stress levels.

Western Stevedoring has been operating for four years and the 30 jobs it generates (10 full time, 20 part time) in association with livestock exports are for people not normally associated with the wharves and stevedoring. Western Stevedoring employs long term unemployed rural people with livestock management skills. Major beneficiaries of the business include:

- Employees, the livestock export component of the business has a direct labour bill of \$1.14 million per annum for livestock loading and a further \$80,000 for "blowing and lifting on board" of fodder and hay;
- The Port of Fremantle which received \$2 million per annum in port charges;
- Waterside Welding and Fabrication;
- Unirig Lifting Equipment;
- Hymat Forklift Hire;
- Noremac Transport Equipment; and
- Statewide Towing, providers of livestock, towing and loading facilities.

All businesses and employees are resident of the Fremantle/Greater Perth case study area.

4.1.2 Quantitative Impact - Fremantle/Southern Fringe Perth

In a city the size of Perth (with a population of around 1.3 million), the contribution of the live export industry to the broader community is relatively small. Gross revenue for the case study region of Fremantle and the Outer Southern Fringe is approximately \$17 billion per annum, see table below. However, within the outlying rural areas contained within the case study area the impact is more pronounced. Smaller centres such as Baldivis, Waroona, etc rely on the economic activity generated to support local employment, community spending and spin off industries associated with industry economic activity. This impact is important and acknowledged but not quantified separately.

Economic Indicator	Region Total	Live Sheep Contribution (%)
Gross Revenue (\$ million)	17,044.7	0.3
Value Added (\$ million)	8,163.9	0.3
Employment (jobs)	152,425	0.4

Source: NIEIR 2000

The live sheep industry contributes 0.3% of gross revenue, 0.3% of value added and 0.4% of employment in the Fremantle Southern Outer Fringe case study area.

The quantitative economic impact derived from the NIEIR Input-Output model is summarised in the table below.

Economic Indicator	Direct Impact of Live Sheep Industry	Type II Multiplier⁶	Total Impact
Gross Revenue	\$24.6 million	1.8	\$43.7million
Value Added	\$11.8 million	1.8	\$20.9million
Employment	207 jobs	2.8	577

Source: NIEIR 2000

From the above table it can be seen that in the Fremantle/Southern Metropolitan Perth area the live sheep export industry generates:

- \$24.6 million in gross revenue with a multiplied impact of \$43.7 million;
- value added, direct and indirect of \$20.9 million; and
- total employment of 577 jobs.

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

4.1.3 Qualitative Impact - Wongan Hills

Traditionally the Wongan Hills area has supplied large numbers of sheep from a mixed wheat-sheep enterprise base. Low wool prices have seen a switch to dedicated cropping with chemical fallowing replacing the pasture/grazing phase. The area still turns off significant numbers of sheep and prices received for live export stock underpin returns from the livestock enterprise.

The case study area has a population of 5,000, there is a WA Agriculture research station, a cooperative bulk handling business and various agricultural machinery retailers. Both the abattoir and small local manufacturing businesses, which in the past have generated local employment, are now closed.

Individual businesses reviewed as part of the case study in Wongan Hills are described in this section.

BR Clarke and Company; Grazing, Livestock Trading and Transport

Bruce and Diana Clarke have developed a vertically integrated business servicing the live export industry from Goomalling 50km south east of Wongan Hills. Their business includes grazing and the supply of weathers to the live sheep export industry, sheep trading and the holding over/amalgamation of individual vendor lots into export shipments, and the transportation of sheep to quarantine feedlots in Baldivis south west of Fremantle.

The Clarke's turnoff between 15,000 and 25,000 weathers per annum from their Goomalling property "Riverside". They are one of the largest 5 or 6 sheep traders in Western Australia. Their activity as sheep traders helps build a floor in saleyard prices where buying on a low market and supplying to exporters at a latter time, underpins saleyard prices in the wider region.

As a transporter the Clarke's base their business in Goomalling, live exports account for about two thirds of their turnover and live sheep exports were the reason behind the founding of their transport business. Transportation legs include farm to saleyard, saleyard to "Riverside" and saleyard/"Riverside" to quarantine area feedlot. Transport services required by the live export sector are greater than requirements were stock destined only for domestic processing.

⁶ See Appendix B

The Clarke's business includes three full time employees, one dedicated to livestock transportation. Major business expenditure items include labour, repairs, maintenance, fuel and tyres. Business inputs are sourced firstly from Goomalling (town population 600) and secondly from Northam (town population 7000). Businesses who benefit from the economic activity generated by their business include:

- Mortlock Fabrication, Goomalling (construction and repair of livestock crates);
- Chattaway Engineering, Goomalling (construction and repairs of business machinery);
- Goomalling Tractor Services, Goomalling, (fuel and oils);
- Goomalling Hardware and Farm Supplies, Goomalling (farm merchandise);
- Goomalling Auto Electrics, Goomalling (truck repairs);
- National Australia Bank, Northam (leasing agreements);
- West Fuel, Northam, (fuel and oils);
- Northam Bearing Service (truck repairs);
- Bearepairs Tyre Service, Northam; and
- Various livestock selling agents including Elders at Wongan Hills.

The Clarke's have found economic activity and employment associated with the industry to be reasonably consistent. Community infrastructure (schools, hospitals, sporting teams, etc) are not significantly shaped by the industry. However, their business does employ young people who might otherwise not find work locally.

Australian Feeds Wongan Hills, Feed Mill

The Australian Feeds Mill at Wongan Hills is one of four mills serving the live export industry in Western Australia. The Wongan Hills mill services something less than one third of total industry demand. Competitors include Macco Feeds, Milne Feeds, Westfeeds and the Fares operation at Kojonup. Westfeeds and the Fares operation are currently inactive.

The mills operation is totally reliant on live exports. Milled pellets are provided for both on-board consumption by sheep and pre feeding at the quarantine feedlot. The mill is one of the few significant and consistent employers in town. The mill employs ten people full time and 0.5 full time equivalents on a part time basis. Annual wages and salaries are in excess of \$450,000. Other major local expenditure items include transport services (\$1 million per annum), repairs and maintenance (\$100,000) and purchase of raw materials (\$5.5 million). Local beneficiaries of the business include:

- Auhls Transport;
- Armstrong Transport;
- Straw contractors; and
- Mortlock and Ingomah Bailing

Operation of the mill has seen a sustained growth in local transport services, the straw bailing business and the provision of sustained, local jobs.

4.1.4 Quantitative Impact -Wongan Hills

Economic Indicator	Region Total	Live Sheep Contribution (%)
Gross Revenue (\$ million)	343	7.0
Value Added (\$ million)	165.1	8.4
Employment (jobs)	2201.0	9.4

The quantitative economic impact derived from the NIEIR Input-Output model is summarised in the following table.

Indicator	Direct Impact of Industry	Type II Multiplier ⁷	Total Impact
Gross Revenue	\$16.5million	1.3	\$21.7million
Value Added	\$7.9million	1.3	\$10.4million
Employment	98.5	2.1	206.9

From the above table it can be seen that in the Wongan Hills area the live sheep export industry generates:

- \$16.5 million in gross revenue with a multiplier impact of \$21.7 million;
- value added, direct and indirect of \$10.4 million; and
- total employment of 207 jobs.

As can be seen from the above two tables, the estimated share of live sheep trade compared to gross regional product is 7%. This would bear out comments by local industry players that when the industry is in recession there is a noticeable change in spending within the town; consumption, car turnover, on property repairs and maintenance and so on are, at least in part, curtailed.

4.1.5 Summary and Conclusion

The case study illustrates that the live sheep industry is both an important source of employment and value adding in the more urban in and around Perth and also, and perhaps more importantly, a creator of wealth and jobs in rural areas dependent on primary production.

4.2 Hamilton and Portland Victoria

Hamilton in south west Victoria is a major Australian sheep and meat production area. The shire of Southern Grampians alone produces 15% of the Australian wool clip. Live sheep and cattle are sourced from the Hamilton region for export through the port of Portland 85 km to the south. Portland is a privatised agriculture and wool port. Livestock exports are an important component of the ports total trade. Both the live sheep and cattle industries are reviewed in this case study. The case study area is defined by the ABS statistical subdivisions of Glenelg and Hopkins, see Appendix A, Case Study 2 Portland/Hamilton. The case study area includes Hamilton, with a population of 9,000, Heywood, with a population of 1,300 and Portland, population 9,600. The live export trade through Portland is approximately 500,000 sheep and 50,000 cattle per annum.

4.2.1 Qualitative Impact

A selection of individual businesses reviewed as part of the case study are described below.

Grovenor Partnership, Graziers - Sheep

Ken Satchell owns Grosvenor Partnership, which is one of the larger merino wool enterprises in the Hamilton district. He is enthusiastic about the complimentary nature of live exports for wool producers and his belief, supported by other farmers in the district, is that there is a sustainable future for the industry.

⁷ See Appendix B

Ken and his wife are employed full time operating the business, which consists of 8,000 sheep, 200 cattle and 400 acres of cropping. They employ additional labour for seasonal operations such as shearing. Ken currently turns off 1,000 sheep per year to the live export trade.

Although live exports contribute less than 10% of Ken's total business, he is a strong industry advocate. His reasons for supporting the trade include:

- Live exports provides an additional market for his surplus sheep;
- The trade brings a slight premium for livestock compared with local markets (he estimates around \$2/head);
- Every time he sells to the live trade he is generating business for local enterprises including transport, livestock agents, feedlotters, exporters and associated service industries; and
- He believes there are profitable opportunities for production of younger sheep for live export if markets and trade arrangements can be established.

The principal flow on beneficiaries from Ken's participation in the live export industry are Canavan Brothers trucking (also a local grazier), based at Myamyn (50km from Hamilton) and Southern Grampians livestock agents in Hamilton, who conduct sheep sales. Ken also stated that a specialised fodder industry for live exports has developed in the Hamilton district. The quality of fodder has improved and this in turn has opened up new markets for hay and grain producers.

LJ, RA & JF Partnership, Graziers - Cattle

Les Carter and his family operate LJ, RA & JF Partnership, which turns off around 200 hundred head of cattle per year. In the last three years most of this turn off has been destined for live export markets. Les's partnership, which supports two families, also supplies sheep to the live export trade. Live exports account for 30% of total business earnings.

In supplying to the live export trade, Les generates business for the Elders VP stock agents in Heywood, both through sale commission (over \$5,000 per annum) and in the purchase of extra drench required for live cattle (around \$1,000 per annum). Les's involvement in the industry includes production and transport of fodder hay and the carrying of stock to the Heywood feedlot. In recognition of his faith in the industry's future Les has upgraded his truck in order to supply additional fodder and cattle to the live export market.

Les summarises the benefits of the live export market to his business as being:

- Usually a better price for cattle than the store market which Les previously supplied. As Les stated "When you sell in the store market, you get top dollar for your few best stock, but the average for the rest is lower, whereas the live export market offers the one price for the lot, generally at a premium to the store market price";
- An alternative market which allows flexibility for Les and competition amongst buyers;
- The creation of a floor price by the live export market; and
- A stable market in terms of price offered and, increasingly, in terms of regularity in demand.

Les believes his participation in both the live cattle and sheep cattle trades has improved his business' viability in terms of offering a market diversification option, helping lift returns in existing markets through what is effectively a floor price mechanism and offering consistently higher prices. He has found the cattle supply to live exporters has brought a regular cash flow, with his timing for turn off of steers matching ship arrival. Les says this timing is a major component in determining the profitability and scale of his participation in the live trade.

Elders - Livestock Agent

Elders has a large office in Hamilton employing ten full time staff and additional resources during busy livestock sale periods. Elders' role in the live export trade is in supplying sheep and cattle. Livestock for the trade are mostly sourced on-farm. Elders also sell agricultural supplies, such as drench, fencing equipment and tail tags, some of which is destined for use in the live export market. For example, Elders retail a liver fluke vaccine that is a requirement for cattle prior to export and costs \$4/head. Ian Button who is a senior agent with Elders, estimates that 35% of the business is based on the live export trade. Elders control around 85% of the cattle live export agency business in the Hamilton region.

The benefits of participating in the trade are obvious to Ian; the trade creates an additional market for Elders to supply, which in turn generates additional turnover and sales commission. In very simple terms, "whenever the farming job is looking up, which is a direct impact of the live trade, there's more money around for us."

Ian Button listed the significant beneficiaries of the live export trade in the case study area as being the many small and several large livestock carriers in the district, boat receival casual employees and employment and economic activity generated by the feedlots.

Graham Thomson - Integrated livestock, transport and fodder business

Graham Thomson says he's "one of the lucky ones in the industry, having got in on the ground floor back in the 1960's and 1970's and ridden with its growth for his fodder supply business from nothing to a large scale operation". Graham's Condah Hay Supplies employs six to eight part time staff. The business also provides transport services to the live export trade for his own and other peoples hay and sheep.

The benefits to Graham of participating in the live export trade are:

- Live exports suit his enterprise mix, enabling him to better manage an integrated farm production system;
- Live exports offer additional marketing opportunities for hay, wethers and his road transport operation; and
- Live exports offer Graham higher returns based on the price floor setting mechanism that live export trade activates.

Graham is one of ten to twelve larger scale fodder suppliers to the live export industry. He says there are an additional "twenty odd" businesses supplying grain and straw to the pellet mill from within the district. Graham's business has become increasingly mechanised as it has become more intensive, which in turn means "big business for local machinery dealers". Graham stated as an example a few years ago, where a local machinery dealer was awarded a trip to Italy because he had sold more of a specific square baling machine in the Hamilton district, than any other agents in the world. Graham says this was during a time when the fodder supply industry was rapidly expanding in response to live export growth.

A second anecdote from Graham was based on the reach of the industry. A few years ago Graham and another local truck driver were given instructions to pick up a load of in Hungerford in far north western NSW. After arriving at Hungerford and meeting at the pub for several refreshments (thinking they had almost reached their destination), the truckies rang for further instructions. About 4 hours of driving later at 1.30am they arrived at the property, where an old couple were selling cast for age wethers for the first time in their 50 odd years of grazing. In the past they had simply allowed their mob of older sheep to 'depreciate' by putting them out in a back paddock each year and seeing how many fronted up for shearing the next year. The live trade offered a \$13/head on farm alternative.

Some of the businesses which benefit from Graham's involvement in the live export industry include both Kobo and Cape Nelson Live Export feedlots, machinery dealers, fuel and tyre retailers, Pivot fertilisers and farmers.

Fodder Manufacturer – Heywood Stockfeeds

Heywood Stockfeeds is one the businesses in the Hamilton/Portland area which was established specifically to provide feed pellets to the live export industry and continues to derive at least 85% of its business from the live export trade. The business is located just out of Heywood.

The business employs eight full time and seven part time or seasonal staff. It purchases \$1.8 million dollars worth of raw materials for production of the fodder pellets, which has generated sufficient demand to foster the development of a fodder supply industry in the region. Heywood Stockfeeds provides business not only for grain, hay and straw producers, but also for local transporters (who are often farmers making off-farm income from carting). The truck operators in turn generate business for local service and mechanical businesses.

Agricultural Support Business – Pivot Fertiliser Company

Pivot operate a large scale manufacturing plant in Portland as well as employing agents throughout the rural centres of Victoria to sell its products. Ross Price has been a Pivot agent in Heywood for many years as well as operating his own farm business. Ross emphasized the direct link between live exports and Pivot's fertiliser business. Ross listed numerous examples of farmers he has been supplying fertiliser to over the years, who have significantly increased (and decreased) their fertiliser demand in response to the live trade demand for their livestock and fodder. To explain this link further, as fodder quality specifications and demand have increased to satisfy the live export market, hay producers have responded by demanding more fertiliser. In terms of livestock, when producers are targeting stock to the live export market, fertiliser application to pastures helps enable achievement of weight and quantity requirements.

Pivot has 70% of the fertiliser market in the Hamilton/Portland districts and is a big employer for local workers. Some 82 people are employed in the manufacturing plant and Ross estimates there are at least 100 agents similar to him in rural centres in south western Victoria. Brian Murphy, Manufacturing & Distribution Service Centre Manager at the Pivot plant in Portland, estimates that about 25% of the staff at the manufacturing plant's time would be spent producing fertiliser destined for use as inputs in the production of hay and livestock for the live export market. This is based on information about quantities of fertiliser sold, especially for use in the production of hay for the live export market. Twenty five per cent of plant employees labour time equates to a wages cost of over \$1 million in 1998/99.

From Ross Price and Brian Murphy's best estimates, manufacturing plant and agents rely on 25 - 30% of their business coming from live export generated sales of fertiliser. Agents selling fertiliser for production of hay and pasture for the live export market also often use their own spreading equipment for fertiliser application. Ross Price estimates that there would be about 40 spreading rigs in the Hamilton district and a portion of the cost of this machinery and associated repairs and maintenance business could be attributed to spreading fertiliser for use in production of hay and livestock for the live export market. This is another example of additional business created for machinery dealers and agricultural service companies, as a result of the live export trade.

Portland Port Authority

The Portland Port Authority services all live export related ships entering the port, it provides wharf facilities, storage space, pilotage, towage and other services related to the docking and

departure of ships at the port. There are no other deep sea ports between Adelaide and Geelong. This enables the Portland Port Authority to obtain 100% of any business associated with provision of the above shipping services.

Jeremy Brown from the Port Authority values the live export component of his business, listing benefits in terms of both direct revenues from live export ships and from the flow-on support to Portland town and surrounding rural areas. Jeremy understands the direct link between his company's future and the health of the agricultural sector in the Portland/Hamilton region. Jeremy has witnessed the impacts of fluctuations in the live export trade on his own company's revenues. The live export industry contributes around \$1 million per annum to the Authority's gross receipts. The Port Authority employs 23 full time staff who are estimated to spend about 10% of their work time servicing live export ships.

The Port Authority provides business to local engineering and electrical companies, exporters including Samex, EMS, importers, shipping operators such as Kuwait Livestock Transport and Trade, North West Shipping and Towing and other smaller local businesses.

Adsteam – Ships Agent

Jenny Jeal of Adsteam Portland indicated that Adsteam are one of the two main ships agents operating from Portland. Adsteam handle about half of the live export related business according to Jenny and she estimates that this represents about 25% of Adsteam's total business in Portland.

As part of Adsteam's ship agency service the company generates business for local companies that include the laundry, Keppel/Prince Engineers, Fletcher Photographics, the post office, bank, travel agents, Seaport Medical Centre, Michelle Thow's dental practice, Portland Hospital, Portland Taxis and supermarkets. This business comes from ship maintenance and ship crew requirements. Jenny stated that the live export ships are especially valuable to the Portland community and her business because they generally carry a larger crew.

4.2.2 Quantitative Impact

The case study region is dominated by agricultural activity. Hamilton is a sheep and meat production area, Portland is an agricultural and wool port. The importance of agriculture to the Hamilton and Portland case study area is illustrated by Heywood, a small service town at the centre of the case study area.

Heywood has a population of 1,300 people, yet supports four rural merchandisers, six deli style food businesses and pubs and four livestock agency businesses. The town is reliant on business generated by the surrounding rural area, apart from forty workers who travel from Heywood to a Portland smelting factory. Live exports generate a significant portion of business for the area's hay and grain producers, fertiliser agents, livestock producers, livestock agents and stock feed mill.

Businesses in Heywood have had numerous changes in staff over the two decades that the live export industry has been operational in this area. It was therefore difficult for shop owners to comment on trends and benefits they've seen over time. However, Glenelg Shire Mayor, Terry Grant (Heywood is part of this shire) commented that live exports are an essential part of the rural industry in the shire and keep towns like Heywood alive.

The live export industry contribution to economic activity in the Hamilton and Portland case study area can be seen from the table following.

Economic Indicator	Region Total	Live Sheep Contribution (%)
Gross Revenue (\$ million)	4,004.2	0.38
Value Added (\$ million)	2,179.6	0.38
Employment (jobs)	43,276.5	0.74

Source: NIEIR 2000

The live sheep industry contributes 1.8% of gross revenue, 2.2% of value added and 2.1% of employment in the Hamilton and Portland case study area.

The qualitative economic impact derived from the NIEIR Input-Output model is summarised in the table below.

Economic Indicator	Direct Impact of Live Export Industry	Type II Multiplier⁸	Total Impact
Gross Revenue (\$'million)	15.2	1.6	24.3
Value Added (\$'million)	8.25	1.6	13.2
Employment	97	3.3	320

Source: NIEIR 2000

From the above table it can be seen that in the Hamilton and Portland area the live export industry generates:

- \$15.2 million in gross revenue with a multiplier impact of \$24.3 million;
- value added, direct and indirect of \$13.2 million; and
- total employment of 320 jobs.

4.2.3 Summary and Conclusions

The Hamilton-Portland area is one that has suffered in recent years as a result of lower commodity export prices. A single industry that contributes 320 jobs and value adding of \$13.2 million helps to retain the fabric of the region.

4.3 Katherine and Darwin, Northern Territory

The Port of Darwin-Katherine case study region is defined by the LGA's of Bathurst-Melville, Litchfield, Cox-Finiss, Coomalie, South Alligator, Jabiru, West Arnhem, Daly, Katherine, Eley-Bal and Victoria. The case study region is situated in the north west of the Northern Territory, extending south and east in an arc from Darwin. See Appendix A. The major urban centres in the region are Darwin and suburbs and Katherine. Outside of the case study region Kununurra and Wyndham in north-east Western Australia are the closest regional centres.

Darwin is the capital of the Northern Territory and as such is the centre of administration for the Territory Government. Darwin also supports several defence force bases which have been recently strengthened in response to the East Timor crises. Mining, manufacturing, tourism and pastoral production are other dominant industries supporting Darwin. In

⁸ See Appendix B

Katherine, tourism, agriculture and defence combine to make it the Territory's third largest town. Horticulture in particular, is playing an increasing role in the region's economy.

The Port of Darwin is the only port in the case study region currently servicing the live cattle trade. The closest viable alternative port option for export cattle is Wyndham.

During 1998/99 some 207,558 head were exported out of the Port of Darwin, 69% of the average of the three previous years. In the six months to December 1999, 137,873 head were exported, with a further 42,799 being exported in January and February 2000.

4.3.1 Qualitative Impact

The benefits of the live export industry to a selection of the businesses interviewed in the Katherine-Darwin case study region are discussed following.

Tejas Land & Cattle

Tejas Land & Cattle operate five stations in the case study region, covering more than 3 million square kilometres. Tejas is one of an increasing number of NT stations focussed on producing cattle for live export. The major NT cattle producers include large corporate holdings such as Heytesbury Beef and Consolidated Pastoral Co. and many other smaller corporate and private holdings. Tejas estimate that they supplied 10% of the NT sourced cattle that were exported through the Port of Darwin in 1998/99.

The cattle sold to exporters by Tejas in 1998/99 included 280-380 kg steers and heifers. The majority of the heifers were spayed and some cull bulls were also sold. The company is fully geared to production of stock demanded by the live export market, with the trade being the basis of the business. In 1998/99 98% of the company's income was generated by live cattle exports. The live cattle trade provides a premium over selling to meatworks in Katherine and freight costs eliminate most other potential markets, although live export cattle have been sent out of Wyndham in the past.

Tejas employs 12 full time employees (including two families) year round and during the dry season employs 15-20 part time staff. The vast majority of the company's inputs are sourced in the case study region, including all stock freight through Road Trains of Australia (RTA), all helicopter mustering through Northern Australian Helicopters (NAH) and rural merchandise from Elders and Wesfarmers-Dalgety in Katherine.

Australian Livestock Services

Australian Livestock Services (ALS) is an integrated veterinary services company owned and operated by Ross Ainsworth in Darwin. ALS is one of three veterinary practices that provide the third party veterinary services required by the trade under export protocols. Ross Ainsworth estimates that he provides services to 40% of the live cattle exported through the Port of Darwin.

The third party services provided by ALS include stock inspections, tests, treatment, certification and loading of ships. The live cattle export trade is the foundation of ALS's business. The company started in response to demand from the trade in 1992. The company targets the niche market of exports through the Port of Darwin and supplying third party veterinary services to exporters comprises 70% of ALS's business. The remaining 30% of the business is live cattle export related services. Ross's business is therefore entirely dependent on the existence of the trade.

ALS has employed additional vets in the past, however Ross currently operates the business on his own. Ross sources almost all of his inputs locally including veterinary chemicals from Wesfarmers-Dalgety in Darwin and leasing his vehicle through Morgans Motors in Darwin. All fuel, vehicle repairs and maintenance and office supplies are also sourced from the case study area.

Ross has recently developed an associated business called *e-vet supplies* through which he supplies veterinary products to overseas customers. The business started through contacts made in the live cattle export industry and most *e-vet* customers have links to the industry.

The business aims to increase the quality of products available and the ease of access to a wider range of products for international live cattle industry operators. The business is low margin, but high volume and relies on a simplified distribution route. The business takes advantage of the *trade routes* established by the live stock export industry. Although the business will increasingly become a greater part of Ross' operations, he does not anticipate requiring assistance with the business in the next twelve months.

Road Trains of Australia Pty Ltd

Road Trains of Australia Pty Ltd (RTA) is one of three major livestock transport companies that freight cattle from the case study region to export yards and the Port of Darwin. RTA are based in Katherine and estimate that they would carry 85% of the cattle carted from stations in the case study region to export yards and 75% of the cattle out of all export yards in the case study region to the Port of Darwin.

Carting cattle for the live export trade comprises 60% of RTA's annual business. They also serve ports other than Darwin and these include Broome, Wyndam and Karumba. The live cattle trade has rapidly become the major component of RTA's business. The company estimates that ten years ago almost 100% of their business was cartage between stations and from stations to the meatworks in Katherine. The potential throughput of the meatworks restricted the number of trucks physically required to carry stock in the region. The large volumes demanded by the live cattle trade to load upward of thousands of cattle in a day, has required a greater carrying capacity and this has allowed RTA to achieve economies of scale.

RTA employ 60 full time employees comprising drivers, office staff, mechanics, boilermakers and management. They also have smaller depots in Broome, Winton and Mount Isa. RTA employ apprentices and believe that the live cattle export trade contributes to the provision of jobs for young people in the local community, particularly as station hands and livestock agents.

RTA are a major demander of local inputs including fuel from BP in Katherine and tyres from Bridgestone in Darwin. They operate 38 prime movers which each have 3 trailers, a total of 60 tyres per road train and at an average price for a tyre of \$400, there was the obvious potential to create a local business, and so a local tyre business was set up to service RTA.

Northern Feed & Cube

Until recently the majority of feed pellets required to service the Northern live cattle trade were brought into the case study region from either Victoria or South Australia. Increasing demand generated by livestock exports for pellets prompted the establishment of Northern Feed & Cube in Katherine.

The Northern Territory market is now locally serviced by Northern Feed & Cube, Darwin North Feed and Australasian Feeds. Together these three firms provide approximately 50% of pellets shipped with export cattle out of Darwin. As a result of good supply relationships the balance is still brought into the region from Southern Australia. This arrangement is largely in decline currently as a result of the substantial freight costs and the increasing availability of locally produced pellets.

Northern Feed & Cube provides five full time positions to the Katherine community. In addition, the operation employs a number of people on a casual basis over the course of a year. During the 1999 financial year, the services of an additional 40 people for varying casual periods, were required. In many instances the casual labour available at Northern Feed and Cube complements the seasonal labour requirements of other industries in the area such as cattle mustering, labour associated with tourism and increasingly horticulture. Steve Bakalion, manager of Northern Feed and Cube expects that the labour requirement for the operation will grow as live cattle exports from Northern Australia grow, turning a proportion of the casual labour requirement into full time positions.

The location of Northern Feed & Cube near Katherine has allowed fodder producers in the area the opportunity to benefit directly from the fortunes of the live cattle trade. Northern Feed & Cube is the link which allows this, given that unprocessed fodder is not used on ship. The demand for fodder in the area created by Northern Feed & Cube creates extra demand for fodder such that producers supplying the conventional fodder market can also seek more competitive prices and thus increase their profitability. Similar impacts are felt by other local suppliers of inputs to the Northern Feed & Cube operation, such as Pandion Haulage who provide freight to the business.

Northern Feed and Cube was established, and has grown, on the strength of the Port of Darwin live cattle trade. Increasingly however, the operation will be able to service other northern ports. Already pellets produced by Northern Feed and Cube have been used in Karumba, and the operation has the capability to make pellets suitable for sheep should the opportunity arise. Further market opportunities will lead to additional employment in the town of Katherine.

AQIS Livestock Export Inspections

AQIS provide an integral role in the export of live cattle from north Australian ports. Dennis Thomson has been involved with live cattle exports since 1974 when he began work as a Commonwealth Government vet in Darwin. Between Dennis and one other agency vet, AQIS provides services to 100% of the cattle exported through the Port of Darwin. Live exports constitute 80% of Dennis' annual workload and he requires 60% of another vet's time to assist him during heavy workloads or when he is on leave. The total annual commitment by AQIS to the Port of Darwin is 1.4 full time job equivalents.

The role of the AQIS vet is to oversee the operations and auditing of third party vets and non-veterinary providers, to annually audit and register export premises such as quarantine yards and to provide health certification and export permits consistent with Australia's international obligations. This role is a regulatory requirement that aims to ensure that the trade is not damaged by negligent stock handling and health practices. The role is provided by the federal government to ensure consistency in regulation between states and territories and it assists the credibility of the trade.

AQIS have an arrangement with the NT Department of Primary Industry and Fisheries, through their International Quarantine and Export Inspection Service. All quarantine and export inspection services are carried out on behalf of AQIS. AQIS certify 100% of the live export cattle heading to destinations that require health and welfare inspections. The provision of inspection services requires very little in the way of inputs apart from labour.

Almost all inputs are sourced from the Darwin region apart from the vehicles which are leased by the Commonwealth government.

North Australian Helicopters

North Australian Helicopters (NAH), based in Katherine, began operations in 1993. They are one of two major companies offering helicopter mustering services to stations producing cattle for the live export trade in the case study area. NAH control approximately 30% of the helicopter mustering within the case study area. Their major competition is Helimuster, based in the Victoria River district, which is a long established company controlling the majority of the market. There are several smaller operators in the region operating single helicopter businesses that enter and leave the market as demand changes. These are mostly station based helicopters that take advantage of opportunistic markets when they are not being utilised.

The business started in response to increased demand for mustering services in the region. One of the company's owners, Milton Jones, owns and operates several stations in the case study region and had helicopters as part of his operations. As the general profitability of stations in the NT grew in the early 1990s with the growth of live export trade he found his helicopters in great demand by surrounding stations. He gradually increased the number of helicopters on his stations and in 1993 made the decision to start the company. The company now operates six Robinson 22's out of Katherine for livestock mustering.

Mustering comprises half of the company's business, the remaining 50% of the business utilises larger helicopters and is predominantly tourist flights and government agency work. The tourist flights are based out of Kakadu and Katherine.

The company employs 15 full time staff of which 6 are dedicated mustering pilots. They also employ 3 engineers to keep the 12 helicopters, and 1 fixed wing aircraft which acts as a maintenance vehicle, operating. The company aims to keep growing with demand in both sectors of their business increasing.

4.3.2 Quantitative Impact

Results of the quantitative analysis for the case study of Katherine-Port of Darwin are as follows.

Economic Indicator	Region Total	Live Cattle Contribution (%)
Gross Revenue (\$ million)	5,169.1	1.0
Value Added (\$ million)	3,000.8	1.2
Employment (jobs)	48,888.0	1.6

Source: NIEIR 2000

The live cattle industry contributes 1.0% of gross revenue, 1.2% of value added and 1.6% of employment in the Katherine-Port of Darwin case study area.

The qualitative economic impact derived from the NIEIR Input-Output model is summarised in the table below.

Economic Indicator	Direct Impact of Live Export Industry	Type II Multiplier⁹	Total Impact
Gross Revenue	30.3	1.6	47.1
Value Added	17.6	1.6	27.3
Employment	285	2.7	771

Source: NIEIR 2000

From the above table, it can be seen that in the Katherine-Port of Darwin case study region, the live export industry generates:

- \$30.3 million in gross revenue with a multiplier impact of \$47.1 million;
- value added, direct and indirect of \$27.3 million; and
- total employment of 771 jobs.

4.3.3 Conclusions

- Defence, mining manufacturing tourism and agriculture all contribute to the economy of the case study region;
- The region supports key contributors to the live cattle export value chain including livestock producers, veterinary service providers, road transport operators, a feed mill, quarantine inspection services and helicopter mustering services;
- The case study region has an annual gross revenue in the order of \$5,000 million, of which live cattle exports contribute 1.0%; and
- Live cattle exports from the case study region result in the creation of both direct and indirect jobs. Incorporating multipliers, the industry results in 771 full time jobs.

4.4 North Queensland

The North Queensland case study region is defined by the Statistical Local Area's (SLA) of Cook, Aurukun, Carpentaria, Douglas, Mareeba, Cairns, Atherton, Eacham, Burke, Croydon, Etheridge, Herberton, Johnstone, Cardwell, Thuringowa, Hinchinbrook, Mount Isa, Cloncurry, McKinlay, Richmond, Flinders, Dalrymple, Townsville, Burdekin, Charters Towers and Bowen. The case study region is the north of Queensland, extending south to Mount Isa and Cloncurry in the west and Bowen in the east. See Appendix A.

The case study covers an immense area, covering almost one third of Queensland. This reflects the far reaching and diffuse nature of the industry. Other industries in the region include mining, agriculture particularly sugarcane on the coast and cattle inland, and manufacturing.

The ports in the case study area currently servicing the live cattle trade are Karumba, Weipa, Mourilyan and Townsville. Townsville and Mourilyan tend to act as wet season ports when stock in the north west cannot be mustered and trucked to Karumba.

⁹ See Appendix B

4.4.1 Qualitative Impact

Cloncurry

Cloncurry, some 7.5 hours drive from Townsville and an hours drive from Mt Isa, is a significant centre for the live cattle industry. Cattle production ranks among the two most important industries for Cloncurry. Mining, of copper, gold, zinc and phosphate, is the other industry of importance in the area. Mining provides a considerable number of jobs to the area however in many instances the employees for these mines are flown in and out of the area and stay for only the length of a shift.

Some 300,000 head of cattle pass through Cloncurry each year, either by road or by rail. Being at the 'four ways' of cattle transport in Northern Queensland (the railway and highway from Mt Isa to Townsville and the highway south from Karumba to Brisbane meet at Cloncurry), the town is the ideal location for the bases of a number of transport operations. Around eight livestock operators, including Curley Brothers, Mitchells, Smith & Son's and Davis Transport are based in Cloncurry. Queensland Rail, whose Cattle Train passes through Cloncurry providing a direct link to the Port of Townsville. Queensland Rail provides employment for 200 in Cloncurry, some of which is generated by the transport of cattle for the live cattle export industry. The town has a population of only 3,000.

Cloncurry's central position makes it an ideal location for spelling/marshalling yards for the movement of cattle in North Queensland. The saleyards in Cloncurry (7000 head capacity) and the tick inspection/dipping yards(1-2000 head capacity) are operated by the local council, requiring 2 full time employees. It has been estimated by Cloncurry Shire Council¹⁰ that agents in Cloncurry, including Dalgety's, Colin Saunders, Elders-Primac and Brodie & Co would employ 25-30 staff for the dipping and loading required at the yards. Cloncurry's yards are used for sale of store and slaughter cattle, inspection of cattle being moved south and marshalling/spelling/dipping of cattle for live export.

However, In terms of export of live cattle however, Cloncurry is not only significant for the North Queensland industry, but also for the Northern Territory industry. During 1999, 87,500 cattle from outside of the Northern Territory were exported through Darwin (Pastoral Market Update, 29 February 2000). These cattle were almost entirely sourced from North Queensland and would have required dipping at Cloncurry prior to crossing the border, to satisfy tick free zone regulations.

Pat Fennal, a long time resident of the Mt Isa-Cloncurry district and previously a cattle producer in the area notes that the impact of the live cattle industry is wide in terms of the industries for which it generates benefits. For instance as a result of the live cattle trade the government has authorised increased infrastructure expenditure and upgraded road access to Karumba is a prime example. The impact of such work is not limited to increased use of the port of Karumba. The impact flows back to businesses such as the Burke & Wills Roadhouse on the Cloncurry-Normanton where the proprietors benefit from increased through traffic. Other beneficiaries include transport operators in Cloncurry who benefit from better roads and a greater number of hauls. On the other end of the live cattle value chain, Cloncurry Mayor, Noel Robertson, cites that the presence of the live cattle industry has helped the northern beef industry in general. In times of hardship, drought in particular, the fact that there has been some additional demand for cattle through live export, has assisted in reducing price slumps in local sales.

¹⁰ Mayor Noel Robertson

Austral Livex

Cairns based Austral Livex, accounted for 26% of all Queensland sourced live cattle exports in 1998/99. Their major competitors were Austock which control approximately 30% of the market, Austrex, Quality Livestock, Fares and Emanuels.

The export of live cattle accounts for 100% of Austral Livex's business and their business is conducted entirely within the case study region. The principles of Austral Livex have, through a company called Karumba Livestock Loading, vertically integrated their activities which now include export yards and a purpose built cattle wharf in Karumba.

Austral Livex was established six years ago and now has six full time employees including one based permanently overseas. They also employ a contract cattle buyer who works solely for Austral Livex.

Major inputs including livestock, labour, livestock transport, veterinary services, other freight and cartage and accommodation and travel are all sourced from within the case study region. Fodder, which is the second largest input by value, is predominantly sourced from outside the region due to preferred suppliers, timing and quality of feed. Austral Livex source all of their stock from northern Queensland and in doing so deal with a multitude of producers and agents. They provide their services to international buyers who mostly operate private companies.

The 1998/99 year saw drastically reduced numbers of cattle sold due to the fall in Asian demand. Managing Director, Chris Hughes, estimated that throughput that year was almost one third of average. He is however optimistic about the coming year, with buoyant international demand and an exceptional wet season.

Hogan & McHugh

Tim Hogan of Hogan & McHugh, Townsville, has been a private stock agent in Queensland for 20 years. In this time, Tim has seen the live cattle industry become the cornerstone of his business. Tim asserts that not only does the industry represent 65% of Hogan & McHugh's business directly, but that it has changed the entire cattle industry in North Queensland such that indirectly, it underpins the whole business.

A major impact on Hogan & McHugh's business, and to all livestock agent's, has been to open up the market. Tim estimates that 90% of stock used to be sold directly to processors, through restricted marketing channels. Over the last 10 years, this trend has reversed. There is now increased competition for stock, leading to more business for agents and a better deal for producers. Tim also cites the following benefits of the live export cattle industry to Hogan & McHugh:

- Stability – the industry creates stability because it provides a larger client base;
- Premiums – can be obtained when acting as an agent for the sale of live export cattle, because of the volumes sold;
- Reduced impact of downturns – when processors stop/reduce their buying due to the inability to agist stock in the south, Hogan & McHugh have an alternative market to supply;
- More sales overall – the profitability of the northern beef industry is enhanced by the live cattle industry, and Hogan & McHugh find that store and breeding stock are bought and sold more often in profitable times. In addition, agent's receive larger commissions when prices are higher as happens when demand is high; and
- More land sales – Hogan & McHugh have noted that when the northern beef industry is bouyant and export and domestic sales are high, that land transactions increase.

Hogan & McHugh employ three people for the livestock agency side of their business. Each employee contributes over 50% of their time directly to the trade of cattle for live export and all are from the local area. A large proportion of their time is spent travelling throughout the case study area, incurring costs along the way in towns such as Hughenden, Cloncurry and Charters Towers.

Within the case study area, there are seven private agencies including Hogan & McHugh. Wesfarmers Dalgety and Primac-Elders agencies also have a large presence in the area with some eight local agencies each.

Schmidt Livestock Transport

There are approximately 45 registered livestock carriers in the North Queensland case study area. Approximately 40% of these are property owners who transport a small number of livestock for others in addition to their own. The dedicated operators in the region range from national carriers such as Road Trains of Australia (RTA) to regional carriers, all of whom would consider at least some proportion of their operations to be generated by the existence of the live cattle trade in North Queensland.

Approximately 20% of Schmidt's Livestock Transport is generated by the live cattle trade. Schmidt's are based at Brookhill, near Townsville and transport cattle for the ports of Townsville and Mourilyan. For the live cattle trade, Schmidt's transport cattle from property to marshalling/quarantine yards and from quarantine yards to port. Other livestock carriers in the area which provide a service similar to Schmidt's are Weinheimer Transport of Townsville, Hawkins Transport and Hickey Transport of Charter's Towers. Queensland Rail's Cattle Train Network is also a significant provider or transport for the live cattle trade, especially where long hauls from the west are required.

Liz Schmidt of Schmidt's Livestock Transport finds a two-fold benefit in being able to provide transport for the live cattle trade. Firstly, the live cattle trade tends to reduce the seasonality of Schmidt's business. During the wetter months, the shipment of cattle out of the Port of Townsville increases leading to more work during those months, which have traditionally been a quieter for Schmidt's. In addition to assisting with the business' cash flow, this enables Schmidt's to provide their four drivers with work year round.

Secondly, the returns from providing to the live cattle trade are marginally higher. This is a product of being able to provide greater value with two smaller trips: property to yards and yards to port, rather than one longer trip where the service is discounted per kilometre for the greater distance. Importantly also, Schmidt's can obtain a premium in this market because exporters value their AUS-MEAT accreditation (required for the export of cattle) and history of good delivery of cattle.

During financial year 1999, Schmidt's Livestock Transport experienced a 20% reduction in their turnover, as a result of the downturn in the live cattle trade to Asia. This was not compensated for by increases in cartage to meat processors. The direct impact on Schmidt's translated to lower expenditure on inputs, such as fuel from the Shell distributor in Charters Towers through to their local supplier of tyres, Twin City Tyres.

Karumba Livestock Loading Limited

Karumba Livestock Loading (KLL) is part of an integrated organisation, the Faithfull Group of Companies. KLL operate the export depot yards and a purpose built wharf in Karumba. They offer export yard services including aggregation of loads and feeding and watering of livestock prior to export. They also offer a wide range of services in conjunction with the wharf. The company is run as a separate entity although it does have links to other Faithfull

Group companies including Austral Livex, a live cattle exporter and Sea Swift, who provide providoring and fuel bunkering services. The live export industry is 100% of KLL's business and the company was established to provide services to associated companies and to fill a niche in the trade through Karumba.

The KLL cattle export depot yards and wharf are one of only four other sets of export depot yards operating in northern Queensland. In 1998/99 the KLL yards handled 34% of the cattle exported out of the case study region. The KLL wharf is one of four export ports in northern Queensland and in 1998/99 the ships loaded at Karumba represented 38% of the case study regions total volume.

KLL employ five full time employees and seasonal part time labour for a variety of services as required. The total annual employment fluctuates and is dependant on the volume of ships. The majority of business inputs are sourced locally including labour, fuel and oil, veterinary chemicals, freight and repairs and maintenance. Yard and wharf services are provided to exporters that are located both within and outside the case study region.

KLL are committed to the livestock export industry, having invested in purpose built facilities. Despite a huge wet season which may delay the beginning of the export season out of Karumba, they are anticipating an increase in throughput above the 1998/99 numbers which were approximately one third of average.

4.4.2 Quantitative Impact

Within the case study area of North Queensland the impact of the live cattle export industry is varied. It ranges from locations such as Cloncurry, where the importance is widely recognised, to Townsville where a number of other industries easily outrank it in its importance. The following quantitative data represents the aggregate across these varying locations.

Economic Indicator	Region Total	Live Sheep Contribution (%)
Gross Revenue (\$ million)	20,268.3	0.4
Value Added (\$ million)	10,804.5	0.5
Employment (jobs)	191,153.4	0.5

Indicator	Direct Impact of Industry	Type II Multiplier¹¹	Total Impact
Gross Revenue	\$50.3 million	1.5	\$75.6 million
Value Added	\$26.8 million	1.5	\$40.3 million
Employment	390	2.4	938.2

From the above tables it can be seen that in the North Queensland case study area the live export industry generates:

- \$50.3 million in gross revenue with a multiplier impact of \$75.6 million;
- value added, direct and indirect of \$40.3 million; and
- total employment of 938 jobs.

¹¹ See Appendix B

4.4.3 Summary and Conclusions

The following are the major points to be gleaned from the study of the North Queensland live export cattle case study area:

- The major industries in the North Queensland case study are mining, tourism, horticulture and the beef/cattle industry. The live cattle export industry contributes to the region both directly and indirectly in terms of the impact it has on the northern beef industry;
- Businesses in the case study region involved in the live cattle export industry cover the span of the value chain. The businesses range from producers near Ayr, to livestock transporters in Cloncurry, Vets in Charters Towers, port services in Karumba, and exporters in Cairns;
- Across the case study region, the live export industry generates the equivalent of 144 jobs directly. Indirectly, the industry generates a total of 938 jobs; and
- The contribution of the live cattle export industry to the case study's total gross revenue is 0.4%. Including direct and indirect impacts this translates to \$75.6 million per annum. The value added by the industry is \$40.3 million per annum.

4.5 Broome West-Kimberley

The Broome-West Kimberley case study region is defined by the statistical local area of Fitzroy (4510) which includes the local government areas of Broome and Derby-West Kimberley. The area is shown graphically in Appendix A.

Broome is the main town in the case study region. Other significant localities include, Derby and Fitzroy Crossing. Outside of the case study region, Kununurra and Wyndham in the state's north-east, and Port Hedland south of Broome are significant nearby regional centres. Tourism, cattle production, social services provision and mining are the dominant industries throughout the region. In Broome, the pearl industry is important.

The Port of Broome is the only port in the case study region currently servicing the live cattle trade. Derby, within the case study region, has in the past been used for the trade. Current infrastructure and the difficult nature of the Derby Port has however lead to a preference for the Port of Broome. Alternative port options for export cattle in the region include Port Hedland and Wyndham.

Just under 50,000 head of cattle were exported out of the Port of Broome during 1999. This is a 13% increase on exports in 1997, Australia's peak cattle export year, and is a 250% increase for the five years to 1999. This follows a concerted effort by the Port of Broome Port Authority to attract the trade, both through promotion and capital investment. The benefits of such investment in Broome has been complemented by the expansion of a number of businesses and the establishment of others, such as a second quarantine yard for the port.

In addition, while most Australian ports suffered reduced live cattle throughput during 1998/99, the Port of Broome increased live cattle throughput. As a result of being able to capture a proportion of the increased live cattle trade to destination in the horn of Africa, the Port of Broome, the Broome township and the case study region felt minimal effects of the Australian wide live cattle export downturn.

4.5.1 Qualitative Impact

A selection of the individual businesses reviewed as part of the case study are described below.

Osprey Marine Consultants

Osprey Marine Consultants (OMC) is the only company providing pilotage services to the Port of Broome and the Port of Derby. They subsequently control 100% of the pilotage market associated with live cattle exports in the case study area. Due to the difficult nature of the port, the magnitude of the tides and the size of vessels, all vessels involved in the live cattle trade require pilotage services to enter and leave the Port of Broome.

The pilot services are the base business of OMC. They also provide marine surveyor and contracting services. The provision of pilotage services to the live cattle trade provides a high volume of work, almost 80% of all pilotage services conducted by the business.

The business does not employ a full time person for solely the live cattle trade, however the company's principal employee spends greater than 50% of his time providing pilotage to the trade and the company employs four part time employees to service the trade. Captain Peter Blenkinsopp has been in Broome for five years and has witnessed first hand the growth in live export numbers through the Port of Broome.

The pilotage service does not require many inputs apart from labour, although the company does run two vehicles and utilises local services for fuel, vehicle repairs and maintenance, office supplies, printing and software. The pilotage services are contracted to the Port of Broome.

Captain Blenkinsopp also acts as the AMSA representative in the Port of Broome and as a sub shipping agent for Rooney Shipping.

Kimberley Cattle Transport & Oilfield Services

Kimberley Cattle Transport & Oilfield Services (KCT) is one of four livestock transport companies servicing Broome and the west Kimberley region. KTC control approximately 55% of the cattle transported from stations and the holding yards to the Broome Port. Hampton Transport Services is the major competitor in the region. Road Trains of Australia, based in Katherine, also provide cattle transport services in the case study area. RTA's work in the area is almost always under contract to KTC.

Transporting cattle for the live export trade is the foundation of the business for KTC. The market provides a greater volume of work for the company and requires no specialisation or increased expenditure. The market provides the opportunity for what would have traditionally been considered off season cartage.

The business employs one local driver full time, one full time office/administration manager and relies on the services of up to seven sub contractors during peak demand periods. The demand for livestock cartage is linked strongly to the demand for export cattle in the north west. The percentage of the company's business generated by carting live export cattle fluctuates from year to year, but was estimated to be approximately 75% in 1998/99.

The business requires high cost inputs, particularly fuel, repairs and maintenance and tyres. All maintenance is carried out locally, and most of the fuel and tyres are purchased locally. However the distances travelled dictates that these must sometimes be purchased outside the case study area. The company estimates that on average 60% of their fuel and 80% of

the tyres are purchased within the Broome area. West Kimberley Fuels Pty Ltd and Broome/Kimberley Beaurepairs are among the input providers in the Broome case study area who benefit from KCT servicing the live cattle trade.

The company is optimistic about the live cattle trade from the Port Broome and are committed to continuing their services in the region.

Northern Australia Livestock

There are three major livestock agents operating in the case study area. Northern Australia Livestock (NAL), managed by David Escott is the dominant agent in the region in terms of livestock sales for live export. David operates NAL out of Broome and estimates that NAL handled around 65% of the livestock from the region destined for live export out of Broome during 1998/99. Elders, of Derby, and Wesfarmers, of Broome, are also significant in the live cattle export industry in the region, handling some 30% of the cattle destined for live export. Direct sales from producer to exporter or producer to importer, where the producer acts as the exporter, are estimated to account for between 3 – 5% of the trade.

NAL is reliant on the live cattle industry. Agency work for live cattle exports accounts for 80% of the company's business. NAL is also involved in the slaughter market for cattle, however while ever the nearest significant slaughter operations are in Katherine and Perth this market will remain marginal.

Generally, 95% of the cattle handled by NAL are exported through the Port of Broome. Weather conditions and the location of the destination market impact on which alternative Ports are used. Freight is however the biggest single determinant factor.

During 1998/99 the live cattle export trade generated sufficient business for NAL to require two full time employees. Expenditure on labour, and other business costs, is almost entirely within the case study area. The services provided by NAL within the case study area to the businesses associated with some 100 pastoral leases, and to exporters outside of the case study. NAL provides livestock agency services to around 8 live cattle exporters with Wellards, International Livestock Exporters and Austrex are among the major exporters.

NAL has been in operation in the case study area since 1994. David Escott is of the opinion that the local industry has been receptive to NAL because of its ability to specialise in live cattle exports and the fact that the company is a privately operated and managed within the area.

Great Northern Pastoral Co

The Great Northern Pastoral Co based at Roebuck Plains Station 60km east of Broome is entirely reliant on the live cattle export trade. Comprising 700,000 hectares, the Great Northern Pastoral Co incorporates a number of pastoral leases. Live cattle exports have become the foundation of the operations of the company. Access to international markets allows the Great Northern Pastoral company to obtain price premiums and specialisation opportunities. The alternative market option for Roebuck Station would involve transporting the cattle by road to either Perth or Katherine: a costly exercise which would erode producer margins.

Nearly 100% of the Great Northern Pastoral Co's business is live export cattle related. In 1998/99 the operation exported 10,000 cattle through the Port of Broome. This included 7,500 turned off of the property and 2,500 which were bought from within the Kimberley region and sold on to the live cattle trade. The Great Northern Pastoral Co is able to buy and sell opportunistically from others in the region due to their strategic location close to the Port of Broome.

The Great Northern Pastoral Co operation has become more profitable with the means to service international markets available through the Port of Broome facilities. Previously, pastoralists in the region have had limited marketing options, with the usual case being that cattle were transported to the nearest meat processing plants in either Katherine or Perth. Katherine and Perth are over 1500km and 2100km respectively, from the case study area. Freight to these destinations absorbs producer margins under normal conditions. A small regional processing plant in Broome offered an alternative to a small number of producers until it closed in 1995-6.

Around 25 business operations, incorporating some 100 pastoral leases in the case study area, currently supply cattle to the live cattle trade. While not all operations are entirely dependent on the live cattle trade, the vast majority are reliant.

The Great Northern Pastoral Company employs eight full time employees and a number of part time employees during the dry season (1.5 FTE). Managing Director Rodney Illingworth estimates that this labour requirement is higher than if the company serviced slaughter markets due to the husbandry requirements for the live cattle trade. Similarly, use of other services/inputs are higher to suit the requirements of the live cattle trade. This includes greater use of the veterinary services of David Morrell, based in Broome, and of the helicopter mustering provided by Fitzroy Helicopters, based in Fitzroy Crossing.

Broome Stockyards

In accordance with live export protocols, which vary with the destination markets, stock must be quarantined, inspected and cleared prior to export. Stock will normally also require spelling, following long distances travelled from property, and some preparation for the sea travel ahead. In Broome the facilities for these services are provided by Jetty Dip Yards and Broome Stockyards. The Broome Stockyards are an example of a Broome business which has been established recently in response to a growing live cattle export trade. Prior to 1998, the Port of Broome was serviced by just one quarantine yard, Jetty Dip Yards, with a capacity of 1,200 head. The Broome Stockyards has added the capacity for an additional 5,000 head in the Broome case study area.

During the 1998/99 year, the Broome Stockyards provided for the quarantine, spelling and preparation for some 56,000 head of cattle. The provision of this service to the live cattle trade provided Broome Stockyards with 90% of their business during that year. The yards also provide clearance and spelling of southward bound cattle.

The Broome Stockyards were established purely in response to the increasing live cattle trade. The operation provides the extra capacity required for the trade, but also complements the transport operations and pastoral operations of the owners. The additional capacity in the Broome case study area allows greater flexibility and increased efficiency for the live cattle trade. During periods of wet weather this is particularly important. In this respect, the Broome Stockyards have made the Port of Broome a more attractive port option for live cattle exporters.

The Broome Stockyards currently employ one full time manager and a full time administration manager. A further three part time employees are required throughout the year. These part time employees are employed full time throughout the dry season and a month or two either side, depending on the weather patterns. Major inputs, other than labour, required for the operation are dipping chemicals and fodder. The Broome Stockyards source all of their chemicals through Elders in Derby. Fodder is sourced within the case study area when possible.

The Broome Stockyards represent a major investment in the live cattle export industry in the Broome region. Such optimism for the industry is prevalent across the community.

Kilto Station

Kilto Station provided around 20% of the fodder required for the two livestock quarantine yards in Broome in 1998/99. Kilto Station comprises some 30,000 hectares and produces fodder, sweet potato and cattle. Around 4% of the property is devoted to fodder production.

Kilto Station is the only fodder producer ‘within 1000km’ of Broome and essentially only competes with producers in the Perth region because they can provide out of season fodder.

During 1999/2000 Kilto Station anticipate providing around 50% of the fodder required by the trade. According to Jack Burton, manager of Kilto Station, the Broome requirement for fodder is turning into a stable market and a profitable option, albeit a niche market which would not support too many other producers in the immediate area. Jack Burton is optimistic about the future of the live cattle export trade and is prepared to take advantage of Kilto Station’s close proximity to the Port of Broome and expand his operation to provide a greater proportion of the fodder required. This may include value added options and on-board livestock feed requirements. Currently, two Kilto Station employees are devoted to the provision of fodder to the live cattle trade. Value added operations being considered by Kilto Station would significantly increase the labour requirement. Furthermore, lower freight costs for fodder sourced locally would contribute to the price competitiveness of cattle exported from the Port of Broome.

4.5.2 Quantitative Impact

The quantitative impact of the live cattle industry in the Broome case study region is shown in the tables below.

Economic Indicator	Region Total	Live Cattle Contribution (%)
Gross Revenue (\$ million)	573.8	6.0
Value Added (\$ million)	300.4	6.0
Employment (jobs)	7373.9	3.3

From the above input output analysis, it can be seen that the industry contributes 6% of the region’s gross revenue and a similar percentage of value added and jobs.

Indicator	Direct Impact of Industry	Type II Multiplier¹²	Total Impact
Gross Revenue	\$24.8million	1.4	\$34.3million
Value Added	\$13.0million	1.4	\$18.0million
Employment	93	2.6	242

From the above table it can be seen that in the Broome West-Kimberley region the live cattle export industry generates:

- \$24.8 million in gross revenue with a multiplier impact of \$34.3 million;
- value added, direct and indirect of \$18.0 million; and
- total employment of 242 jobs.

¹² See Appendix B

4.5.3 Summary and Conclusions

From the analysis of the live cattle industry in the Broome -West Kimberley case study area the following has been found:

- Cattle production, social services, tourism, mining and pearling are the major industries in the case study region. Cattle production is almost entirely dedicated to live export because of the limited market opportunities in the remote region;
- A significant number of businesses required for the live cattle export industry are located outside of the case study region. These include exporters, fodder manufacturers and providers. The export of cattle out of the Port of Broome is increasing however, such that interest in establishing operations, such as fodder manufacturing, in the area has been made known;
- The contribution of the live cattle export industry to the case study area is significant. The value added by the industry is 8% of the total value added created in the area; and
- Some 93 jobs are directly created by the live cattle export industry in the case study area. With a multiplier of 4.4, this translates to a total of some 412 jobs.

4.6 Case Study Summary

The case study analysis provided an understanding of the contribution of both the live sheep and cattle industries to regional Australia. Regional economic impact modelling (Input-Output Analysis) was able to demonstrate the contribution the industry makes to total economic activity in the region, the revenue created by the industry, industry value added and employment. Estimates of revenue, employment and value added were calculated for both the direct impact of the industry and “flow-on” or multiplier effects. Key results from each of the six regional case studies are summarised in the table below.

	Multipliers		Total Impact (\$ million)	
	<i>Value Added</i>	<i>Employment</i>	<i>Value Added</i>	<i>Employment</i>
FREMANTLE/ SOUTHERN PERTH	1.8	2.8	20.9	577
Wongan Hills, WA	1.3	2.1	10.4	207
Hamilton & Portland	1.6	3.3	13.2	320
Katherine & Darwin	1.6	2.7	27.3	771
North Queensland	1.5	2.4	40.3	938
Broome West-Kimberley	1.3	2.3	17	242
Regional Average	1.5	2.6		

Multipliers are a means of measuring gross revenue, value added and employment generated outside the value chain but inside the region. From the table it can be seen that, on average, for every:

- \$1 generated in value added another \$0.50 is created in flow-on economic activity; and
- For every job generated directly in the region another 1.6 jobs are created.

5 NATIONAL ECONOMIC IMPACT

5.1 Introduction

The analysis completed in chapter 4 was concerned with assessing the qualitative and quantitative contribution of the live sheep and cattle industries to selected regional economies. The purpose of this chapter is to provide estimates of the industry's contribution to the national economy.

5.2 Contribution to Gross Domestic Product

In order to determine the impact of the live sheep and cattle export sector on the national economy general equilibrium modelling is employed. General equilibrium modelling incorporates all sectors of the Australian economy within one dynamic framework.

For this assignment the NIEIR General Equilibrium model was employed and calibrated with data gleaned from both published sources and field investigations. The NIEIR General Equilibrium model is a long established tool and has been deployed across a variety of sectors for both policy and commercial decision making processes.

The model is a multi-sector model based on the 107 industry input-output table for the national economy. Each industry has equations for investment, employment, output, prices, costs, imports, etc. There are also equations explaining policy variables such as exchange rates and interest rates. The household sector is extensively modelled with consumption expenditures explained across a wide variety of categories.

The contribution live sheep and cattle make to Australian gross domestic product was estimated using the NIEIR general equilibrium model and is summarised in the table below. GDP being defined as the aggregate of value added (or profit) across all links and all industry players in the Australian economy. In the table below, GDP is the sum of the first four demand components less imports less the demand components not shown in the table such as inventory stock change and government demand.

Formation of National Gross Domestic Product (FOB values)

Indicator	\$'million
Total Private Consumption and Expenditure	137.25
Total Fixed Investment: - Equipment	107.22
Total Fixed Investment: - Construction	109.38
Exports of Goods and Services	644.49
Imports of Goods and Services	124.89
Gross Domestic Product	708.31

From the table it can be seen that live sheep and cattle exports contributed a total of \$708 million to GDP in the year 1999. This total included exports with value adding totaling \$644 million.

5.3 Contribution to National Employment

In addition to direct revenue generation and contribution to national GDP the live sheep and cattle sectors result in both direct and indirect employment throughout the value chain

Australia wide. Figure 12 below summarises the industries aggregate contribution to employment, wages, salaries and household taxation.

Figure 12 Employment and Household Income

Indicator	\$'million
Total Industry Employment (live sheep and Live cattle)	9,080 jobs
Wages and Salaries (live sheep and Live cattle)	\$308.17 million
Household Taxes	\$63.85 million

The industry generates significant national employment as well as wages and salaries and household taxes. More than 9,000 jobs are created.

5.4 The Strategic Importance of the Industry

The live export industry long run or strategic importance to the economy is approximately twice the short run impact. This is because the industry is an exporting industry. In the long run exports from this industry, by reducing the current account deficit, allows further increases in economic activity and employment by allowing lower interest rates, more expansionary fiscal and monetary policies and in some time periods lower exchange rates.

These factors lead to a far greater long run impact of the live meat industry on the economy as per the third column of the table below.

Live Export Contribution to the National Economy

Indicator	Current \$'million (yr 2000)	Long Term ¹³ \$'million (yr 2000)
Total Private Consumption and Expenditure	137.25	589.72
Total Fixed Investment: - Equipment	107.22	183.79
Total Fixed Investment: - Construction	109.38	177.88
Exports of Goods and Services	644.49	867.10
Imports of Goods and Services	124.89	344.06
Gross Domestic Product	708.31	1,509.81

The live export industry has potential to more than double its contribution to GDP in the longer term.

From the above analysis it can be seen that the live export industry contributes the following to the national economy:

- \$708 million to gross domestic product;
- 9,080 jobs to the national economy; and
- wages and salaries totaling \$308 million.

¹³ Long Term – around one decade

6 STUDY CONCLUSIONS

The study was completed between January and June 2000. Following analysis of the value adding chain for both the live sheep and live cattle export industries, the following major points have been established:

- The value adding chain was shown to be both complex and long. The chain includes up to 25 separate business types and is linked to a great number of others through the supply of goods and services to the industry;
- Regional multipliers ranged averaged 1.5 for value added and 2.6 for employment;
- Nationally, the industry value added totaled \$708 million and 9,080 jobs; and
- The industry has been shown to have been the catalyst for a significant number of new small businesses in case study areas and a boost for existing business entities.
- The benefits to businesses from being involved in the live sheep and live cattle export industries is often manifold. Benefits range from reducing the seasonality of business operations and thus cash flow, to providing specialisation opportunities and to increasing business stability through a larger customer base.
- The benefits to producers, of stock for live export, are also multiple. Evidence also shows that the presence of the industry in Australia impacts positively on the domestic market for sheep and cattle.

7 PERSONS CONTACTED AS PART OF THE STUDY

Name and Position	Organisation
BILL CORDINGLEY, ACCOUNT MANAGER, LIVESTOCK EXPORTS	MLA
Kevin Shiell, Chief Executive Officer	LiveCorp
David Inall, Industry Service Coordinator	LiveCorp
Rosanne Ransley, Program Manager, Stockmen Accreditation	LiveCorp
John Elias, Library	MLA
Rick Dunn, Senior Inspector, Live Animal Exports, Animal and Plant Health Service	QDPI, Townsville
Roger Kaus, Project Leader Global Beef Link Project	QDPI, Townsville
Bryan Muschialli	Australian Live Exporters Council – Victoria
Lorraine Crowe	Quota Administration & Statistics Unit – AFFA
<p>Participants in the live export industries in, and Community members of:</p> <ul style="list-style-type: none"> • Fremantle & Perth Southern Fringe, WA • Wongan Hills, WA • Baldivis, WA • Broome, WA • Darwin, NT • Katherine, NT • Cairns, Qld • Townsville, Qld • Charters Towers, Qld • Cloncurry, Qld • Karumba, Qld • Portland, Vic • Heywood, Vic • Hamilton, Vic 	

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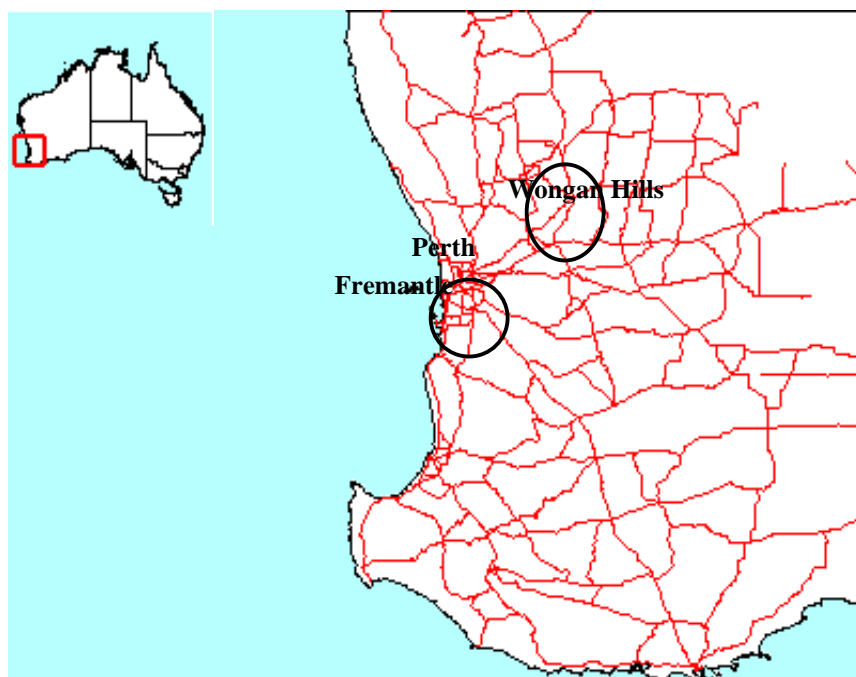
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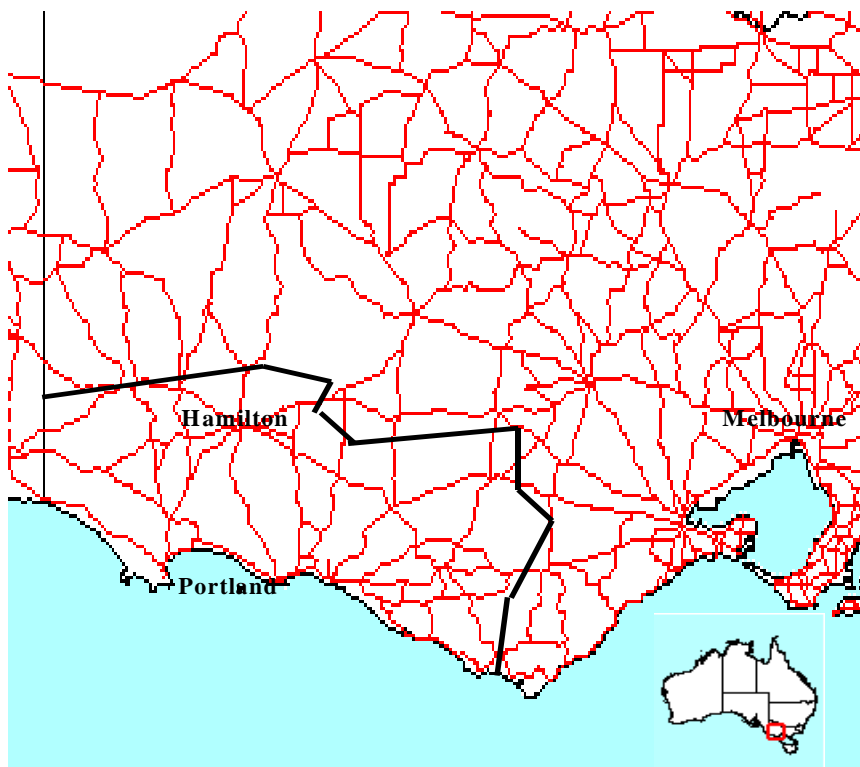
9 APPENDICES

Appendix A Case Study Maps

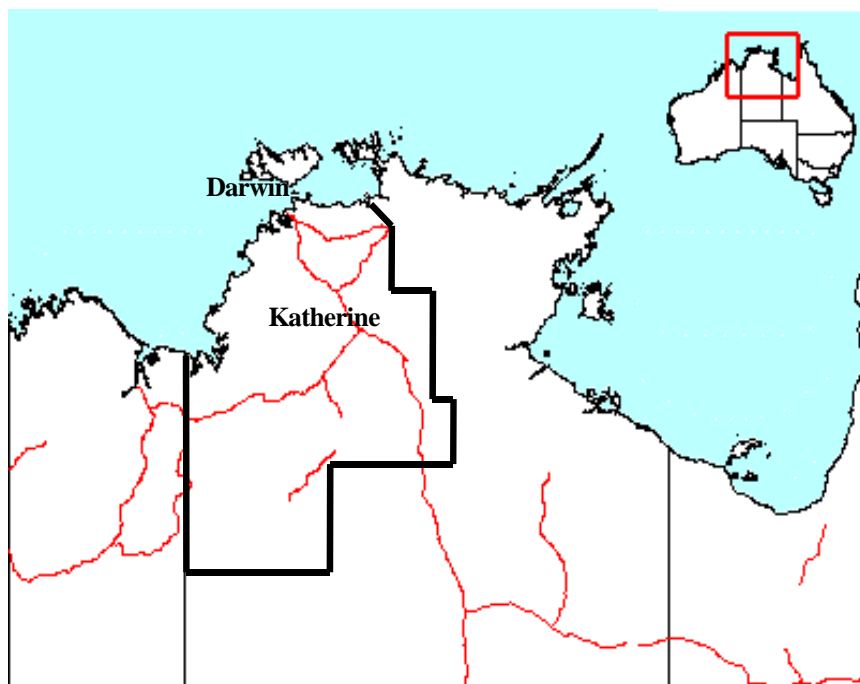
Case Study 1 Fremantle-Southern Outer Fringe/Wongan Hills



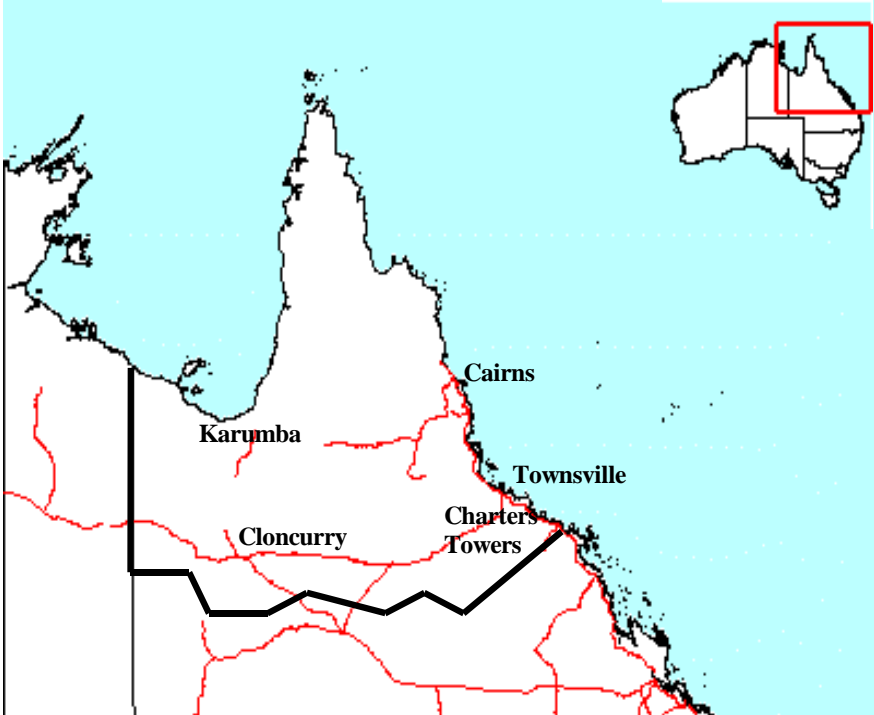
Case Study 2 Portland/Hamilton



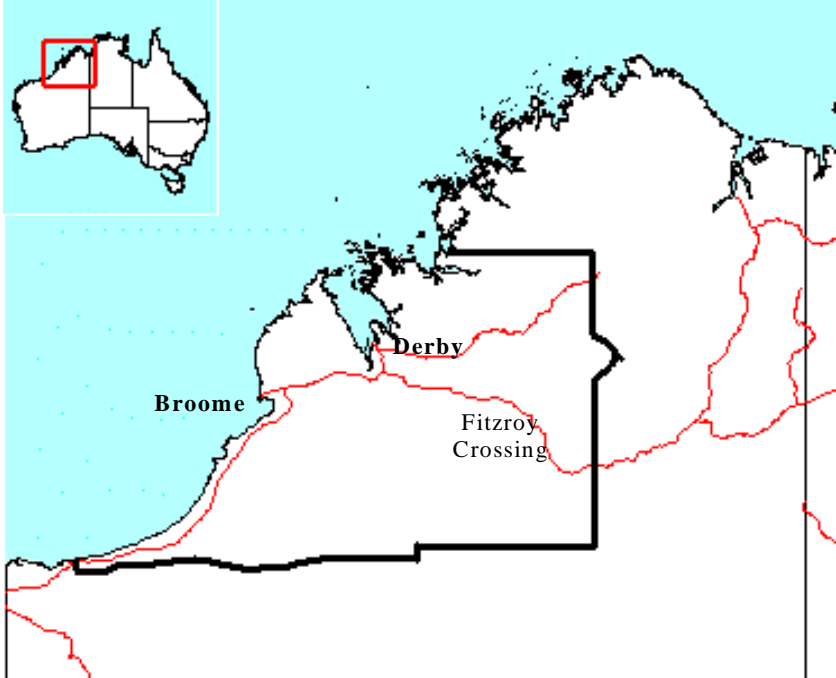
Case Study 3 Katherine/Port of Darwin



Case Study 4 North Queensland



Case Study 5 Broome/Derby West-Kimberley



Appendix B Multipliers – A brief explanation

Multipliers measure the flow-on effects to an economy¹⁴ of a change imposed on an industry within that economy, given other factors such as product mix, production technology, input supply systems and product supply systems remain the same.

A type I multiplier indicates the direct flow-on effects on immediate input providers. A type II multiplier incorporates the direct (type I) and indirect flow-on effects throughout an economy. Type II multipliers can be illustrated as follows.

Eg. A gross revenue multiplier type II of 1.8 indicates that for every \$1 of gross revenue directly added by an industry, the total direct and indirect impact on the gross revenue of the economy is \$1.80. Similarly, for every \$1 the gross revenue of an industry falls, the economy wide gross revenue will fall by \$1.80.

Employment multipliers measure the flow-on effects of the gain/loss of direct employment within an industry, on the economy. A type II employment multiplier of 4, for instance, indicates that there for each direct job lost within an industry during a downturn, a total of 4 will be lost directly and indirectly across the case study economy, all else equal.

Multipliers will vary according to the type of inputs used, the range of inputs provided within the economy/case study area and whether earnings are spent locally or outside of the economy. The degree to which an industry is labour intensive, and the alternative sources of employment in an economy are significant factors contributing to Type I and II multipliers.

¹⁴ An *Economy* can be limited to a case study area, such as a local government area, or be as extensive as the national economy of Australia.

Appendix C Value Chain for Live Sheep and Cattle – 1993/94

The following value chain analysis was completed by AACM International in 1996.

Figure C1 Value Chain for Live Cattle CIF (AACM 1996a)

	Industry Total (assuming exports of 193,000)	\$ per Head
TOTAL GROSS VALUE	\$131.63 million	682
COSTS		
LIVESTOCK PURCHASES	\$72.6 million	376
FREIGHT AND HANDLING	\$13.1 million	67.87
INSURANCE	\$0.9 million	4.66
SHIPPING	\$25.9 million	134.20
INTEREST	\$2.0 million	10.36
LEVIES	\$0.3 million	1.55
QUARANTINE & TESTING	\$3.6 million	18.65
FODDER	\$2.4 million	12.44
AGISTMENT COSTS	\$1.7 million	8.81
TOTAL COSTS	\$122.5 million	634.54
VALUE ADDED	\$9.16 million	47.46

Source: AACM 1996a and 1996b – reconciliation between figures reported in text and in appendix.

IN 1993/94 THE LIVE CATTLE INDUSTRY GENERATED GROSS VALUES OF \$132 MILLION AND EXPENDED FUNDS TO A TOTAL OF \$123 MILLION. VALUE ADDED WAS APPROXIMATELY \$47 PER HEAD.

Figure C2 Value Chain for Live Sheep CIF (AACM 1996a)

	9.1.1.1.1 Industry Total (assuming exports of 4.835 million)	\$AUD per Head
GROSS INCOME		
LIVE EXPORTS	\$278 million	57.50
WOOL	\$15 million	3.10
TOTAL INCOME	293 million	60.60
COSTS		
LIVESTOCK PURCHASES	\$80 million	16.50
FREIGHT AND HANDLING	\$10 million	2.07
INSURANCE	\$9 million	1.86
SHIPPING	\$111 million	22.96
FEEDLOT COSTS	\$11 million	2.28
INTEREST	\$6 million	1.24
CONTRACT SHEARING	\$4 million	0.83
QUARANTINE	\$3 million	0.62
FODDER	\$20 million	4.14
TOTAL COSTS	\$254 million	52.54
VALUE ADDED	\$39 million	8

In 1993/94 the live sheep industry generated gross values of \$254 million. Total value added was \$39 million or 1.3% of the value added by the meat and livestock industry.