Australian live sheep exports

Economic analysis of Australian live sheep and sheep meat trade

Prepared for the World Society for the Protection of Animals

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# Australian live sheep exports

## Contents

Glossary vii  
Executive Summary viii  
1 Introduction 1  
2 Aims and objectives of this study 1  
  2.1 Overview of Australian live sheep and sheep meat exports 1  
    2.1.1 The Australian sheep industry 1  
    2.1.2 The Western Australian sheep industry 3  
    2.1.3 Importance of live sheep and sheep meat exports 4  
3 Live sheep exports 6  
  3.1 Overview of the live sheep trade 6  
  3.2 The Middle East market for live sheep exports 11  
    3.2.1 Export volumes and values by country 11  
  3.3 Demand drivers 13  
    3.3.1 Live import subsidies 13  
    3.3.2 The economics of subsidies 15  
    3.3.3 Market preferences 16  
    3.3.4 Retailing methods 17  
    3.3.5 The growth of supermarkets 17  
    3.3.6 Key suppliers of live sheep to the Middle East 19  
  3.4 Live sheep export supply chain 20  
    3.4.1 Links in the supply chain 20  
4 Sheep meat exports 22  
  4.1 Major sheep meat exporters 22  
  4.2 Major export markets for Australian sheep meat 23  
  4.3 The Middle East market 24  
    4.3.1 Value of sheep meat exports 24  
    4.3.2 Main exporters of sheep meat to the Middle East 27  
    4.3.3 SWOT assessment of the Western Australian sheep meat industry 28  
    4.3.4 Requirements for sheep meat exports to the Middle East 28  
    4.3.5 Delivery of meat exports to the Middle East 29  
5 The meat processing sector in Australia 30  
  5.1 Overview 30  
  5.2 Overview of the meat processing sector in Western Australia 31  
    5.2.1 Capacity utilisation 31
Australian live sheep exports

5.2.2 Location of sheep processing plants in WA 32
5.3 WA Government intervention in the lamb market in WA 34

6 Live sheep and sheep meat economy-wide linkages 35
6.1 The live sheep value chain 36
  6.1.1 Sheep industry and live sheep export industry multipliers 37
6.2 Sheep meat processing value chain 39
  6.2.1 Meat processing multipliers 41

7 Economic implications of a substitution of live sheep with processed sheep meat exports 43
7.1 Historical examples 43
7.2 Impact of diversion from live to processed sheep meat 45

8 Potential impacts on the sheep processing industry 51
8.1 Impact on the meat processing sector 51

9 International prospects for increased Australian sheep meat exports 53
  9.1 Trade flows 53
  9.2 Potential markets for absorbing additional sheep meat 55
    9.2.1 USA 55
    9.2.2 China 56
    9.2.3 Middle East 57
    9.2.4 Other potential markets 59
    9.2.5 The domestic market 60

10 Strategies for increasing sheep meat exports 60
  10.1 Promotional campaigns 60
    10.1.1 Australian promotional campaigns 60
    10.1.2 Effectiveness of promotional campaigns 61
    10.1.3 New Zealand promotional campaigns 61
  10.2 Australian government policy options in the EU 63
  10.3 Improved competitiveness 63

11 Reducing live sheep exports: the New Zealand experience 64
  11.1 History of New Zealand live sheep exports 64
  11.2 Implications for Australia 66

12 Managing the externalities of the live sheep trade 67
  12.1 Managing the animal welfare concerns about the export of live sheep 69
    12.1.1 Reducing the effects of live export subsidies 69
    12.1.2 Strategies for increasing exports 70
    12.1.3 Encouraging investment in modern processing capacity in WA 70

Glossary iv
Australian live sheep exports

12.1.4 Progressive tightening of animal welfare standards 71
12.1.5 Market-based allocation of declining export permits 71

13 Works Cited 73
A Overview of the meat processing sector in Australia A-1

List of boxes
Box 1 Input-output tables and multipliers 36

List of charts
Chart 1 Illustration of expected net costs and net welfare gains from various strategies 68

List of figures
Figure ES 1 Shares of Australia’s live sheep exports to the Middle East by country (2007-08) xi
Figure ES 2 Location of sheep meat processing facilities in Western Australia xiii
Figure 1 Size of sheep flock in major sheep producing countries (2005-06) 2
Figure 2 Production of mutton and lamb meat in Australia, 1973-2008 3
Figure 3 Sheep meat exports from Australia to selected regions, 1990 to 2008 5
Figure 4 Value and volume of Australian live sheep exports (1989-90 to 2007-08) 7
Figure 5 Volatility in the global live sheep trade (1961 to 2003) 8
Figure 6 Australia’s live sheep exports by state (1990 to 2006, 2007-08) 9
Figure 7 Shares of Australia’s live sheep exports to the Middle East by country (2007-08) 12
Figure 8 Australian sheep export price - $/head (2005-06) 19
Figure 9 Major exporters of sheep meat in 2006 (cwt) 23
Figure 10 Australian lamb exports to the Middle East (1992 to 2008) 25
Figure 11 Value of Australian and Western Australian sheep meat exports to the Middle East, 2000-01 to 2006-07 (A$ million) 26
Figure 12 Market shares of key Middle East export destinations for WA sheep meat, 2006-07 26
Figure 13 Sheep meat exports to the Middle East by exporting country (2006) 27
Figure 14 Location of sheep meat processing facilities in Western Australia 33
Figure 15 Live Sheep and Meat Imports from Australia 45
Figure 16 Growth of Live Sheep and Meat exports: 1988 - 2007 46
Figure 17 Growth of Live Sheep and Meat exports: 2000 - 2007 47
Figure 18 Live Sheep and Meat Imports from Australia – Weight in ’000 Kilograms 48
Figure 19 Proportion of Australian Live Sheep Imports to Total Live Sheep Imports; Proportion of Australian Meat Imports to Total Meat Imports – by Country 49
Figure 20 Proportion of Australian Live Sheep and Meat Imports to Total Live Sheep and Meat Imports for each country 50
Figure 21 Global sheep meat trade flows, 2007 53
Figure 22 Sheep meat trade forecast to 2015 54

Glossary v
Australian live sheep exports

Figure 23  Sheep meat exports from New Zealand to Middle East and rest of the world (ROW), 1991-2008, in millions of Kg

Figure 24  Broad categorisation within the Australian meat processing sector

Figure 25  Geographic distribution of the meat processing industry (2009 projection)

Figure 26  Industry revenue, value added and exports, 2004-05 to 2008-09 (forecast)

Figure 27  Level of employment in the meat processing industry, 2004-05 to 2008-09 (forecast)

Figure 28  Annual growth rate in industry revenue, value-added, employment and exports, 2004-05 to 2008-09 (forecast)

Figure 29  Cost structure of an average firm in the meat processing industry

List of tables

Table 1  Western Australian sheep industry statistics, 2003-04 to 2007-08

Table 2  Financial performance of Western Australian broad acre farms with more than 300 sheep (average per property, financial estimates are in real terms expressed in 2006-07 dollars)

Table 3  Australian live sheep exports to the Middle East, 2000-01 to 2006-07 (2006-07 dollars)

Table 4  Western Australian live sheep exports to the Middle East, 1997-98 to 2006-07 (actual dollars)

Table 5  Shipped weight of Australian sheep meat to leading markets (2008)

Table 6  Estimated monthly sheep processing capacity and capacity utilisation in WA in 2002

Table 7  Value chain of Southern Western Australian live sheep exports, 2005-06

Table 8  Southern Western Australian Live Sheep, 2005-06 estimated flow on effects

Table 9  Western Australian Sheep industry multipliers

Table 10  Post farm-gate notional gross value chain for Western Australian live sheep and sheep meat exports (per head 2009)

Table 11  Western Australian Meat and meat products processing industry multipliers

Table 12  Western Australian Oil and fat and Leather and leather product industry multipliers (2006-07)

Table 13  Major sheep meat processors (2007)
## Australian live sheep exports

### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadacre</td>
<td>Farms engaged in the production of grains, oilseeds and other crops</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>A measure of the strength of the linear relationship between two variables</td>
</tr>
<tr>
<td>Elasticity</td>
<td>The ratio of the percentage change in one variable to the percentage change in the other variable</td>
</tr>
<tr>
<td>Ewe</td>
<td>Female sheep</td>
</tr>
<tr>
<td>Halal</td>
<td>Food that is sanctioned by Islamic law and ritually fit for use</td>
</tr>
<tr>
<td>Lamb</td>
<td>The flesh of a young sheep (one that is less than one year old or without permanent teeth) used as food</td>
</tr>
<tr>
<td>Mutton</td>
<td>The flesh of a mature sheep used for food</td>
</tr>
<tr>
<td>Souk</td>
<td>A marketplace in northern Africa or the Middle East or a stall in such a marketplace</td>
</tr>
<tr>
<td>Supply chain</td>
<td>The system of organisations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer</td>
</tr>
<tr>
<td>Turnoff</td>
<td>Lamb or sheep that is slaughtered or exported</td>
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<tr>
<td>Wether</td>
<td>A male sheep castrated before sexual maturity</td>
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Executive Summary

Key Findings

• If live sheep producers and exporters are not confronted with the full costs of production (inclusive of the animal welfare concerns of the community) they may be making a suboptimal investment decision from the viewpoint of the wider society.

• The live export trade in sheep from WA became established at a time when the WA lamb processing market was regulated.

• There are significant subsidies paid on the slaughter of live sheep in the Middle East. There is also considerable indirect support for the live sheep trade in the Middle East including subsidised water, feed and infrastructure.

• These policies have influenced not only the sheep production decisions of Western Australian farmers but the development of processing capacity and the markets for WA sheep meat products.

• These trade distortions also potentially affect the WA economy. Not only is there greater value adding (output) from processing sheep domestically; every $100 of additional output from exporting sheep live produces additional Gross State Product (GSP) of $82.50; for every $100 of additional output in the meat processing sector GSP rises by $101.50.

• There appears to be significant and growing substitution between sheep meat and live sheep in most Middle East countries. That is, as live sheep imports fall sheep meat imports rise. An important factor in this relationship is the dramatic rise of GDP growth in this region. This suggests that live sheep at least in part compete with processed sheep meat from Australia.

• There also appears to be significant growth in the rest of the world for sheep meat at a time when almost all major sheep meat producing flocks are shrinking.

• The least cost way of reducing the externalities of the live sheep trade from WA appears to be to increase the level of substitution between the processed sheep meat and live sheep. This would ensure that:
  – there is limited substitution between Australian live sheep and sheep from other sources
  – the full value adding opportunities can be captured by the WA and Australian economy
  – there would be a reduction in the reliance on the live sheep trade to the Middle East by WA farmers.

Strategies to drive substitution of live sheep with Australian processed meat could include: reducing the trade distortions (subsidies and indirect support), greater marketing and promotion of Australian sheep meat, rationalisation in the WA processing sector, and even vertical integration between the Western Australian and Middle East meat industries.
ACIL Tasman has been commissioned by the World Society for the Protection of Animals (WSPA) to analyse the economics and policy settings of the live sheep export trade from Western Australia and sheep meat trade, from both national and regional perspectives.

**The nature of the problem**

Virtually all economic activity produces costs and benefits that spill over to others not party to the activity. These costs and benefits are called externalities as they are external to the decisions made by those involved in the activity. Some members of the Australian community are concerned about the welfare of live sheep being exported from Australia for slaughter in the Middle East.

While in this situation the community does not experience physical or financial impacts, as is the case with externalities such as pollution, the community does appear to place a value on the welfare of sheep being exported live from Australia.

When live sheep producers and exporters are not confronted with the full costs of production (inclusive of the animal welfare concerns of the wider community) they may be making a sub-optimal investment decision from the viewpoint of the wider society.

However, cessation of the live export trade, particularly without notice, would be costly to those currently engaged in it. This is the reciprocal nature of the problem: continuation of the trade causes concern for the welfare of the animals; while ceasing it reduces the return to the businesses involved and potentially the contribution the livestock industry as a whole makes to the economy.

Sheep have been exported from Western Australia to the Middle East in large numbers for thirty years. It appears that trade peaked in the 1980s, at a time when Western Australia regulated the slaughter and wholesale prices of lambs through the WA Lamb Marketing Board. At that time between 7 and 8 million sheep were being exported annually; live exports do not appear to have been regulated or subject to the same price controls as domestically slaughtered animals. The Lamb Marketing Board was wound up in 1999 and the assets acquired by the Western Australian Meat Marketing Company (WAMMCO), a grower-owned cooperative, which is currently the second largest sheep meat processor in Western Australia.

It also appears that Australian live sheep consumption in the Middle East is heavily subsidised and other direct and indirect policies appear to support the importation of live sheep, relative to sheep meat products. Frozen sheep meat
Australian live sheep exports

Executive Summary

attracts a 5 per cent tariff in most of the countries that are major importers of Australian live sheep.

It is highly likely that the regulation of the WA lamb market contributed significantly to the expansion of the live trade in the 1980s and 1990s. Continuing import subsidies in the Middle East are encouraging live sheep demand at higher levels than would otherwise be the case. It is understood that import subsidies are applied to ensure live sheep are available for cultural and religious ceremonies, support domestic processing in the Middle East, and as a general policy to ensure cheap food in importing countries.

These policies have influenced not only the sheep production decisions of Western Australian farmers, but also the development of processing capacity and markets for WA sheep meat products.

The result of these policies is that WA producers have responded rationally to the higher prices that have, in the past, been offered by the live export market and thus increased their gross returns. The trade-off the industry has made is that WA sheep production has become more reliant on a highly concentrated market, serviced by a very small number of merchants operating from Australia, than might otherwise be the case. Not only is this market highly concentrated, it is also prone to political risks and changes to animal welfare policies driven by the animal welfare concerns of the Australian and international community.

Live sheep exports

In 2008-09, Australia exported around 4.1 million sheep, valued at approximately $280 million (Fletcher, Buetre, & Morey, 2009). In that year, exports of live sheep accounted for around 11 per cent of total sheep turnoff in Australia and 15 per cent of the total value of sheep meat production by weight.

The vast majority (nearly 74 per cent in 2007-08) of sheep destined for the live export trade are loaded in WA (with Fremantle being the main loading port). In 2007-08, 14 per cent and 12 per cent of shipments were sourced from Victoria and South Australia, respectively. In WA, live sheep exports account for approximately 40 per cent of WA sheep turnoff.

Most sheep exported by Australia are destined for markets in the Middle East, including Kuwait, Saudi Arabia, Bahrain, Oman and Jordan. These countries account for 80 per cent of the total live sheep exports from Australia (see Figure ES 1 for their respective shares of total Australian live sheep exports to the region). Demand for Australian live sheep has been driven by consistency of product quality and low disease status. Australia’s principal competitors in
the Middle East live sheep market are Iran and North African countries, such as Somalia and Sudan. While sheep from North Africa appear cheaper than those from Australia, they are less likely to be disease-free.

Figure ES 1  Shares of Australia’s live sheep exports to the Middle East by country (2007-08)

Data source: (MLA, 2008)

Sheep meat exports

The gross value of lamb and mutton production in Australia was $2.2 billion dollars in 2007-08. Of this, 45 per cent of lamb (valued at $800 million) and 82 per cent of mutton (valued at $400 million) produced are exported.

Australia is a major sheep meat1 exporting country, dominating the world trade in sheep meat alongside New Zealand. Excluding intra-EU trade, 88 per cent of the world trade in sheep meat is sourced from Australia and New Zealand. The main export markets for Australian sheep meat are the United States, Saudi Arabia, the European Union, Japan, Papua New Guinea and Mexico.

The largest market for Australia lamb exports is the United States, where Australia has a 67.7 per cent market share, compared with 31.8 per cent for New Zealand. In 2008, the value of lamb exports to the US was in excess of $250 million. The US is also Australia’s third largest market for mutton, after Saudi Arabia and South Africa. The value of Australian mutton exports to the

1 Sheep meat is used in this report to mean all meat produced from sheep. Lamb and mutton are used to denote specific classes of sheep meat.
US has fluctuated between approximately $45 million and $75 million in the last five years.

As the demand for live sheep in the Middle East has increased in the past ten years, so too has the demand for sheep meat. The urban populations of many of the main importing countries are increasingly Westernised and do not have the same preference for freshly slaughtered meat as do their rural counterparts.

The demand for sheep meat is increasingly being met by large domestic and multinational supermarket chains. Between 2004 and 2008 supermarket sales increased by 77 per cent and hypermarket sales by 105 per cent. These supermarket chains account for 70 per cent of total sheep meat imports from Australia.

Currently, the largest markets for Australian lamb exports to the Middle East are the United Arab Emirates (UAE) and Saudi Arabia. In 2008, Australia exported approximately 14,000 tonnes (carcass weight) of lamb to the UAE and approximately 2,800 tonnes to Saudi Arabia, out of a total of approximately 26,000 tonnes exported to the whole of the Middle East. The value of sheep meat exports to the Middle East from WA as a proportion of the value of sheep meat exports from the whole of Australia declined from 19.0 per cent in 2000-01 to 12.9 per cent in 2002-03, before steadily increasing to 27.7 per cent in 2006-07. This is in part due to the various effects of drought across the country.

The demand for sheep meat in the Middle East has been met primarily by imports of frozen and chilled sheep meat from Australia, New Zealand, China, India, Pakistan, Uruguay and the Sudan. China has emerged as a strong competitor in the export of frozen sheep meat to the Middle East, chiefly due to the price difference between the Chinese and Australian products. However, while sheep meat exports from China to the Middle East are destined principally for Jordan, Australian exports go mainly to Saudi Arabia and the UAE.

The meat processing sector

The Australian meat processing industry consists of businesses mainly engaged in slaughtering livestock (excluding poultry); boning, freezing, preserving or packing meat; canning meat; manufacturing meals from abattoir by-products; or rendering lard or tallow.

In 2007-08 industry revenue totalled $12.8 billion, while industry gross product (or value added, which is the building block of Gross Domestic Product) was $2.0 billion. There were 551 businesses employing 30,405 persons. The value of exports that year was $7.9 billion.
While meat processing occurs in all States and Territories, operations tend to be concentrated in the eastern seaboard states of Victoria, New South Wales and Queensland. The scale of meat processors also tends to be larger in these states. This may be in part due to distortions caused by the lamb marketing policies of the WA Government between 1972 and 1999. The wide geographic spread of sheep production in WA would have also influenced the development of the processing sector in WA.

In Western Australia, the major export-oriented sheep meat processors are: Beaufort River Meats at Woodanilling, Fletcher International WA in Narrikup, Geraldton Meat Exporters, Hillside Meats at Narrogin, International Exporters Pty Ltd at Gingin, Walsh V & V Pty Ltd at Bunbury and WAMMCO International at Katanning. Fletcher International and WAMMCO International are the largest and second-largest meat processors in WA, respectively. The locations of these processors, as well as those that service only the domestic market, are shown in Figure ES 2.

**Figure ES 2  Location of sheep meat processing facilities in Western Australia**

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*Data source: ACIL Tasman, Geoscience Australia*
Demand substitution between live sheep exports and sheep meat exports

ACIL Tasman has analysed historical sheep meat and live sheep exports to the Middle East, to determine if they are positively or negatively correlated over time. Specifically, we examined data from 1988 to 2007 for eight major export destinations of Australian sheep exports in the Middle East: Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE.

The results of our analysis show that in all countries except Bahrain and Oman there has been a steady decrease in live sheep imports and a rapid and sustained increase in sheep meat imports (both lamb and mutton). Our calculation of the correlation between live sheep and sheep meat (by weight) indicates a relatively strong negative relationship—that is, as sheep meat imports rise, live sheep imports fall. An important factor in this relationship is the dramatic increase in GDP growth in this region.

International prospects for increased Australian sheep meat exports

Not only is the Middle East market changing, leading to greater substitution between live sheep and sheep meat, but there is growing demand from existing and potential new markets for Australian sheep meat. This growth in demand is occurring at a time when the Australian sheep flock is declining rapidly. By 2010 Australia’s sheep flock is expected to be only 68 million head, a reduction of 30 per cent since 2005. At present the number of sheep being turned off and not replaced on the farm appears to be satisfying the majority of the demand but the current rate of turn off does not appear to be sustainable.

Global growth in sheep meat demand

According to the European consultancy GIRA, global sheep meat consumption is expected to remain strong to 2015, with a projected annual growth rate of 1.7 per cent. Sheep meat consumption is expected to remain strong because of rapid population and GDP growth, particularly in developing countries (such as China, India, and the Middle East), which have exhibited a preference for sheep meat.

The global financial crisis has slowed sheep meat demand in some markets but demand in the longer run is underpinned by rising population growth and long-term trend growth in per capita GDP.

Fortunately for Australia, global production of sheep meat is not expected to increase significantly. New Zealand supplies are, at best, expected to only increase gradually over the next several years. The only supplier likely to
expand substantially is China, but there are few global markets in which
Chinese products would compete directly with quality Australian lamb. In
addition, growth of China’s local demand is expected to continue and match
production, leaving little room for growth in exports. Because of these factors,
GIRA projects Australian sheep meat exports in 2015 to be 97,000 tonnes
higher than in 2005, provided there are sufficient sheep bred to meet this
demand.

In its mid 2009 sheep update, MLA forecasts substantial medium-term growth
in lamb and sheep meat exports. The increase in exports is predicated on:
continued growth in demand; a reduction of supply from New Zealand,
contrary to GIRA forecast; and a levelling of the trend in sheep numbers in
Australia, to a stable sheep flock of approximately 68 million head.

MLA’s 2009 mid-year update forecast that Australia’s processed lamb exports
will rise 20,000 tonnes (or 19 per cent) by 2013, with a substantial proportion
coming from growth in demand from the US and Middle East. Virtually all
existing Australian lamb and sheep meat markets are expected to increase
demand over the next 2-3 years.

A more detailed 2005 MLA study identified the US and China as offering high
potential growth for Australian lamb sales. The market for Australian lamb in
the US could grow from its 2005 level of about 40,000 tonnes to 60,000–
80,000 tonnes by 2015. If per capita consumption of sheep meat in the US
could be increased by 0.1 kg per annum (a 25 per cent increase on current
levels) through aggressive and effective promotion, this alone would increase
the annual demand for sheep meat by nearly 30,000 tonnes. Furthermore, the
US trade is dominated by the more expensive lamb meat components, such as
legs, loins and racks.

According to the MLA study, China is likely to provide the major sales growth
for cheaper lamb cuts. The study concluded that exports of 20,000 tonnes or
more to this market could be achieved, up from 13,000 tonnes in 2005.

The Middle East has a fast growing population of more than 600 million
people, which is expected to grow to 870 million by 2025. It therefore
represents a tremendous market for food and agricultural commodities.
Consumer preferences for chilled sheep meat products are likely to continue to
grow in line with GDP, increasing market share of major retailers, and
requiring continued expansion of cold chain logistics and storage facilities.

Climate, lack of water and environmental issues are limiting factors for
agricultural development in the Middle East. As a result, the region is likely to
remain reliant on agricultural and food imports in the future.
The most promising markets for increased meat exports are expected to be: Saudi Arabia, Kuwait, Jordan, UAE, Qatar, Oman, Bahrain, Egypt, Lebanon, Morocco, Iraq, Algeria and Libya.

Apart from the US and China, the MLA study noted a number of other markets that are likely to offer growth prospects but to a more modest extent. Notable amongst these are Mexico (where the population is forecast to grow by 12 per cent by 2015. Over the same period GDP is expected to grow at 3.5 per cent per annum), Japan and countries in the Gulf Cooperation Council.

In addition, the EU and, to a lesser extent, India offer significant growth prospects if access difficulties can be resolved. While the EU is the largest sheep-meat market in the world, access is distorted towards New Zealand. New Zealand has a sheep-meat quota into the EU of 227,854 tonnes, compared with only 18,786 tonnes for Australia, despite Australia producing more sheep meat than New Zealand and the global volume of exports of both countries being similar. Australian access to the EU could improve if NZ supply continues to decline.

The continued existence of this quota imbalance is inconsistent with free-trade policies. Achieving a more equitable access to the EU market should be a priority for Australian trade negotiators.

Non-tariff trade barriers also currently preclude lamb imports into India. Apart from these barriers, the prospects for profitable commercial exports of Australian lamb to India are favourable. According to the MLA, if the sanitary standards applied to India were to ease, imports of 20,000 tonnes from countries such as Australia would be possible.

Overall, the market outlook for Australian sheep meat looks highly favourable for growth. Reducing trade barriers can only improve the industry’s export prospects.

**Economic implications of a conversion of live sheep exports to processed sheep meats**

There appears to be substantial opportunities to substitute significant quantities of Australian live sheep with Australian processed sheep meat in the Middle East.

Developing these opportunities relies on encouraging a progressive shift in demand by Middle Eastern consumers so that total demand for sheep meat from Australia is at least maintained at current levels (inclusive of meat exported live and processed). Heavy handed Government intervention in the trade (a ban) would extinguish the ability to test these opportunities.
The meat processing sector in WA

In 2007-08 approximately 5 million head were processed in WA. In 2002 the Western Australian meat industry taskforce had estimated that sheep processing capacity in WA was 8.1 million head.

In studies released by MLA in 2005 and in 2007, it was suggested that an additional 1.0 million to 1.5 million head processing capacity could be introduced into WA within 12 months following a cessation of the live export trade. This has been confirmed by our discussions with meat processors during the course of this study.

In ACIL Tasman’s consultations with the major sheep meat processors in Western Australia, the processors suggested that the industry in WA could process up to 6 million sheep annually without requiring the construction of any new processing plants. This would entail moving to two shifts per day in each processing plant, which may require the employment of some skilled abattoir workers from abroad under the ‘457 Visa’ scheme and/or the diversion of labour that would otherwise be employed by live sheep exporters.

To process domestically all of the 3-4 million live sheep domestically would require the addition of between 1.5 and 2.0 million head of additional capacity. This would most likely come from an expansion of the second and third largest processors, rather than the reinstatement of any of the plants that have been closed, which were typically smaller on average than eastern states facilities. The expansion of the second and/or third largest processors would require considerable capital investment but would secure a considerable increase in the economies of scale currently not present in the WA sheep processing sector.

The effects of this increase in turnover on the WA economy as a whole, and regional economies in particular, could be considerable, as there appear to be significant differences between the value added multiplier created by the live export trade and exporting sheep meat; for every $100 of additional output from exporting sheep live, the additional Gross State Product (GSP) produced appears to be $82.50; for every $100 of additional output in the meat processing sector, GSP rises by $101.50.

Impact on the live export supply chain

If all of the sheep currently exported live were processed domestically, many, if not all, of the activities in the supply chain for live sheep could be re-directed to other uses at relatively little cost. For example:

- Industry levies and charges paid by the live export sector are also payable on slaughtered animals.
Receival fees, weigh bridge and other port charges would be replaced by sale yard fees, agents fees and abattoir fees.

Virtually all transport services would be diverted from transporting live sheep to port, to moving live sheep to abattoir and sheep meat products to port. It is also likely that the sheep feed now used to condition the sheep to the fodder used on the ship, would be used instead to finish sheep for slaughter (anecdotally, prime lamb feed lotting appears to be expanding in Western Australia).

Most of the AQIS fees, port costs, wharfage and other FOB charges (getting the sheep from the dock onto the ship and out to sea) would still be incurred in exporting chilled sheep meat products in containers.

The bulk of shipping fees on live export vessels that would be foregone if the live export trade ended, are not relevant. They are revenues earned by foreign owned entities and thus do not contribute GSP or GDP to the Western Australian and Australian economies.

Reducing the animal welfare concerns of the export of live sheep

Part of ACIL Tasman’s brief for this project was to look at the ways in which the externalities associated with the live sheep export trade could be reduced. This can be achieved in two broad ways:

- improving the conditions for the animals in transit
- reducing the total number of animals exported live from all origins globally.

Improving animal welfare by reducing the total number of sheep exported live requires a net global reduction in sheep exported live. There is unlikely to be any welfare gain if exports of Australian sheep are replaced by sheep from other sources. Indeed, there could be a reduction in net welfare if the welfare standard in the alternative source is lower than that of Australia, or if the sheep have to travel further.

Reducing the effects of live export subsidies

The least cost way of reducing the externalities of the trade for Western Australian farmers and the WA economy, is to increase the level of substitution between Australian (and even global) live sheep and Australian processed sheep meat, in the major countries importing live sheep.

This would ensure that:

- There is limited substitution between Australian live sheep and sheep from other origins.
- The full value-adding opportunities can be captured by the WA economy.
There would be a corresponding reduction in the reliance of the WA sheep industry on the live sheep trade to the Middle East, which is dependent on continuation of subsidies and other trade distortions. The Middle East market can be characterised as having high intervention risks, with a relatively small number of countries serviced by a small number of exporters, and prone to animal welfare concerns.

Substitution of Australian processed meat for Australian live sheep could be achieved using a number of strategies, including:

- Correction of the distortions caused by the subsidies by applying them to both live and processed products
- Removal of the 5 per cent tariff on frozen sheep meat that is applied in a number of Middle Eastern countries
- Greater dedicated marketing by government and industry, designed to promote Australian processed sheep meat products in the Middle East
- Vertical integration between the WA sheep industry and the Middle East, e.g. Middle Eastern investment in major processing facilities and/or an alliance between WA processors and major sheep meat wholesalers.

A reduction of the subsidies, and/or their application to processed products, requires Australian governments to lobby the major subsidising importing countries. Lobbying to reduce the distortions of the import subsidies appears to be in the interests of the Western Australian economy and animal welfare groups if the live sheep are substituted with sheep meat processed in WA. If this substitution is achieved WA farmers may be no worse off if it leads to improved processing efficiencies that they would in part benefit from, and it would lead to a reduction in the reliance on the Middle East market.

Other strategies for increasing sheep meat exports

Creating new or additional demand for WA processed sheep meat in other non-Middle Eastern markets would also provide opportunities to redirect sheep otherwise destined for the live sheep trade. There appear to be a number of existing markets, but to maximise their net value it would require reduced trade barriers for Australian sheep meat exports to Europe and India.

Strategies for increasing sheep meat exports, other than through trade negotiations, include undertaking more intensive international promotional campaigns and raising Australia’s international competitiveness through investments in research, development and extension. This could involve finding ways to increase the efficient use of water and energy, improve the recovery of saleable meat and edible offals, and improve working conditions. Other key areas where R&D can help increase competitiveness are: increasing reproductive rates, decreasing mortality rates, reducing age at sale, and lowering the cost of production.
Encouraging investment in modern processing capacity in WA

It is likely that the effects of the Lamb Marketing Board are still being felt in the WA processing sector. IBIS World data suggests that, on average, WA processors are smaller than those in the eastern states. This could in part be due to the WA Governments lamb market intervention. Other possible factors include the geographic spread of sheep production and poor quality roads when the sites for these facilities were being chosen.

Improvements in the efficiency of the WA processing sector will make its meat products more competitive with the live sheep trade, even if the trade distortions remain. An increase in the capacity of one of the second-, third- or fourth-largest processors in WA would enable significant economies of scale to develop. This would reduce processing costs, some of which would be shared (in a competitive market) with sheep producers and consumers, and may translate to increased sales.

Increased processing efficiency could also be achieved by investments in research and development by the industry and governments.

Achieving significant scale economies in some of the existing plants would require a considerable level of investment. The ability of the current owners of these facilities to make such investments, particularly with the precarious state of the WA sheep flock, is likely to be seriously limited. This may be particularly so for WAMMCO, which is a cooperative. Some consideration should be given by WAMMCO members to the ability of the cooperative to raise the amount of capital to significantly increase its capacity, and whether their interests as sheep producers may be better served by demutualising and selling the processing facilities to a well capitalised company. This may even raise the possibility of vertically integrating a portion of the WA processing sector with Middle Eastern processing, wholesaling, distribution, or retailing interests.

At present, WA sheep producers who are members of WAMMCO are potentially seeing their equity in the cooperative being eroded by the subsidies paid to the live export sector by some countries in the Middle East.

However, large investments in processing capacity raises a broader ‘investment sink’ issue if the WA sheep flock continues to decline. Continuation of the live export trade or an increased utilisation of exiting sheep processing capacity would not incur any additional significant investment.

Progressive tightening of animal welfare standards

While substitution and trade diversion are policies the Government and farmers could adopt to improve animal welfare, another is to increase the welfare standards of live exports.
Animal welfare, as measured by mortality rates, appears to have improved significantly for Australian live export sheep.

Progressively tightening animal welfare and safety standards would mean that Middle Eastern consumers would be confronted with more of the cost of the animal welfare concerns of the Australian community. The effect of this policy is that it would become increasingly more expensive and less profitable (perhaps even ultimately uneconomic) to export live sheep (unless buyers in the Middle East were willing to pay a large premium for improved animal welfare and safety practices).

An increase in the welfare standards, where the Middle East consumer bears at least some of the costs as they are passed through and not subsidised would lead to an increase in substitution of live sheep with processed meat. However, it may also increase the level of subsidy paid by Middle Eastern governments that would be required to support the live sheep trade. If the subsidy were simply raised to offset a rise in welfare standards then there is unlikely to be significant substitution with sheep meat.

Businesses in the live sheep supply chain that can most efficiently improve their animal welfare and safety practices (or who have already adopted good practices) will be able to continue exporting longer than other businesses. This self-selection process favours economic efficiency.

A drawback of this policy is that it may be difficult for the Australian Government to dictate and enforce animal welfare standards once the sheep are unloaded at the foreign port. Some will also argue that a long sea voyage, across multiple climatic zones, will always be stressful to an animal and inhumane, regardless of how high welfare and safety standards have been set.

Another risk of this policy is that, as animal welfare standards of Australian sheep are progressively improved, live sheep from other sources could be substituted for Australian sheep. If these sheep are not managed to the same standard, there may not be any welfare gains from this approach.

**Market-based allocation of declining export permits**

To ban the trade, the Government would need to be convinced that the net gain in animal welfare exceeded the costs to the industry and the economy from a cessation of the trade. Banning the trade incurs a risk of over-estimating the animal welfare gains and reducing economic activity. Sound risk management principles suggest that lighter handed policy instruments should be considered by Government and possibly tested before heavy handed policy options are imposed.
As noted previously, banning or restricting the trade also runs the risk of live export customers substituting live sheep from alternative suppliers for Australian sheep. This raises the risk that, unless the trade is banned by all sheep producing countries, or universal animal welfare standards are established, there is no net welfare gain and possibly a welfare loss.

The cost of phasing-out the trade could be reduced by imposing a declining quota on the number of live sheep that can be exported each year, with various means of allocating the quota to WA farmers.
1 Introduction

ACIL Tasman has been commissioned by the World Society for the Protection of Animals (WSPA) to analyse, from both a national and regional perspective, the economics and policy settings of the live sheep export trade from Western Australia.

The purpose of the study is to analyse how a sustainable improvement in the welfare of live export sheep could be achieved at least cost to the Australian, and in particular the WA economy, taking into account the likely net global animal welfare gains.

This report makes no recommendations about the future of the live sheep export trade from Australia.

2 Aims and objectives of this study

The aim of this study is to provide the WSPA with a broad overview of the key economic factors supporting the live sheep for slaughter trade from Australia, to determine the least cost and lowest risk options to reduce the animal welfare externality.

Our approach has been to consider:
- the structure of the (WA) sheep industry and recent trends
- the likely level of substitution between Australian live sheep and processed sheep meat in the Middle East
- rest of the world (ROW) demand for lamb and sheep meat
- alternative uses for some of the enterprises involved in the supply of live sheep in Western Australia.

The report concludes with a section on the likely costs and benefits of a number of approaches, some market based and some regulatory, that may lead to a reduction in the animal welfare externality of the live sheep export trade.

2.1 Overview of Australian live sheep and sheep meat exports

2.1.1 The Australian sheep industry

Australia provides approximately six per cent of global sheep products, 25 per cent of global trade in sheep meat products (including lamb), and 40 per cent of the world’s traded live sheep (Curtis and Dolling 2006). Australia’s sheep flock is the second largest in the world after China’s which is twice as large as Australia’s (see Figure 1).
The Australian sheep flock has declined considerably in the last two decades, as the profitability of wool production has fallen and drought has reduced carrying capacity. For example, in 2008 the WA and Australian sheep flocks were 18.40 million and 79.30 million head respectively. This compares with flocks of 26.11 million head in WA and 118.55 million in Australia in 2000.

While Australia’s sheep industry has historically been dominated by wool production, sheep meat production has become an increasingly important driver of developments in the industry. In recent years, producers have shifted resources from wool production to other farm enterprises, such as prime lamb, crops and beef cattle.

According to the latest figures from the Australian Bureau of Statistics (ABS), from March 2008 to March 2009 Australia produced 720,235 tonnes of sheep meat. In that period, 37 per cent of the meat produced was mutton and the remaining 63 per cent was lamb (Fletcher, Buetre, & Morey, 2009).

Figure 2 summarises the data available on production of mutton and lamb meat in Australia from 1973 to 2008. The data show that a relatively constant trend has been followed throughout the period for mutton, but that lamb has experienced a surge in the last ten years.
2.1.2 The Western Australian sheep industry

As will be discussed in more detail in the next chapter of the report, Western Australia is the most important source of Australia’s live sheep exports, accounting for nearly three-quarters of the value of Australian live sheep exports in 2007-08.

Table 1 presents key statistics on the Western Australian sheep industry from 2003-04 to 2007-08. The data indicate that live sheep exports account for approximately 40 per cent of turnoff (that is, sheep/lambs slaughtered or exported) in Western Australia. The gross value of WA’s exported sheep meat and live exports over the period has been relatively volatile, with lamb and mutton exports achieving a gross value of $235 million in 2006-07, compared with a gross value for live sheep exports in the same year of $232 million.
Australian live sheep exports

Aims and objectives of this study

Table 1 Western Australian sheep industry statistics, 2003-04 to 2007-08

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Numbers at 30 June ('000)</td>
<td>25,063</td>
<td>25,592</td>
<td>23,042</td>
<td>21,500</td>
<td>21,500</td>
</tr>
<tr>
<td>Sheep Slaughtered ('000)</td>
<td>1,845</td>
<td>2,205</td>
<td>2,121</td>
<td>2,614</td>
<td>1,800</td>
</tr>
<tr>
<td>Lambs slaughtered ('000)</td>
<td>2,392</td>
<td>2,467</td>
<td>2,798</td>
<td>2,523</td>
<td>2,200</td>
</tr>
<tr>
<td>Sheep/lambs exported ('000)</td>
<td>2,733</td>
<td>2,792</td>
<td>3,401</td>
<td>3,332</td>
<td>2,700</td>
</tr>
<tr>
<td>Turnoff ('000)</td>
<td>6,970</td>
<td>7,464</td>
<td>8,320</td>
<td>8,469</td>
<td>6,700</td>
</tr>
<tr>
<td>Live sheep as % of turn off</td>
<td>40%</td>
<td>37%</td>
<td>41%</td>
<td>39%</td>
<td>40%</td>
</tr>
<tr>
<td>Mutton produced ('000 t) (c.w.)</td>
<td>37.1</td>
<td>43.8</td>
<td>45.9</td>
<td>53.6</td>
<td>37.0</td>
</tr>
<tr>
<td>Lamb produced ('000 t) (c.w.)</td>
<td>47.2</td>
<td>49.1</td>
<td>58.1</td>
<td>50.6</td>
<td>44.0</td>
</tr>
<tr>
<td>Gross value of WA sheep meat and live exports ($m)</td>
<td>193</td>
<td>210</td>
<td>241</td>
<td>235</td>
<td>-</td>
</tr>
<tr>
<td>-lamb and mutton</td>
<td>188</td>
<td>177</td>
<td>234</td>
<td>232</td>
<td>-</td>
</tr>
<tr>
<td>-live exports</td>
<td>381</td>
<td>387</td>
<td>476</td>
<td>467</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>49%</td>
<td>46%</td>
<td>49%</td>
<td>50%</td>
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</tr>
</tbody>
</table>

Note: F = forecast, (c.w.) = carcass weight
Data source: WA Department of Primary Industries

2.1.3 Importance of live sheep and sheep meat exports

In the last few decades, export markets for lamb and mutton, as well as live animals, have become increasingly crucial for Australian sheep producers.

Live sheep exports

Australia’s live sheep trade appeared to peak in the mid 1980s, when between 7 and 8 million sheep were exported annually (Bureau of Agricultural Economics, 1985). Since then exports have declined to averages of approximately 4 million sheep per annum between 2003 and 2008. At a dressing percentage of 22 kg per sheep, this equates to approximately 88 tonnes of sheep meat.

MLA (Jones & Weeks, 2009) has forecast a fall in live sheep exports of a further 13 per cent by 2010, mainly due to strong processor competition and a significant reduction in the Australian sheep flock.

The Middle East is Australia’s most important live sheep export market. In fact, during the period analysed in the figure, the Middle East imported about 95 percent of live sheep exports from Australia, which is approximately equal to 84 tonnes.

Sheep meat

Between 1988 and 2005, not only had lamb production increased by 42 per cent, but the proportion exported rose from 15 per cent to 43 per cent.
In 2007-08, Australia exported 119,496 tonnes of mutton (bone-in) and 43,827 tonnes of mutton (bone-out), in addition to 134,101 tonnes of lamb (bone-in) and 32,499 (bone-out). Thus a total of 329,923 tonnes of processed sheep meat was exported from Australia in 2007-08.

Key drivers for the increase in demand for Australian lamb and mutton include: trade liberalisation in the United States; declining production in major lamb markets (such as Europe and the United States); limited export growth from competitors such as New Zealand; as well as rising demand in Asia and the Middle East, due to disease outbreaks affecting beef and poultry.

The patterns evident from sheep meat exports to the world are very different to those observed above in the live export trade data. Figure 3 indicates that OECD countries are the most important destination for sheep meat exports originating from Australia.

**Figure 3** Sheep meat exports from Australia to selected regions, 1990 to 2008

Notes: Calculations include meat of sheep, fresh, chilled or frozen.

Data source: UN Comtrade (2009)
In fact, OECD countries imported around 41 per cent of Australia’s sheep meat exports during the period 1990 to 2008.

Note that the pattern with ASEAN countries is similar. However, their importing magnitude is comparatively smaller. ASEAN nations only imported around 7 per cent of total sheep meat exports from Australia.

The Middle East also plays an important role for exports of processed meat. For the financial year 2007-2008, Australia’s lamb meat sales to the region amounted to 23,700 tonnes. It is Australia’s premier mutton market, at 52.2 tonnes in 2007-08. In 2007, the UAE emerged as Australia’s second largest lamb market after the US.

Finally, China seems to be embarking upon a strong upward trend toward increased consumption of Australian processed meat.

Overall, the trade data indicate that the live and processed sheep markets behave quite differently. The live sheep market is smaller and dominated by the Middle East demand, while the processed meat market is substantially larger and dominated by demand from OECD countries.

3 Live sheep exports

The first reported Australian live sheep export was in 1845. By 1895 about 1,000 live sheep were exported annually. Regular trade to the Middle East developed during the 1970s, with demand coming principally from Iran.

Until the mid-1990s, much of the Australian live sheep trade was based on the export of large–framed, generally older, wethers. Falling wool prices in the 1990s caused many sheep producers to switch to crop production. However, exports rose fairly sharply at the start of this decade but have since declined again, due, in part, to drought conditions constraining supply and also to competition from strong demand for lamb and sheep meat.

Australian sheep are now exported live to many countries in the Middle East, with Saudi Arabia, Kuwait, the UAE, and Jordan the major importers. Bahrain, Oman and Qatar also consistently import live sheep.

3.1 Overview of the live sheep trade

In 2008-09, exports of live sheep accounted for around 11 per cent of total sheep turnoff in Australia and 15 per cent of the total value of sheep meat production (ABARE, 2009). In 2007-08, Australia exported around 4.1 million sheep, valued at approximately $280 million. However, the volume and value
of live sheep exports has been volatile, ranging from: 6.1 million head in 2001-02, with a farm gate value of approximately $420 million, to 3.4 million in 2004-05 valued at approximately $210 million (see Figure 4).

Figure 4  Value and volume of Australian live sheep exports (1989-90 to 2007-08)

The volatility of the international trade in live sheep is apparent in Figure 5, which shows Australia as a dominant supplier of live sheep. The main factors causing the volatility in the global live sheep trade appear to be:

- disease outbreaks and trade restrictions
- climate variability in major production regions (e.g. drought in Australia)
- size of the international sheep flock and status (e.g. dispersing or rebuilding).
The vast majority (nearly 74 per cent in 2007-08) of sheep destined for the live export trade are loaded in Western Australia (with Fremantle being the main loading port); while 14 per cent and 12 per cent of shipments were sourced from Victoria and South Australia respectively in 2007-08 (see Figure 6). As noted previously, in WA, live sheep exports account for about 40 per cent of sheep turnoff.

The impact of changes to livestock export standards, the cessation of exports to a particular market, or increases in the Australian price, are thus likely to be felt disproportionately and most acutely in Western Australia.
According to ABARE farm survey data, WA broadacre farms have, on average, increased their turnoff of sheep from a low of 1,325 per property in 2002-03, to a high of 1,744 in 2005-06. In 2005-06, on average, 45 per cent of sheep sold per WA property were destined for live export (Drum & Gunning-Trant, Live Animal Exports: A profile of the Australian Industry, 2008). In 2005-06, the average number of animals sent to the live export market was 691 per property, a 28 per cent more than the average over the previous five-years.

ABARE (Drum & Gunning-Trant, Live Animal Exports: A profile of the Australian Industry, 2008) believes that, in the medium term, further growth in Australia’s live sheep trade will be constrained by the availability of suitable sheep, following flock liquidations arising from the drought and perceptions of continuing low wool production profitability. Despite the depreciation of the Australian dollar, the impact of lower supplies on the prices of Australian live sheep exports will make them less competitive with those from competitors such as Sudan and China.

---

2 The survey only reports data for properties with 300 or more sheep.
Australian live sheep exports

Table 2

Financial performance of Western Australian broad acre farms with more than 300 sheep (average per property, financial estimates are in real terms expressed in 2006-07 dollars)

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</thead>
<tbody>
<tr>
<td>Areas operated at 30 June (ha)</td>
<td>9450 (27)</td>
<td>9432 (21)</td>
<td>3810 (28)</td>
<td>4730 (26)</td>
<td>7240 (14)</td>
<td>4576 (20)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sheep at 30 June (no)</td>
<td>3606 (7)</td>
<td>3715 (7)</td>
<td>3723 (8)</td>
<td>3859 (10)</td>
<td>3926 (11)</td>
<td>3882 (9)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sheep sold</td>
<td>1519 (9)</td>
<td>1395 (8)</td>
<td>1325 (7)</td>
<td>1361 (9)</td>
<td>1396 (9)</td>
<td>1744 (11)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Turnover rate a</td>
<td>41 (8)</td>
<td>38 (8)</td>
<td>37 (8)</td>
<td>40 (8)</td>
<td>36 (7)</td>
<td>45 (9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Average sheep price</td>
<td>33 (4)</td>
<td>53 (14)</td>
<td>73 (13)</td>
<td>56 (4)</td>
<td>49 (4)</td>
<td>51 (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Receipts</td>
<td>47197 (16)</td>
<td>69519 (10)</td>
<td>74000 (9)</td>
<td>81489 (9)</td>
<td>71793 (10)</td>
<td>90708 (11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep receipts (no)</td>
<td>347273 (6)</td>
<td>507062 (5)</td>
<td>704028 (9)</td>
<td>81489 (9)</td>
<td>71793 (10)</td>
<td>90708 (11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover rate b</td>
<td>-1.4 (50)</td>
<td>4.3 (15)</td>
<td>3 (25)</td>
<td>4.8 (14)</td>
<td>1.7 (26)</td>
<td>0.8 (45)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Rate of return b</td>
<td>2.5 (39)</td>
<td>8.6 (10)</td>
<td>9.1 (11)</td>
<td>15.2 (11)</td>
<td>10 (17)</td>
<td>12.2 (34)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Estimate of population of properties (no)</td>
<td>6250</td>
<td>5944</td>
<td>5897</td>
<td>6330</td>
<td>6292</td>
<td>5790</td>
<td></td>
<td></td>
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</tbody>
</table>

Note: Figures in parentheses are standard errors (SE) expressed as a percentage of the estimates provided.

Data source: (Drum & Gunning-Trant, Live animal exports: A profile of the Australian Industry, 2008)
3.2 The Middle East market for live sheep exports

3.2.1 Export volumes and values by country

Live sheep exports from Australia

Most sheep exported by Australia are destined for markets in the Middle East, including Saudi Arabia, Kuwait, Jordan, Bahrain and Oman (see Table 3). Exports to these countries represented almost 90 per cent of the total value of Australian live sheep exported in 2006-07. In that year, Saudi Arabia and Kuwait accounted for more than half of Australia’s live sheep exports in volume terms.

While Kuwait has been a continuous market for live sheep since the mid-1990s and accounted for 22 per cent of Australian sheep shipments in 2006-07, Saudi Arabia only emerged as an important market for Australian sheep after 2000. In 2003, Saudi Arabia imposed a ban on sheep imports from Australia but imports resumed in 2005. It currently accounts for nearly a quarter of Australia’s exports (see Figure 7). In 2006-07, Saudi Arabia imported almost 1.4 million sheep, worth an estimated $105 million. The Saudi demand for live sheep represents both a value source of exports but also demonstrates the considerable volatility of this trade.

Table 3 Australian live sheep exports to the Middle East, 2000-01 to 2006-07 (2006-07 dollars)

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</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>77</td>
<td>147</td>
<td>182</td>
<td>15</td>
<td>0</td>
<td>88</td>
<td>105</td>
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<tr>
<td>Kuwait</td>
<td>71</td>
<td>105</td>
<td>114</td>
<td>111</td>
<td>70</td>
<td>69</td>
<td>59</td>
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<tr>
<td>Jordan</td>
<td>27</td>
<td>42</td>
<td>35</td>
<td>65</td>
<td>65</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>Bahrain</td>
<td>19</td>
<td>28</td>
<td>28</td>
<td>33</td>
<td>34</td>
<td>42</td>
<td>37</td>
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<tr>
<td>Oman</td>
<td>27</td>
<td>31</td>
<td>24</td>
<td>19</td>
<td>21</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>37</td>
<td>39</td>
<td>22</td>
<td>18</td>
<td>13</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Qatar</td>
<td>19</td>
<td>22</td>
<td>18</td>
<td>13</td>
<td>11</td>
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<td>12</td>
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<td>Israel</td>
<td>3</td>
<td>19</td>
<td>13</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
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<td>Egypt</td>
<td>15</td>
<td>13</td>
<td>8</td>
<td>0</td>
<td>0</td>
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<td>Palestine</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lebanon</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total to Middle East</td>
<td>299</td>
<td>446</td>
<td>451</td>
<td>283</td>
<td>217</td>
<td>297</td>
<td>286</td>
</tr>
</tbody>
</table>

Data source: ABS (2007)
A comparison between Table 3 and Figure 7, indicates that Kuwait’s share of Australian live sheep exports rose sharply between 2006-07 and 2007-08, while that of Saudi Arabia declined considerably. According to LiveCorp, Australia’s inability to consistently supply good quality sheep was forcing Saudi Arabia to turn to other suppliers. It argued that high prices, combined with associated smaller size, lighter weight and perceived lower quality, was damaging Australia’s reputation and providing opportunities for other suppliers to establish a foothold in the Saudi market.

Saudi Arabia, like most of the Middle East region, has also increased its consumption of processed sheep meat, as discussed in more detail in section 7.2

**Live sheep exports from Western Australia**

The value of Western Australia’s live sheep exports to the Middle East over the last decade is shown in Table 4. In 2006-07, the value of the state’s exports of live sheep to the Middle East was 79 per cent of the total value of Australia’s exports to the region. In that year, WA supplied all of Australia’s live sheep exports to Saudi Arabia and 71.2 per cent of the country’s live sheep exports to Kuwait by value.

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**Australian live sheep exports**

### 3.3 Demand drivers

The demand for live sheep exports has been very strong in the Middle East over the last decade. Domestic production is constrained by arid conditions, despite investment in intensive breeding units. Traditionally it has also been limited by the availability and cost of imported feed, even though fresh water is plentiful due to heavy investment in desalination plants and subsidised water prices. Saudi Arabia also heavily subsidises feed barley imports to assist domestic animal industries.

One of the strongest demand drivers for Australian live sheep in the Middle East is likely to be the level of support local consumers of Australian live sheep receive from regional Governments. However, there is limited publicly available information on how much each country subsidises live sheep imports.

Countries that give market support to importers of Australia’s live sheep are Bahrain, Saudi Arabia and Kuwait. Such support comes in the form of both subsidies on the live exports and tariffs placed on frozen meat. They do not impose any tariff on chilled meat, but all impose a tariff of 5% on imported frozen carcasses of sheep.

#### 3.3.1 Live import subsidies

Due to the lack of publicly available information, it is difficult to quantify the level of subsidies given to live sheep importers. Despite this, it is widely understood that Kuwait and Bahrain are the main countries that use subsidies.
Australian live sheep exports

to protect the live sheep market (Drum & Gunning-Trant, Live Animal Exports: A profile of the Australian Industry, 2008). The subsidies granted are only given for those sheep that are slaughtered domestically.

Bahrain and Kuwait purchased 40 percent of total live sheep exports from Australia between 2004 and 2008.

In Bahrain, the sheep are imported by the Bahrain Livestock Company (BLC), under a subsidy agreement with the government. Last year more than BD 19 million was earmarked to subsidise imports of sheep and cattle (Gulf Daily News, 2009). A recent newspaper article stated that BLC received BD 800,000 in compensation from the government, to cover the monetary discrepancy between world meat prices and the subsidised prices in Bahrain. The finance ministry was quoted as saying that ‘all efforts were made to support the company to supply meat to the local market’. While fish is 2.50 BD/kg, sheep meat is just 1 BD/kg (imported live), this makes meat one of the cheapest food options in the country (Gulf Daily News, 2009).

Bahrain also appears to provide a range of indirect subsidies and support to the live sheep importers and domestic processors. In the same article cited above:

‘All efforts were made to support the company to supply meat to the local market’, Mr Al Marhoon [assistant under-secretary Bahrain Finance Ministry] said. Five land plots covering 1,313,000 square metres have been allocated to the company to set enough barns accommodating 87,000 cattle and sheep. ‘The Bahrain Livestock Company has managed to make use of 60 per cent of the overall demarcated land’. Mr Al Marhoon (Gulf Daily News, 2009).

The following quote from the World Trade Organization states the current live export subsidy arrangements in Bahrain:

71. The Government currently provides food support (flour and meat) to all persons in Bahrain, through the sale of these products at below-market prices, although, non-subsidized meat products, priced substantially higher, are also available to consumers..

73. Certain products, such as gas, flour, meat, local bread, poultry, petroleum, electricity, and water, as well as some services (e.g. air transport, postal, and tourism) are subject to consumer subsidies/price controls (Chapter IV(3) and (5)). In general, the prices set for these goods and services by the relevant companies are subject to approval by the Council of Ministers. In addition, consumption of livestock imported from Australia is subsidized: the subsidy is on the slaughter price.(World Trade Organization)

Australian live sheep exports to Bahrain increased by 30 per cent between 2000-01 and 2006-07, partly due to the subsidies on live export sheep that have shielded consumers from recent sheep price rises. It has also been reported that Saudi Arabians drive to Bahrain to purchase sheep meat to take advantage

While Bahrain has been used as an example of the direct subsidies paid to support the importation of live sheep from Australia, there is a range of direct and indirect subsidies used to support the importation of live sheep in the Middle East, which includes:

- fresh water and feed subsidies
- allocation of land for sheep abattoirs and feed lots.

3.3.2 The economics of subsidies

Subsidies increase the consumption of one product over another, increasing demand above what it would be if the consumer were confronted with the full cost of the product. Suppliers benefit from this increase in demand and it can lead to an increase in gross national product (GNP).

However, the additional production diverts resources from other uses. This is called a distortion in the market, as it is not the result of the normal operation of a competitive market.

If the resources are diverted to a higher value use, or the volume of additional demand is such that even if resources are diverted from other higher value uses, the total economic gain is higher, the country supplying the product benefits from the subsidy.

However, if the subsidy diverts resources to a lower value use in the supplying country, and the volume of additional demand is insufficient to offset this reduction in economic activity, then the supplying country as a whole is economically worse off. However, some sectors of the economy producing the subsidised product will benefit from the subsidy.

There is also a risk that if the subsidy is reduced or withdrawn, there is likely to be a need to adjust production in the supplying country. If the supplying country has altered production by a large extent, that is a large proportion of a sector of the economy is dedicated to producing the subsidised product, the adjustments could take some time to be made and could be costly.

Subsidies paid to support the live sheep trade have probably resulted in higher prices paid to WA farmers for some types of sheep particularly when the Middle East imported older, heavier, large-framed wethers than would have otherwise been retained for wool production. It is also possible that demand for live sheep may have led to higher prices for sheep more generally in WA particularly if processing capacity in WA has not been able to achieve sufficient scale economies.

It is not inconsistent, and there are precedents for countries to benefit from a subsidy in the short term but seek a wider basket of trade reforms that includes a reduction or elimination of a particular subsidy as part of those negotiations.
3.3.3 Market preferences

An oil-rich region with high living standards, it appears that the Middle East’s demand for live animals was, in the past, due primarily to religious and cultural preferences, rather than a lack of refrigeration as in the case of poorer Asian countries. Exactly how much of the importation of live sheep is due to cultural and religious reasons, consumer preferences, or to support local meat processors, is hard to determine at present and is likely to remain so in the future.

The Muslim faith requires that livestock be slaughtered in a manner consistent with Islamic law. The method is known as ‘halal’, an Arabic word meaning ‘lawful’, whereby every animal is slaughtered according to the Islamic ritual of *zabiha*. The *zabiha* ritual entails the slaughtering of animals by a Muslim who blesses the animal as he uses a sharp knife to make a single cut across the neck.

The Middle East markets have a preference for carcasses in the 8 to 12kg (carcass weight) range, because of a perception that the smaller the lamb, the younger the animal. The local sheep breeds produce light and lean lamb carcasses, many with the characteristic "fat tail", that are considered to be the highest quality and consequently receive the highest prices in the market.

To benefit from the price premium offered for these animals relative to merino sheep, some Western Australian producers have introduced fat tail sheep breeds into their stocks. However, most have shifted production to produce young merino sheep suitable for the live trade. These sheep are also valuable animals when slaughtered domestically for a range of lamb and sheep meat markets around the world.

The reason that merino sheep predominate in WA despite the preference for fat tailed sheep in the Middle East raises questions about the longer term production decisions made by WA farmer that are influenced by the live sheep trade. Sheep producers make a range of decisions regarding the mix of wool, lamb and sheep meat products that they produce in response to price signals. Each of the outputs of a sheep flock is influenced by the relative prices of other products produced by the flock. Thus a reduction in price for live sheep may flow through to the number of sheep held by the producer over time, but will be also influenced by the capacity to substitute live sheep sales with increased lamb, or wool sales.

The impact on the farmer will be dependent on what the next most profitable use of the resources that would otherwise be use to produce live export sheep. If there are a number of alternative enterprises and enterprise mixes, and the farmer has sufficient time to adjust, a switch from live sheep to processed meat could come at very low cost. This is particularly so if a high level of
substitution is achieved in the Middle East between live sheep and processed meat.

3.3.4 Retailing methods

The traditional place of retail for live sheep in the Middle East is the ‘souk’, or traditional market, where animals are sold and slaughtered for their buyers. The animal is slaughtered in full view of the client and the meat from that animal is turned over to the client (Drum & Gunning-Trant, Live Animal Exports: A profile of the Australian Industry, 2008). The client is thus assured that the meat they are receiving comes from their animal, that it has been slaughtered according to religious customs and that it is disease free (Johar, 2007). Meat souks are found in larger cities and sell both fresh and frozen (imported) meat (Sunderman and Johns 1994).

Meat is also sold through smaller local butchers, who slaughter and sell fresh meat from animals they themselves purchase daily. The practices of local butchers ensure that the carcasses and cuts being sold have been sourced from animals slaughtered on the day of sale. Such marketing characteristics are important to a declining proportion of consumers in the Middle East. Demand for freshly slaughtered sheep meat peaks during times of religious festivals such as the Muslim Hajj pilgrimage (MLA 2007).

3.3.5 The growth of supermarkets

Over the last 5 to 10 years there has been strong growth in the supermarket sector in many of the major live sheep importing countries. This has been stimulated by greater westernisation, urbanisation, and increasing GDP and has lead to greater retail and grocery spending. Of note:

1. In the 4 years to 2008, the hypermarket sector grew by 105% and supermarkets by 77%
   a) Subsequently food sales are growing by 5-10% p.a.
   b) Interestingly, smaller retailers have experienced stagnant growth during this period.

2. In Saudi Arabia, 70% of grocery sales are currently handled by the modern retail sector.

3. Meat products (fish, meat and poultry) constitute over 30% of products purchased by food service operators in the Middle East.

4. The global Halal market is worth around US$ 2.1 trillion p.a. and is growing at the rate of $500 million p.a.

5. The food service sector currently accounts for 70% of total meat imports from Australia.
From the above it can be seen that the supermarket sector is experiencing a growth phase in the Middle East. It is likely that this growth phase will continue in the future. This is likely to reduce the amount of live meat demand and increase processed meat demand; it also offers considerable opportunities to add value in the processed meat sector, as retail competition increases and retailers seek to differentiate themselves.

The expansion of supermarkets also drives investment in food supply chains. In particular, there has been a significant increase in cold-store and logistics investment in many markets in the Middle East. This has, in part, been due to the Iraq war and the investments the US Government has made to supply fresh produce to its armed forces in the region.

According to the International Association of Refrigerated Warehouses (European Division), public cold-storage facilities in the Middle East increased by 650 per cent between 2004 and 2006, as capacity increased from 0.40 million cubic metres in 2004, to 3.0 million cubic metres in 2006 (Rosynsky, 2006). By 2008 this capacity had increased to 3.50 million cubic metres or approximately 0.006 cubic metres per capita. This compares to 0.017 cubic metres per capita in China, 0.16 cubic metres in Germany and 0.23 cubic metres in the United States.

The expansion of the supermarket and cold chain infrastructure in the Middle East also opens up the possibility of large-scale supply relationships developing between WA processors and Middle Eastern wholesalers and retailers.

There seem to be some significant demographic changes occurring in the region that are underpinning the changes in consumer preferences and retailing methods. ABARE reports (Drum & Gunning-Trant, Live Animal Exports: A profile of the Australian Industry, 2008) that younger and urbanised consumers are leading a move away from freshly slaughtered meat. The preference of this demographic is likely to have a significant impact on the future of meat consumption because:

- in Saudi Arabia
  - 33% of the population is under the age of 14
  - 66% of the population is under 30
- due to global trends and the geography of the region, urbanisation is likely to continue.

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4 Based on public refrigerated capacity by country in (IARW, 2008)
3.3.6  **Key suppliers of live sheep to the Middle East**

Australia’s principal competitors in the Middle East live sheep market are Iran and North African countries, such as Somalia and Sudan. While sheep from North Africa are cheaper than those from Australia (particularly given the rising price of Australian sheep in the last several years – see Figure 8), they are less likely to be disease-free. This has led to short-term bans on livestock imports from the Horn of Africa, due to trans-boundary disease risks, such as Rinderpest, foot and mouth disease and Rift Valley fever.

**Figure 8  Australian sheep export price - $/head (2005-06)**

![Graph showing Australian sheep export price]

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Data source: Drum and Gunning-Trant (2008)

Chinese exports of live sheep, which recommenced to Jordan in September 2004 and Saudi Arabia in 2006, following eight-year bans, are also cheaper than Australian sheep (Chinese Consulate General, Vancouver 03/03/2005 and The Peoples Daily, 24/10/2006).

Demand for Australian live sheep has been driven by consistency of product quality and low disease status. Disease status has been a major constraint on increased intra-regional trade. In 2007 Jordan lifted a ban on the importation of live Syrian sheep (FAO press release 27/08/07). Syria has one of the largest regional flocks and is a net exporter, particularly to Saudi Arabia.

Other countries that have exported significant numbers of live sheep to the Middle East include Turkey and Uruguay.
3.4 Live sheep export supply chain

3.4.1 Links in the supply chain

The live sheep export supply chain comprises a series of businesses, including livestock owners, and the suppliers of goods and service inputs and outputs. The links in the livestock export chain include:

**Exporters**

Exporters are responsible for pricing, purchase, assembly and preparation of an order placed by overseas buyers of live sheep. These exporters play a similar role to buyers purchasing sheep for processing plants.

One of the anecdotal benefits of the live trade is the simplicity of dealing with the live export buyers; most sheep are purchased on farm for a fixed cost, transport is organised and shearing organised at the feed lot, if necessary. However, many processors also offer fixed price contracts on farm and also arrange for transport. Often the prices are based on a per kg price and are determined once the sheep have been weighed at the abattoir.

**Agents**

Agents work on behalf of livestock producers to sell to suppliers or directly to exporters. They inspect the livestock to ensure that they meet specifications (such as age, weight, sex, breed and disease status), and arrange transportation of the livestock to the quarantine area. They also negotiate the sale price between producers and exporters/suppliers and earn a commission (typically set at 5 percent of the farm gate price).

**Road transport**

Livestock are transported from the producer to the quarantine area and then to the ship. Road transport is also required to transport fodder from fodder mills and feed producers to quarantine areas and on board ships. Transport is also an important part of the domestic slaughter supply chain, as sheep are transported to the abattoir and processed meat and by-products are carted from the abattoir to wholesalers, further processors, retailers and the ports.

**Veterinary services**

The role of commercial vets includes district health status certification, animal welfare, tests and treatments associated with quarantine, compliance and final inspections.

Shipboard vets are employed by exporters for all shipments to the Middle East.
Australian live sheep exports

A range of animal-health and meat inspectors are also used when sheep are slaughtered locally.

**Pre-export assembly depot services**

Pre-export assembly depots, typically located close to ports, are marshalling areas for live sheep prior to export. They include quarantine facilities and large-scale feeding facilities.

There appears to have been an increase in the number of sheep feedlots for domestically slaughtered lambs. The feedlots typically hold lambs for between 4 to 6 weeks, where the lambs are fed grain-based diets similar to those fed to the lambs on ships when exported live.

All abattoirs have a series of holding yards used to assemble each days requirements and smooth the flow of sheep from producers and sale yards.

**Fodder manufacturers and growers**

Local fodder growers supply fodder to manufacturers of pellets fed to sheep during sea journeys to destination markets. A typical pellet consists of 50 per cent hay or straw, 30 per cent grain barley, 10 per cent lupins, bulk roughage and urea.

**Shearing contractors**

Sheep are usually shorn prior to live export if wool growth exceeds 2.5 cm (approximately 10 weeks growth).

**Port authority**

Port authorities, who own and maintain port facilities and wharves, provide port and maritime services, such as the leasing of storage spaces, pilot services, towage and other aspects of inbound and outbound shipping.

**Stevedores and providores**

Stevedores employ livestock handlers to load livestock into pens on board vessels, as well as load other cargo such as fodder.

Providores include suppliers of provisions for ships’ crews, marine engineers for ship repairs, yards and fencing materials, protective clothing and boots, semi-trailers for stock management at destination, as well as any other materials required during the sea journey.
Ship agents and owners

Ship agents notify port authorities of boat arrival times, organise quarantine clearance on arrival, manage customs documentation and provide services to ships (repairs and maintenance) and their crews (such as doctors and dentists).

Approximately 90 per cent of vessels used on the live export trade are foreign-owned.

Government agency services

These include services provided by the Australian Quarantine and Inspection Service (AQIS), customs and immigration officers, and Australian Marine Safety Authority employees.

Insurance and banking services

Insurance services purchased by the industry include stock transit insurance from the grazier’s property to the quarantine area, and mortality and cargo insurance for livestock and fodder.

Banking services include exporter finance and letter of credit guarantees.

4 Sheep meat exports

4.1 Major sheep meat exporters

Australia is a major sheep meat exporting country, dominating the world trade in sheep meat alongside New Zealand. In 2006, Australia exported 320,746 tonnes of sheep meat, compared with 370,260 for New Zealand (see Figure 9). In 2008-09, according to IBISWorld, the Australian sheep meat industry is expected to export 326,000 tonnes of lamb and mutton meat.
Other exporters of sheep meat include: China, Uruguay, Bulgaria, Argentina, Chile and India.

4.2 Major export markets for Australian sheep meat

The main export markets for Australian sheep meat are the United States, Saudi Arabia, the European Union, Japan, Papua New Guinea and Mexico. The six largest markets for Australian lamb and mutton exports are shown in Table 5.

The largest market for Australia lamb exports is the United States, where Australia has a commanding 67.7 per cent market share (compared with 31.8 per cent for New Zealand). In 2008, the value of lamb exports to the US was in excess of $250 million (FOB). The US is also Australia’s third largest market for mutton, after Saudi Arabia and South Africa. The value of Australian mutton exports to the US has fluctuated between approximately $45 million and $75 million in the last five years.
Table 5  Shipped weight of Australian sheep meat to leading markets (2008)

<table>
<thead>
<tr>
<th>Country / market</th>
<th>Export volume (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lamb</strong></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>36,855</td>
</tr>
<tr>
<td>Middle East</td>
<td>25,368</td>
</tr>
<tr>
<td>China</td>
<td>14,041</td>
</tr>
<tr>
<td>European Union</td>
<td>11,602</td>
</tr>
<tr>
<td>Japan</td>
<td>9,876</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>9,759</td>
</tr>
<tr>
<td><strong>Mutton</strong></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>20,756</td>
</tr>
<tr>
<td>South Africa</td>
<td>13,679</td>
</tr>
<tr>
<td>United States</td>
<td>13,413</td>
</tr>
<tr>
<td>CIS</td>
<td>10,425</td>
</tr>
<tr>
<td>Mexico</td>
<td>7,611</td>
</tr>
<tr>
<td>Taiwan</td>
<td>7,502</td>
</tr>
</tbody>
</table>

Data source: DAFF, Export Statistics 2008

4.3  The Middle East market

Historically, sheep meat exports to the Middle East have been in the form of frozen carcasses. Due to technological improvements, the market has expanded to include large volumes of chilled lamb cuts and carcasses for both the growing food service and retail sectors.

4.3.1  Value of sheep meat exports

As the demand for live sheep in the Middle East has decreased in the past ten years, the demand for sheep meat has steadily increased. The urban populations of many of the main importing countries are increasingly Westernised and do not have the same preference for freshly slaughtered meat as do their rural counterparts.

Australian sheep meat exports

In 2006-07 Australia exported 87,000 tonnes of sheep meat, valued at $276 million, predominantly to Muslim countries (ABS 2007), all produced according to halal requirements. Those exports accounted for approximately 22 per cent of total sheep meat exports (ABS 2007).

Currently, the largest markets for Australian lamb exports to the Middle East are the United Arab Emirates and Saudi Arabia. In 2008, Australia exported approximately 14,000 tonnes (carcass weight) of lamb to the UAE and approximately 2,800 tonnes to Saudi Arabia, out of a total of approximately
26,000 tonnes exported to the whole of the Middle East. The volume of Australian lamb exports to the Middle East is shown in Figure 10.

**Figure 10  Australian lamb exports to the Middle East (1992 to 2008)**

![Bar chart showing Australian lamb exports to the Middle East from 1992 to 2008.](http://www.livecorp.com.au/Public%20Files/Sheep%20Stats/SheepDestTotal%20(1).pdf)

Data source: DAFF

**Sheep meat exports from Western Australia**

The value of sheep meat exports to the Middle East from Western Australia, and from the whole of Australia, between 2000-01 and 2006-07 is shown in Figure 11.

In that period, the value of Western Australian sheep meat exports to the Middle East increased from $32 million to $73 million, while the value of Australian sheep meat exports to the region increased from $168 million to $264 million. As a proportion of the total value of Australian exports to the Middle East, WA exports declined from 19.0 per cent in 2000-01 to 12.9 per cent in 2002-03, before steadily increasing to 27.7 per cent in 2006-07. Over this period live sheep exports rose by 25 per cent between 2000 and 2001 and steadily declined from 2003 to 2008.

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The market shares of key Middle East export destinations for sheep meat from Western Australia are shown in Figure 12. The UAE is by far the most important market, absorbing 26.4 per cent of the state’s total exports of sheep meat in 2006-07.

**Figure 11** Value of Australian and Western Australian sheep meat exports to the Middle East, 2000-01 to 2006-07 (A$ million)

**Figure 12** Market shares of key Middle East export destinations for WA sheep meat, 2006-07

Data source: ABS, DAFWA
4.3.2 Main exporters of sheep meat to the Middle East

The demand for sheep meat has been met primarily by imports of frozen and chilled sheep meat from Australia, New Zealand, China, India, Pakistan, Uruguay and Sudan. Australia and New Zealand have historically been the two largest suppliers of chilled and frozen sheep meat to the region (see Figure 13), with sheep meat exports of $186 million and $63 million respectively in 2006.

China has emerged as a strong competitor in the export of frozen sheep meat to the Middle East, chiefly due to the price difference between Chinese and Australian product. In 2006, China was the third largest exporter of sheep meat to the region, with exports valued at $56 million. However, while sheep meat exports from China to the Middle East are destined principally for Jordan, Australian sheep meat exports go mainly to Saudi Arabia and the United Arab Emirates.

Another factor affecting demand for sheep meat in the Middle East is the proportion of expatriates living in countries such as Saudi Arabia, Kuwait and Bahrain. For example, in the United Arab Emirates (UAE) citizens comprise only 10 per cent of the population. While UAE citizens prefer Iranian goat meat, expatriates will buy sheep meat primarily in the form of imported frozen product (Johar, 2007) in (Drum & Gunning-Trant, 2008).

Figure 13 Sheep meat exports to the Middle East by exporting country (2006)

Data source: ABARE
The Department of Agriculture and Food WA has assessed the Strengths, Weaknesses, Opportunities and Threats (SWOT) associated with the export of sheep meat from WA to the Middle East.  

The strengths are:
- Australia is seen as a reliable meat supplier
- positive safe image (food safety)
- Western Australia is closer than the Eastern States as a supplier.

The weaknesses are:
- limited stock supply
- few Western Australian exporters to the Middle East.

Opportunities include:
- two daily flights between Perth and Dubai provide good access to the region
- expansion of tourist facilities, particularly in the Gulf Cooperation Council (GCC) countries of Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates and Oman, as well as in North Africa and Jordan
- growth in modern retail supermarkets – brand development
- meat is a traditional ingredient in meals.

Threats include:
- Middle East political developments
- health issues
- increased value of the Australian currency
- increased competition – from South Africa, Brazil, Sudan, India, Somalia, Syria, Pakistan and New Zealand
- increased insurance costs for sea freight.

It is interesting to note that animal welfare concerns of the live export trade held by some in the community have not been included as a risk.

Islamic consumers place paramount importance on the religious requirements for the production of food. For this reason all cattle, sheep and goats processed in Australia and destined for the Middle East market, are slaughtered

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6 DAFWA (2008), Western Australian Agri-Food and Fibre Market Outlook 2008, WA Department of Agriculture and Food, Perth, April, p.49.
under the Australian Government Supervised *Halal* program, by Muslims approved by accredited Islamic certifying authorities in accredited processing plants, according to strict Islamic law or Shariah. This program is guaranteed under the Australian law, and administered by the Australian Quarantine and Inspection Service (AQIS).

Animals that are slaughtered according to *halal* rituals in Australia must meet the following conditions:

- processing operations must have an Australian Government Supervised Muslim Slaughter program
- processors must have a *halal* program that complies with the Australian Government Supervised Muslim Slaughter requirements
- the facility must be inspected and be suitable for *halal* slaughter and/or production — all inspections are carried out by the Australian Quarantine and Inspection Service and recognised Islamic organisations
- the processor must only employ registered Muslim slaughtermen
- non-*halal* product must not be processed in the same areas as *halal* product; similarly, *halal* and non-*halal* product must be separated and identified at all times
- equipment that has been in contact with non-*halal* product must be thoroughly cleaned
- all additives and ingredients used in any meat product must be *halal*
- only recognised Islamic organisations can certify *halal* meat and meat products for all exports (Aus-Meat Limited 1998).

### 4.3.5 Delivery of meat exports to the Middle East

The Australian shipping industry, in cooperation with Australian meat exporters, has developed a wide range of transport services to overseas countries, designed to meet customers' requirements for ease of port access and clearance.

Australian meat is exported to the Middle East by several container lines serving a wide range of loading and discharge ports. The sea freight transit times to the Middle East take around 20 to 35 days.

There are two systems for refrigerated transport:

- The integral container - the most modern system and growing in popularity. Each container is fitted with its own refrigeration unit.
- The traditional chamber system, in which a chamber of containers is maintained at the same temperature. Each container is fitted with a temperature monitor – regardless of the refrigeration system used – ensuring that a constant temperature is maintained throughout the journey.
Generally sea freight containers can hold 10 to 16 tonnes in a typical 20ft refrigerated container.

Occasionally airfreight is used to transport smaller quantities of chilled product, with flight times generally under 24 hours between Australia and the major airports in the Middle East. A typical airfreight container will hold up to 1.2 to 1.5 tonnes of meat.

5 The meat processing sector in Australia

5.1 Overview

The Australian meat processing industry consists of businesses mainly engaged in: slaughtering livestock (except poultry); boning, freezing, preserving or packing meat; canning meat (excluding bacon or ham); manufacturing meals from abattoir by-products; or rendering lard or tallow.

In 2007-08, industry revenue totalled $12.8 billion, while industry gross product (or value added) was $2.0 billion. There were 551 businesses employing 30,405 persons. The value of exports was $7.9 million in 2007-08.

The majority of meat sold by processors is intended for human consumption. The nature of meat processing varies according to the intended end use. Meat processors sell frozen, chilled and fresh meat. Meat may be cut into steaks, chops and roasting portions, or minced. A smaller proportion of output is sold for animal consumption. Edible by-products that are commonly sent to animal feed manufacturers include: cheeks, head trimmings, stomachs, breast fats, and lungs.

Additionally, meat processing generates several by-products that are also sold for industrial use. Tallow, offal and hides are common by-products sold by Australian meat processors. Animal hides are one of the most valuable by-products since there is a well-established domestic market for them. They are usually chilled and salted by meat processors before being transported and sold to downstream tanneries. Hides are subsequently converted into a range of consumer items, including bags and shoes.

The oil and fat manufacturing industry is also dependent on the meat processing industry for rendered lard or tallow, with 5 per cent of its intermediate input cost being payments to that industry. By-products are also used in the soap and detergent industries. According to the MLA, by-products account for approximately 11 per cent of the value of a slaughtered animal.
For a more detailed summary of the Australian meat processing sector see appendix A-1.

5.2 Overview of the meat processing sector in Western Australia

5.2.1 Capacity utilisation

Publicly available and up-to-date information on the extent, capacity and utilisation of the WA meat processing sector, is difficult to find. On 10 July 2002, the Western Australian Agriculture Minister Kim Chance tabled his intention to undertake an analysis of the Western Australian meat processing sector. A draft report was presented to the Minister in December 2003. This section summarises that report and some of the submissions made to the inquiry.

In financial year 1999-2000, the meat processing industry in Western Australia had a turnover of $521 million, employed 2,742 people with a wages and salaries bill of $89 million, and was estimated to have contributed $131 million in value-added to the Western Australian economy (Australian Food Statistics 2003, p. 51).

At that time, there were 29 commercial plants operating in the state, of which 80 per cent were involved in processing cattle and sheep. Most facilities processed both types of animals. Of the sheep and cattle processors, approximately 10 supplied both the export and domestic markets and 13 supplied the domestic market only.

The Meat Industry Taskforce, set up to undertake the review, claimed that the increase in live sheep exports reduced total and seasonal utilisation of abattoir capacity in the state. The data in Table 6 are produced by the WA Meat Taskforce, to illustrate the impact of live sheep exports on utilisation rates in WA abattoirs.
Table 6  
**Estimated monthly sheep processing capacity and capacity utilisation in WA in 2002**

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of sheep slaughtered</th>
<th>Estimated Capacity</th>
<th>Utilisation</th>
<th>Under-utilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>'000</td>
<td>'000</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Jan</td>
<td>335</td>
<td>676</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Feb</td>
<td>317</td>
<td>676</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>Mar</td>
<td>307</td>
<td>676</td>
<td>45</td>
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<tr>
<td>Apr</td>
<td>315</td>
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<tr>
<td>May</td>
<td>294</td>
<td>676</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>Jun</td>
<td>188</td>
<td>676</td>
<td>28</td>
<td>72</td>
</tr>
<tr>
<td>Jul</td>
<td>179</td>
<td>676</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>Aug</td>
<td>296</td>
<td>676</td>
<td>44</td>
<td>56</td>
</tr>
<tr>
<td>Sep</td>
<td>356</td>
<td>676</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Oct</td>
<td>407</td>
<td>676</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>Nov</td>
<td>360</td>
<td>676</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Dec</td>
<td>277</td>
<td>676</td>
<td>41</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td>3,631</td>
<td>8,112</td>
<td>45</td>
<td>55</td>
</tr>
</tbody>
</table>

Data source: ABS and Estimates provided by the abattoir management and DAWA

The data on utilisation presented by the industry task force showed that utilisation rates averaged 55 per cent in 2002, with a peak of 74 per cent in July that year. Some care must be taken when analysing this data, however, as there was no trend data to support the attribution of capacity under-utilisation to the emergence of live sheep exports.

Since 2002 a number of abattoirs in WA have closed.

Since this data was produced, there has been considerable diversion of labour from meat processing to the mining and construction sectors. This is likely to have considerably reduced the under-utilisation of meat processing capacity, when all factors used (land, labour and capital) are taken into consideration.

5.2.2  **Location of sheep meat processing plants in WA**

According to the Western Australian Meat Industry Authority (WAMIA), the abattoirs currently active in the export and domestic sheep markets are:

- Export and domestic markets
  - Beaufort River Meats (Woodanilling)
  - Fletcher International WA (Narrikup)
  - Geraldton Meat Exporters (Geraldton)
  - Hillside Meats (Narrogin)
  - International Exporters P/L (Gingin)
Australian live sheep exports

- Walsh V & V P/L (Bunbury)
- WAMMCO International (Katanning).

- Domestic market only
  - Cullen T E & Sons (Coolgardie)
  - Dardanup Butchering Co (Bunbury)
  - South West Processors P/L (Waroona)
  - Goodchild Abattoirs P/L (Australind)
  - Hagan Bros (Geraldton)
  - Haslan B J & J A (Hyden)
  - Kellerberrin Butchery (Kellerberrin)
  - Shark Lark Meatworks (Esperance)
  - Tammin Abattoir P/L (Tammin).

The locations of these sheep meat processing facilities are shown in Figure 14.

Figure 14  Location of sheep meat processing facilities in Western Australia

Data source: ACIL Tasman, Geoscience Australia
5.3 WA Government intervention in the lamb market in WA

In 1972 statutory marketing arrangements were established in WA for the domestic and export lamb markets. The statutory authority set up under these marketing arrangements was the WA Lamb Marketing Board (WALMB).

This scheme operated between 1972 and 1999 and its objectives were to decrease the seasonal lamb price volatility and extract a higher price for WA lamb producers. The operations of the WALMB were:

- to acquire all lambs at the abattoir holding yards
- to set the producer and wholesale (distributor) prices
- to arrange for the disposal of surplus production on export markets
- to operate a price equalisation arrangement, whereby producers receive a price equal to the weighted average of the net export and domestic returns
- to undertake the promotion of lamb sales
- to attempt to maintain continuity in markets and to preserve all outlets for lamb (Bureau of Agricultural Economics, 1985).

In 1985 the then Bureau of Agricultural Economics conducted a cost-benefit analysis of the policy. The BAE findings of relevance to this study are:

- There is no evidence that average prices at the producer level have been increased consistently over the period of the operation of the Scheme and, in fact, prices paid to producers have declined relative to those in the eastern States since the introduction of the Scheme
- The costs of achieving these benefits from a social welfare point of view are a transfer from Western Australian consumers (estimated at up to $3.0 million in 1982-83), a reduction in consumption of lamb on the domestic market, an increase in the seasonality of production, an increase in the exportable surplus to the recently unprofitable export market and the cost of policing and maintaining the current Scheme (Bureau of Agricultural Economics, 1985).

The BAE report went on to make the observation that:

Given the effect the live lamb exports have on increasing the administration costs under the Scheme [live sheep were not regulated by the lamb marketing policy and therefore the cost of the Scheme fell entirely on slaughtered lambs], it is also pertinent to consider the forecast for live exports. The Bureau’s assessment is for a steady expansion in total live sheep exports over the medium term, reaching 8.3 million in 1989, up from 7.2 million in 1984. At the same time, the preference of Middle East markets for younger sheep or lambs and the orientation of Western Australian producers to this trade is likely to result in an increasing proportion of lambs in this trade. (Bureau of Agricultural Economics, 1985)
It is highly likely that the effect of the WALMB was to increase the number of sheep that were exported live as the price and administration costs became more favourable for producers.

It is highly likely that this policy has affected the development/rationalisation of processing capacity in WA. The average weekly sheep slaughter capacity of the 13 WA sheep processors appears to be 15,730 sheep per week. If the largest WA sheep processor, Fletchers International, is not included, the average weekly capacity falls to 13,125. By comparison, the four sheep-only abattoirs in Australia have the capacity to process an average of 51,375 sheep per week.

The two largest east coast abattoirs have the capacity to process 6.0 million sheep per annum; 1.0 million more sheep than all of the 13 WA abattoirs combined currently process.

IBIS World (IBIS World, 2009) estimates that a survey conducted by MAL found that in 2007 the market share of the top 25 red meat processors (3.2 per cent of total establishments) accounted for 79 per cent of total red meat production. In WA the top two establishments (25 per cent of total establishments currently operating) processed approximately 65 per cent of current sheep meat processing. If the current plants were running at full capacity the top two plants would be slaughtering approximately 37 per cent of total sheep meat production.

It appears that the processing capacity in WA lacks scale and therefore may be considerably more expensive than the east coast. This may be another factor contributing to the continuation of the live export trade from WA.

6 Live sheep and sheep meat economy-wide linkages

Proponents of the live sheep export trade have consistently pointed to the strong linkages the industry has to upstream and downstream activities in the economy. Of course all industries and activities in an economy have some degree of linkage to other industries. Multiplier analysis is a common method of demonstrating these linkages (see Box 1).
The live sheep value chain

The 2007 report published by Meat & Livestock Australia, suggests that the live sheep export sector in southern Western Australia has strong direct and indirect impacts or linkages. This point was demonstrated by estimating the value chain for live sheep exports. A summary version of this value chain is reproduced in Table 7.
Table 7  Value chain of Southern Western Australian live sheep exports, 2005-06

<table>
<thead>
<tr>
<th></th>
<th>Average per head ($)</th>
<th>Aggregate ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live stock costs</td>
<td>52.75</td>
<td>172.57</td>
</tr>
<tr>
<td>Other on-farm costs</td>
<td>1.90</td>
<td>6.216</td>
</tr>
<tr>
<td>Road Transport a</td>
<td>4.45</td>
<td>14.558</td>
</tr>
<tr>
<td>Feed lotting/spelling</td>
<td>8.50</td>
<td>27.808</td>
</tr>
<tr>
<td>Industry levies and charges b</td>
<td>3.02</td>
<td>9.88</td>
</tr>
<tr>
<td>Management</td>
<td>3.92</td>
<td>12.834</td>
</tr>
<tr>
<td><strong>Total Gross Value (FOB)</strong></td>
<td><strong>74.54</strong></td>
<td><strong>243.865</strong></td>
</tr>
<tr>
<td>Sea freight (excl exporter mgmt)</td>
<td>19.08</td>
<td>62.41</td>
</tr>
<tr>
<td>Plus other shipping costs c</td>
<td>7.69</td>
<td>25.16</td>
</tr>
<tr>
<td><strong>Total Gross Value (CIF)</strong></td>
<td><strong>101.31</strong></td>
<td><strong>331.435</strong></td>
</tr>
</tbody>
</table>

(a) Includes transport from farm to aggregation and from aggregation to wharf plus livestock insurance. (b) Includes Livcorp levies, wharf and stevedoring charges, AQIS and quarantine charges. (c) Includes fodder, sea freight (excl exporter management), stockmen and on board vet and insurance.

Data source: Table 5.3, in Meat & Livestock Australia (2007)

The report estimated that, in 2005-06, the aggregate on-ship gross value (cost, insurance and freight) of live sheep exports from southern Western Australia was $331.435 million. In other words, the estimated $331 million of value is associated with growing the sheep, all levies and charges paid in Australia and all the costs of delivering the sheep on board a ship for export, including the cost of fodder for the voyage, sea freight, and on board stockmen and vets.

There are grounds to consider that the estimates by Meat & Livestock Australia are upper-level limits, given that some of the costs identified in the value chain are likely to be paid to suppliers outside of the region and/or outside Western Australia or, for that matter, Australia. The most obvious example of costs that could be paid to non-Australians is sea freight, as many vessels used to export Australian products, including live sheep, may be owned by foreigners. If this is the case, then the inclusion of payments to ship owners should not be included in the Australian value chain. In this instance the Australian value chain’s CIF value would fall to $269 million or $82.23 per sheep.

6.1.1 Sheep industry and live sheep export industry multipliers

The Meat & Livestock Australia report elected to apply multipliers to this higher value to estimate the direct and indirect contribution of the live sheep trade to value-added (or GRP) and full time equivalent (FTE) employment. These estimates are reproduced in Table 8. The table also reports ACIL Tasman’s estimates of the input-output multipliers that would need to have been applied to the aggregate gross value of live sheep exports of $331 million,
Australian live sheep exports

to achieve the reported gross regional product (GRP) and employment estimates.

Table 8  Southern Western Australian Live Sheep, 2005-06 estimated flow on effects

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
<th>Implied initial effect</th>
<th>Implied indirect multiplier</th>
<th>Implied Type II multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output ($ m)</td>
<td>331</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Regional Product (Value added)</td>
<td>105</td>
<td>168</td>
<td>273</td>
<td>0.317</td>
<td>0.508</td>
<td>0.825</td>
</tr>
<tr>
<td>Employment (FTE)</td>
<td>2035</td>
<td>2083</td>
<td>4118</td>
<td>6.148</td>
<td>6.293</td>
<td>12.441</td>
</tr>
</tbody>
</table>

Data source: Table 5.4, in Meat & Livestock Australia (2007) and ACIL Tasman estimate of the multipliers that would have been applied to the value of output to achieve the indirect and total effects reported.

A draft of the Western Australian Livestock Industries Economic Development Plan 2009-2012, which covers the beef; sheep meat and wool; dairy; pigs and poultry industries, has estimated that the combined output multiplier for these industries ranges between 2.0 to 2.8.

However, as noted in Box 1, output multipliers by their nature involve an element of double counting. The following table reports Sheep industry multipliers for Western Australia derived from ACIL Tasman’s state input-output tables for the year 2005-06 and the most recent 2006-07 input-output table. 7

Table 9  Western Australian Sheep industry multipliers

<table>
<thead>
<tr>
<th></th>
<th>Initial effect</th>
<th>Type II multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06 multipliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1.000</td>
<td>1.818</td>
</tr>
<tr>
<td>Gross State Product (Value added)</td>
<td>0.415</td>
<td>0.810</td>
</tr>
<tr>
<td>Employment (FTE)</td>
<td>4.977</td>
<td>7.645</td>
</tr>
<tr>
<td>2006-07 multipliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1.000</td>
<td>1.729</td>
</tr>
<tr>
<td>Gross State Product (Value added)</td>
<td>0.501</td>
<td>0.867</td>
</tr>
<tr>
<td>Employment (FTE)</td>
<td>4.456</td>
<td>7.299</td>
</tr>
</tbody>
</table>

Note: The Gross State Product multiplier is calculated at market prices. Data source: ACIL Tasman estimates.

A comparison of the implied regional live sheep export multipliers in Table 8 and the ACIL Tasman Western Australian Sheep industry multipliers in Table 9, suggests relatively little difference in the total Type II value-added multipliers. That is, a multiplier of 0.825 implied from the Meat & Livestock Australia 2007 study, compared with the ACIL Tasman estimates of 0.810 for

7 It should be borne in mind that Sheep industry multipliers would only apply to output created at or before the farm gate.
2005-06 and 0.867 for 2006-07. On the other hand, there is a significant
difference in the employment multipliers, with an employment multiplier of
12.441 implied from the Meat & Livestock Australia 2007 study, compared
with the ACIL Tasman Sheep industry multiplier estimates of 7.645 for 2005-
06 and 7.299 for 2006-07. The higher live sheep export employment multiplier
relative to the farm gate sheep employment multiplier, is likely to be due to the
additional value-adding attributable to handling post farm gate.

6.2 Sheep meat processing value chain

While the live sheep export linkages estimated in the Meat & Livestock 2007
report are not insignificant, it is useful to consider the linkages associated with
an alternative option to the live sheep trade. Clearly one option is to process
the sheep into meat in Western Australia. This processed sheep meat could
then be either exported or consumed domestically.

The following table uses the CPI to update the post farm-gate live sheep
export value chain from the Meat & Livestock Australia 2007 study. It
compares this value chain to an indicative value chain for post farm-gate sheep
meat exports. It can be seen from these estimates that processed sheep meat
exports have a higher post farm-gate gross value chain than live sheep exports.
This difference in value could be as low as $7 per head or as high as $12 per
head, depending on the cost of processing. (It should be noted that the
processor whose cost information underpins this processed sheep meat value
chain undertakes some limited by-product processing.)
Table 10  Post farm-gate notional gross value chain for Western Australian live sheep and sheep meat exports (per head 2009)\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th>Live sheep Average per head</th>
<th>Processed sheep meat (2009$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent fees</td>
<td>3.05</td>
<td>2.25</td>
</tr>
<tr>
<td>Shearing (one third)</td>
<td>1.66</td>
<td>1.66</td>
</tr>
<tr>
<td>Other on-farm costs</td>
<td>0.44</td>
<td>0</td>
</tr>
<tr>
<td>Road Transport from farm to aggregation or processing plant</td>
<td>3.33</td>
<td>5.00</td>
</tr>
<tr>
<td>Feed lotting/spelling</td>
<td>9.43</td>
<td></td>
</tr>
<tr>
<td>Processing costs including overheads</td>
<td>25.00 to 30.00</td>
<td></td>
</tr>
<tr>
<td>Industry levies and charges</td>
<td>3.35</td>
<td>1.50</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>21.27</strong></td>
<td><strong>35.41-40.41</strong></td>
</tr>
<tr>
<td>Insurance and road transport (aggregation to wharf or processing plant to wharf)</td>
<td>1.61</td>
<td>2.49</td>
</tr>
<tr>
<td>Management</td>
<td>4.35</td>
<td>4.35</td>
</tr>
<tr>
<td>Other shipping costs excluding sea freight</td>
<td>8.53</td>
<td></td>
</tr>
<tr>
<td><strong>Total post farm gate gross value</strong></td>
<td><strong>$35.76</strong></td>
<td><strong>$42.25 to $47.25</strong></td>
</tr>
</tbody>
</table>

Note: Live sheep value chain costs are based on Meat & Livestock Australia 2007, Table 5.3 updated by the CPI (ABS 6401.0) for Perth.

Data source: Meat & Livestock Australia 2007, Table 5.3, processing costs are ACIL Tasman indicative estimates.

Thus the cost of preparing the sheep for live export is cheaper than preparing the animal for export (up to FOB\textsuperscript{b}) as a series of processed meat products. Unless these costs are equalised through the sea freight and domestic (importing country) supply chain the cost of the processed products may be higher in the Middle East. If the consumer is not willing to pay for the additional value added to the product, by slaughtering and packaging, then there may be a decrease in demand and/or farmers will receive a lower price for their sheep. However, there appears to be considerable evidence that the Middle East consumer is willing to pay for meat processed in Australia as discussed in section 7.

Also it is likely that if significant substitution is achieved between live exports and processed meat, the costs of processing will fall as greater economies of scale are achieved. These costs savings are likely to be shared, through competition, between the consumers, sheep producers and the processors.

The way that risks are shared between the processor and sheep producers is important to this analysis. If the additional processing capacity required to substitute processed meat for live sheep is gained at least initially by increasing

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\textsuperscript{a} The processing costs of between$25 and $30 per animal are based on processing of the carcass, hide, offal, runners etc. This accounts for the difference between these figures and those of IBIS World cited in section 13A.4

\textsuperscript{b} FOB (Free On Board) cost is the costs of getting the sheep from the farm, having it processed and loaded onto a ship ready for export.
Australian live sheep exports

capacity, then there is low capital costs and therefore low risk to the processor. Achieving this will push back the need to invest in large scale increases in processing capacity until the prospects for the WA flock as a whole are better known.

However, at present WA sheep producers carry considerable risk by being dependant (at least in the short term) on the Middle East market which is highly concentrated, support by subsidies that can and do change, and prone to heavy handed intervention if health concerns are raised. In addition to these external risks there are animal welfare concerns held by some in the community.

6.2.1 Meat processing multipliers

Sheep meat processing enjoys higher value-added multipliers than the sheep growing and live sheep export industries. The Western Australian input-output multipliers for meat and meat products for the years 2005-06 and 2006-07 (the most recent data available) are reproduced in Table 11.

Table 11 Western Australian Meat and meat products processing industry multipliers

<table>
<thead>
<tr>
<th></th>
<th>Initial effect multiplier</th>
<th>Type II multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06 multipliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value added (Gross State Product)</td>
<td>0.210</td>
<td>1.015</td>
</tr>
<tr>
<td>Employment (FTE)</td>
<td>1.849</td>
<td>9.092</td>
</tr>
<tr>
<td>2006-07 multipliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value added (Gross State Product)</td>
<td>0.220</td>
<td>1.029</td>
</tr>
<tr>
<td>Employment (FTE)</td>
<td>2.797</td>
<td>10.671</td>
</tr>
</tbody>
</table>

Note: The Gross State Product multiplier is calculated at market prices.

Data source: ACIL Tasman estimates.

From a comparison of the multipliers in Table 9 and Table 11, it can be seen that a decision to add value to the sheep by slaughtering them in Western Australian abattoirs creates considerably higher multiplier effects for Gross State Product than the farm-gate sheep industry and, by implication, the live sheep export industry. They show 2005-06 Type II value-added multipliers of 1.015, 0.810, and 0.825, respectively. In other words, in 2005-06 for every $100 of additional output created by the Western Australian meat processing industry the state’s Gross State Product would have been $101.50 higher. Whereas for every $100 of additional output created by the Western Australian sheep industry the state’s Gross State Product would have been $81 higher. Based on the implied regional Type II value-added multiplier for live sheep exports, the state’s Gross Regional Product would be $82.50 higher for each additional $100 of output from the sector.
In the case of employment multipliers, meat processing had a Type II multiplier of 9.092 in 2005-06, rising to 10.671 in 2006-07. These multipliers are significantly higher than the employment multipliers in the Western Australian sheep industry. But they are lower than the employment multipliers reported in the Meat & Livestock Australia 2007 report for the live sheep export industry, which indicates an implied employment multiplier for 2005-06 of 12.441. In other words, for every $100 of additional live sheep export output there would be 12,441 additional FTE jobs, compared with 9.092 of FTE jobs arising from $100 of additional meat processing industry output.

On the other hand, the live sheep export value-added and employment multipliers factor in activity that could equally occur if the processed meat industry’s output was exported. For example, frozen or chilled lamb or mutton destined for export must be transported from the abattoir to the wharf, and be subjected to stevedoring and wharfage costs, insurance and shipping costs. This post-abattoir activity is not included in the meat processing multiplier reported in Table 11. Hence it is highly likely that the sheep meat export industry would create significantly higher multipliers than those for meat and meat products processing reported in Table 9 Table 8. Thus processing sheep in Australia for export can be expected to add considerably higher value for Western Australia than live sheep trade in terms of Gross State Product and, potentially, employment.

In the case of sheep meat exports, additional value-added will also be created in Western Australian industries, which use by-products of the sheep meat processing activity as an input. These by-products are used to produce outputs such as tanned skins and tallow. Multipliers for the Western Australian industries that undertake these flow-on activities are reported in the following table.

<table>
<thead>
<tr>
<th>Table 12 Western Australian Oil and fat and Leather and leather product industry multipliers (2006-07)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial effect multiplier</strong></td>
</tr>
<tr>
<td><strong>Oil and fat industry</strong></td>
</tr>
<tr>
<td>Value added (Gross State Product)</td>
</tr>
<tr>
<td>Employment (FTE)</td>
</tr>
<tr>
<td><strong>Leather and leather products</strong></td>
</tr>
<tr>
<td>Value added (Gross State Product)</td>
</tr>
<tr>
<td>Employment (FTE)</td>
</tr>
</tbody>
</table>

*Note: The Gross State Product multiplier is calculated at market prices.*

*Data source: ACIL Tasman estimates.*

The ability to slaughter the sheep domestically and add value to the Western Australian economy is dependant, initially, on the sheep that were exported live.
being processed for consumption as chilled or frozen meat. This requires one of three things to happen:

1. A degree of substitution in existing live export markets between live and processed meat (inclusive of the value adding costs);
2. Diversion of the meat produced from live sheep to other markets; and/or
3. A combination of the two.

It is highly likely that, given the strength of sheep meat demand in the Middle East and in other regions, a combination of substitution and diversion would occur.

The following section considers the level of substitution between Australian live sheep and processed meat in the Middle East. Substitution between live exports and processed meat is likely to have the greatest sustainable animal welfare gains, as Australian processed meat would be substituted for Australian live sheep and not live imports from other countries.

7 Economic implications of a substitution of live sheep with processed sheep meat exports

Welfare gains, and the cost of achieving them, are likely to be highly dependent on the degree to which Australian sheep meat exports can be substituted for Australian live sheep exports in the Middle East market.

7.1 Historical examples

The degree to which sheep meat exports can be substituted for exports of live sheep may be examined by periods where Australian live exports have ceased to some countries entirely for a period of time.

In 1991-92, following a ban on Australian live exports in 1990, Saudi Arabian imports of processed sheep meat from Australia increased from 7,900 to 25,122 tonnes (an increase of 318 per cent)\(^{10}\). Similarly, Egyptian imports of Australian sheep meat rose by 300 per cent between 2002-03 and 2005-06, when Australian live sheep imports were stopped.

During the same period, 100 percent of Australian live sheep exports to Saudi Arabia were being replaced by chilled sheep meat. It is likely that this substitution was possible as, in addition to being price-competitive with other

---

\(^{10}\) The live sheep equivalent (LSE) of this increase is 728,000 live sheep (assuming a conversion rate of 22 kg of sheep meat per live sheep).
suppliers of chilled sheep meat, Australian meat was also regarded as being disease free.

In 2000-01, when live sheep exports from Australia recommenced, sheep meat exports did not fall. In fact, between 2000-01 and 2002-03, sheep meat imports by Saudi Arabia rose by 5,137 tonnes while live sheep imports increased to approximately 2.0 million head.
7.2 Impact of diversion from live to processed sheep meat

Figure 15 Live Sheep and Meat Imports from Australia

Note: Y-axes represent indices
Data source: UN Comtrade, ABS

Economic implications of a substitution of live sheep with processed sheep meat exports
Correlation between the growth in imports of live sheep and meat over the period from 1988 to 2007 was -0.214. This indicates that as the growth in live exports increases growth of sheep meat exports from Australia declines and vice versa.

However, the period from 2000 to 2007 shows a much stronger negative correlation of -0.62 between live sheep growth and the growth in sheep meat exports which can be seen in Figure 17.

Note: Due to gaps in the data, growth in meat imports by Egypt was calculated for the period 1994-2007; growth in live sheep imports by Jordan was calculated for the period 1991-2007. Also, live sheep exports to Egypt declined to zero as a result of a ban on live sheep imports from Australia.

Data source: UN Comtrade, ABS
The general trends in Figure 17 are that:

- In both periods where the growth in Australian live sheep exports is highest there appear to be lower meat exports from Australia.
- The highest growth rates in meat imports from Australia are in those countries with the lowest (or zero) live sheep imports.

However, it must be pointed out that the growth in sheep meat exports to this region is coming from a low base for some countries. This is evident by the data in Figure 18. In the charts in Figure 18, ABS live sheep numbers have been converted to dressed weight using 22 kg per live sheep. This probably slightly under-estimates the total amounts, as during the early 1990s it is likely that many of the sheep exported may have been heavier than this.
Figure 18  Live Sheep and Meat Imports from Australia – Weight in ’000 Kilograms

Data source: UN Comtrade, ABS
Figure 19  Proportion of Australian Live Sheep Imports to Total Live Sheep Imports; Proportion of Australian Meat Imports to Total Meat Imports – by Country

Bahrain

Egypt

Jordan

Kuwait

Oman

Qatar

Saudi Arabia

United Arab Emirates

- Live Sheep Weight - % of Australian imports to total imports
- Meat Weight - % of Australian imports to total imports

Economic implications of a substitution of live sheep with processed sheep meat exports
Figure 20 Proportion of Australian Live Sheep and Meat Imports to Total Live Sheep and Meat Imports for each country

Data source: UN Comtrade, ABS
The data in Figure 20 show the combined market share of Australian live sheep (converted to kg) and sheep meat exports as a percentage of total sheep meat imports for each country. It shows that Australia dominates most markets and there does not appear to be any significant correlation between total market share and live sheep exports to each country.

The data also shows that for most countries there is considerable potential to increase the Australian sheep meat market share.

8 Potential impacts on the sheep processing industry

This chapter examines the likely impact of the substitution of processed meat exports for the live sheep export trade on key stakeholders. While there are potentially some negative impacts on Western Australian farmers, and parts of the live sheep export supply chain, particularly if the live export trade were forced to close suddenly, substituting processed meat for live sheep is likely to present significant opportunities for the meat processing sector.

8.1 Impact on the meat processing sector

In studies released by MLA in 2005 and in 2007, it was suggested that an additional 1.0 million to 1.5 million head capacity could be introduced into WA processing within 12 months following the cessation of the live export trade.

In ACIL Tasman’s consultations with the major sheep meat processors in Western Australia, it was suggested that the industry in WA could process at least 6 million sheep annually (compared with the 2.7 million processed in the state in 2007-08), without requiring the construction of any new processing plants.11 This would entail moving to two shifts per day in each processing plant, which may require the employment of some skilled abattoir workers from abroad.

Estimates indicate that the sheep meat processing industry in WA currently provides employment for about 2,000 workers. The major sheep meat processors in the state believe that the total number of jobs in the industry would increase to approximately 4,000 should the live sheep trade be phased-out. They estimate that industry turnover could potentially rise from approximately $700 million per annum today to $2 billion per annum.

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11 Personal communication with Roger Fletcher, founder and managing director of Fletcher International (the largest sheep meat processor in WA) and with Coll MacRury, Chief Executive of WAMMCO International (the second largest meat processor in WA), July 2009 and August 2009.
In addition to moving from a single shift to double (or even triple) shifts, a meat processor could also increase the number of days of operation for the plant from 5 days per week to 7 days per week. The number of slaughter and boning chains could also be increased, which would require a corresponding expansion of cold storage (chilling and freezing) facilities.

All current meat processing plants in WA have sufficient land to accommodate a physical expansion of the plant should that prove necessary in the longer run. Consequently, it is unlikely that a new plant would be constructed in a completely new location.

A cessation of the live sheep trade would therefore benefit the following towns or cities where sheep meat processing plants are currently located:

- Australind
- Bunbury
- Coolgardie
- Esperance
- Geraldton
- Gingin
- Hyden
- Katanning
- Kellerberrin
- Narrikup
- Narrogin
- Tammin
- Waroona
- Woodanilling.

The locations of these plants were previously shown in Figure 14.

The major export-oriented sheep meat processors in WA are confident that the additional sheep meat to be processed (that would replace the 3 million sheep currently exported live from the state) could be absorbed by lucrative and expanding export markets, such as the United States and those in the Middle East and Asia. They argue that lamb and mutton exports from WA are currently constrained by the number of sheep (of desired weight and breed) they are able to purchase for processing.
9 International prospects for increased Australian sheep meat exports

9.1 Trade flows

Figure 21 indicates that global sheep meat trade flows in 2007 were dominated by New Zealand and Australia. According to data from GIRA (2008), these two nations together account for about 80 per cent of total sheep meat exports in the world.

GIRA (2008) indicates that sheep meat consumption is expected to remain strong to 2015. In fact, they have calculated that the expected growth rate of sheep meat consumption will be at around 1.7 per cent per annum over the ten-year period leading to 2015.

Sheep meat consumption is expected to remain strong for two key reasons. Firstly, because of strong population growth, particularly in developing countries (such as China, India, and the Middle East), which have exhibited a preference for sheep meat. Secondly, increased urbanisation in many regions will result in the industrialisation of meat supply, resulting in productivity gains. This should lead to a sustained supply to meet the growing demand, even though analysts have noted that sheep meat is relatively more expensive than other meats. GIRA (2008) notes that lamb is a premium price meat, which is in danger of becoming a ‘speciality’ with little retail space and range.
We can identify supply-side reasons that may, on the other hand, generate downward pressure on sheep meat consumption. Lamb is expensive to produce (even on marginal land) and process. In particular, revenues tend to be low relative to wool and pelt. Moreover, sheep meat is prone to a number of debilitating diseases (FMD, BTV, etc.), parasites, and environmental issues (GIRA, 2008).

Additionally, productivity gains are small compared with the monogastrics (such as pigs). The latter effect may be related to the fact that this industry suffers from low R&D expenditure compared with the other meat producers. This has resulted in weak uptake of new developments, which is worsened by the fact that sheep farming is fragmented (GIRA, 2008).

Nevertheless, it should be noted that Australia and New Zealand are well placed to undergo significant productivity improvements in the coming years (GIRA, 2008). Hence, the bulk of the increase in sheep meat trade is expected to come from these two countries in the next few years (see Figure 22). It appears the amount of the additional sheep meat demand to be sourced from Australia between 2005 and 2015 is likely to be 75 per cent of the entire amount of sheep meat currently exported live from Western Australia.

Fortunately for Australia, global production of sheep meat is not expected to increase significantly. Excluding intra-EU trade, 88 per cent of the world trade in sheep meat is sourced from Australia and New Zealand. Exports from China constitute 3 per cent of global trade, while those from India constitute 1
Australian live sheep exports

per cent. Live sheep are also traded between Eastern Europe, particularly Romania, and the EU and between the Middle East and North Africa.

New Zealand supplies are expected to only increase gradually over the next several years. The only supplier likely to expand substantially is China, but there are few global markets in which Chinese products would compete directly with quality Australian lamb. In addition, growth of China’s local demand is expected to continue and match production, leaving little surplus for export.  

9.2 Potential markets for absorbing additional sheep meat

In 2005, Meat and Livestock Australia commissioned Hassall and Associates to undertake a global review of growth prospects for Australian lamb. To identify markets with the greatest prospects of growth, the following criteria were applied:

- previous rate of import growth for lamb meat
- competition for Australian lamb meat
- ethnicity and taste preference for lamb
- income growth
- population growth
- internationalisation of cuisine
- modernisation of food distribution
- degree of success experienced in previous promotional activities for Australian lamb.

9.2.1 USA

The MLA study identified the US and China as offering high potential growth for Australian lamb sales. It concluded that the market for Australian lamb in the US could grow from its 2005 level of about 40,000 tonnes, to 60,000–80,000 tonnes by 2015. The US was the dominant growth market for Australian lamb over the five years to 2005, accounting for 43 per cent of total volume growth since 2001.

According to the study, this growth was largely driven by the decline in US lamb production and a constant level of lamb consumption. In 2004, sheep meat consumption in the US fell to 163,000 tonnes, which was the lowest level since 2000 and was apparently caused by the high price of sheep meat.

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Per capita consumption of sheep meat in the US was 0.5 kg per annum in 2005, compared with 10.2 kg per annum in Australia. The MLA study asserted that, if sales of Australian lamb to the US market were to continue to grow, US consumption of lamb must increase. The authors of the study were optimistic that such growth in per capita consumption was possible through promotion of the product in parts of the country where people were already aware of the qualities of lamb meat.

The causes for optimism were:
- consumers in the eastern states of the US already have some experience of lamb
- real GDP was expected to grow by about 40 per cent to 2015
- population was predicted to grow by 27 million (9 per cent)
- past promotion of Australian lamb in this market had been successful.

If per capita consumption of sheep meat in the US could be increased by 0.1 kg per annum through aggressive and effective promotion, this alone would increase the annual demand for sheep meat by nearly 30,000 tonnes. Furthermore, the US trade is dominated by expensive lamb meat components such as legs, loins and racks.

### 9.2.2 China

According to the MLA study, China is likely to provide the major sales growth for cheaper lamb cuts. In China, strong regional differences exist in the per capita consumption of sheep meat: the population south of Shanghai does not consume sheep meat in significant quantities, while that to the north of Shanghai does. Income growth in China is strong (averaging nearly 10 per cent per annum over the past decade) and the market is in the process of modernisation. Although China has the largest sheep flock in the world and can supply most of its needs for sheep meat internally, China is likely to become a significant importer and exporter in time. The study concluded that exports of 20,000 tonnes or more to this market could be achieved (13,000 tonnes were exported to China in 2005).

However, the Chinese market is geographically large and highly complex, with each province and major urban centre being almost a market in its own right. First and second tier cities on the eastern seaboard have cashed in on the growth in manufacturing for export markets, to fuel an economic boom independent of the major urban centres in Guangdong and Shanghai. Cities such as Qingdao, Dalian, Xiamen and Shenzhen are now major centres of economic activity. While the eastern seaboard has benefitted considerably from China’s economic development, southern China, the Pearl River Delta (PRD)
and Pan-PRD area, continue to play a core role in China’s economic reform and market opening.

The WA Department of Agriculture and Food believes that, given the diverse nature of the Chinese market, it is important for Western Australia to have a focused strategy to promote the state and its agri-food products. The Department recommends focusing on entry through, and with, the PRD, using both Chinese and Hong Kong companies and distribution channels, then moving progressively to other provinces (DAFWA, 2008). The strategy will use Hong Kong’s advanced logistics and distribution channels, as well as seek to develop direct entry channels to the PRD through Shenzhen, Guangzhou and Xiamen. The strategy will need to have a long term focus to be successful, as Chinese business relationships are based on trust built through long-standing relationships.

9.2.3 Middle East

The Middle East has a fast growing population of more than 600 million people. It therefore represents a tremendous market for food and agriculture commodities. According to FAO population projections, the region will increase by 130 million people per decade, and will have a population of more than 870 million people by 2025.

The Middle East accounts for about 7 per cent of the world’s net imports of agricultural products. Average annual imports of agricultural products have grown to more than US$52 billion over the past 10 years; 77 per cent of this has been food.

Climate, lack of water and environmental issues are limiting factors for agricultural development in the Middle East. Therefore, there is a strong belief that the region will have to rely on agricultural and food imports in the future.

Australia is viewed positively in almost all countries in the Middle East. The Australian agricultural industry has earned a reputation for meeting the specific requirements of customers. For Western Australia, proximity to the market and excellent resources in some agricultural sectors are also significant advantages for its export trade with the Middle East.

The WA Department of Agriculture and Food believes that exports of meat from Western Australia to the Middle East will increase relative to market size. It will be driven by the development of the Middle East hospitality industry, as well as Australia’s policy to increase exports of value-added products. The most promising markets for increased meat exports are expected to be: Saudi Arabia, Kuwait, Jordan, UAE, Qatar, Oman, Bahrain, Egypt, Lebanon, Morocco, Iraq, Algeria and Libya.
Saudi Arabia has been Western Australia’s largest and most diversified market in the Middle East. However, there are further opportunities in the Saudi market for Western Australian exports of meat, fresh produce and services.

Kuwait is a significant market for sheep, meat and fresh produce, with opportunities to increase current export supplies from Western Australia.

In recent years, Iraq has become a market for Western Australian wheat, dairy products and processed foods (which have been re-exported through UAE and Jordan). Potential markets exist for a range of products including meat, livestock, dairy, pulses and services – subject to the peace process and political developments.

The UAE is probably the most diversified market for Western Australia, importing: grain, live sheep, meat, fresh produce, honey, stockfeed, flowers, wine, pearls, lobster, and essential oils. There is the potential to increase Western Australian exports to the UAE and regional markets, particularly with the two daily direct flights from Perth to Dubai.

Jordan is a traditional market for sheep, cattle, stockfeed and meat. It is also a very interesting trans-shipment hub, with potential for more Western Australia exports of processed food, not only to Jordan, but also Israel, Palestine, Syria and Iraq.

Qatar, Oman and Bahrain are traditional export markets for sheep, some cattle, meat and fresh produce, mainly via Dubai. DAFWA believes that Western Australia can provide these countries with good services for new projects such as abattoirs and meat processing.

Algeria is a potential market for mutton, lamb and dairy products. Lebanon is a relatively small market for sheep and a potential market for meat, pulses and processed foods. The re-opening of the Libyan market is viewed as crucial for trade development in the region, particularly for the meat and animal sectors.

Pakistan is a wheat importer with significant potential for canola, meat and processed foods.

The WA Department of Agriculture and Food has set a target for sheep meat exports to the Middle East to average A$80 million per annum between 2010 and 2014, a 210 per cent increase from the average of $29 million per annum between 2001 and 2005. The objective is based on market size, market demand, assessment of supply capacities over a longer period (average of a few years), and the impact of competition (DAFWA, 2008).
9.2.4 Other potential markets

Apart from the US and China, the MLA study noted that a number of other markets are likely to offer growth prospects but to a more modest extent. Notable amongst them are Mexico (where the population is forecast to grow by 12 per cent to 2015 and GDP by 3.5 per cent per annum to 2015), Japan and countries in the Gulf Cooperative Council.

In addition, the EU and, to a lesser extent, India offer significant growth prospects if access difficulties can be resolved. While the EU is the largest sheep-meat market in the world, access into this market is distorted towards New Zealand. New Zealand has a sheep-meat quota into the EU of 227,854 tonnes, compared with only 18,786 tonnes for Australia, despite Australia producing more sheep meat than New Zealand and the global volume of exports of both countries being similar.

The study finds the continued existence of this quota imbalance to be unacceptable in a free-trade world, and that achieving more equitable access to the EU market should be a priority.

Non-tariff trade barriers currently preclude lamb imports into India. Apart from these barriers, there are favourable prospects for profitable commercial trade of Australian lamb into India. If the sanitary standards applied in India were to ease, imports of 20,000 tonnes from countries such as Australia would be possible.

The WA Department of Agriculture and Food believes that sheep meat, especially lamb, has recently become more popular in South Korea, due to BSE issues with beef, and that there is great potential and many opportunities are available in the South Korean market for Western Australian lamb if some of the issues below are overcome (DAFWA, 2008):

- Many South Koreans still believe that sheep meat has a strong and unpleasant smell. More time needs to be spent in changing consumer beliefs and educating them through promotional events and tastings, at food fairs, supermarkets and hypermarkets.
- As sheep meat is not a traditional South Korean product, most South Koreans, both consumers and industry, are still unfamiliar with the cooking and cutting requirements, compared with other more traditional meats such as beef or pork. An education program for consumers, retailers and foodservice personnel should be undertaken prior to market entry.
- Appropriate packaging is also an important factor for the retail market. According to MLA, in South Korea home-ready packaging has received

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13 Bovine spongiform encephalopathy
positive and welcoming feedback from consumers compared with bulk packaging. In retail stores, targeting South Korean end-users, it is important to display lamb in home-ready packaging, with small portions and a useful recipe to ensure easy use by consumers.

• A major issue of concern is that of high tariff rates, with the South Korean market being very price sensitive. The current tariff for sheep meat entering South Korea is 22.5 per cent, which is much higher than in other countries. For instance, the tariff is zero in Japan, 15 per cent in China, 10 per cent in Mexico and 0-5 per cent in Middle Eastern countries.

9.2.5 The domestic market

According to the study, the challenge in the domestic market will be to regain lost consumers after additional supplies become available. As supplies decreased over the period 2000 to 2005 and prices increased, per capita domestic consumption of lamb declined from 12.6 kg to 10.3 kg—a loss of almost 20 per cent.

10 Strategies for increasing sheep meat exports

This section looks at some avenues that Australia might pursue to increase demand for processed meat.

10.1 Promotional campaigns

10.1.1 Australian promotional campaigns

Meat and Livestock Australia (MLA) has undertaken retail promotions of red meat under the Industry Collaborative Agreement (ICA) program around the globe. The aim of the program is to drive demand for Australian beef and lamb in Australia’s major export markets (MLA, 2009).

Aside from promoting beef in Korea and Japan, a key focus of MLA’s activities in 2007–08 has been in the emerging markets of the Middle East, South East Asia and Europe.

The program has aimed to position Australian beef and sheep meat as the dominant imported product and ensure industry is positioned to maximise new market opportunities (MLA, 2009).

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14 Industry collaborative agreements leverage investment by individual companies 50:50 with MLA marketing funds to drive sales of Australian red meat in export markets.
The activities were primarily based on a co-funded basis, with 20 leading retailers in South East Asia and through an industry collaborative agreement with one retailer in Europe. They included trade education programs focused on using alternative cuts and in-store consumer promotions (MLA, 2009).

10.1.2 Effectiveness of promotional campaigns

To our knowledge there are no econometric studies available that have tried to measure the effect of Australian sheep meat promotion in key export markets. Researchers in the United States, on the other hand, have undertaken studies to analyse the effect of their promotional activities in key export markets, particularly in Asia (see (Smallwood, Haidacher, & Blaylock, 1989) and (Henneberry & Halliburton, 1995).

Smallwood, Haidacher, & Blaylock (1989) found that Japanese consumer demand for meat significantly increased as a result of advertising and promotional expenditures in support of US beef. The authors note that this positive effect did not dissipate in the period in which the expenditures occurred, but rather exhibited positive carryover effects in subsequent periods. However, insufficient evidence was found to make a similar claim about advertising and promotion expenditures in support of demand for either US pork or US poultry.

Henneberry & Halliburton (1995), on the other hand, were confronted by insignificant results from all promotional activities. Consequently, it is difficult to ascertain from these studies whether sheep meat promotion will indeed result in increased demand in these regions. Moreover, even if the effect is statistically significant it may very well remain too small to be considered economically significant.

10.1.3 New Zealand promotional campaigns

There is evidence to suggest that promotional activities by New Zealand have increased demand for New Zealand lamb in key export markets. However, to our knowledge, this has not been quantified and we cannot ascertain the actual return on these marketing activities.

The New Zealand government has pursued promotional schemes with meat companies focused on New Zealand’s grass-fed, healthy, clean green image. As part of this image, exporters are emphasising the following attributes of New Zealand lamb in international markets:

- free-range animals
- good animal welfare practices
- no use of growth-promoting hormones, steroids, or other chemicals
Australian live sheep exports

- good processing quality
- leanness that will contribute to a healthy, nutritious diet, and
- standard and custom-made cuts (Clemens & Babcock, 2004).

Moreover, promotional efforts have been tailored for countries with widely differing consumer preferences. In the Middle East, for example, adherence to strict Halal regulations is more important to many consumers than is a country-of-origin’s green image, so the New Zealand brand story emphasizes assurances of handling methods that meet Halal requirements. Also, lamb exported to the Middle East carries the New Zealand lamb rosette with the picture of a lamb, in part to appeal to customers who cannot read the label. On the other hand, lamb sent to France does not carry the rosette at all, in an effort to avoid triggering a negative reaction among French farmers. The rosette also is not widely used to promote New Zealand lamb in the United States (Clemens & Babcock, 2004).

New Zealand’s promotional activities in the United Kingdom appear to have been particularly successful. The U.K. is New Zealand’s most important lamb export market. New Zealand invests a great deal of its marketing resources in promoting New Zealand lamb as a country brand. The large U.K. supermarket chains generally use the New Zealand Lamb rosette in addition to individual store brands, and New Zealand Lamb has become one of the most recognized brands among British consumers. A recent survey indicated that 80 percent of British consumers mention New Zealand when asked what countries produce lamb (Clemens & Babcock, 2004). Another consumer survey indicated that British consumers prefer New Zealand lamb to lamb from any other country (Clemens & Babcock, 2004). These surveys highlight the success of New Zealand’s promotional efforts in this market.

Overall, making sure consumers are aware of New Zealand’s good animal welfare practices is one of the many tools used to promote New Zealand lamb in export markets. It seems that consumers in many countries, particularly the U.K., have responded well to these promotional activities. However, the strong consumer identification of New Zealand lamb in the United Kingdom may be largely due to New Zealand’s long history of exporting lamb to a country where consumers have more experience preparing and eating lamb than in some other countries (Clemens & Babcock, 2004). Consequently, it is impossible to ascertain whether the promotional campaigns have led to a significant increase in demand.
10.2 Australian government policy options in the EU

Under the Uruguay Round of the WTO, the European Union uses a country-specific TRQ\textsuperscript{15} to limit imports from non-E.U. countries. Additionally, over-quota tariffs are high enough to prohibit trade to the EU—the TRQ effectively limits trade to the in-quota volume (Clemens & Babcock, 2004).

The Australian government could potentially replicate New Zealand’s policy efforts to increase access to the EU. The duty-free quota for New Zealand sheep meat is by far the largest (Clemens & Babcock, 2004) and has been about 99 percent filled for the past several years. Moreover, New Zealand negotiated an unlimited amount of chilled lamb within the quota, so the proportion of higher-value chilled lamb exported to E.U. markets has been steadily rising (Clemens & Babcock, 2004).

10.3 Improved competitiveness

According to a recent report by the MLA, increasing competition from alternative proteins and from alternative supplying nations means that the Australian industry must continue to seek and develop new value-added products that better meet contemporary consumer demands (MLA, 2008). Improved competitiveness is likely to result in an upward shift of the trends evident in section 7.2.

The problem, however, is that producers have lagged behind other industries in rates of productivity improvement (MLA, 2008). Investment by MLA in R&D may help to turn this around, but only as fast as producers are able to adopt the new technology.

Improvements in competitiveness may come from finding ways to increase the efficient use of water and energy, maximise the recovery of saleable meat and edible offals, and improve working conditions. Other key areas where R&D can help increase competitiveness are:

- increase reproductive rates
- decrease mortality rates
- reduce age at sale,
- lower the cost of production.

Undertaking projects that lead to these results may ensure the sheep meat industry retains its competitive advantage.

\textsuperscript{15} Trade Restricted Quota
Another key area of research that will result in Australia maintaining its competitiveness with industry leaders in other areas, is based on gathering information from other markets.

The MLA gathers and disseminates incisive analysis of relevant local and world meat market developments, to provide critical information on the long-term positioning of the Australian industry (MLA, 2008). These steps are essential for commercial planning and benchmarking, and also help develop and commercialise risk management tools.

Through disseminating information, the MLA as well as the Australian Government’s Department of Agriculture, Fisheries and Forestry (DAFF), may play an important role in ensuring that the sheep meat producers remain competitive in Australia. However, only through the successful adoption of initiatives from relevant R&D will competitiveness and productivity increase.

11 Reducing live sheep exports: the New Zealand experience

11.1 History of New Zealand live sheep exports

The export of live sheep from New Zealand for slaughter overseas recommenced in 1985 after several years of a total ban. Live sheep exports were initially restricted by quotas set by a Government Advisory Committee, whose role in regulating the trade was designed to satisfy the concerns of the animal welfare lobby (which strongly opposed the trade) and the domestic slaughter industry. The quota system was abandoned in 1988. Approval for shipments came from the Minister of Agriculture and continued through to the mid-1990s, when the responsibility was taken over by the Ministry of Agriculture and Forestry’s (MAF) Chief Veterinary Officer (subsequently the Director of Animal Biosecurity).

The trade grew from about 416,000 in 1986 to over one million sheep in 1988/89. The trade in the mid-to-late-1980s was to a number of countries, although mainly to the Middle East.

In 1990, the New Zealand trade became more focused on Saudi Arabia, as New Zealand moved to fill a gap created when Australian sheep were banned from Saudi Arabia for six years.

16 The information in this section comes from New Zealand’s Ministry of Agriculture and Forestry (MAF). The information is readily available from http://www.maf.govt.nz.
New Zealand trade ran into problems when a shipment of live sheep suffered a 12 per cent mortality rate and caused considerable public outrage, which was followed in the same year by a shipment rejected on health grounds. As a consequence, New Zealand temporarily suspended its live sheep trade with Saudi Arabia.

Following discussions involving MAF’s Chief Veterinary Officer, the New Zealand Embassy in Riyadh, the NZ Minister of Agriculture and the Saudi authorities, trade recommenced in 1991. Trade reached its peak in the mid-1990s with over one million sheep being exported annually.

A code of welfare, developed by the Animal Welfare Advisory Committee, has been in place since 1991. Its focus is to set and maintain acceptable welfare standards and to reduce mortality to below one percent. The code has required a MAF-approved veterinarian to accompany each shipment. A comprehensive reporting system was also put in place, so that MAF, in association with a Technical Review Committee, could review each shipment, and put in place any improvements leading to enhanced welfare standards. MAF has also commissioned a number of trials with regard to pneumonia, which became a problem when trade required younger animals, as the Hajj festival moved forward (as it does each year). This work eventually resulted in the setting of a minimum age limit, based on animal health and welfare grounds.

In 2000, approval for shipments came under the Animal Welfare Act, and the responsibility for approving shipments now lies with MAF’s Director-General. Shipments dwindled to one a year, (approximately 40,000 sheep) due to a combination of economic factors, falling New Zealand sheep numbers, higher costs from New Zealand and the age restriction on lambs. Deaths on these shipments remained consistently below 0.8 percent.

In 2007, a Customs Export Prohibition Order was imposed under which individual livestock consignments could be approved on a case-by-case basis by the Director-General of MAF. This followed a review by the New Zealand Government of the country’s live export policies. The review addressed concerns about the treatment and handling of livestock, and slaughter practices in importing countries. It also examined the potential impact on New Zealand’s reputation as a responsible exporter of agricultural products. The conclusion was that improvements were needed to manage the risks of potential ill-treatment of animals and any economic consequences that might result from that.

In accordance with the requirements of the Animal Welfare Act 1999, exporters need to satisfy the MAF Director-General about the conditions for international transport of livestock to the point of disembarkation. Where livestock are being transported by sea, this may include requirements that a
MAF-accredited veterinarian accompany the shipment, experienced stockmen are on board and provision is made for rapid disembarkation and, if required, quarantine.

No application to export for slaughter had been made since the prohibition order was put in place. A recent application to export 65,000 sheep has been placed on hold until such time that MAF can be satisfied that there can be sufficient additional safeguards to minimise the risks of any future shipments being rejected and that the highest animal welfare and animal safety standards are met.

New Zealand also exports frozen meat to the Middle East (about 15 percent of the total amount of frozen lamb exported from New Zealand).

### 11.2 Implications for Australia

Figure 23 shows processed sheep meat exports from New Zealand to the Middle East and the Rest of the world (ROW). The data were calculated from UN Comtrade data as the sum of SITC Rev 3 commodities 01211 (Meat of sheep, fresh or chilled) and 01212 (Meat of sheep, frozen). The data is available from 1988 to 2008, however Figure 23 only uses data from 1991, the year when New Zealand re-introduced the possibility of live sheep exports.

**Figure 23** Sheep meat exports from New Zealand to Middle East and rest of the world (ROW), 1991-2008, in millions of Kg

![Graph showing sheep meat exports from New Zealand to Middle East and rest of the world (ROW), 1991-2008, in millions of Kg.](image)

Data source UN Comtrade (2009).
It is evident from the figure that sheep meat exports to the ROW have not been affected by New Zealand’s policies. The data exhibits an upward trend throughout the period.

Processed sheep meat to the Middle East, on the other hand, exhibits a different trend. It is possible to suppose that the live export policies resulted in a decrease in processed meat exports to this region, as sheep meat was replaced by live sheep. As the live sheep trade dwindled toward the end of the 1990s, until the last shipment in 2003, the rate of substitution declined. Since 2006 the trend has reversed and sheep meat exports to the Middle East have begun to increase.

The New Zealand experience suggests that processed meat and live sheep are substitutes, which was the conclusion of the Meat and Wool Economic Service of New Zealand:

The trade of live lambs and sheep is in direct competition with export slaughter stock. The trade operates mainly on a spot market basis which results in a great deal of variability and uncertainty in shipments...Since October 1994 live lamb shipments declined due to a ban on shipping lambs under 10 months. (Meat and Wool Economic Service of New Zealand, 1999)

In summary, the biggest falls in NZ meat exports occurred after the commencement of the live sheep trade. Modest falls were experienced as the trade declined and began to recover once the trade ceased altogether.

12 Managing the externalities of the live sheep trade

Managing the externalities of the live export trade requires an assessment of both the welfare gains that are achieved and the costs of achieving them. The net welfare gains of the trade are not evaluated in this analysis, but some general observations are made. The net welfare gains should be calculated on the basis of the improvement in the welfare of Australian sheep balanced against the live sheep that may be substituted for Australian sheep. That is, Australian sheep could be replaced by other live sheep, which may be transported over longer distances at lower welfare standards (equally they could travel less distance at higher standards).

There are likely tradeoffs between heavy handed intervention, such as banning the trade or the trade being subject to another trade or animal welfare disruption, and driving substitution between Australian live sheep and processed meat in the Middle East. These tradeoffs are illustrated in Chart 1 below.
On the right hand side an immediate cessation of the trade (likely to be caused by a trade or animal health problem and not domestic policies) would incur the highest short-term costs for the economy. The costs would dissipate over time as the economy diverted resources to the next highest value use. The welfare gains from this and a phased reduction of the trade are not certain as there could be considerable substitution of animals from countries with lower welfare standards or where the sheep may have to travel further, or both.

Increasing the welfare standards of the animals in transit and in the destination country, would improve the welfare of the animal provided they were not replaced by other live imports. If they were phased-in the costs to the economy could be modest.

On the right hand side of the chart are the strategies that appear to offer the best prospect of improving the welfare of the animals and providing a even a net gain to the economy. This relies on driving the replacement of Australian live export animals with Australian processed sheep meat products. The positive contribution this could make to the economy is due to an increase in value-adding activities from processing the sheep domestically. This was discussed in some detail in section 6.2
This section provides a number of options to deal with the externalities associated with the live export of sheep from Australia. In general they begin with the least-cost and least-risk options from the view point of the farmer and the economy to more interventionist options where a more heavy handed approach can be justified on the verification of the extent of the animal welfare concerns and the extent to which they can be addressed and adjusted for risk.

Managing the concerns some in the community hold about the live export trade can be done at least-cost by encouraging consumers of live sheep to switch their preferences from Australian live sheep to Australian processed products.

### 12.1 Managing the animal welfare concerns about the export of live sheep

Part of ACIL Tasman’s brief for this project was to look at the ways in which the externalities of the trade could be reduced—that is, how the welfare of sheep could be improved.

Improving the welfare of the live export sheep is based on:
- improving the conditions for the animals in transit
- reducing the number of animals exported live.

#### 12.1.1 Reducing the effects of live export subsidies

The least-cost way of reducing the externalities of the trade for Western Australian farmers and the WA economy, is to increase the level of substitution between Australian live sheep and Australian processed sheep meat in the major live sheep importing countries. This would require a reduction in the subsidy for live sheep in the Middle East or application of it to both live and process meat products.

A reduction of the subsidies or their application to processed products requires lobbying of the major importing countries (removal of the subsidies is consistent with Australia’s international trading position).

A reduction of the subsidies, and/or their application to processed products, requires Australian governments to lobby the major subsidising importing countries. Lobbying to reduce the distortions of the import subsidies appears to be in the interests of the Western Australian economy and welfare groups if the live sheep are substituted with sheep meat processed in WA. If this substitution is achieved WA farmers may be no worse off if it leads to improved processing efficiencies that they would in part benefit from, and it would lead to a reduction in the reliance on the Middle East market.
12.1.2 Strategies for increasing exports

Diverting sheep meat into other markets (creating demand for WA processed sheep meat) would be another way to reduce the number of sheep exported live at low cost to the economy and farmers. In particular, this would include lobbying to reduce trade barriers for Australian sheep meat exports to Europe and India.

Strategies for increasing sheep meat exports other than through trade negotiations include undertaking more intensive international promotional campaigns and raising international competitiveness through research, development and extension. This involves finding ways to increase the efficient use of water and energy, maximise the recovery of saleable meat and edible offals, and improve working conditions. Other key areas where R&D can help increase competitiveness are: increasing reproductive rates, decreasing mortality rates, reducing age at sale, and lowering the cost of production.

12.1.3 Encouraging investment in modern processing capacity in WA

It is likely that the effects of the Lamb Marketing Board are still being felt in the WA processing sector. IBIS World data suggests that, on average, WA processors are smaller than those in the eastern states. This could in part be due to the WA Governments lamb market intervention. Other possible factors include the geographic spread of sheep production and poor quality roads when the sites for these facilities were being chosen.

Improvements in the efficiency of the WA processing sector will make its meat products more competitive with the live sheep trade, even if the trade distortions remain. An increase in the capacity of one of the second-, third- or fourth-largest processors in WA would enable significant economies of scale to develop. This would reduce processing costs, some of which would be shared (in a competitive market) with sheep producers and consumers, and may translate to increased sales.

Increased processing capacity could also be achieved by investments in research and development by the industry and governments.

Achieving significant scale economies in some of the existing plants would require a considerable level of investment. The ability of the current owners of these facilities to make such investments, particularly with the precarious state of the WA sheep flock, is likely to be seriously limited. This may be particularly so for WAMMCO, which is a cooperative. Some consideration should be given by WAMMCO members to the ability of the cooperative to raise the amount of capital to significantly increase its capacity, and whether their interests as sheep producers may be better served by demutualising and selling
the processing facilities to a well capitalised company. This may even raise the possibility of vertically integrating a portion of the WA processing sector with Middle Eastern processing, wholesaling, distribution, or retailing interests.

At present, WA sheep producers who are members of WAMMCO are potentially seeing their equity in the cooperative being eroded by the subsidies paid to the live export sector by some countries in the Middle East.

However, large investments in processing capacity raises a broader ‘investment sink’ issue if the WA sheep flock continues to decline. Continuation of the live export trade or an increased utilisation of exiting sheep processing capacity would not incur any additional significant investment.

### 12.1.4 Progressive tightening of animal welfare standards

While substitution and trade diversion are policies the Government and farmers could adopt; another is to increase the welfare standards of live exports.

The idea is to progressively tighten animal welfare and safety standards, so that Middle Eastern consumers are confronted with the full cost of the animal welfare concerns of the Australian community. The effect of this policy is that it would become increasingly more expensive to export live sheep (unless buyers in the Middle East are willing to pay a large premium over processed meat for improved animal welfare and safety practices, which appears unlikely).

Progressively increasing welfare standards could be conducted concurrently with substitution strategies, improving processing capacity and efficiency and expanding other sheep meat markets.

Businesses in the live sheep supply chain who can most efficiently improve their animal welfare and safety practices (or who have already adopted good practices), will be able to continue exporting longer than other businesses. This self-selection process ensures economic efficiency.

A drawback of this policy is that it may be difficult for the Australian Government to dictate and enforce animal welfare standards once the sheep are unloaded at the foreign port. Some will also argue that a long sea voyage, across multiple climatic zones, will always be stressful to an animal and inhumane, regardless of how high welfare and safety standards have been set.

### 12.1.5 Market-based allocation of declining export permits

Another method for ceasing live sheep exports over a prescribed period of time is to impose a declining quota on the number of live sheep that can be exported each year.
There are three options for allocating the quota:

- auction off the quota allocations at the beginning of each year
- issue each producer a share of the quota pro-rated to the number of sheep they have as a proportion of the total flock in the State
- issue the quota pro-rated to the historical number of sheep as a proportion of the total number of sheep sold to the market by each farmer, averaged over the last 4 or 5 years.

By providing a mechanism to allocate the quota each year, farmers will have more certainty about how many sheep they can deliver to the market and make production decisions accordingly. The efficiency gains of allocating the quota in this way will need to be compared with the transaction costs associated with each option.

Auctioning off the quotas would allow those producers most reliant on the live export market (or who have the most to lose in the cessation of the export trade) to secure the largest share. This would reduce overall adjustment costs, as the producers with the most to lose would have access to the market for the longest time possible under the phasing-out process.

The net proceeds (after administration costs) of the auction system could be used to assist producers with production adjustments, such as:

- improving pasture management to finish sheep earlier to meet lamb market specifications
- the selection of rams and ewes to meet new market specifications
- improving risk management capability for sheep producers.

The efficiency of the quota allocation process could be improved by making the quotas freely tradable. A producer who has obtained an allocation of the live export sheep quota is then able to sell this quota, or a portion of it, to other producers. This means that:

- If circumstance change, such as seasonal conditions across the State, those producers who will gain more from having access to the market, will seek to buy rights to the market from those who have other marketing options.
- Farmers who can adjust more quickly can sell their quotas to others who will take longer to make the required changes.

Animal welfare groups who believe the phasing-out process is too slow can enter the market and buy quotas, thereby preventing others from exporting sheep.
13  Works Cited


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Works Cited

73
A Overview of the meat processing sector in Australia

A.1 Industry activity and categorisation

A.1.1 Key industry activities

The main activities undertaken by the meat processing industry are:
- animal meat packing and freezing
- animal oils or fats, manufacturing
- beefburgers, frozen, manufacturing (excluding pre-cooked)
- frozen meat manufacturing
- gut materials, hand or machine split, manufacturing (for further processing)
- meat, canned, manufacturing (except bacon or ham)
- meat, dehydrated, manufacturing
- meat extracts or essences, manufacturing
- meat manufacturing (except bacon, ham or poultry, but not canned poultry)
- meat or bone meal, manufacturing (except fish, poultry or whale meal)
- meat packing.

A.1.2 Broad industry categorisation

The output of the meat processing industry in Australia can be broadly classified into:
- beef and veal meat
- lamb and mutton
- pig meat.

The relative importance of the three categories is shown in Figure 24.
According to ABARE projections, Australian meat processors will produce 2.1 million tonnes of beef and veal in 2008-09; lamb and mutton production is forecast to total 604,000 tonnes and pig meat 375,000 tonnes.

### A.2 Industry structure

#### A.2.1 Industry concentration

The Australian meat processing industry is fairly concentrated. In 2008-09, Australia's four largest operators are forecast to account for just under 50 per cent of total market share.

The industry has many larger firms, which dominate the industry. A survey by Meat and Livestock Australia found that in 2007, the top 25 processors in Australia accounted for 79 per cent of total red meat production and the top five red meat processors accounted for about 45 per cent of production. In 2009, with JBS Swift's purchase of Tasman Group Services, the top five processors are estimated to account for 49 per cent of total national production and the top 25 processors 80 per cent of the total. A list of the major sheep meat processors around the country is presented in Table 13.
The industry also includes a fairly large number of small meat processors that reduce the overall level of concentration. Based on data from the ABS Counts of Businesses, about two-thirds of industry players generate turnover below $2 million.

According to IBISWorld, concentration in the industry is rising through closures and acquisitions. There are fewer commercial meat processors and they are serving wider geographic markets. Improvement in transportation methods, ownership consolidation, and the development of extended shelf-life products are enabling manufacturers to reduce costs by centralising production facilities.

### A.2.2 Geographic distribution

While meat processing occurs in all States and Territories, operations tend to be concentrated in the eastern seaboard states of Victoria, New South Wales and Queensland.

The geographic distribution of the Australian meat processing industry is shown in Figure 25. While Victoria and New South Wales are have the largest number of enterprises, Queensland has the largest share of industry turnover (45.3 per cent), followed by New South Wales (24.2 per cent) and Victoria (14.8 per cent).
The location of the sheep flock may have an impact on where red meat processing facilities are located. Sheep farming occurs across Australia, although commercial production is most heavily concentrated in Victoria, New South Wales and Western Australia. There number of sheep or sheep farms in Queensland is small, and there are no sheep or sheep farms in the Northern Territory. This is due to the unsuitable weather conditions in the north of Australia.

Factors influencing the settlement of sheep farming operations include proximity to water supplies, good pastures and livestock markets.

**A.2.3 Competition**

Meat processors compete against one another in all facets of production and sale. Inter-industry competition is typically focused on the areas of price, quality, product innovation, brand promotion, and industry accreditation.

Price plays a critical role in the competitiveness of meat processors. Historically, meat has been portrayed as homogeneous, making price the key tool of comparison between processors. The price of processed meat often reflects conditions in the upstream livestock markets. However, it is also a function of production and marketing costs.

As part of a move away from price-based competition, the industry has been devoting more resources toward brand creation. Reflecting a trend spreading across food industries, processors are working to build strong customer loyalty though promotion and marketing campaigns. Although still in its infancy, meat branding in Australia is beginning to encompass a ‘paddock to plate’ approach.

In the domestic market, Australian processors compete amongst themselves and also against producers of alternative meats. The industry encounters
competition from poultry processors and smallgoods manufacturers and, to a lesser extent, from seafood processors and horticultural producers.

Overseas, the Australian industry competes against other meat processors in export markets. The key factors affecting world demand for meat products are the same as the variables driving domestic demand. In addition, the global market is affected by foreign exchange effects, as well as variances in per capita consumption of meat in other parts of the world.

A.2.4 Barriers to entry

According to IBISWorld, scale is increasingly becoming a barrier to entry in the meat processing industry. As noted previously, the industry is generally characterised by large volume production. Scale economies are particularly important in elementary processing. Many of the basic meat products processed by the industry have low per unit values, so scale economies are crucial in minimising average production costs. Firms wishing to enter the market need to establish production of similar scale to compete effectively against existing low-cost producers.

Establishment costs can also be prohibitive. Meat processing can be capital intensive, especially for high value-added processing. This can require large upfront investment in plant and machinery that often represent sunk costs. Establishment costs are further inflated by the need to establish large-scale production facilities. Moreover, greater mechanisation within the industry is raising the necessary levels of capital investment, as the industry tries to reduce its reliance on labour.

Barriers to entry are generally higher for the export segment of the industry than for the domestic segment, owing to the difficulty in obtaining an export licence. However, a proposed new Australian standard, that will become a base model for meat production, will provide domestic abattoirs with a simplified regulatory regime for, and enhanced ability to increase, exports.

To export meat from Australia, companies must obtain an export licence and are subject to inspections by the Australian Quarantine Inspection Service. Since 2002, domestic abattoirs have won the right to obtain limited export licenses. The development of the standard significantly reduces red tape and improves the flexibility and returns of abattoirs in the export of offal cuts. However, the system does not include markets such as the US and the European Union, which have their own strict requirements for the supply of beef and lamb. Australian abattoirs targeting these markets need to be rated above the proposed Australian standard.
A.3 Industry performance and growth

In the last five years, the Australian meat processing industry’s revenues have fluctuated between $12.80 billion and $13.28 billion (see Figure 26). Industry Gross Product (value added) has fluctuated between $1.85 billion and $2.14 billion, while exports have varied between $7.75 billion and $9.21 billion.

Figure 26 Industry revenue, value added and exports, 2004-05 to 2008-09 (forecast)

The level of employment in the meat processing industry in the last five years is shown in Figure 27. Employment rose between 2004-05 and 2006-07, before declining in the last two years.

Data source: IBISWorld
The meat processing industry has experienced volatile conditions over the five years, as can be seen in Figure 28. In two of the five years, the industry experienced declines in industry revenue, Industry Gross Product (value-added) and exports.
A.4  Cost structure

According to IBISWorld, production costs vary widely across the Australian meat processing industry. Production costs are partly a function of size. Larger meat processors have the greatest total costs but tend to have the lowest average unit costs. These establishments benefit from cost savings created through economies of scale in production. IBISWorld believes that the average size of meat processors is rising over time – although the number of establishments has declined at a moderate rate per annum over the past five years, the volume of output has increased. A rising average size of meat processors will put downward pressure on per unit costs over time. Other factors, such as the introduction of new technology, will also contribute to downward cost pressure.

However, meat processing costs in Australia are still high by world standards. On average, it costs $12 to slaughter a lamb in Australia. In comparison, the average cost in New Zealand is $8.40. Significant cost differentials between Australian and foreign processors are due to local inefficiency and the limited presence of scale economies in the local industry. In most cases, Australian abattoirs operated on a single-shift schedule instead of double-shifts like overseas processors.

For the average processor, purchases are the greatest cost, accounting for approximately 66.5 per cent of the total budget (see Figure 26). Within purchases, material inputs like livestock are the biggest cost items.

Figure 29  Cost structure of an average firm in the meat processing industry

Data source: (IBIS World, 2009)
Expenditure on sheep, beef and pigs is a function of the sale yard price of livestock. Moreover, the supply of animals for slaughter reflects changing relative market prospects for livestock and other agricultural products. Other significant expenses include inspection costs, packaging materials and ingredients like salt, preservatives, and spices.

Historically, the industry has also incurred substantial labour costs. Studies by the Productivity Commission reveal that high labour costs are attributed to low labour productivity. Wages, as a share of income, tend to be highest for small processors, who are typically less automated. Ongoing industrial disputes between workers and management have also inflated costs over the years.